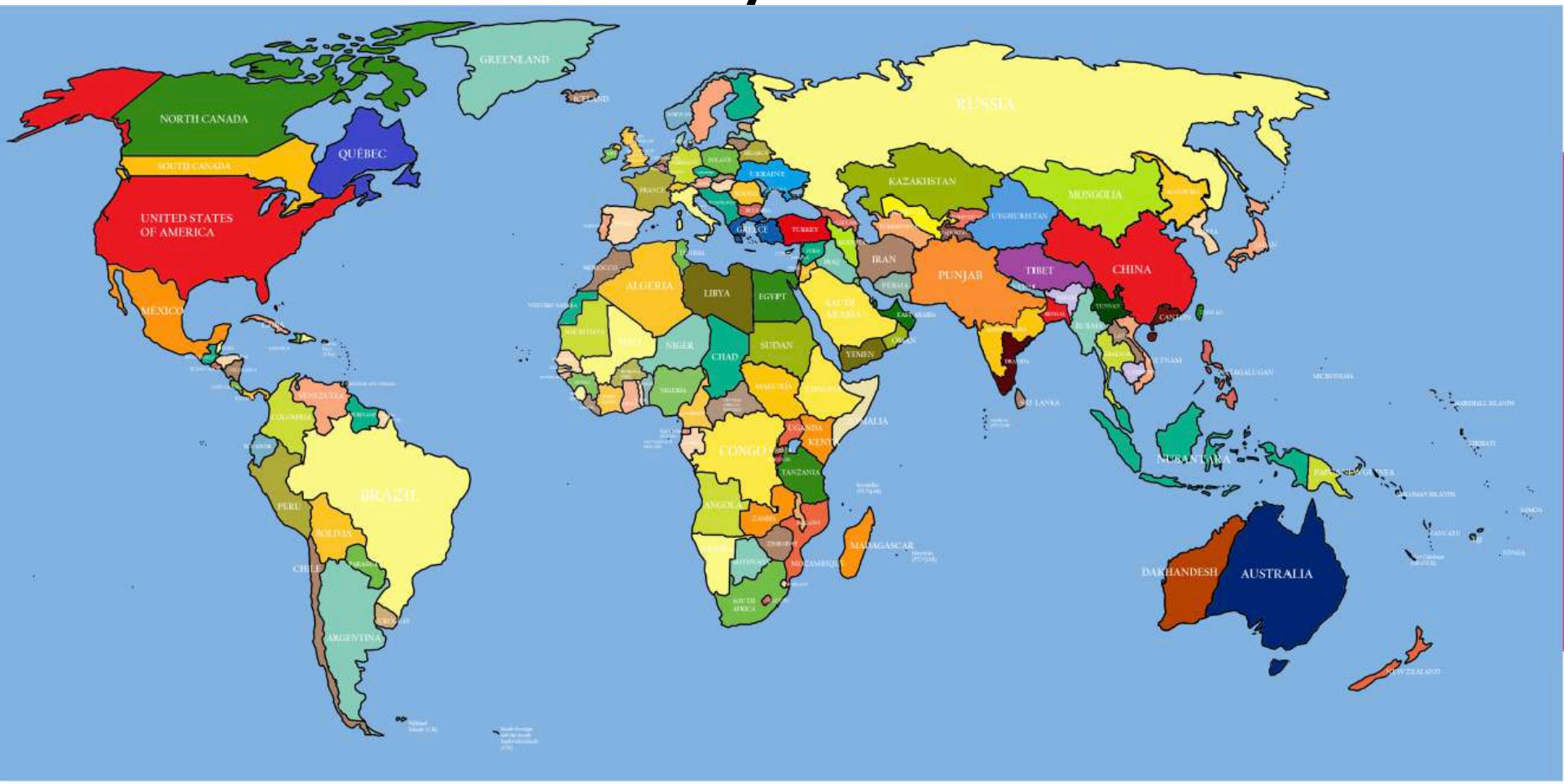
# Social Analytics for BI

## PART A

# Volume

- Coverage:
  - Millions of enthusiast forums
  - Tens of millions of blogs and news sites
  - Numerous video sites
  - Hundreds of review sites (all vertical markets)
  - Specialty microblogs (i.e. Sina Weibo)
- Hundreds of millions of new conversations regularly added to the index
- Billions of conversations accessible about any topic imaginable

# How many countries?




45 languages 196 countries

# Fastets growing countries

China

SE Asia

Russia

Europe

Brazil

Africa

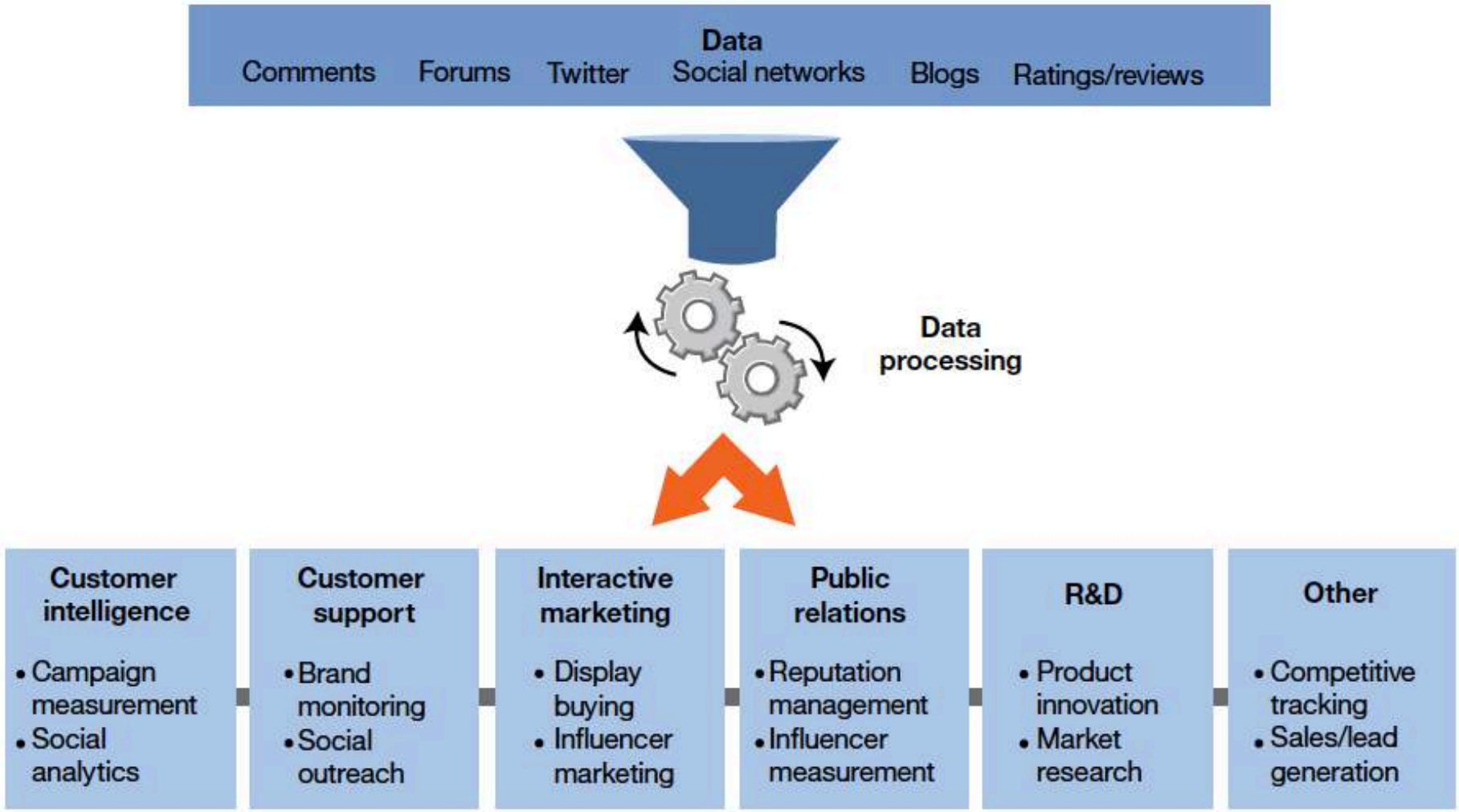
# How fast?

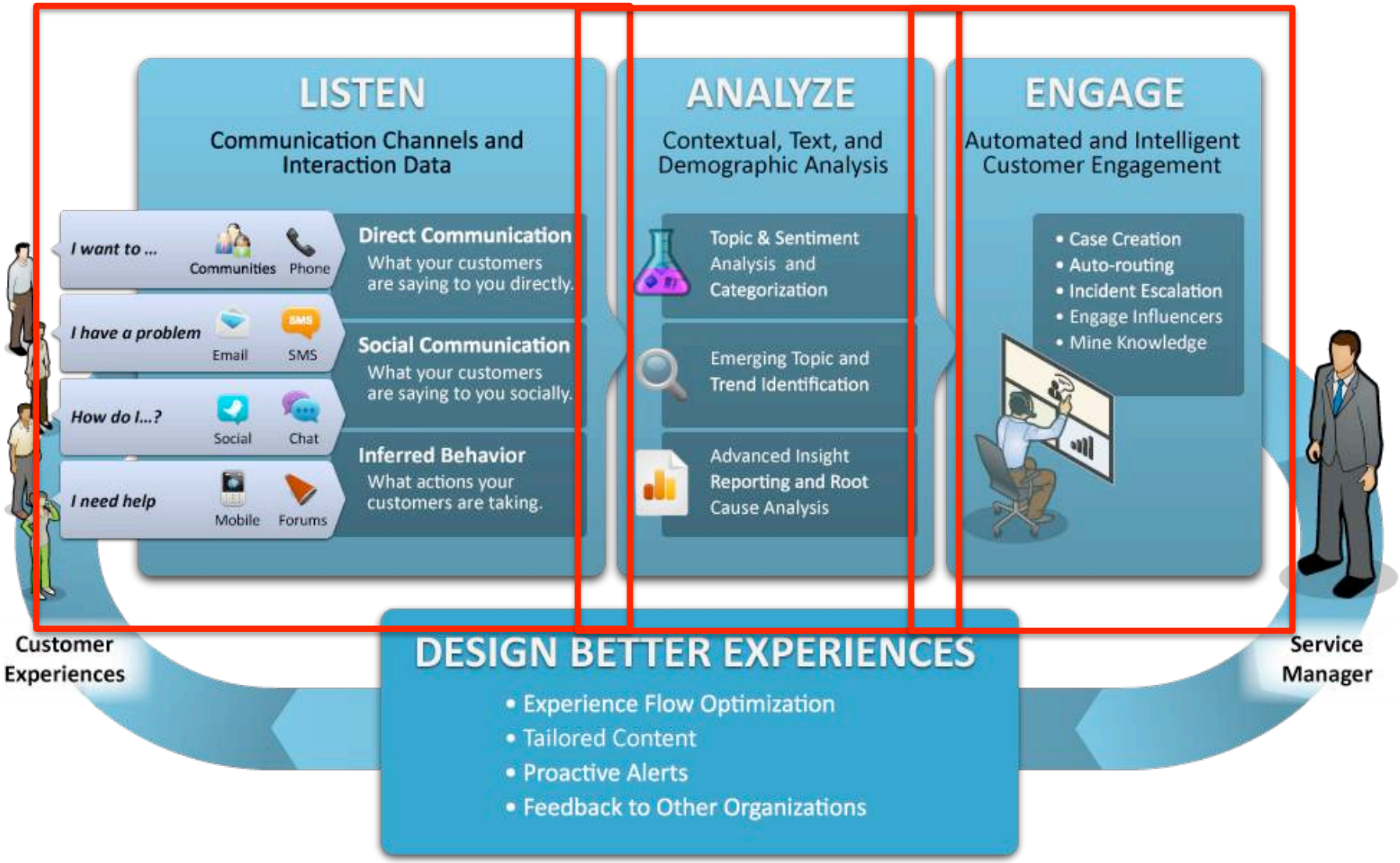
- Depends on the type of site
  - Many are real-time (within minutes of being posted)
  - Some are “near real-time” (within 24 hours of being posted)
  - Some are longer due to site restrictions
- But in all cases, data is available to help determine instant trending and deeper, longer term analytics

# How long?

- If something is free, you are the product
- What happens on the Internet, stays on the Internet, FOREVER
- Somebody is always trying to figure out who you are, what you do, and what your future might hold, for whatever reason they desire, irrelevant of what you want them to know

**“Watch what you put online”**


Data
Comments
Forums
Twitter
Social networks
Blogs
Ratings/reviews
Data processing
Customer intelligence
• Campaign measurement
• Social analytics
Customer support
• Brand monitoring
• Social outreach
Interactive marketing
• Display buying
• Influencer marketing
Public relations
• Reputation management
• Influencer measurement
R&D
• Product innovation
• Market research
Other
• Competitive tracking
• Sales/lead generation


LISTEN
Communication Channels and Interaction Data
I want to ...
Communities
Phone
Direct Communication
What your customers are saying to you directly.
I have a problem
Email
SMS
Social Communication
What your customers are saying to you socially.
How do I...?
Social
Chat
Inferred Behavior
What actions your customers are taking.
I need help
Mobile
Forums
ANALYZE
Contextual, Text, and Demographic Analysis
Topic & Sentiment Analysis and Categorization
Emerging Topic and Trend Identification
Advanced Insight Reporting and Root Cause Analysis
ENGAGE
Automated and Intelligent Customer Engagement
• Case Creation
• Auto-routing
• Incident Escalation
• Engage Influencers
• Mine Knowledge
Customer Experiences
Service Manager
DESIGN BETTER EXPERIENCES
• Experience Flow Optimization
• Tailored Content
• Proactive Alerts
• Feedback to Other Organizations

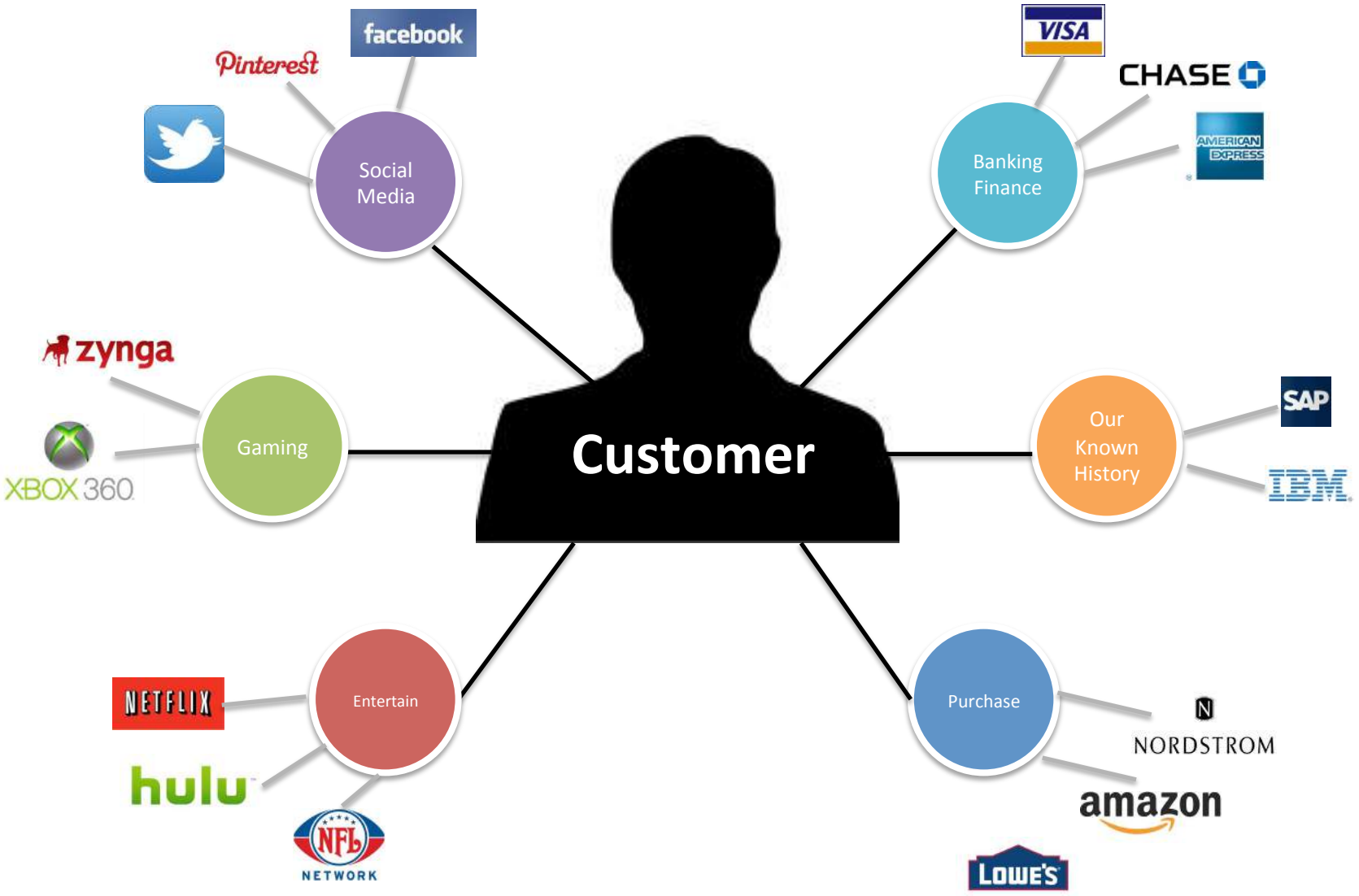
# Social Media and its impact

- Social networking, blogging, and online forums have turned the Web into a vast repository of comments on many topics, generating a potential source of information for:
  - social science research
  - market and politics forecasts
  - syndromic surveillance
  - information warfare
  - new opportunities for media communication

# Social media revolution

- Changing the way individuals and organizations engage, interact and collaborate
- New opportunities for real time analysis and predictive analytics creating insight from more and more data
- Appealing for business, public bodies and scientists (both ICT and  social scientists)

# A Single View to the Customer

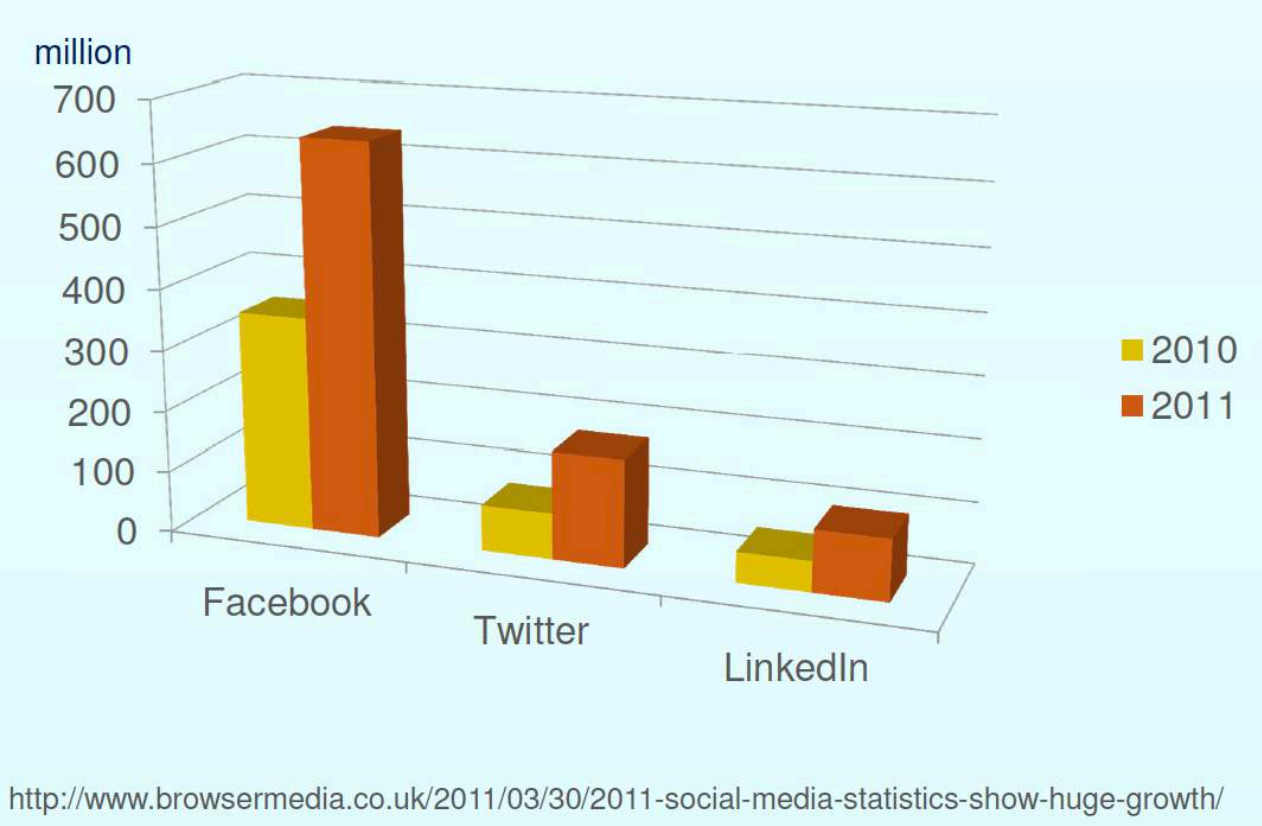


# Social Analytics Applications

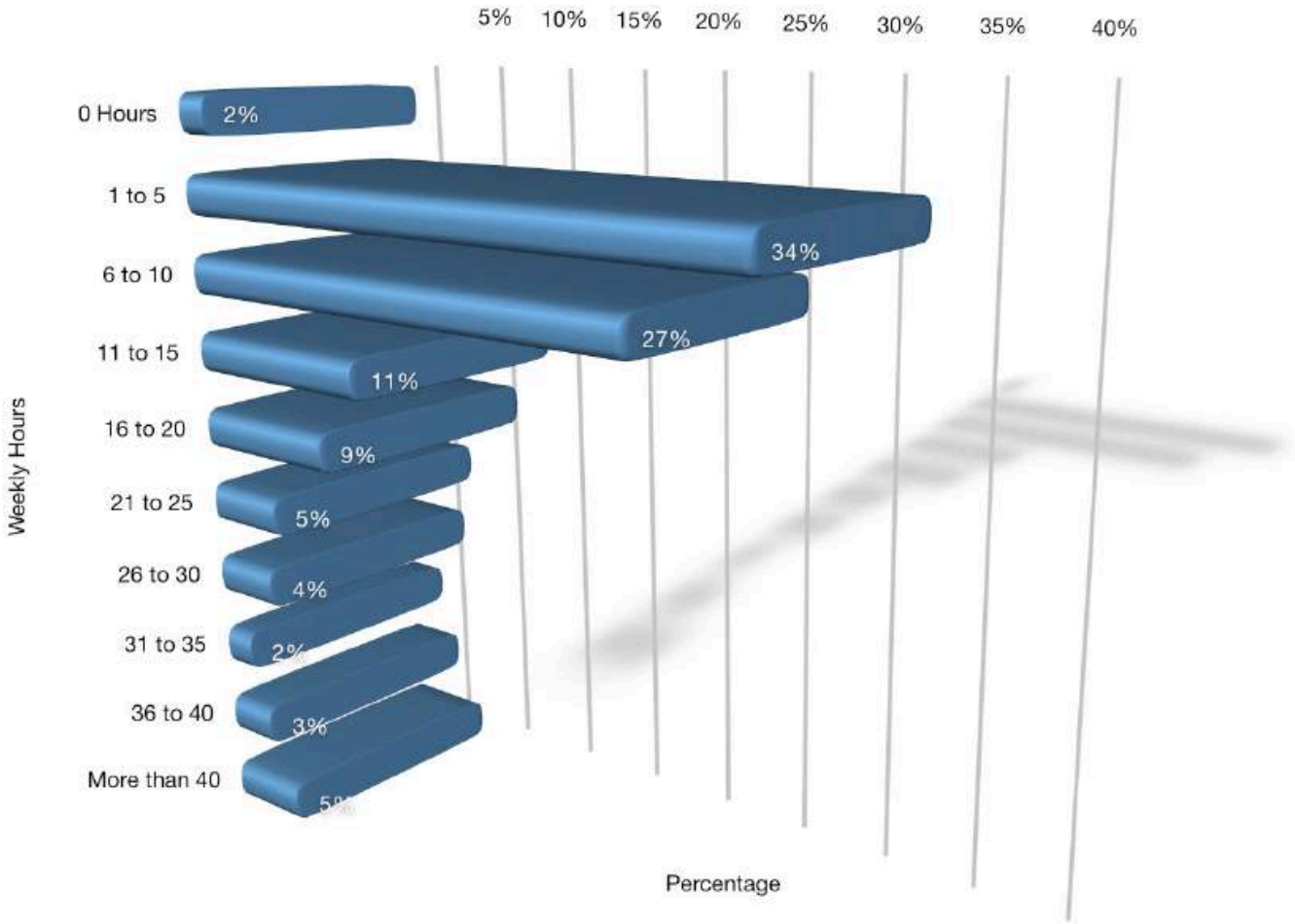
- Brand Monitoring - Track everything important to your brand in real-time
- Sentiment and Reputation Analysis - Understand what people really think about your brand
- Twitter and Influencer Analysis - Find out who key influencers are and what they're saying
- Campaign Management - Track campaign results and get alerted when anything important happens
- Trend Hunting - Spot trends and tendencies the moment they're born
- Mobile Management - Manage your brand and even read articles offline on your iPhone, iPad, Android or mobile device

# How big is “social media”?

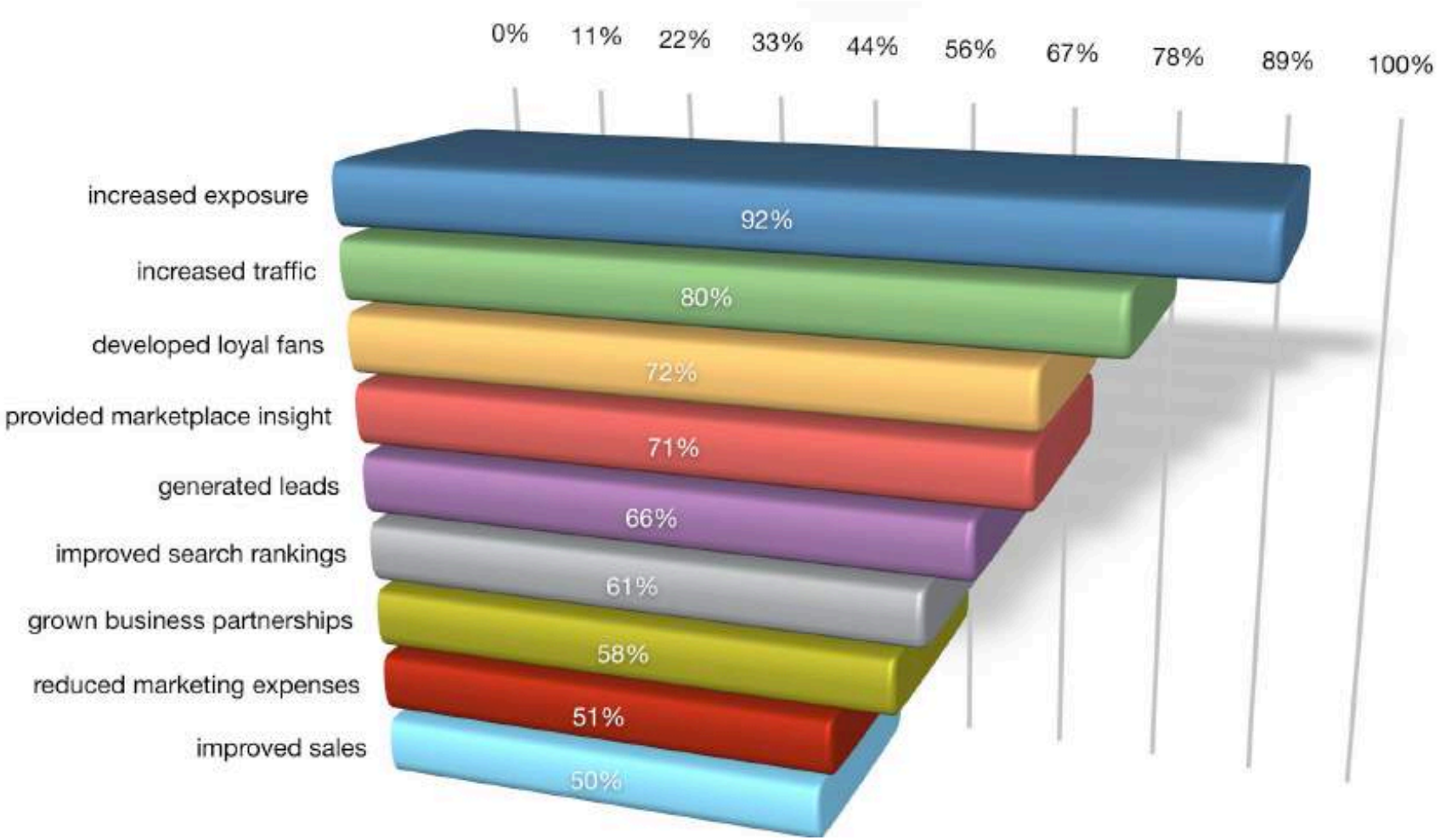
- **72% of Internet users** are part of at least one social network, which translates to **940** million users worldwide



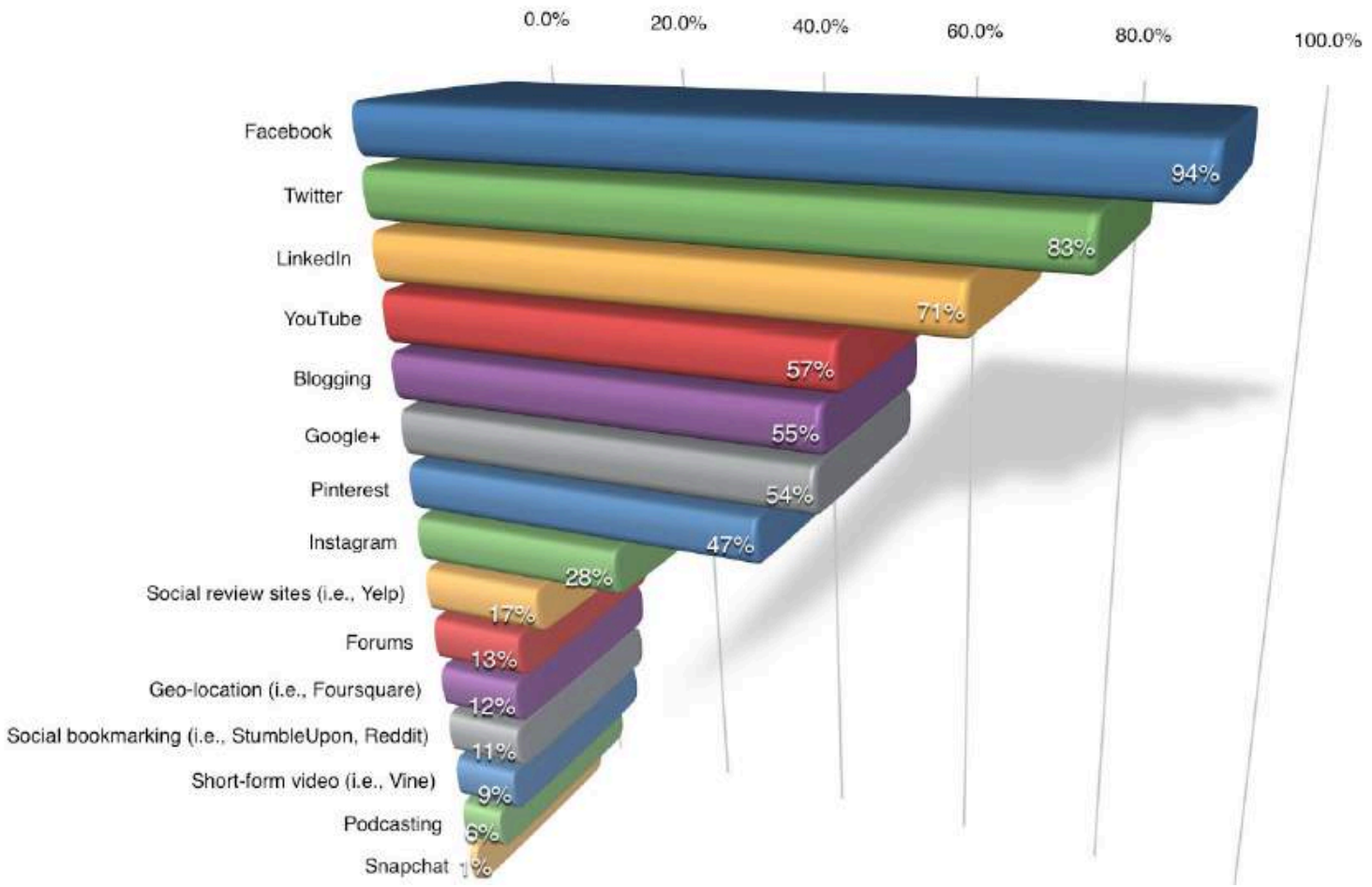
# 64% of marketers use social media more than 6 hours weekly



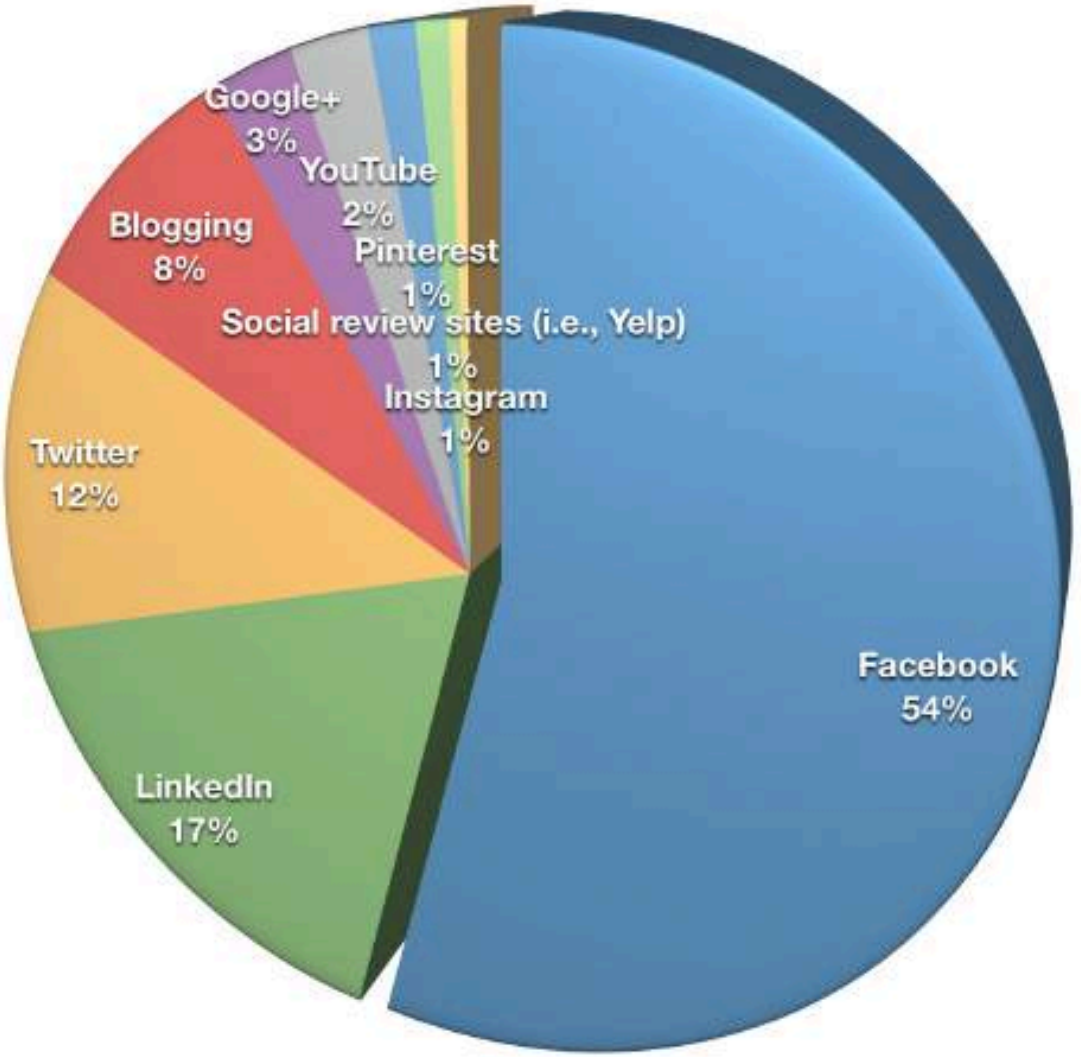
# Benefits of social marketing



# Commonly used social platforms



# The most important platform for marketers is..



# Impact on common users

- **“Only 14% of people trust advertisers yet 78% of consumers trust peer recommendations.”**

  Erik Qualman’s book “Socialnomics”, 2009

# Impact of Social Media

# Impact of Social media

- Why are social networks and social analytics important for media, business and public bodies?
- **“If you wish to persuade me, you must think my thoughts, feel my feelings, and speak my words.” (Tullius Marcus Cicero)**
- Social media are the new data source to better engage audience/ customers /citizens

# Impact of Social Media on Products

- General Motors cancels '*Hideous*' Buick SUV after "*Would-Be Customers*" on Twitter!
- ONE week after announcing a new Buick SUV Christopher Barger, GM's spokesman for social media said: "*The decision was based on customers' input - face-to-face, blogs and tweets. No matter how they expressed it "they just didn't like it*."

http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aHsoNjdHUQLY

# Impact of Social Media on Products

- Del Monte created a new "hot-selling" dog food snack in 6 weeks
- Used a social community to *source for creative ideas (crowdsourcing)* and create a new product
- Demonstrates the potential power of social media marketing to influence product sales

http://www.youtube.com/watch?v=yP_3bpCPZaQ

# Impact of Social Media on Organisations

**Nestlé vs Greenpeace Palm Oil from Destroyed Rainforest**

- Nestlé, maker of Kit Kat, uses palm oil from companies that are trashing Indonesian rainforests, threatening the livelihoods of local people and pushing orang-utans towards extinction.
- Nestlé persuaded YouTube to remove Greenpeace's video
- Storm ensued on Nestlé Facebook page
- TWO months later, Nestlé announced a "zero deforestation" policy in partnership with The Forest Trust (TFT)

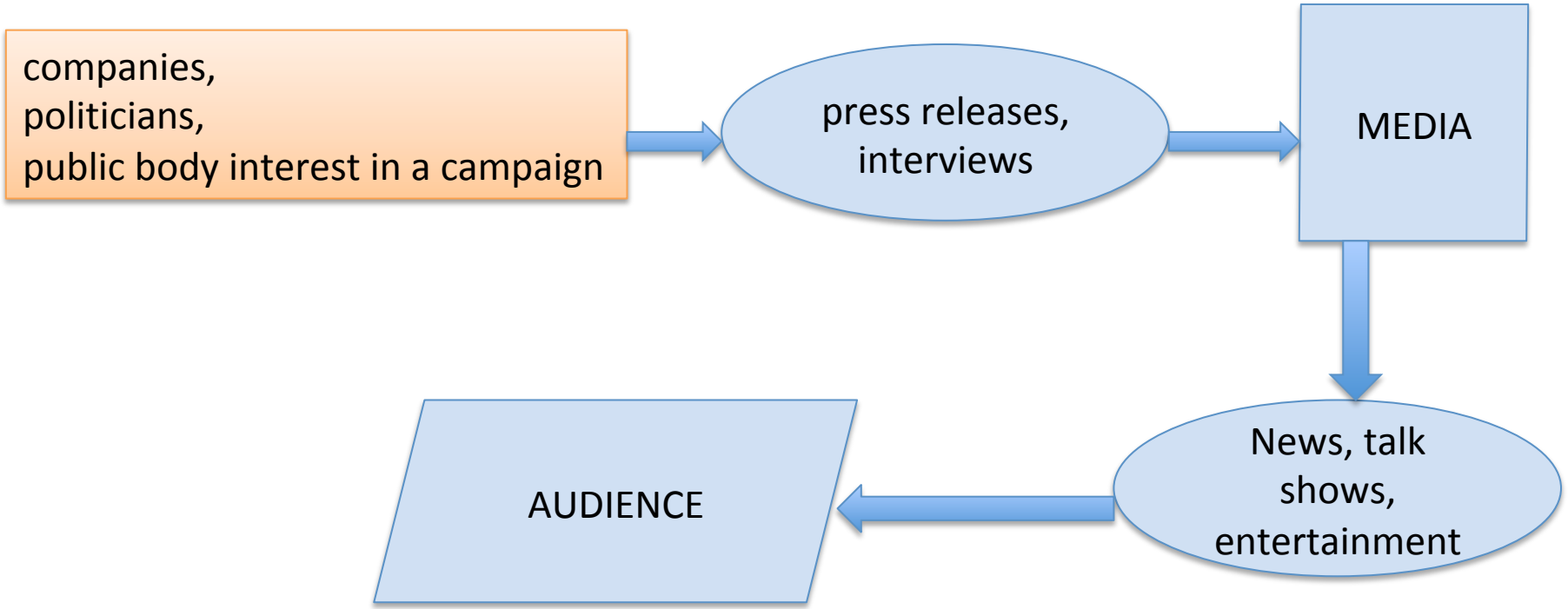
"*Social media: as you can see we're learning as we go. Thanks for the comments*."

# Impact of Social Media on Government

**25th Jan 2011 Egypt Blocked Twitter and Facebook!**

*Egyptian protesters have openly thanked social media's role in the revolution against the country's ruling government.*

# Social Networks also impact on media and communication




**Traditional method to reach audience**

# The social media revolution

**Oscar Giannino xFARE** @gianninoxFARE
Nuntio vobis magnum gaudium: Stasera habemus @oGiannino a #ballarò

companies,
politicians,
public body interest in a campaign

press releases,
interviews

MEDIA

**panorao** @PanOrao 11m
Ma #Ballarò va in onda per due settimane sia martedì che domenica?
...ci vuole proprio sterminare #Floris.

twitter, social media, web sites

**AUDIENCE**

News, talk shows, entertainment

**Ufficio Stampa Rai** @stampauffrai 2h
Questa sera a #Ballarò Roberto Maroni, Luigi De Magistris, Oscar Giannino e un'intervista a Silvio Berlusconi ufficiostampa.rai.it /comunicati_tv/…

# The ICT revolution and new media

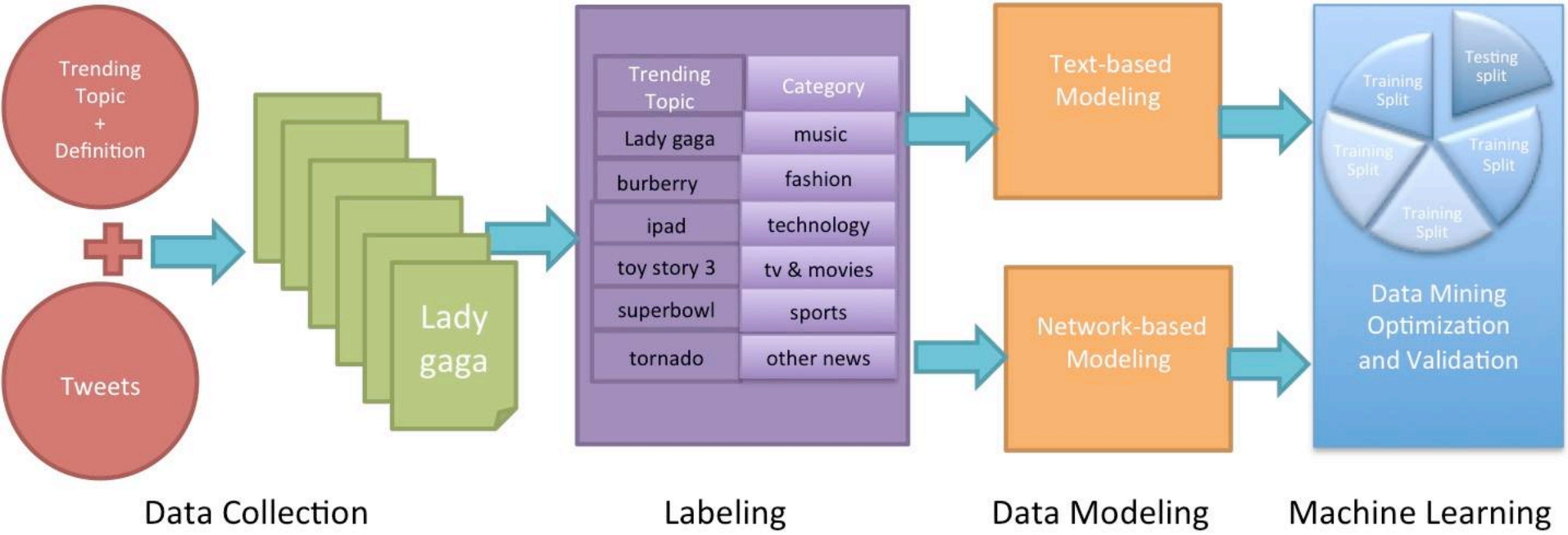
- news media, websites, social media and Twitter can be used by audiences, but also by stakeholders and the media **(#partitodemocratico, #ballarò,..)**
- Audience members can publish their opinions in the new media but are also **influenced themselves** by opinions of others in the new media

**Marco Hanaman** @Fare2013Hanaman
«La nostra risposta a Berlusconi è semplice: per noi i voti inutili e dannosi sono quelli a lui, al **Pd** e a Monti» #Fare2013 #OGiannino

# Social mining: extracting information and knowledge from social networks data

- What kind of  data?
- Network-based:
  - **Meta-data**: user profiles, friendship information, likes, follows, mentions,..
  - **Graph structures**: social relationships (friendship, messaging, collaboration..) between entities (individuals, organizations)
- Text-based:
  - **Conversational structures**: emails, threads, messages (tweets)
- **Meta data and network data are structured information,  conversations are unstructured (TEXT!!)**

# Extracting Social Network data for BI: workflow



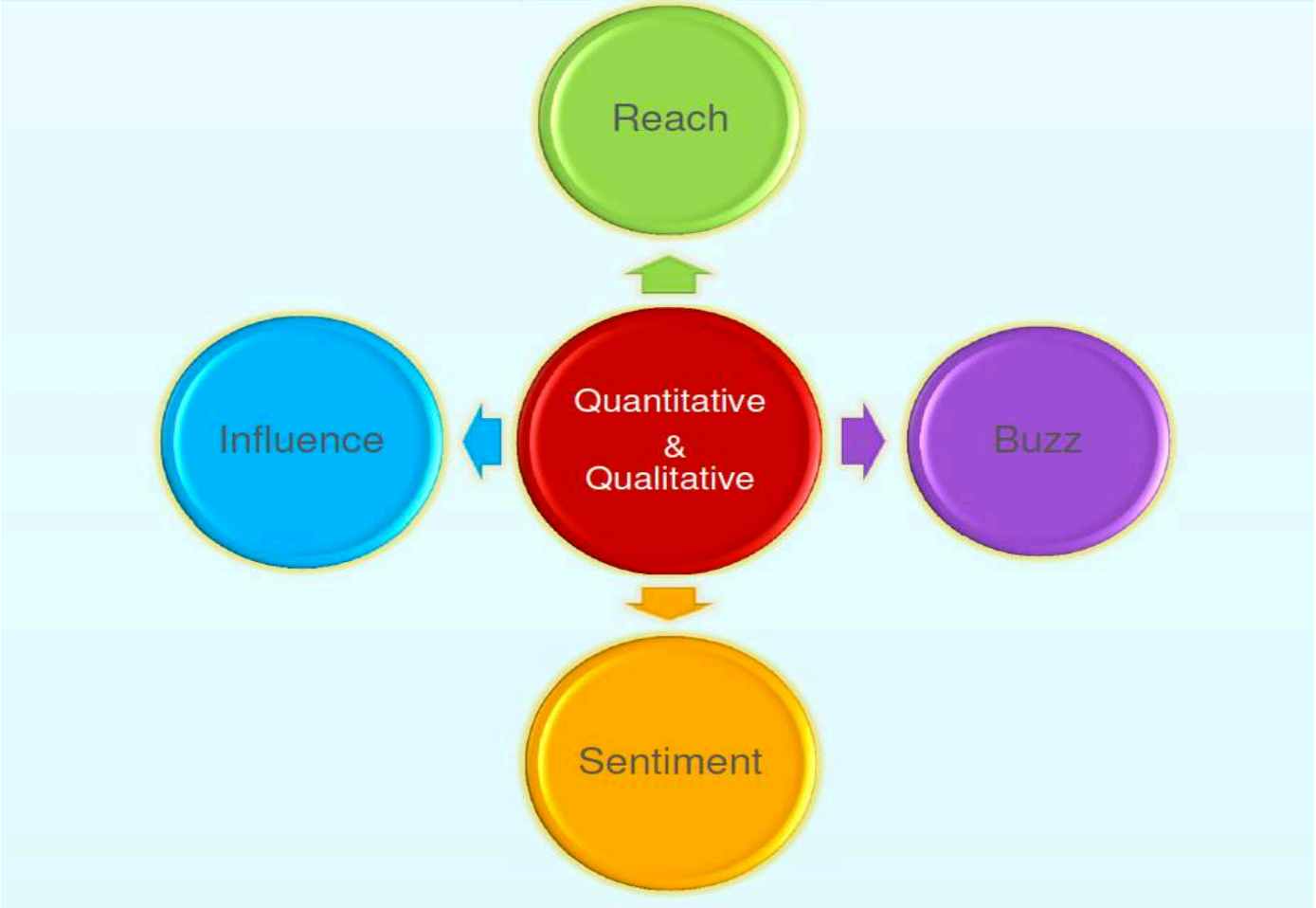

Two types of data: network-based and text-based

# Network-based data

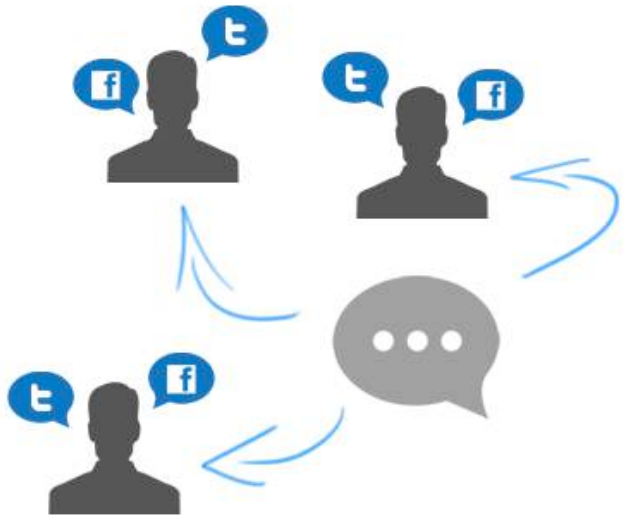
- **Surface Measures (meta-data)**: Based on some properties of specific nodes
- **Graph-based measures**: Based on the graph-structure of the network

# Measuring properties of individual nodes (users, web pages..)

## Key measurement goals



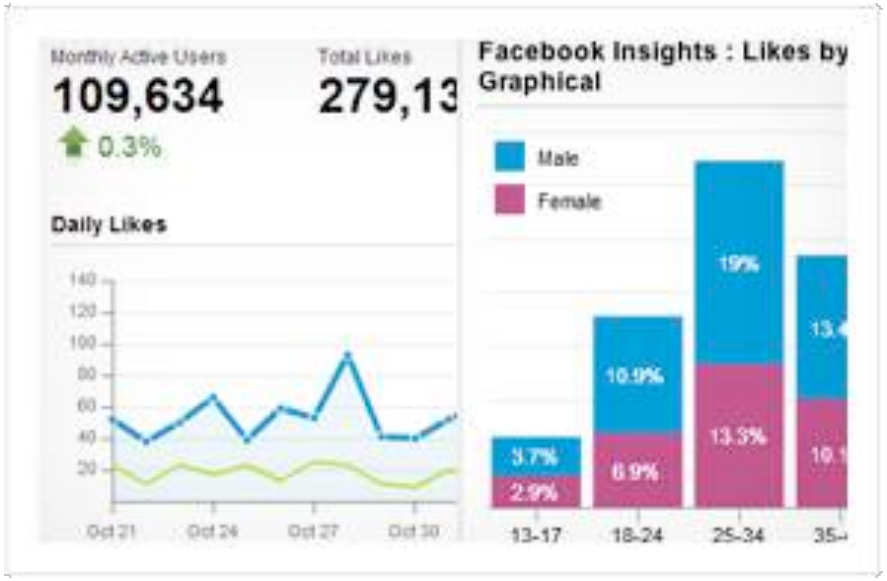
# 1. Reach



1. **Reach**
2. Buzz
3. Influence
4. Sentiment

- Reach
  - Size of your audience
  - How many saw your message
    - E.g. Twitter followers
    - Facebook posts (“seen by..”

# Reach: Facebook Insights




Monitor and measure your fans, likes, comments and page activity

# Reach: Google Analytics

http://www.google.com/analytics/

With Google Analytics tool, you can monitor accesses **on your web page**.
Drill down into site traffic data including source, and region.
View sparklines for page views, bounce rates and more.

www.studiareinformatica.it

Panoramica

Visite e Seleziona una metrica

Ora | Giorno | Settimana | Mese

**24.556 persone hanno visitato questo sito**

- **Visite: 60.545**
- **Visitatori unici: 24.556**
- **Visualizzazioni di pagina: 184.624**
- **Pagine/visita: 3,05**
- **Durata media visita: 00:02:50**
- **Frequenza di rimbalzo: 40,35%**
- **% nuove visite: 37,39%**

**62,55% Returning Visitor**
37.872 Visite

**37,45% New Visitor**
22.673 Visite

**Dati demografici**

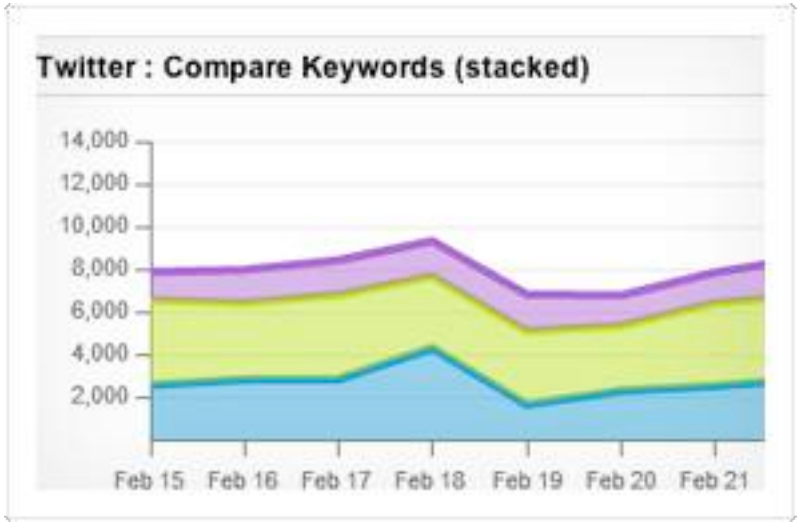
- Lingua
- Paese/zona
- Città

**Sistema**

| | Lingua | Visite | % Visite |
|---|---|---|---|
| 1. | it | 28.416 | 46,93% |
| 2. | it-it | 24.352 | 40,22% |
| 3. | en-us | 5.045 | 8,33% |
| 4. | en | 1.844 | 3,05% |

# Reach: Twitter Profile statistics

- Track the number of followers, mentions, lists..
- Do more by comparing keywords over time and Twitter sentiment.



http://www.tweetstats.com/

# Measures of Social Reach

- Social reach: #total followers across all social platforms
- Growth: month-over-month social reach growth
- Engagement=

$$\frac{\#\text{ Likes} + \#\text{ Shares} + \#\text{ Retweets} + \#\text{ blog comments}}{\#\text{ of published posts or pieces of content}}$$

# 2. Buzz

1. Reach
2. Buzz
3. Influence
4. Sentiment

- **Social Buzz** is the “amplification” of a topic/message through social media: what are people saying about you, where are they saying it, how are they saying it
  - 2 types:
  - Conversation Focus (@RP ➔ reply) vs. Content Focus (#hashtag➔ topic)
- Mining **motivations** (text), in addition to data, as a way to understand an audience (either customers, voters, patients, or addressee of a campaign), is an entirely new approach to social analysis (e.g. opinions on #topic).

# Buzz Metrics

- Buzz metrics tool around the online social media elements related to the two U.S. Presidential candidates in 2012.

- Based on three measures:
  - **bookmarking,**
  - **social networking,**
  - **social knowledge**

# Buzz metrics: Bookmarking

- **Bookmarking**:  Social bookmarking relates to social media websites such as Digg, Del.icio.us, and Reddit. Users submit links to these websites that are of interest to them and other users vote on particular submissions of interest in order to increase their popularity.
- So if you want to rise attention on a topic, you place content on these websites and then measure the reaction (buzz around the topic)

# Bookmarking measures example (DIGG)

BAD BAD, OR JUST TEMPORARY BAD?

## What The Heck Is Going On With The Stock Market?

digg Digg Oct 11 2018, 5:43 PM

There's a good chance you've tuned out the stock market lately — the gains have been sustained and stable for a while now. But something's gone haywire this week, which you probably noticed if you did glance at the stock charts:

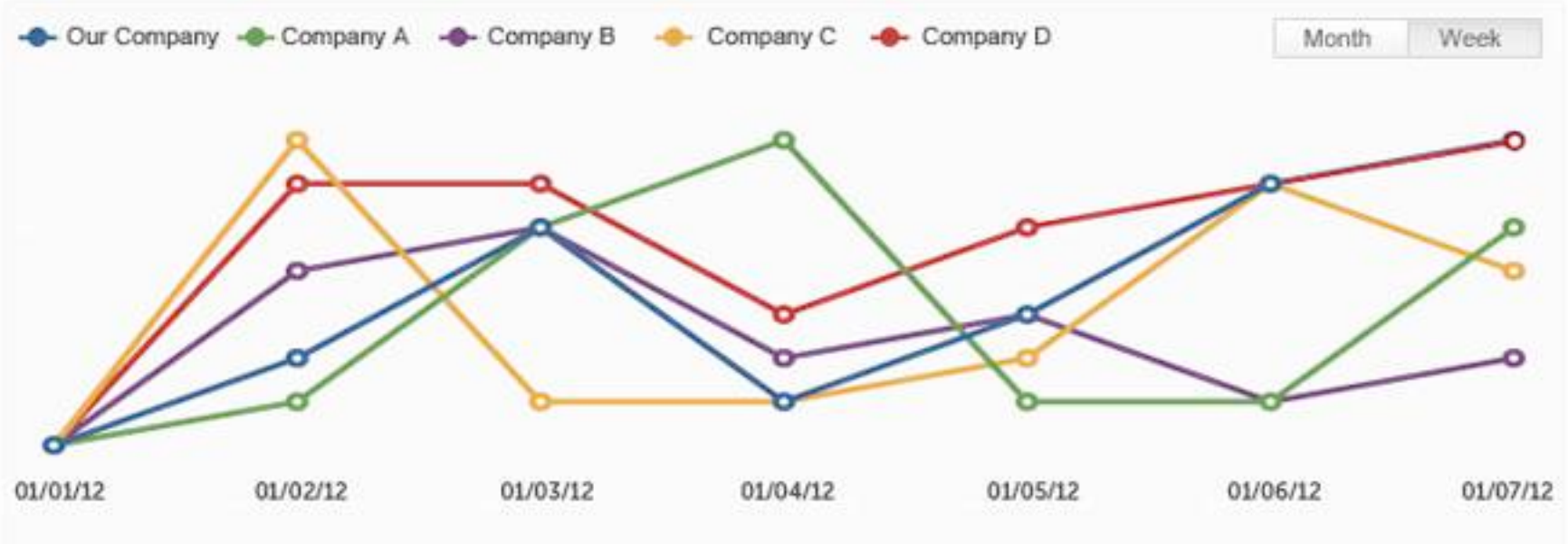
#People who like the post, #people who comment the post

# Buzz metrics: social networking

- **Social Networking**: Social Networking refers to “communities” such as MySpace, Facebook, and Friendster.
- **Example: mentioning of company (or topic of your interest, or person)** on a Facebook community.

# Social Networking example

# Comparative social networking

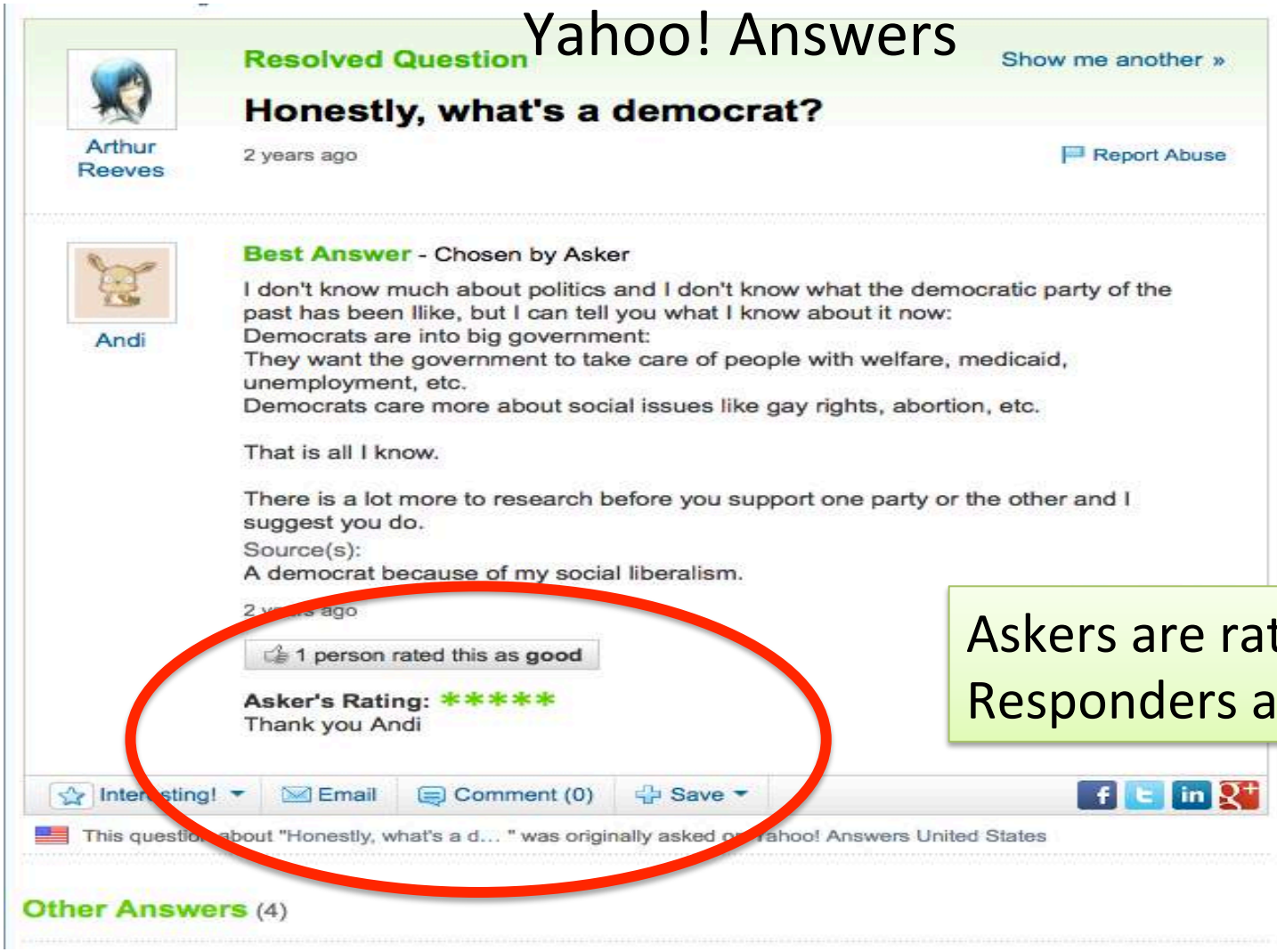



How does the conversation about your brand compare to conversations about your competitors?

# Buzz metrics: social knowledge

- **Social Knowledge**: Social Knowledge refers to **informational based websites** such as "Yahoo! Answers" and "Wikipedia".
- Buzz is calculated differently on each of these websites.

# Social Knowledge example

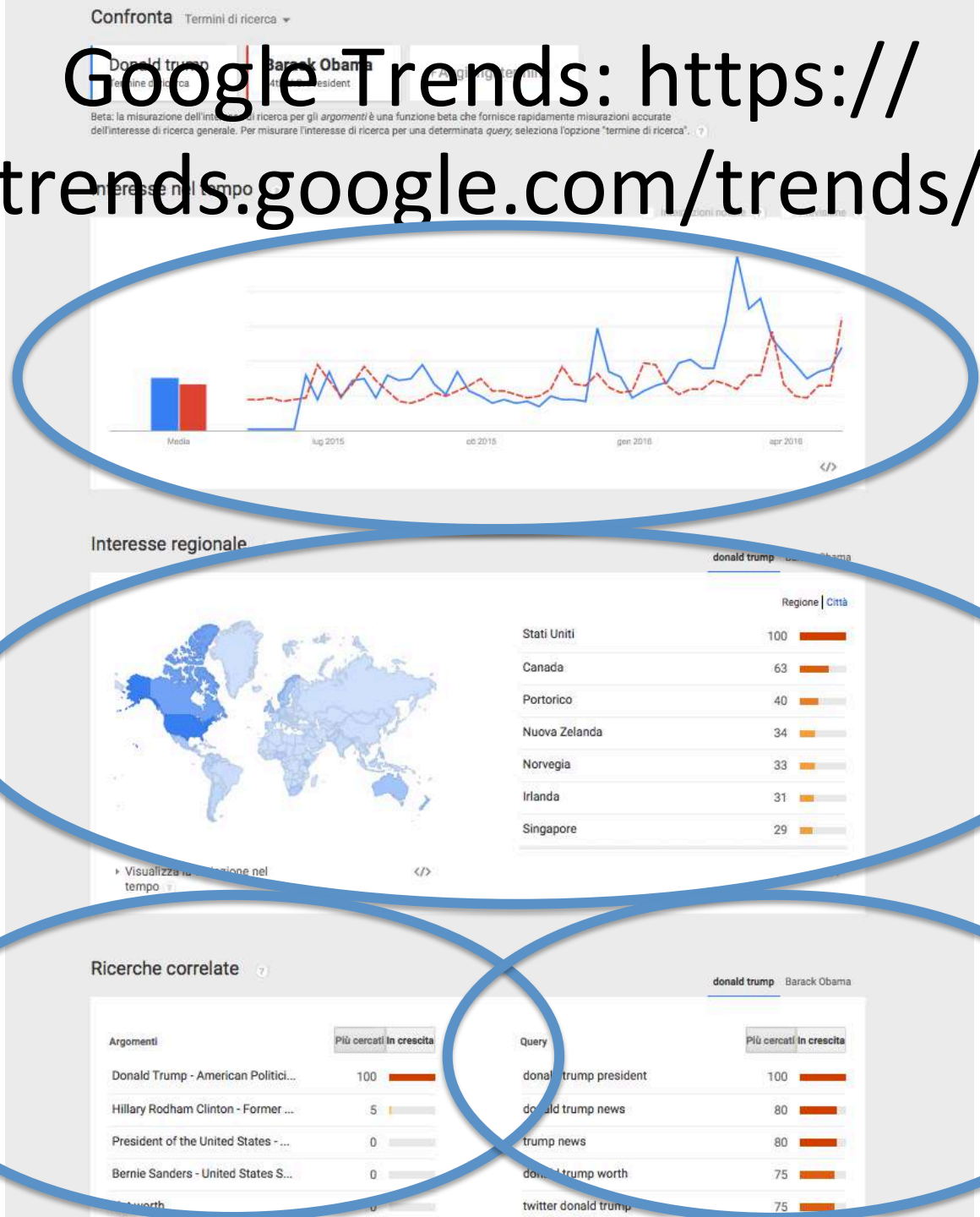



Askers are rated,
Responders are rated

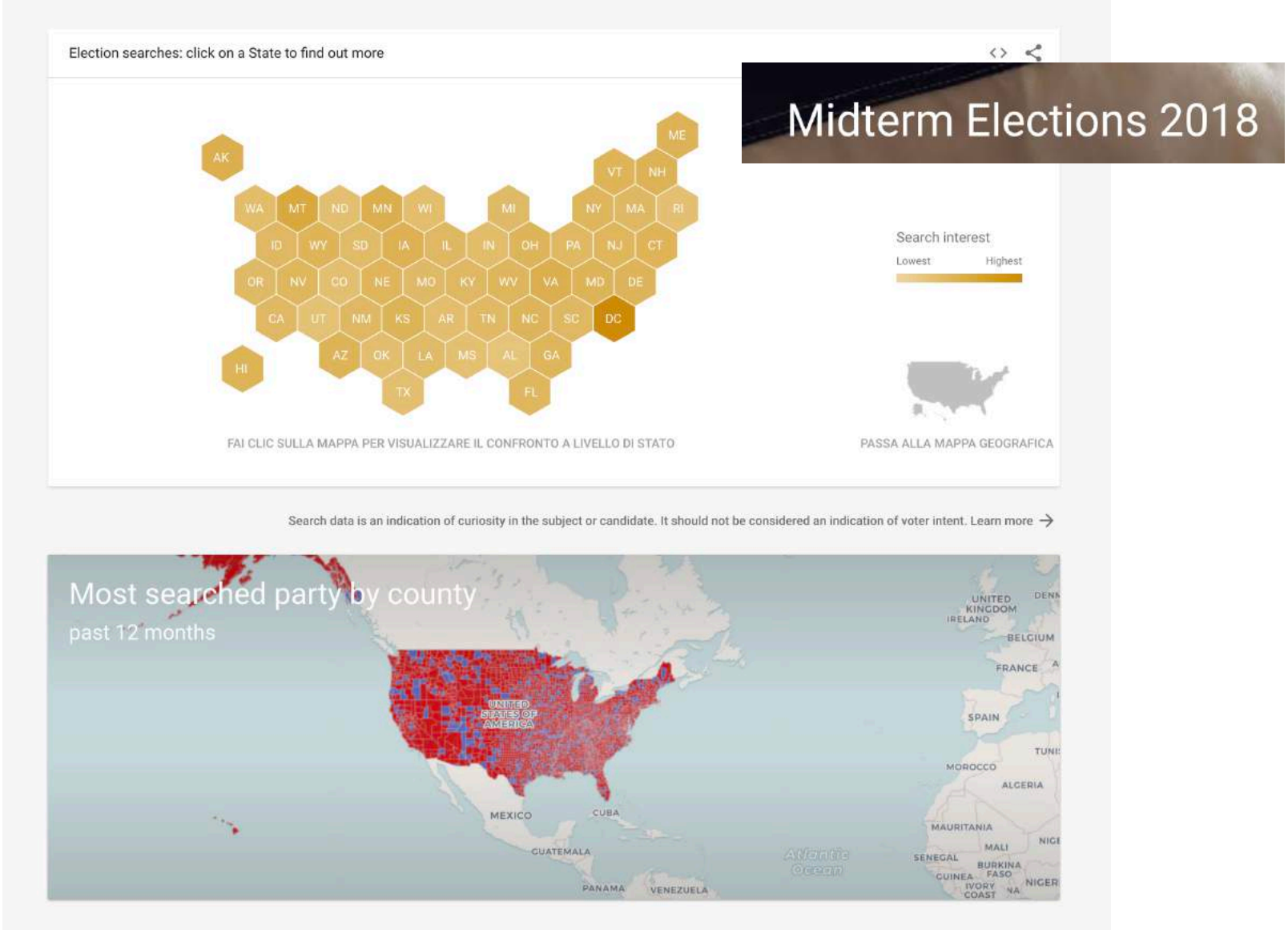
# Buzz Metrics: trending topics

- Trending topics: what (most) people is talking about on the web. Can be detected by analyzing “patterns of attentions” e.g. temporal sequences of words in messages or in users’ queries that show a “bursty” behaviour

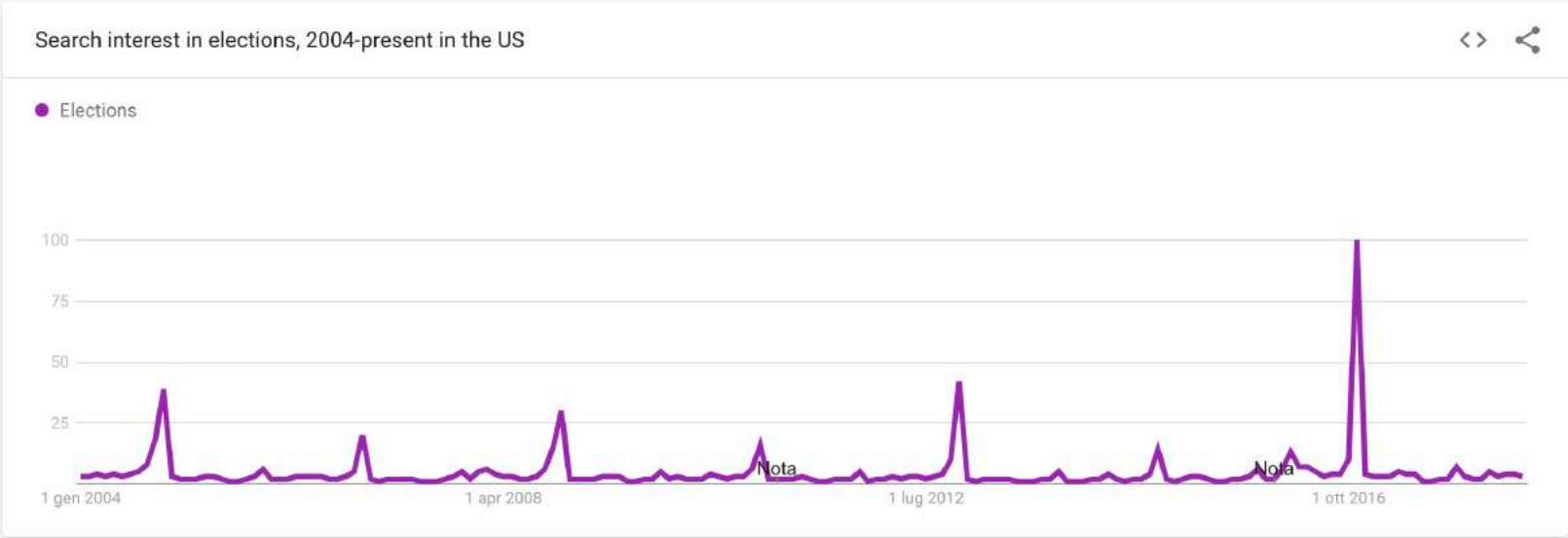
# Google Trends: https://trends.google.com/trends/

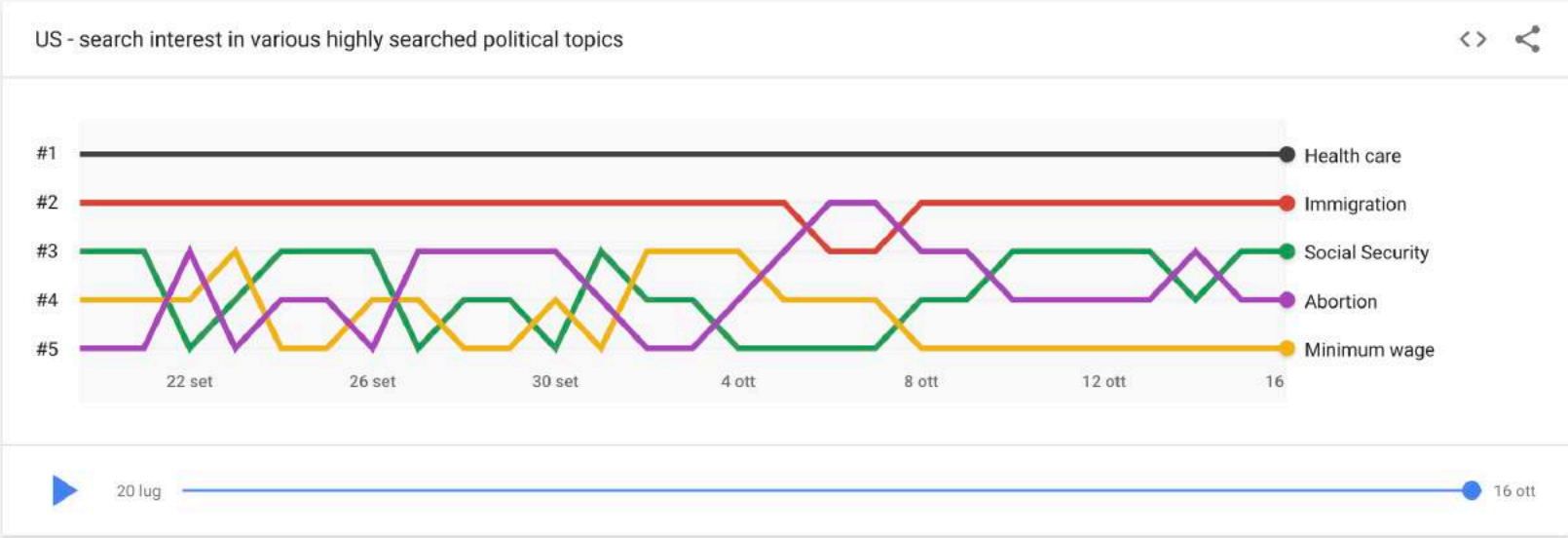


# Google Trens: Very helpful visualization of world-wide or local search behaviours on your topics of interest

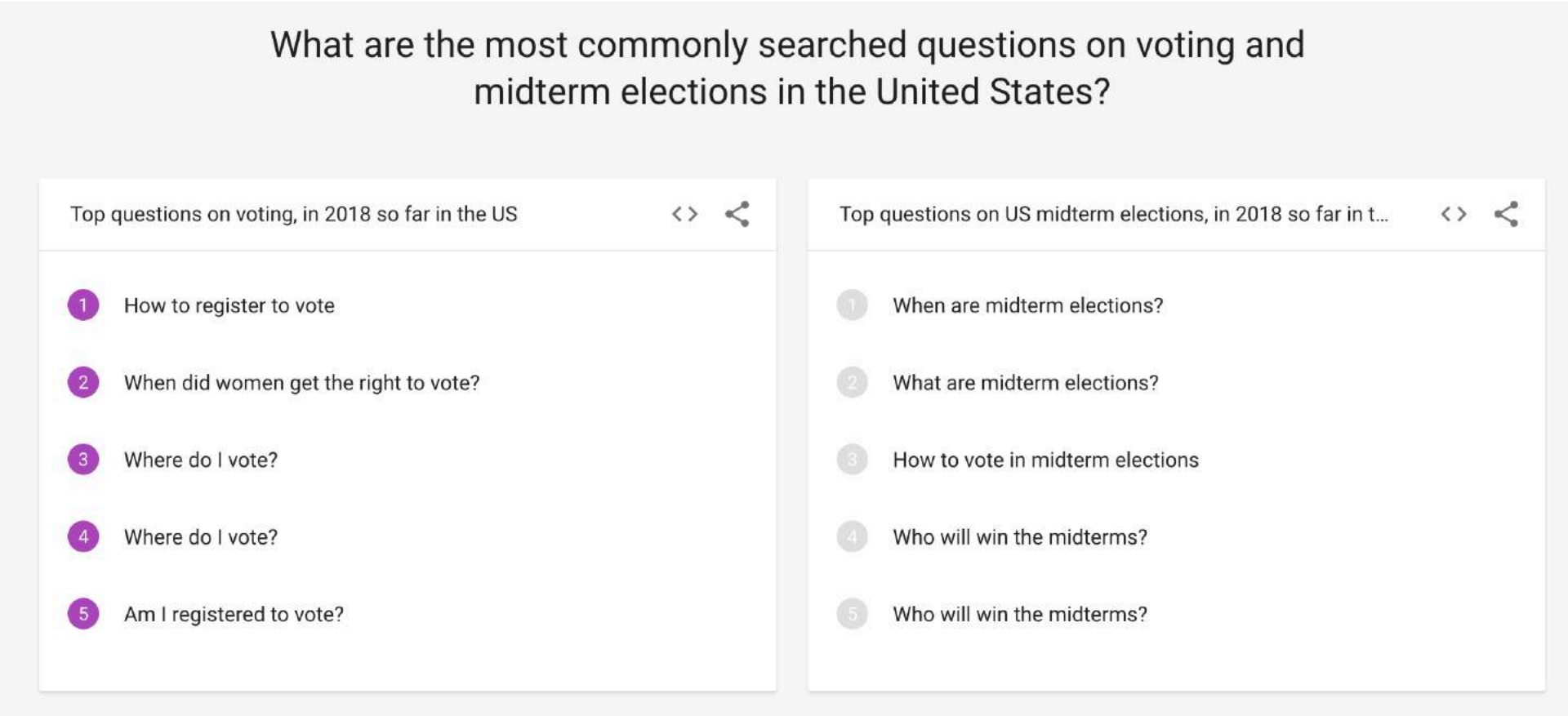


# Google trends: search interests by keywords or by sub-topic



# Google trends: Main questions by web users (for a selected keyword/topic)



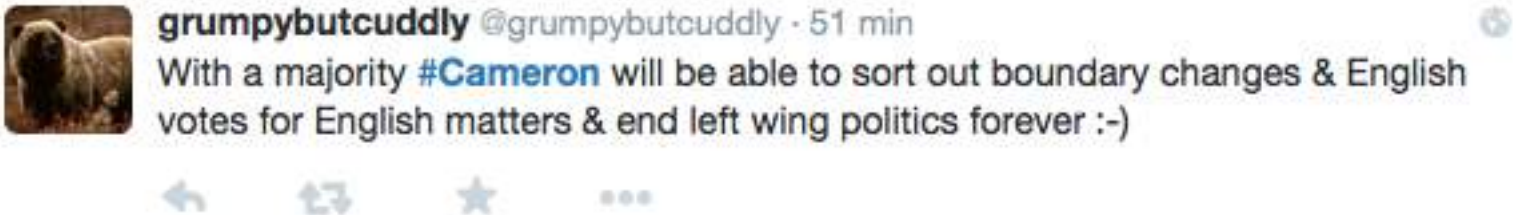
# 3. Influence

1. Reach
2. Buzz
3. **Influence**
4. Sentiment

- Your message is valuable when it is repeated and/or commented
  - High probability of others referencing & reproducing what you say
  - E.g. Twitter: reply/mention (@xxx) & retweet (RT)

# Twitter as a mean to disseminate information

- Its primary function is not as a social network but perhaps to spread news (including personal news) or other information.
- An unusual feature of Twitter is re-tweeting: forwarding a tweet by posting it again: "Hmmm pretty good incentive.. RT @RT_com: US high school allows Muslims time for prayer if they earn good grades http://on.rt.com/kka96w"
- If re-tweeted, a tweet can expect to reach an average of **1000 users (Kwak et al.)**
- Another communicational feature of Twitter is the hashtag: a meta-tag beginning with # that is designed to help others find a post:



# Influential Analysis : Amplification

- On Twitter:
  - Amplification = # of Retweets Per Tweet
- On Facebook, Google Plus:
  - Amplification = # of Shares Per Post
- On a blog, YouTube:
  - Amplification = # of Share Clicks Per Post (or Video)

# Influential Analysis : Applause

- On Twitter:
  - Applause Rate = # of Favorite Clicks Per Post
- On Facebook:
  - Applause Rate = # of Likes Per Post

- On Google Plus:
  - Applause Rate = # of +1s Per Post
- On a Blog, YouTube:
  - Applause Rate = # of +1s and Likes Per Post (or video)

# Summary (Reach, Buzz, Influence)

| Measure | | |
|---|---|---|
| Reach | Social reach | #total followers |
| | Growth | social reach growth along time |
| | Engagement | $\frac{\#\text{ Likes} + \#\text{ Shares} + \#\text{ Retweets} + \#\text{ blog comments}}{\#\text{ of published posts or pieces of content}}$ |
| Buzz | Nominations /visualizations | #bookmarks, #mentions on web, #likes, keyword trends |
| Influence | Influential index | (#reply+#retweets)/#tweets |
| | Amplification | # of Retweets (Shares) Per Tweet (post) |
| | Applause | #favorite clicks (or like, or +) x post |

Sentiment analysis in a dedicated lesson

# Influential Analysis (Twitter)

- **Retweet** and **Reply** features of Twitter is used to enable real-time study

$$\text{Influential Index} = \frac{n(\text{Reply}) + n(\text{Retweet})}{n(\text{Tweet})}$$

For example, a tweet :
Verizon will launch iPhone 4 on 10 Feb sent by user ABC

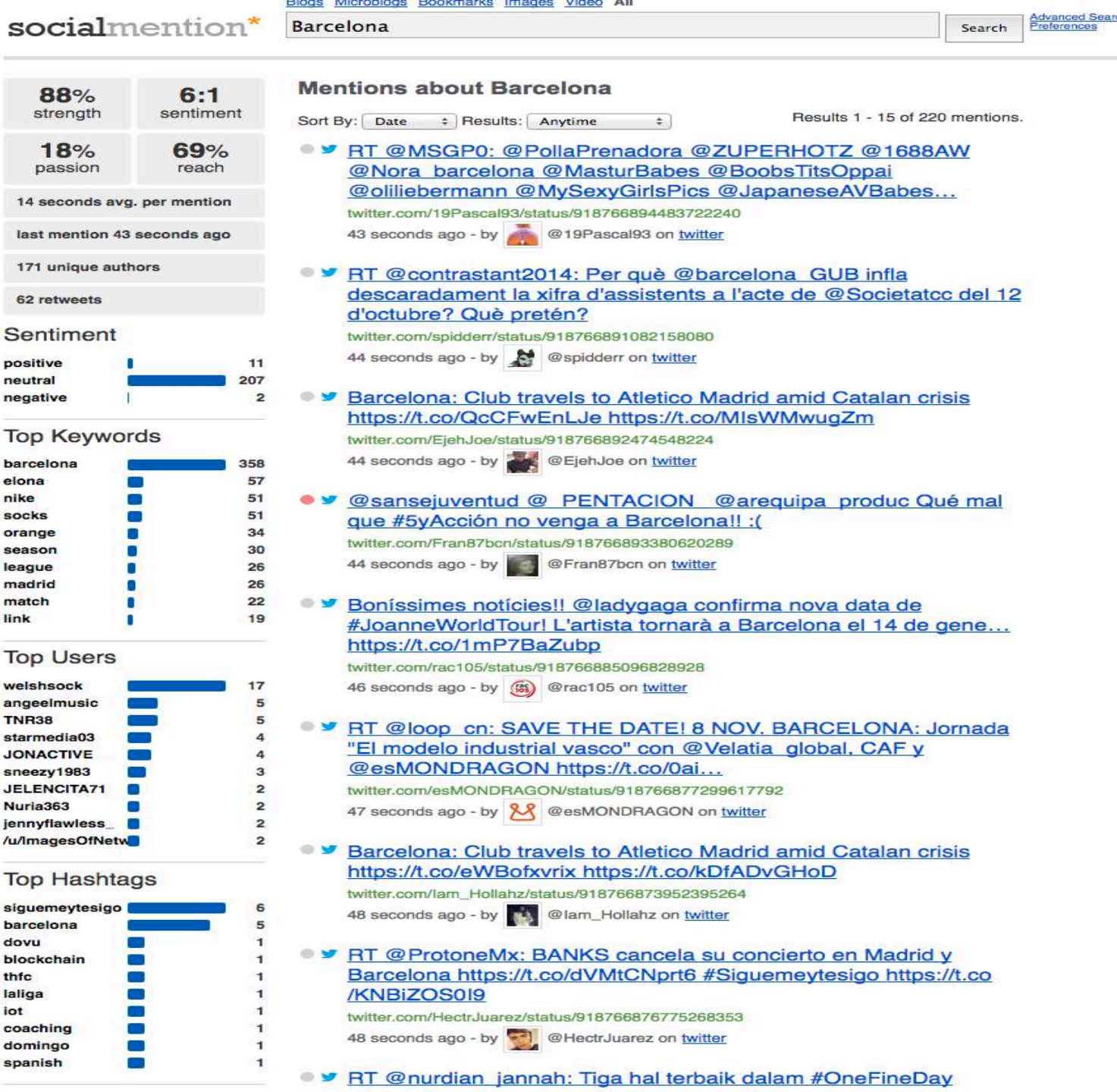
Retweet (think of it as forwarding)
**RT @ABC** Verizon will launch iPhone 4 on 10 Feb

Reply
**@ABC** thanks… I will be there to get one

# FREE PLATFORMS FOR SOCIAL MEDIA ANALYTICS

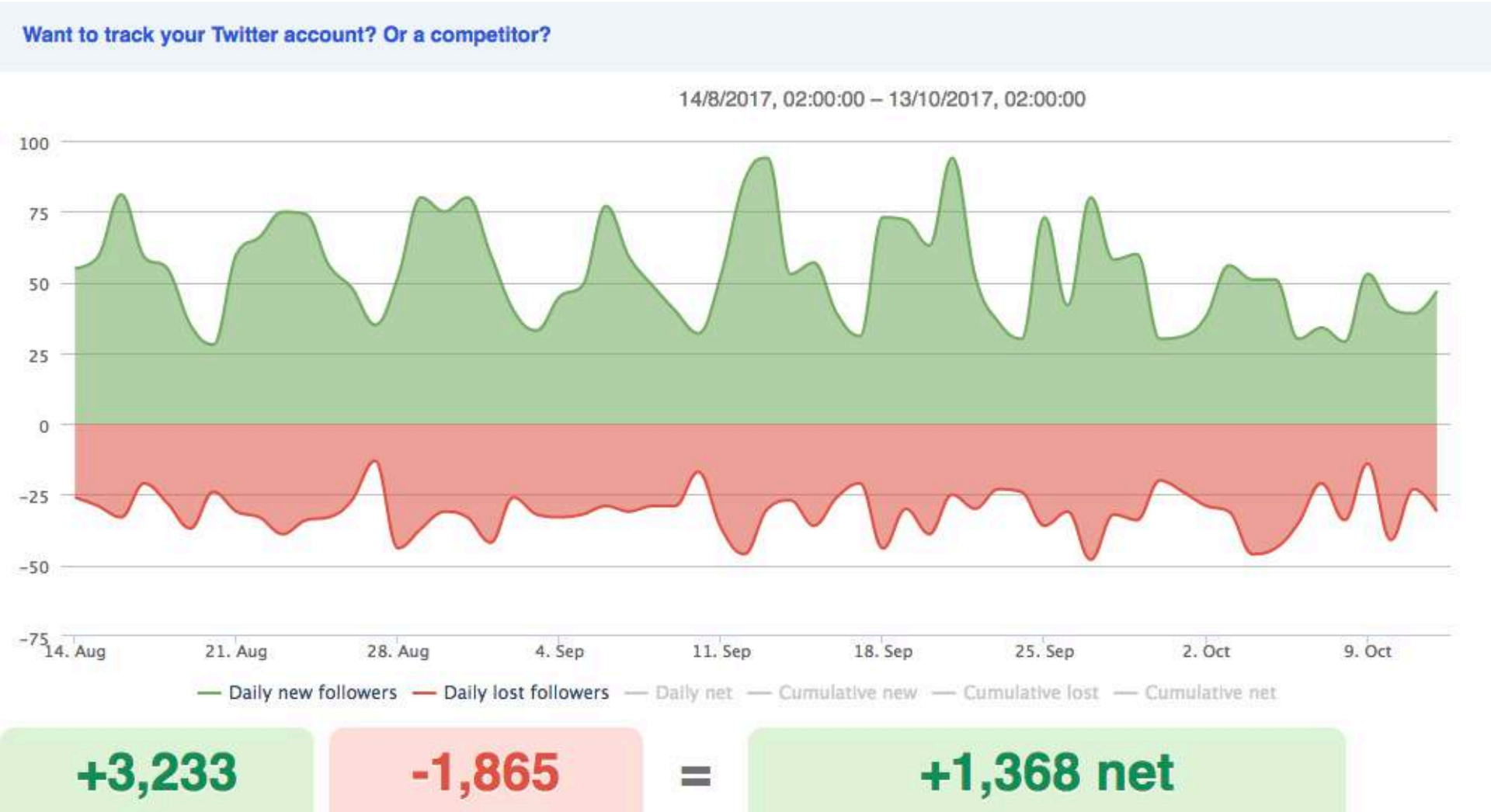
# Social Mention (free)

by typing in a keyword, you'll have access
To user-generated content from more than 100 platforms.



# Followerwonk (partly free)

## find top follower, compare users, track competitors



# Many tools available

- See more on http://keyhole.co/blog/list-of-the-top-25-social-media-analytics-tools/
- If you have a Twitter, Istagram or Facebook account you can freely try many of them

# Homework

- Select a topic, person, or company of interest
- Use any possible available tools among those mentioned (e.g., Google trends) to measure the social impact (reach, buzz…)
- Write a short report (one or two presenters)