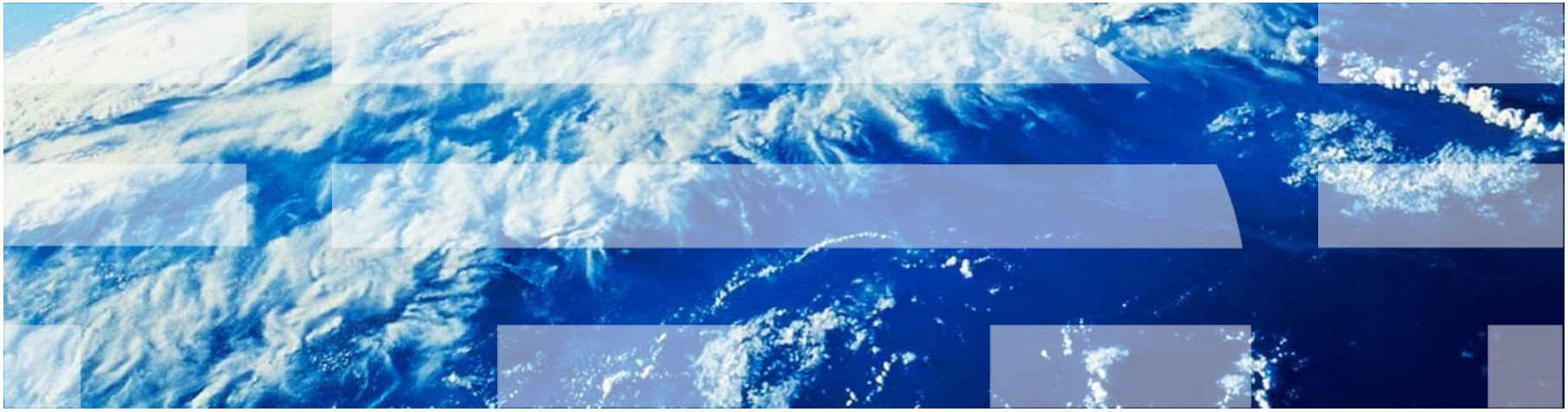
Social Media Sentiment Analysis



Agenda

- What is sentiment analysis?
- Implementation overview
- What did we use?
- Examples:
  - Euro 2012
  - London 2012
  - Mobile World Congress 2013
  - CeBIT 2013
- Summary

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What is sentiment analysis

- About 12+ TB of new messages each day
- 25 TB of data in total per day

20 000 000 of tweets x 140 characters = 1 400 000 pages
Let's assume 300 pages per book...
... about 4700 books

- In a nutshell, sentiment analysis (opinion mining) involves analyzing comments (feelings, emotions, opinions) left on social portals.
- Sophisticated methods were used to identify and extract subjective information from the material.

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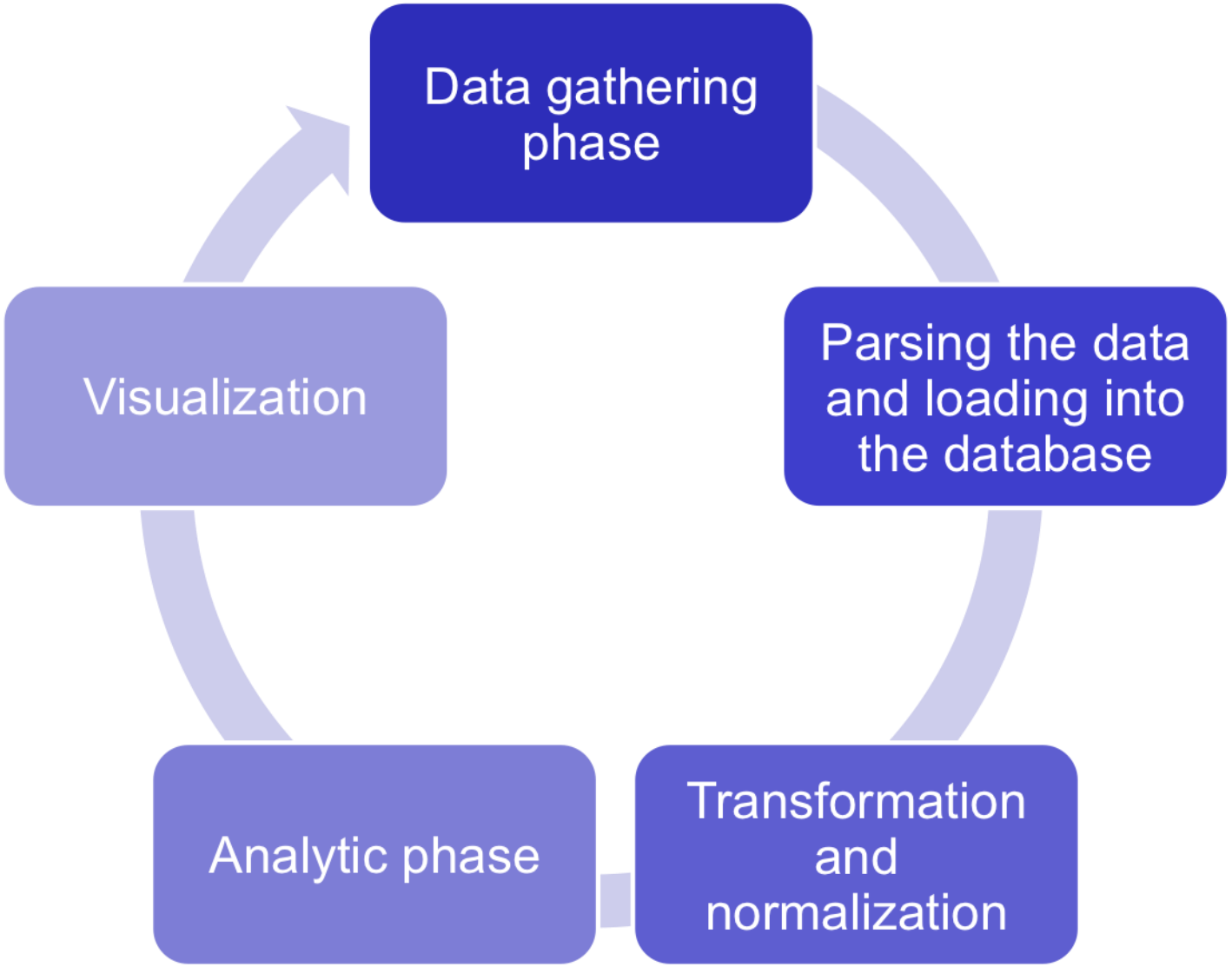
Implementation overview



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What did we use?

IBM PureData System for Analytics with Map-Reduce

- Data transformation and normalization
- Splitting sentences into words
- Explanation of acronyms
- Removing stop words
- Discovering the language
- Processing queries and analytics

IBM Spss Modeler

- Discovering relationships in the data
- Presentation layer

Revolution R Enterprise

- Analytical computations
- Presentation layer

Tweeter API

- Tweeter Streaming and Search API

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IBM PureData System for Analytics
The Simple Appliance for Serious Analytics

Built-in Expertise

– **No indexes or tuning**

– **Data model agnostic**

– **Hardware accelerated, fully parallel, optimized, In Database Analytics**

Integration by Design

– **Server, Storage, Database in one easy to use package**

– **Automatic parallelization and resource optimization to scale efficiently and economically**

– **Enterprise-class security and platform management**

Simplified Experience

– **Up and running in hours**

– **Minimal up front design and tuning**

– **Minimal ongoing administration**

– **Standard interfaces to best of breed Analytics, Business Intelligence, and data integration tools**

– **Built-in, complex analytical capabilities allow users to derive insight from their data quickly**

– **Easy connectivity to other Big Data Platform components**

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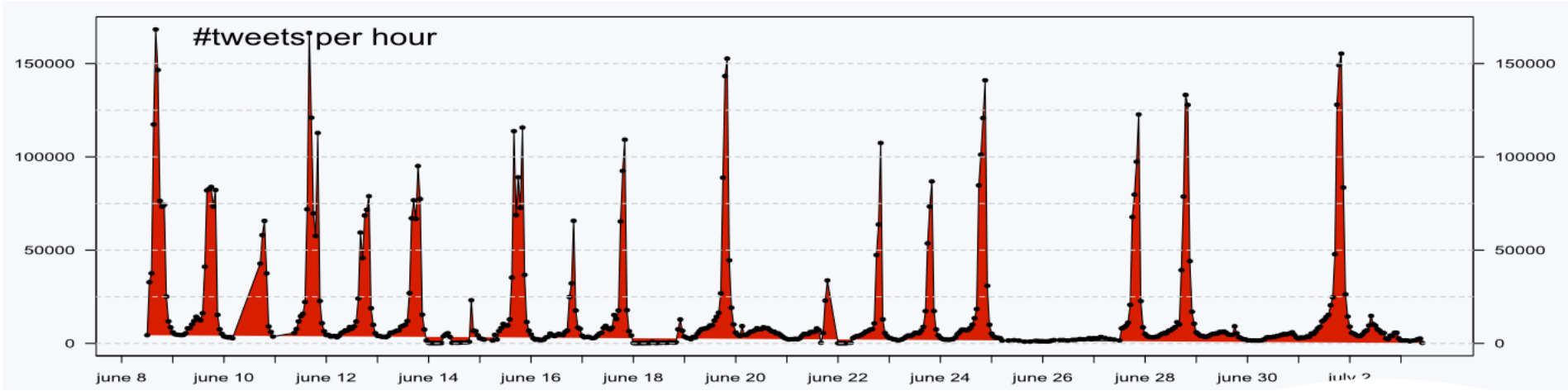
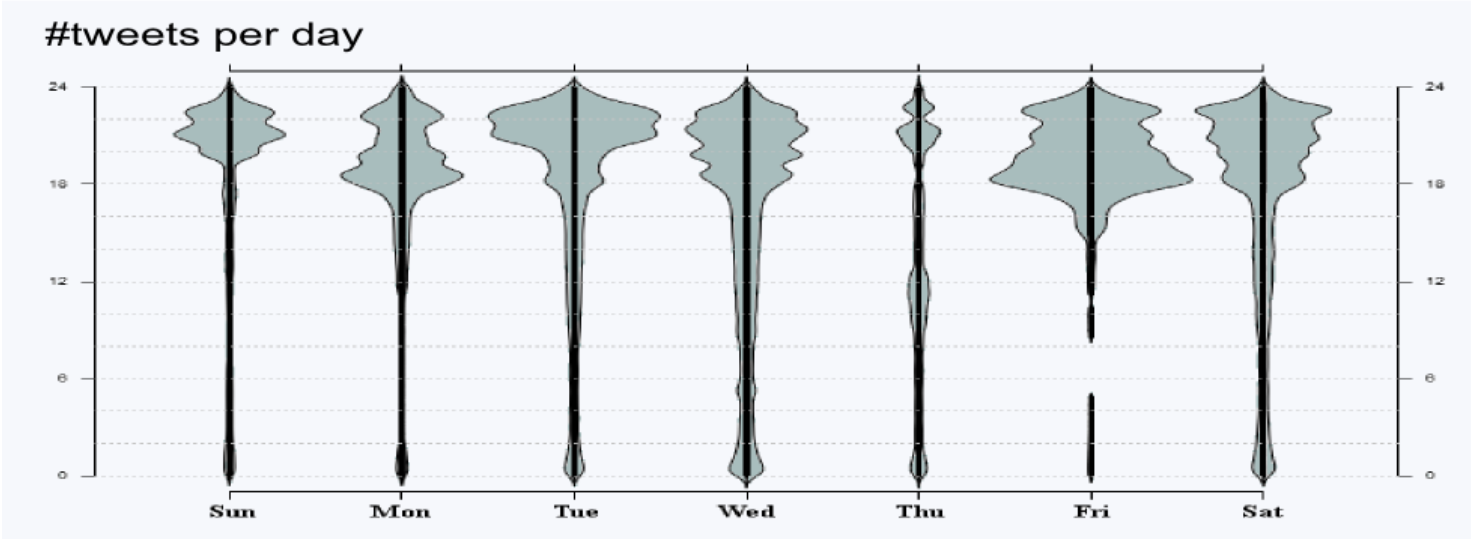
Euro 2012 – posts per hour and per day





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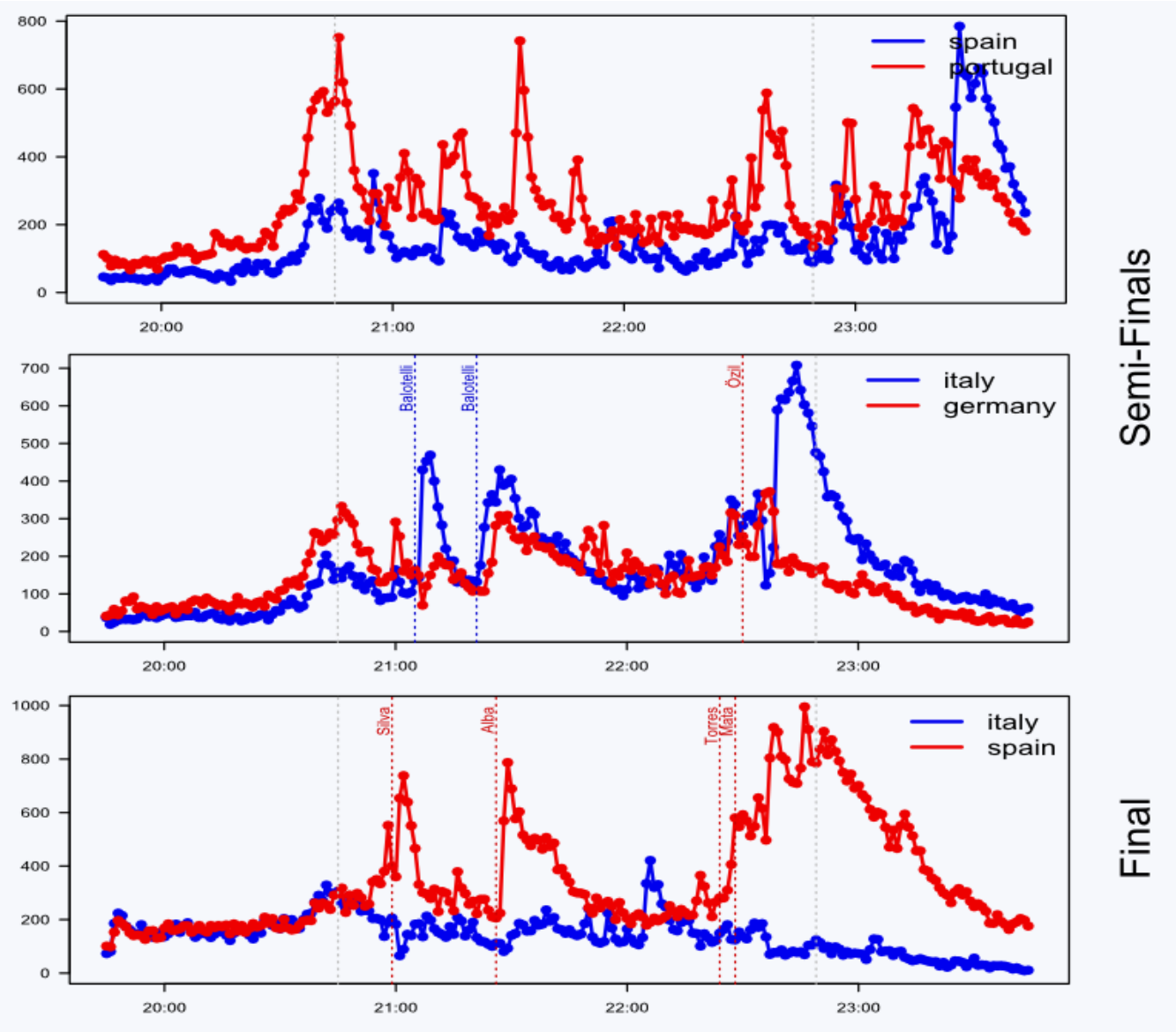
Euro 2012 – semi finals and final sentiment



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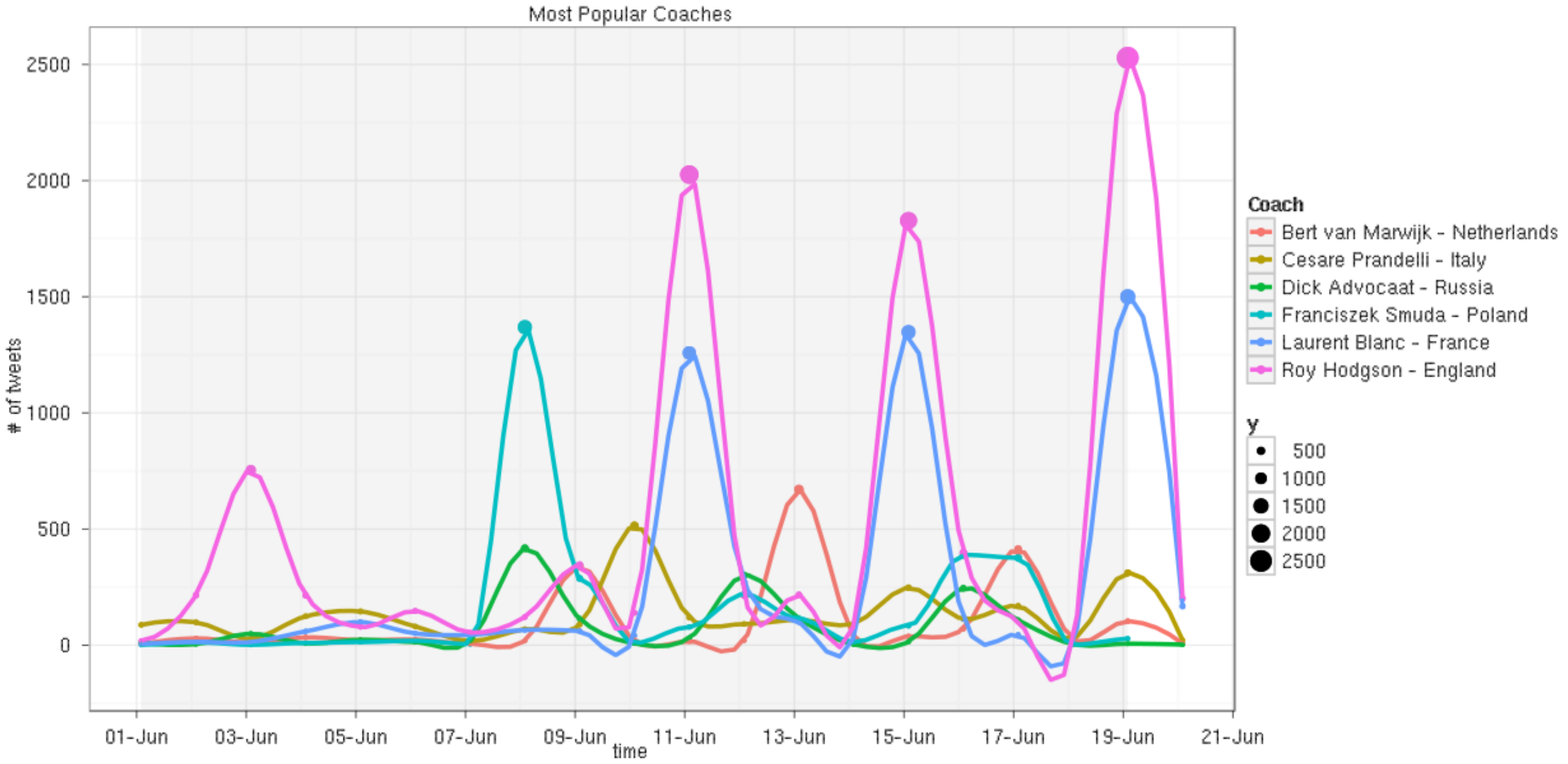
Euro 2012 – most popular coaches in group phase



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Euro 2012 – users predictions of games' scores

Team 1	Score	Hits	Team 2	Team1 wins / draw / Team 2 wins	Predictions			
Poland	1-1	11%	Greece	68.9% / 18.3% / 12.9%	2-1	21%	2-0	21%
Russia	4-1	1%	Czech	69.8% / 22.2% / 8%	2-1	21%	2-0	20%
Netherlands	0-1	0%	Denmark	91.9% / 6.1% / 2%	3-1	24%	2-0	24%
Germany	1-0	3%	Portugal	77.2% / 15.6% / 7.2%	2-1	29%	3-1	21%
Spain	1-1	12%	Italy	70.8% / 12.5% / 16.7%	2-0	42%	1-0	21%
Ireland	1-3	2%	Croatia	25.8% / 33.9% / 40.3%	1-1	27%	1-2	23%
France	1-1	18%	England	40.9% / 24.3% / 34.8%	1-1	18%	2-1	17%
Ukraine	2-1	6%	Sweden	16.8% / 28.2% / 55%	1-2	19%	1-1	16%
Greece	1-2	22%	Czech	21.1% / 32.4% / 46.5%	1-1	23%	1-2	22%
Poland	1-1	5%	Russia	8.4% / 16% / 75.6%	1-3	25%	1-2	24%
Denmark	2-3	0%	Portugal	11.8% / 27% / 61.2%	1-2	21%	1-1	20%
Netherlands	1-2	22%	Germany	21.9% / 34.7% / 43.4%	1-2	22%	1-1	17%
Italy	1-1	33%	Croatia	42.4% / 42.4% / 15.2%	1-1	33%	2-1	21%
Spain	4-0	21%	Ireland	87.5% / 4.2% / 8.3%	3-0	46%	4-0	21%
Ukraine	0-2	25%	France	6.1% / 12.4% / 81.4%	1-2	26%	0-2	25%
Sweden	2-3	1%	England	3.8% / 15.1% / 81.1%	1-2	25%	0-2	23%
Czech	1-0	2%	Poland	18.3% / 28.2% / 53.4%	1-2	38%	1-1	21%
Greece	1-0	1%	Russia	1.9% / 3.9% / 94.2%	0-3	29%	0-2	27%
Denmark	1-2	16%	Germany	3.9% / 10.3% / 85.8%	0-2	33%	1-2	16%

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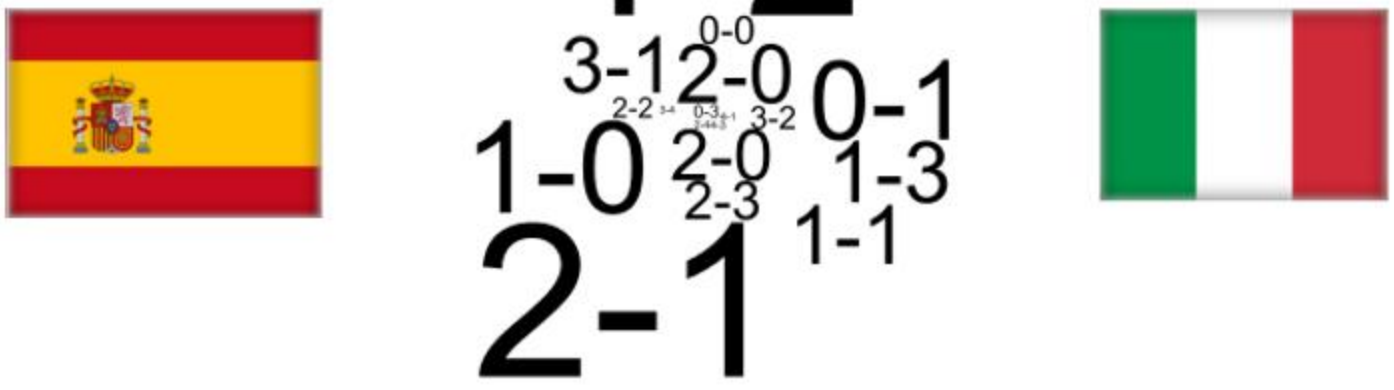
Euro 2012 finals - users' predictions

Spain	4-0	0%	Italy	48.9% /	11.7% /	39.4%	2-1	20%	1-2	19%



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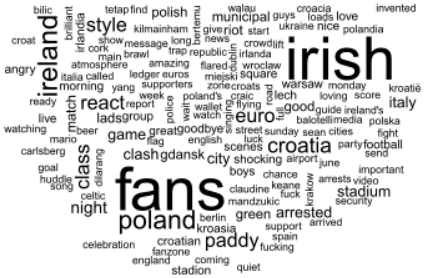
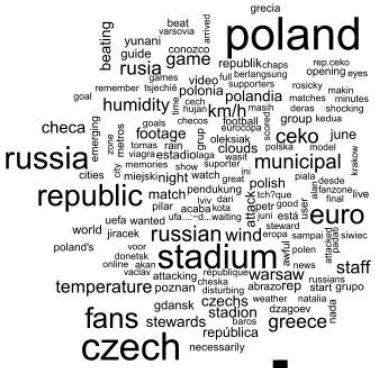
Euro 2012 – most popular topics in host cities

gdansk

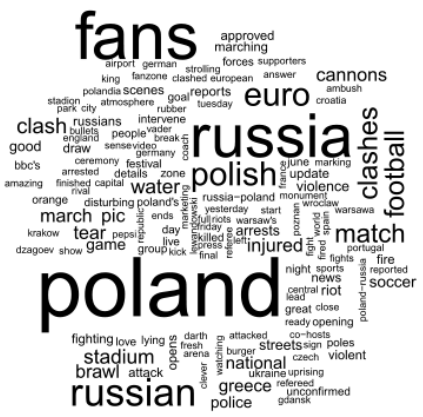
poznan



wroclaw



warsaw



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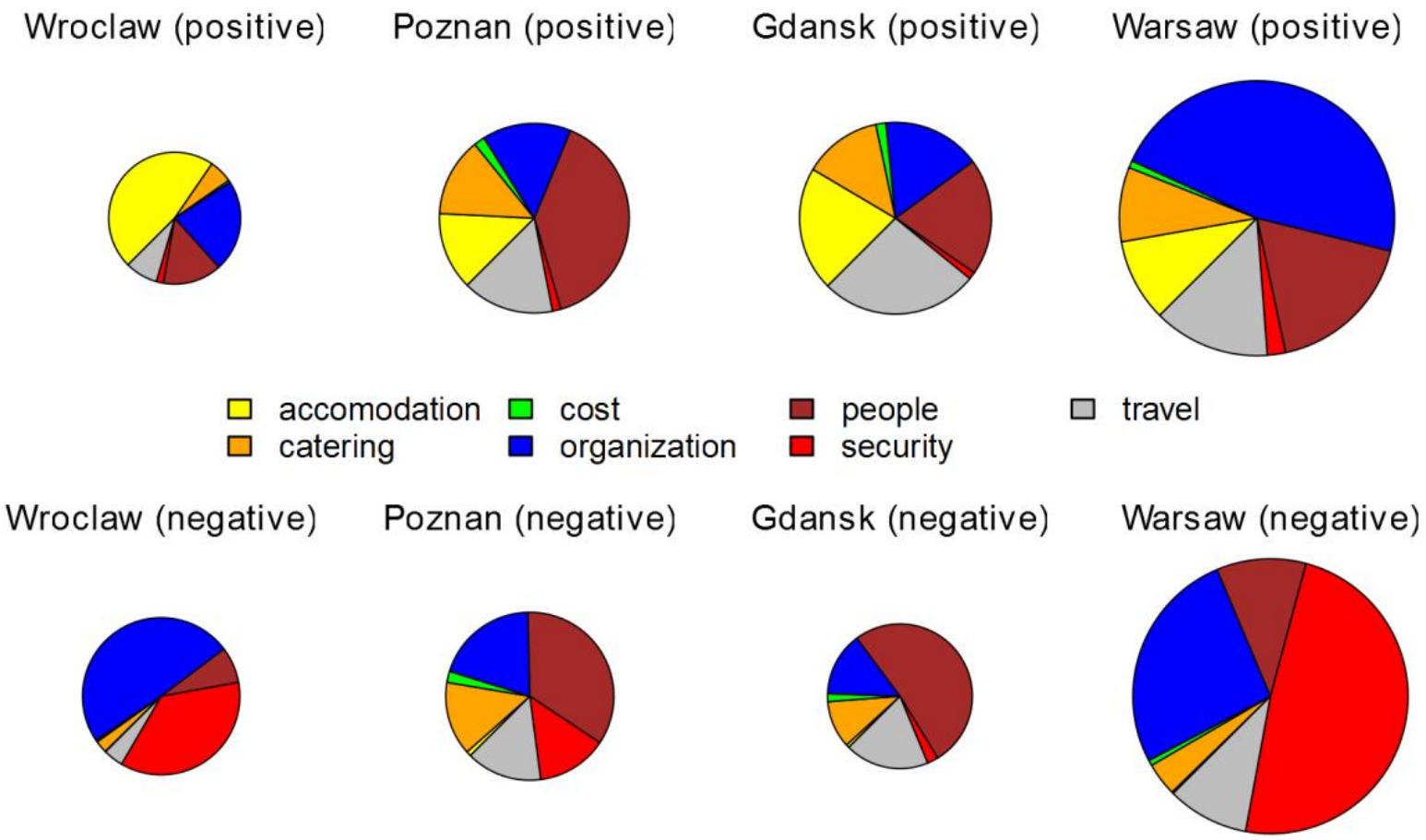
Euro 2012 – opinions about the organisation of the event



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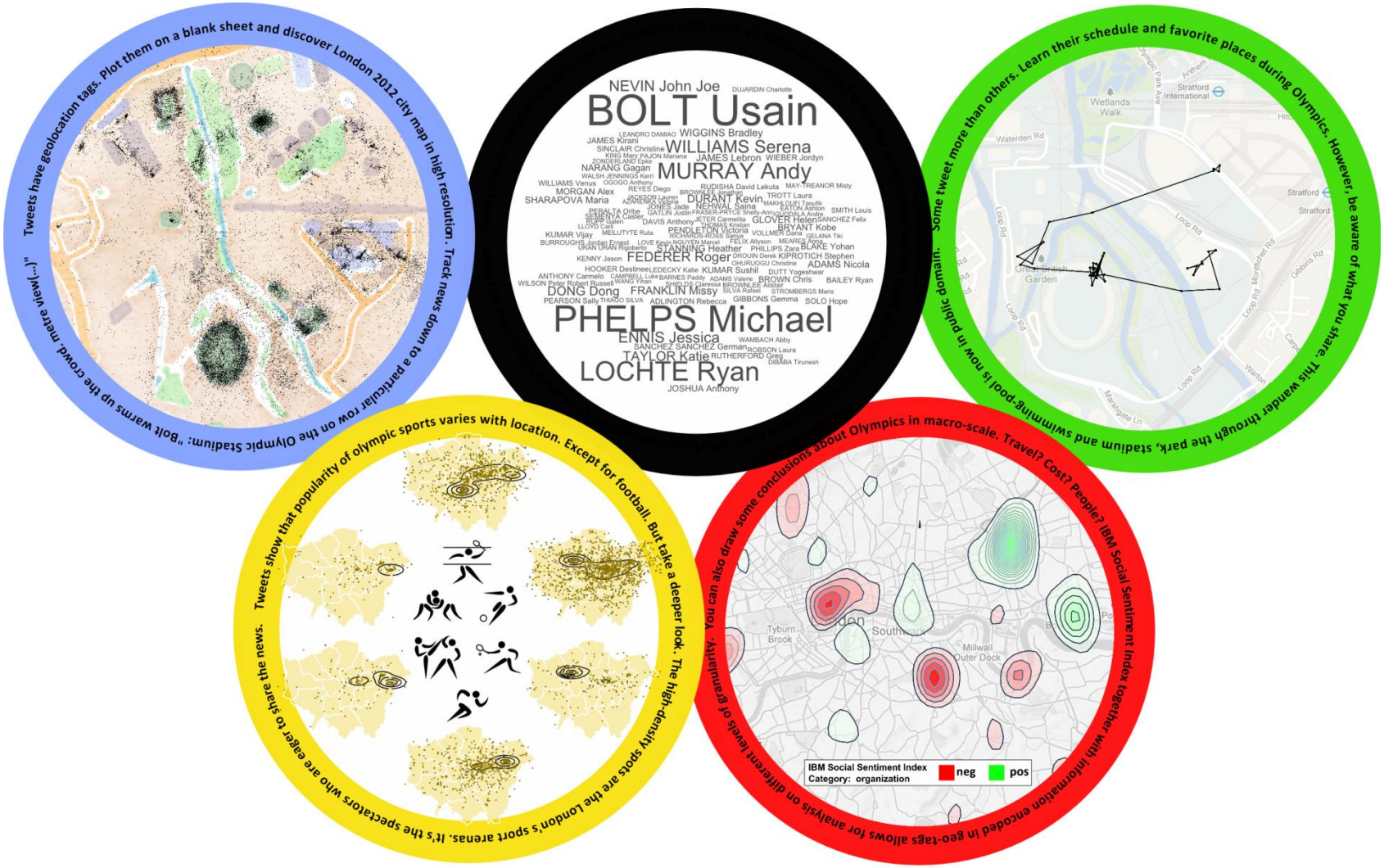
London 2012



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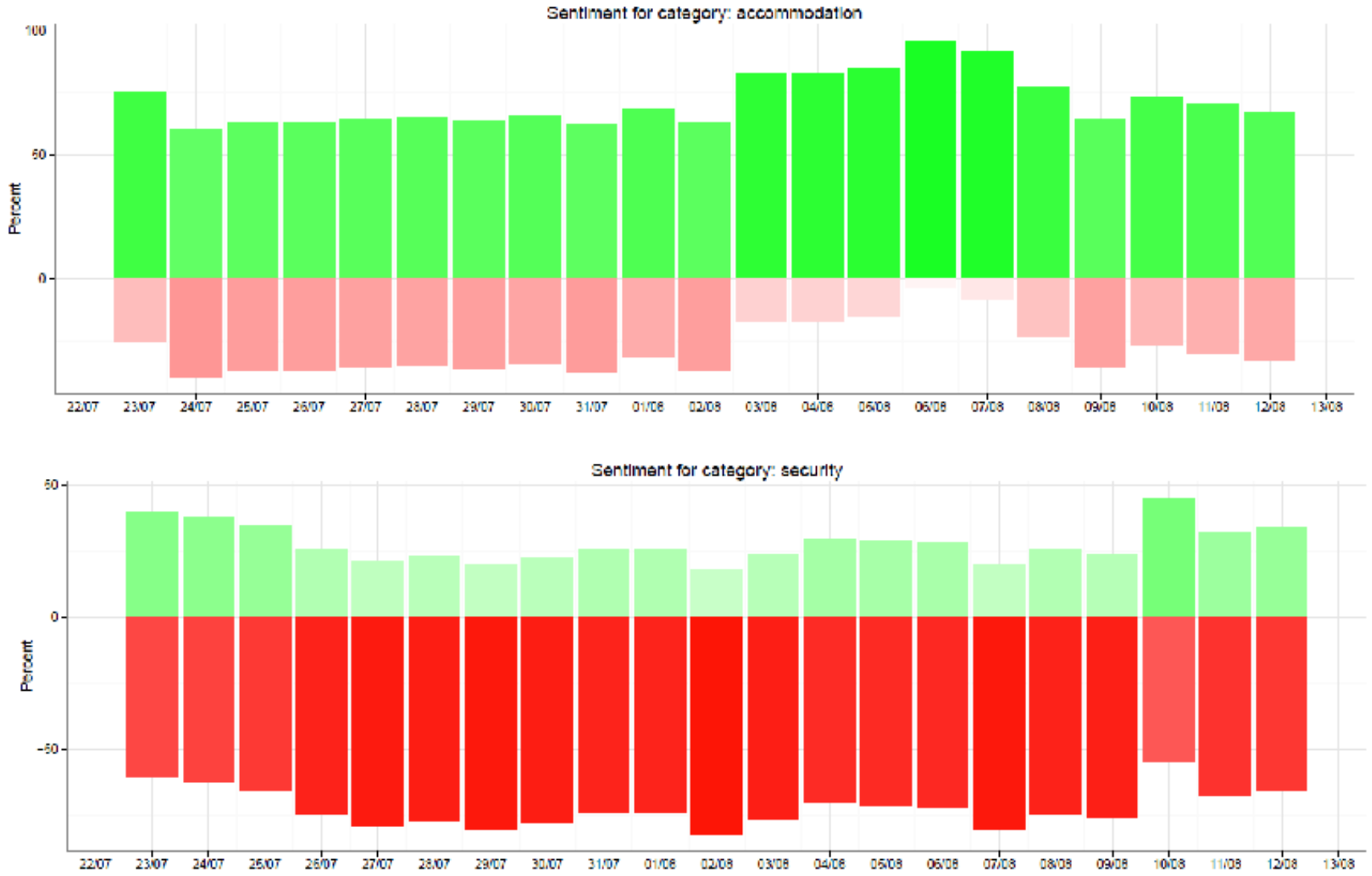
London 2012



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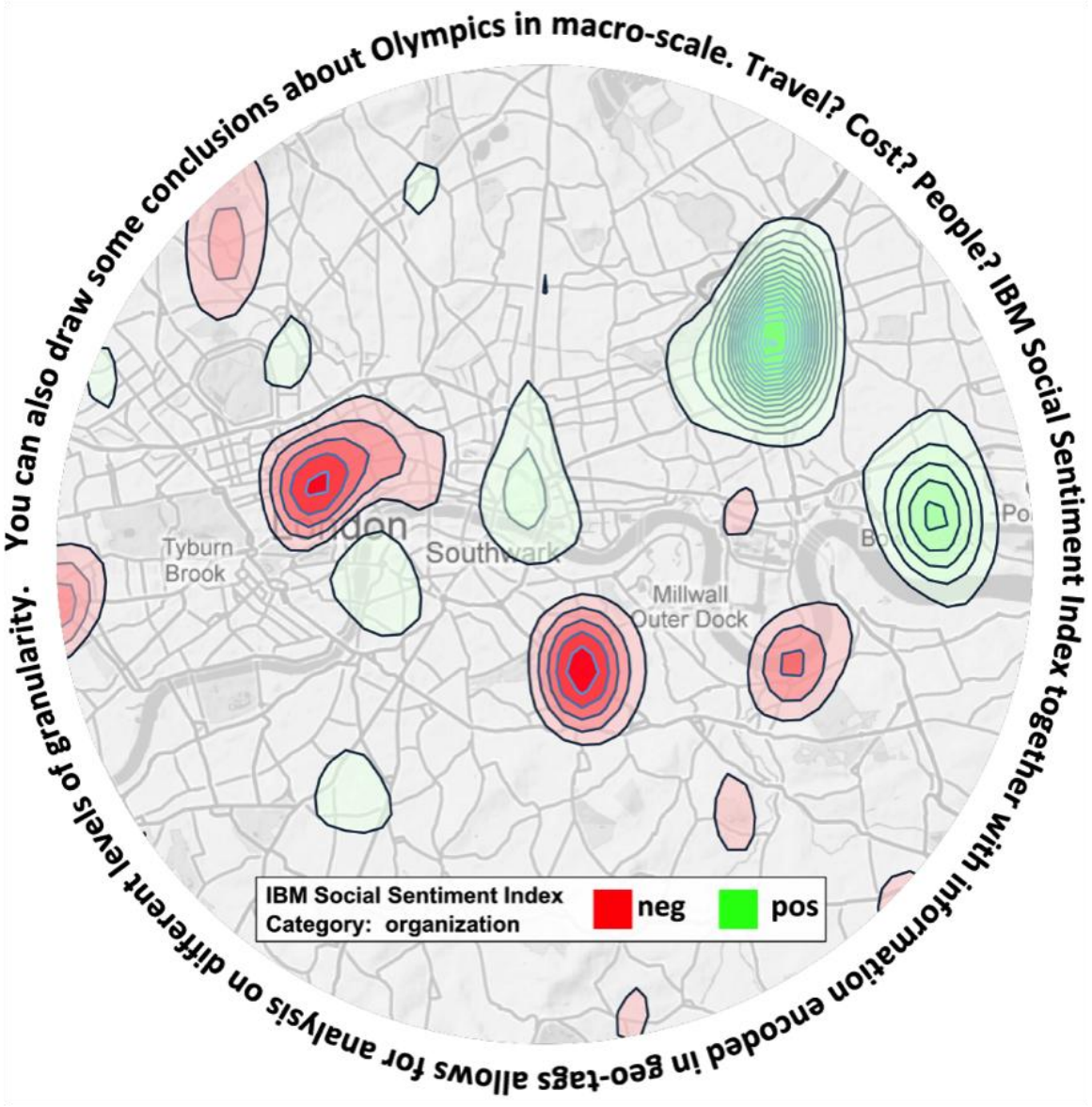
London 2012 – sentiment index and geo tags used together



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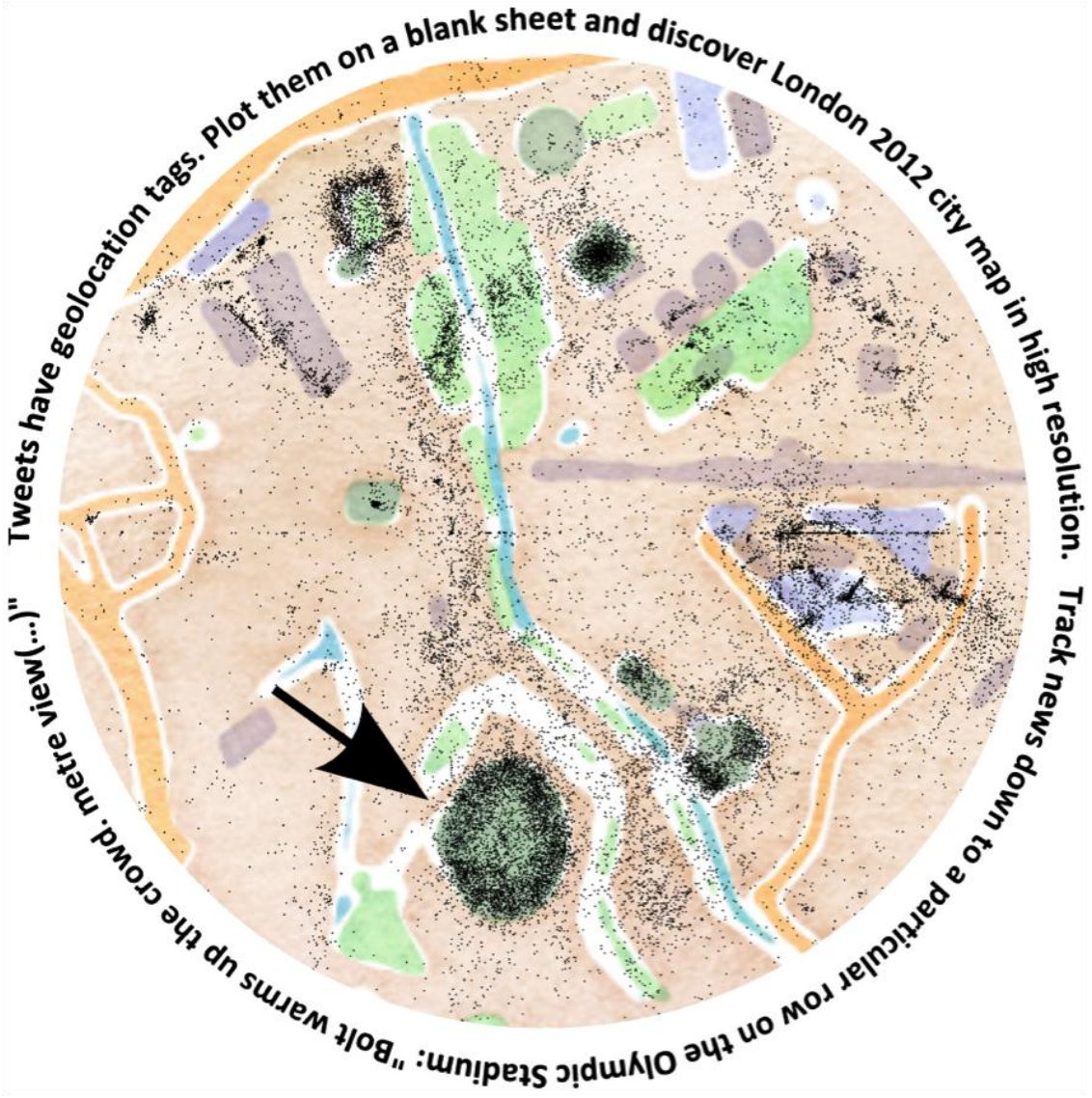
London 2012 – usage geolocation information



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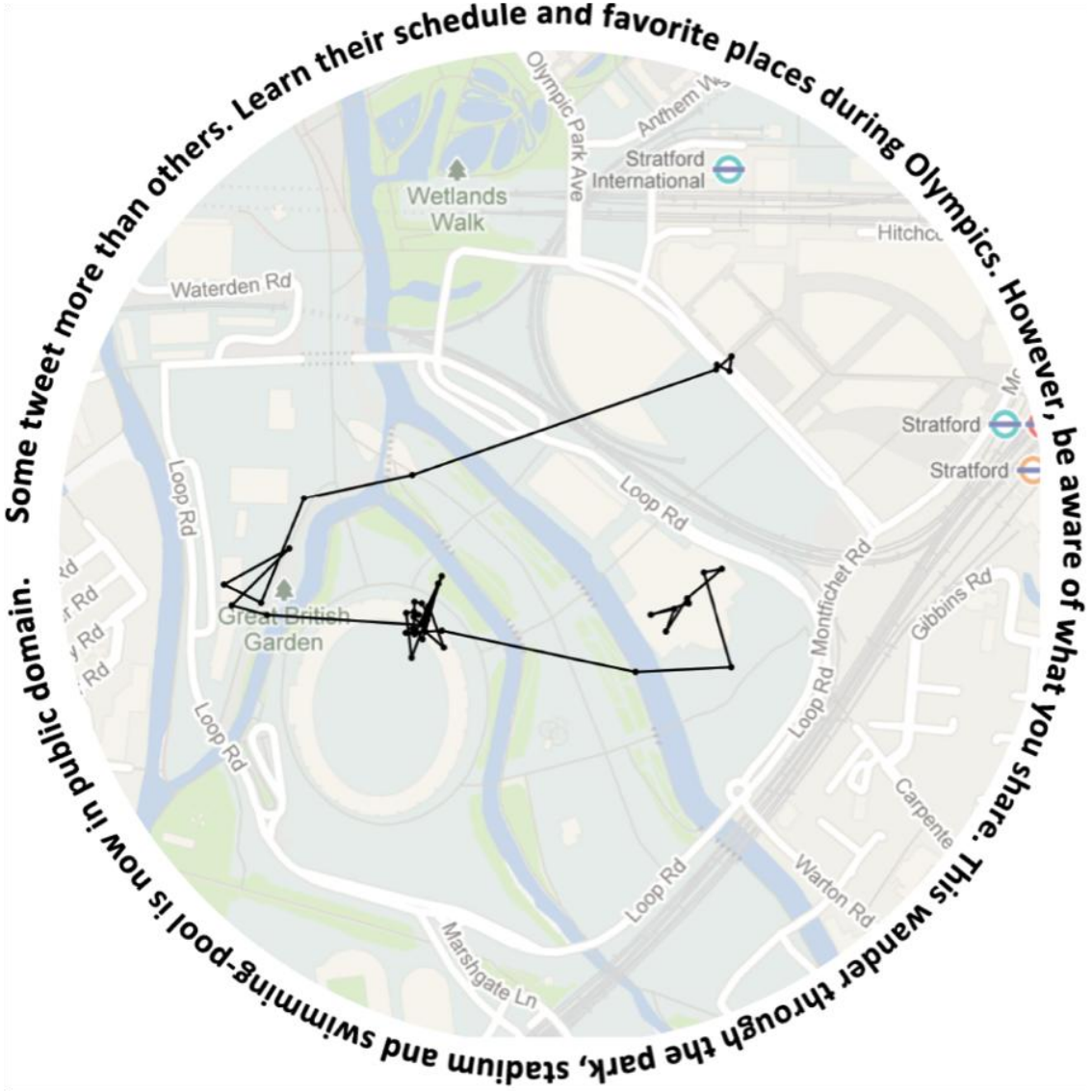
London 2012 – tracking comments on a very detailed level



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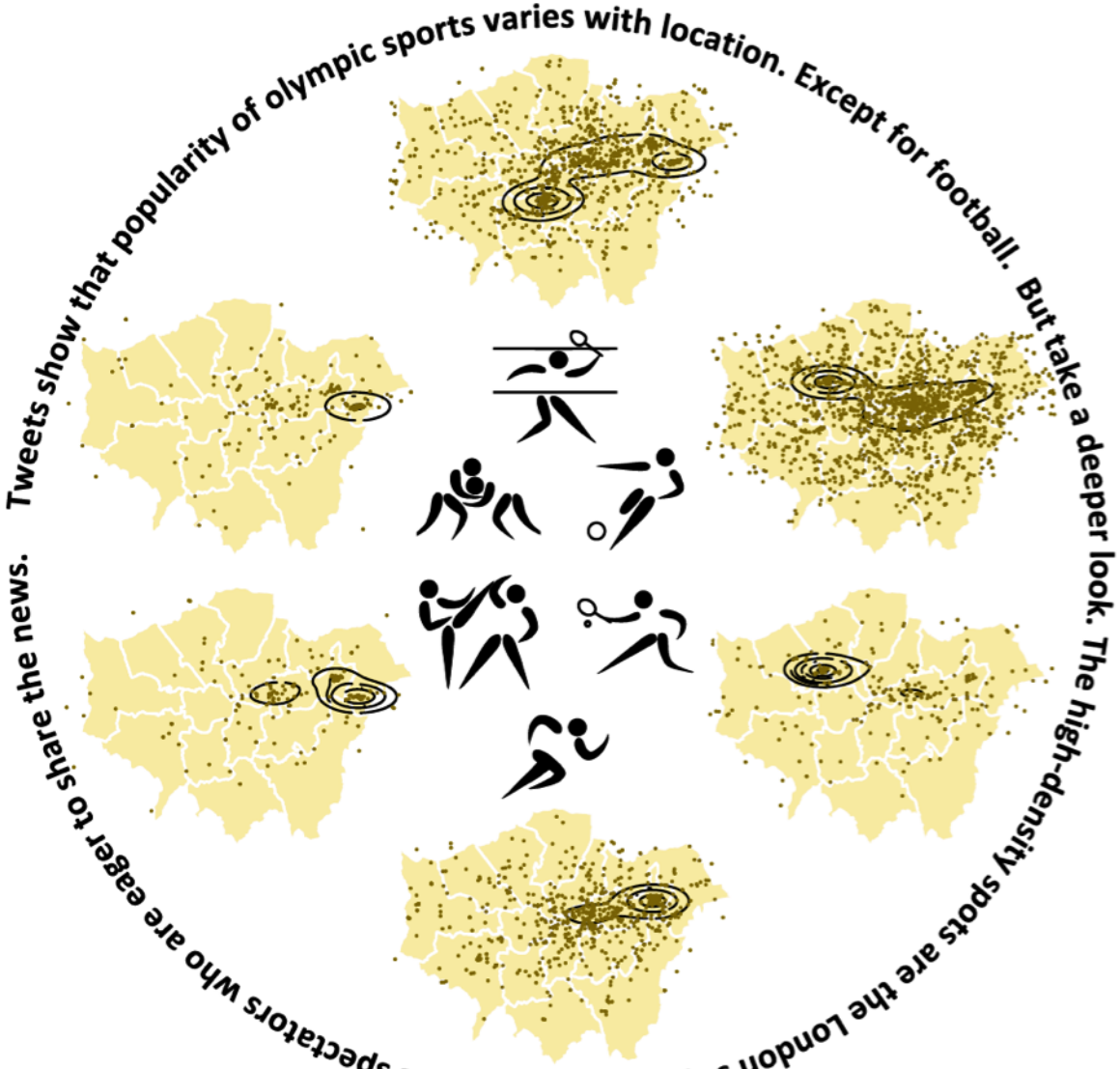
London 2012 – the popularity of Olympic sports depends on location



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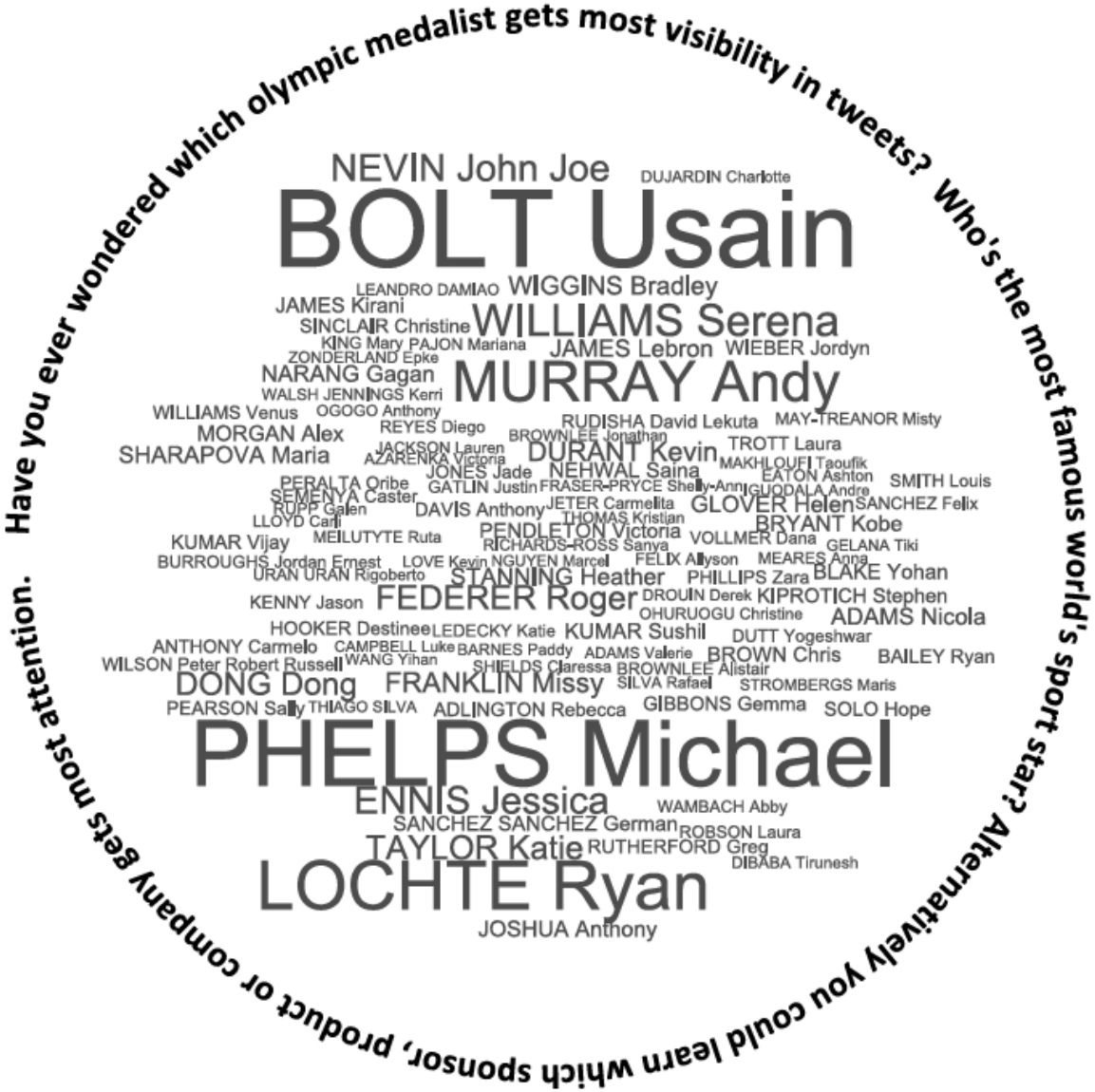
London 2012 – the most popular medalists



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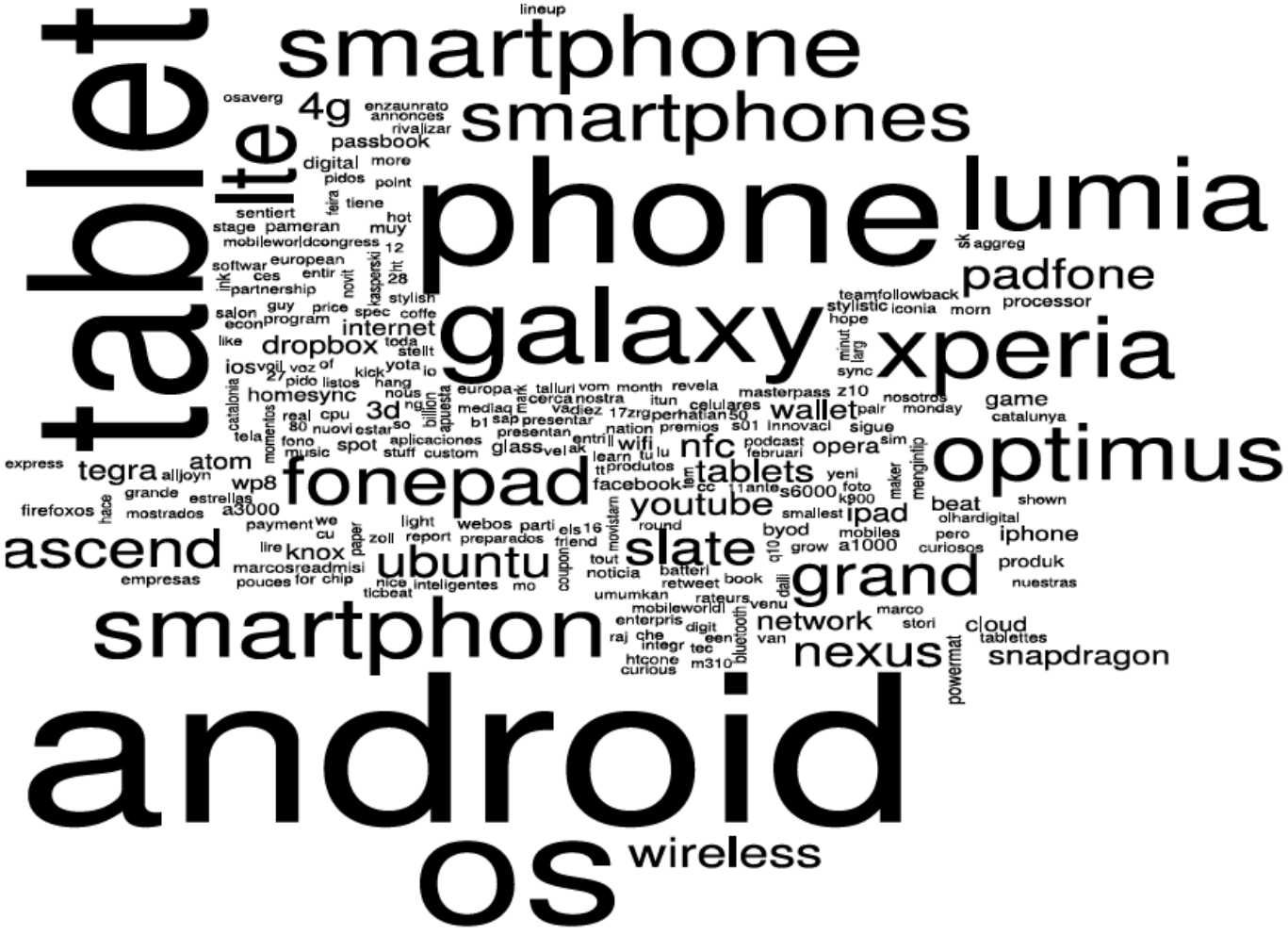
Main topics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spot
stuff
custom
aplicaciones
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wifi
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wallet
3d
homesync
internet
dropbox

Pair of companies mentioned in a single comment

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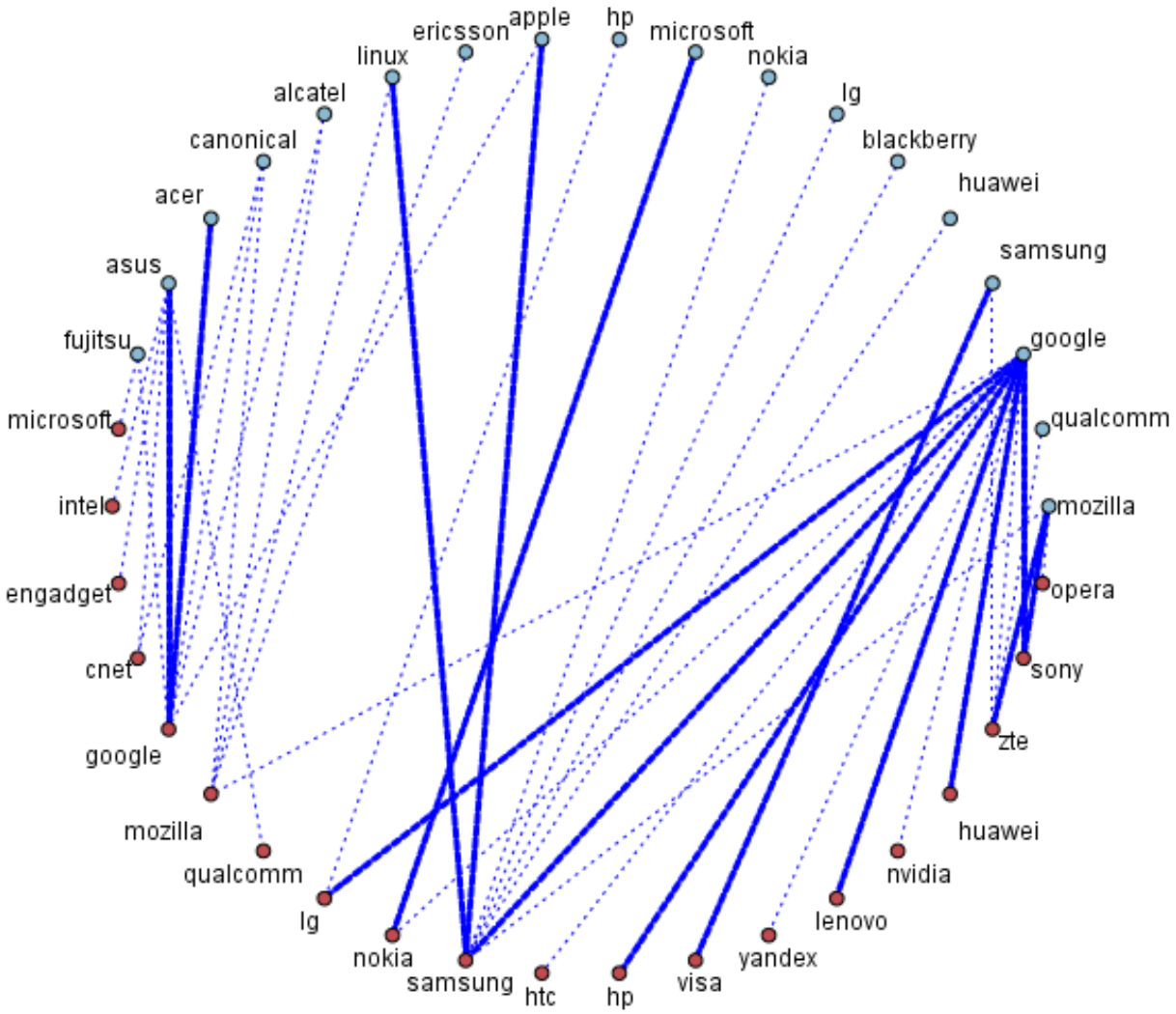

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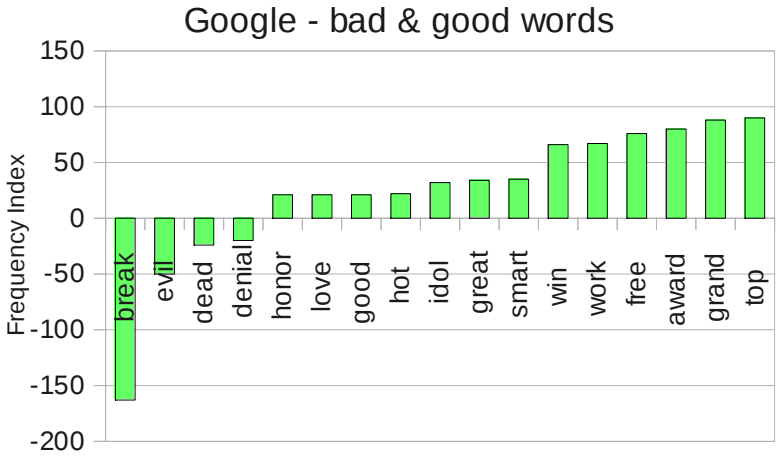
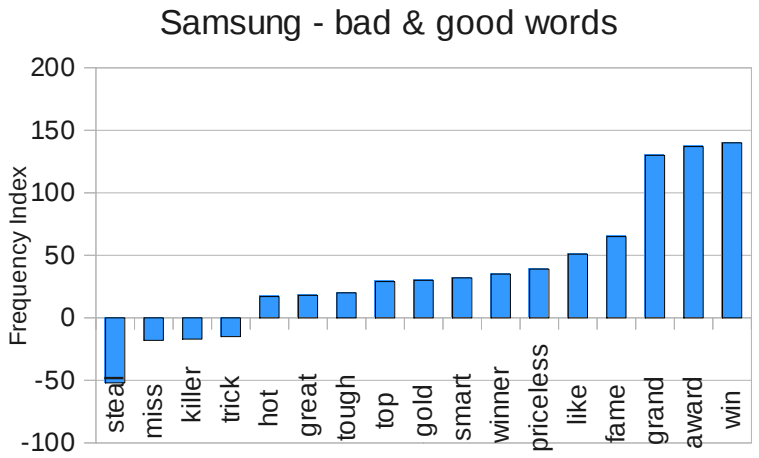
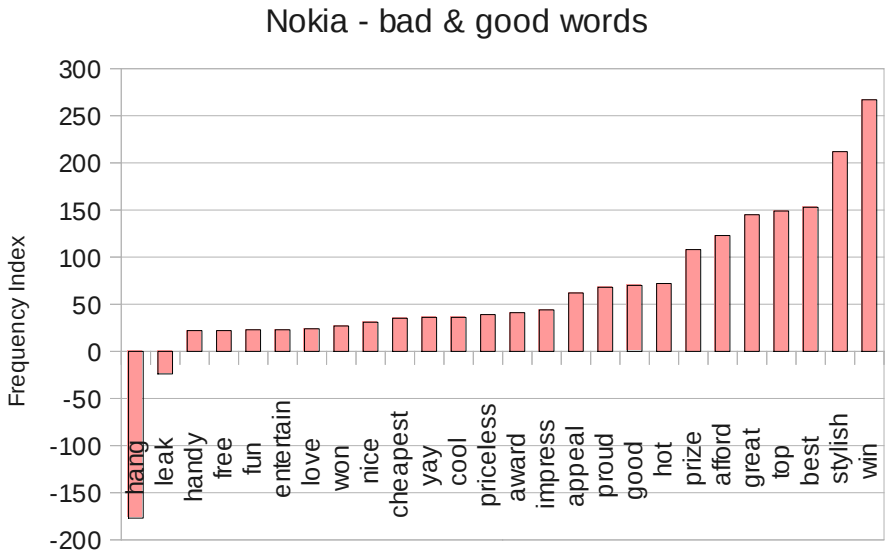
MWC 2013 – what people say about the most popular companies







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Most popular topics

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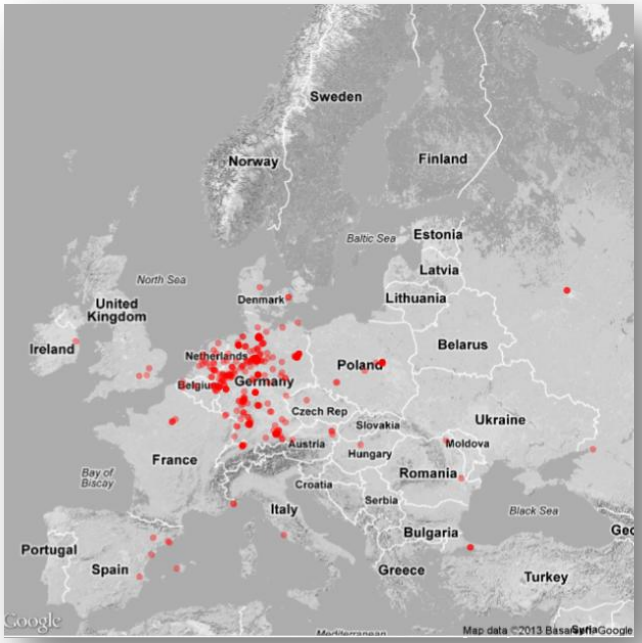
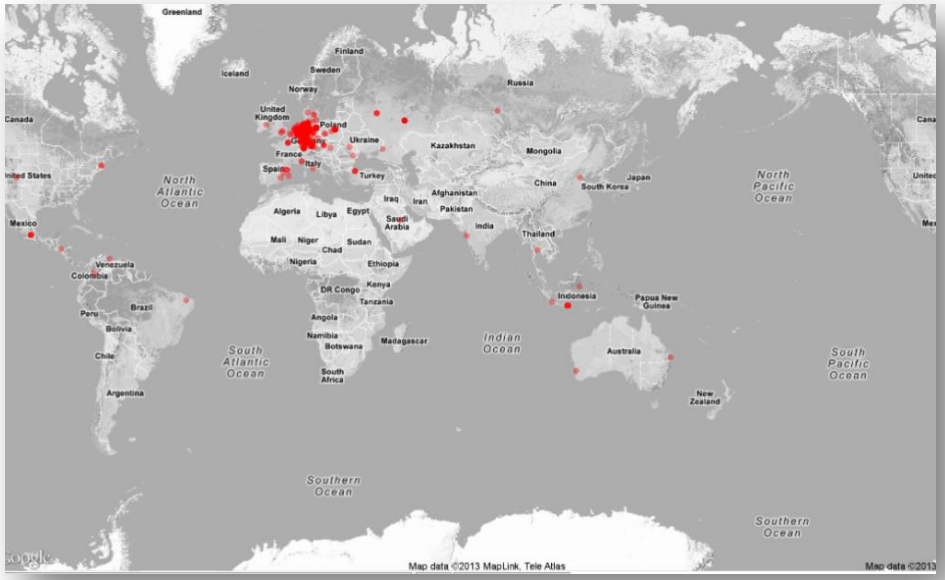
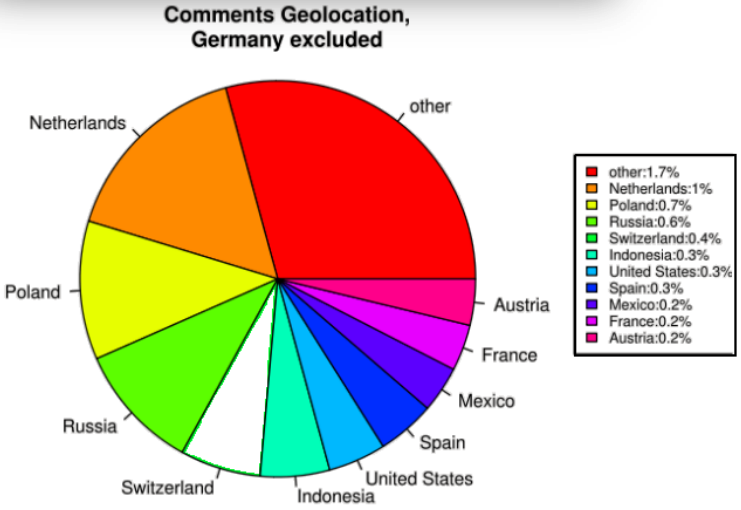
CeBIT 2013 – sources of comments







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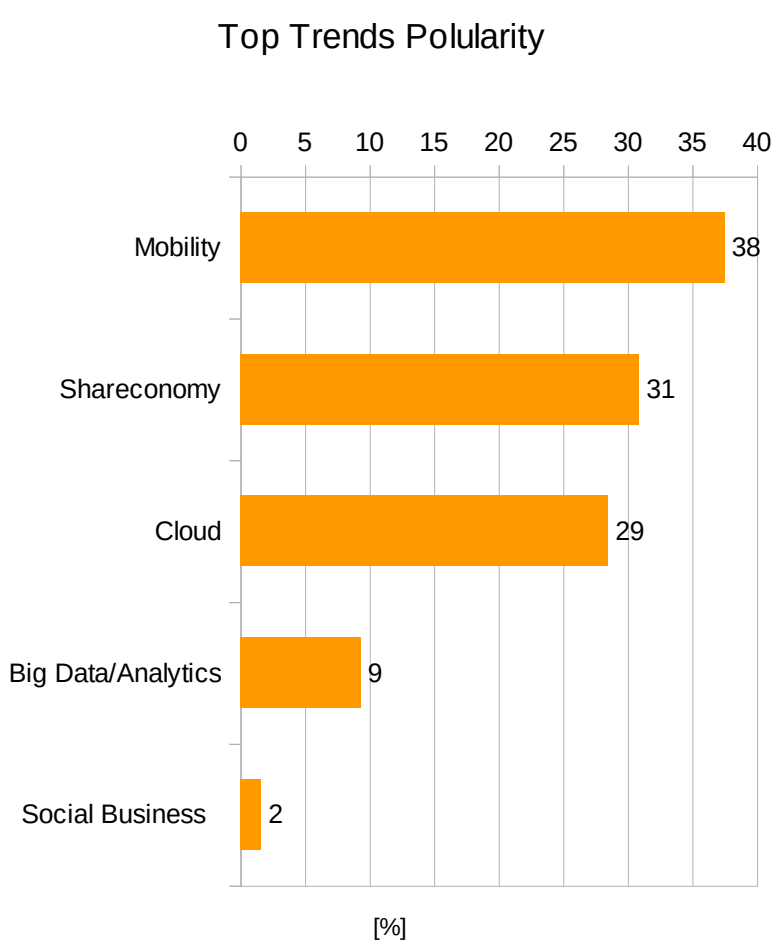
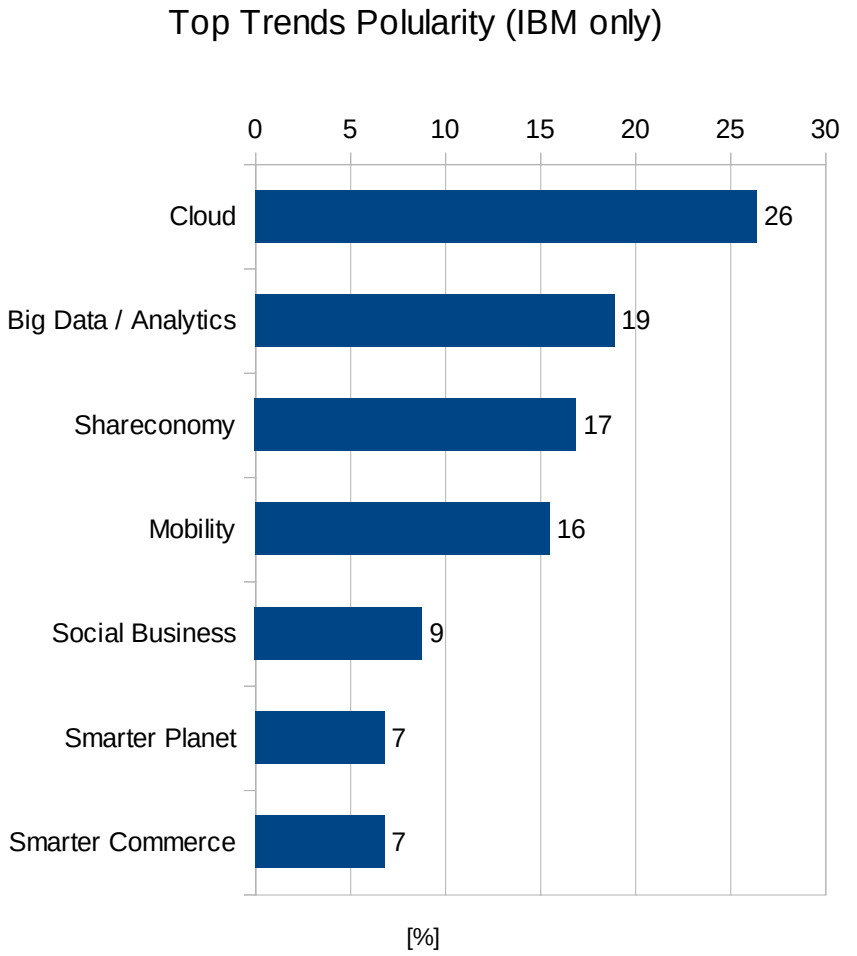
CeBIT 2013 – the popularity of top trends in technology





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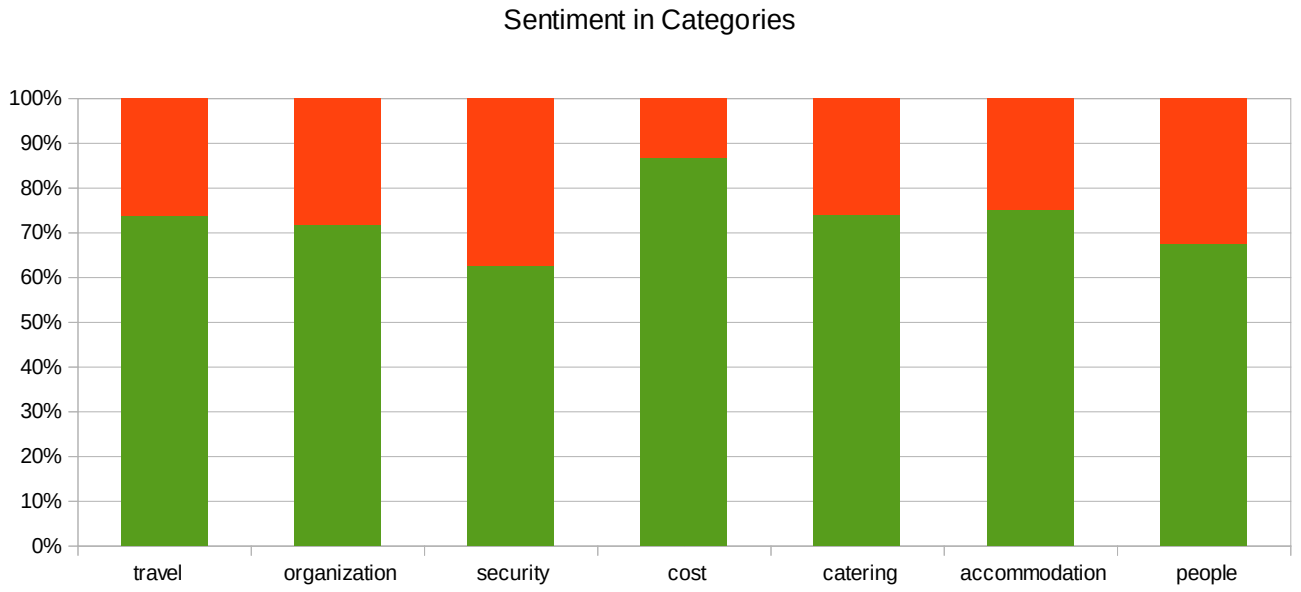
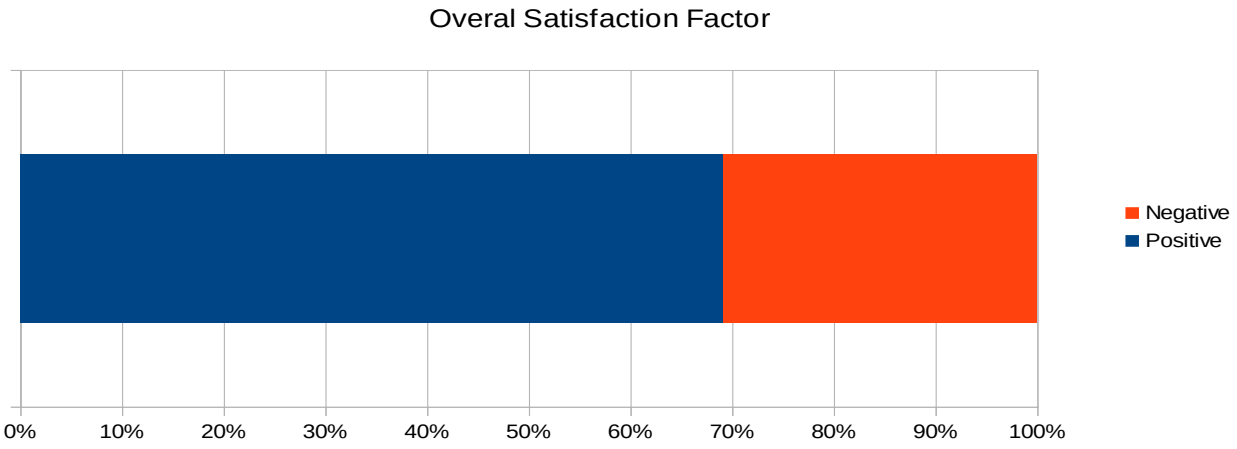
CeBIT 2013 – sentiment in categories





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Sentiment analysis allows to...

- Measure customers' reactions after a product lunch
- Analyze what people hear and say about a company or a product
- Answer the questions: Which features of a product are mostly commented on? What are the pros and cons?
- Track the activities of the competition. What do they say and do to gain customers? What do people think about the competitors?
- Measure the success of advertising campaigns

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Thank you !

tomasz.stradomski@pl.ibm.com

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