

Psychiatrists, Psychologists and Computer Scientists: Exploring new research collaboration opportunities



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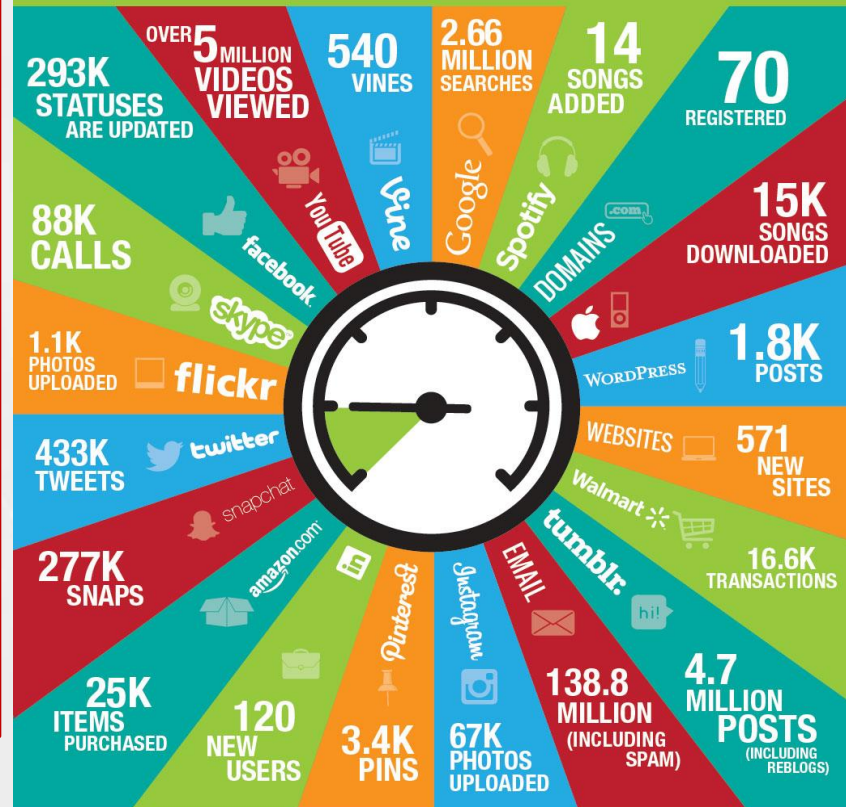
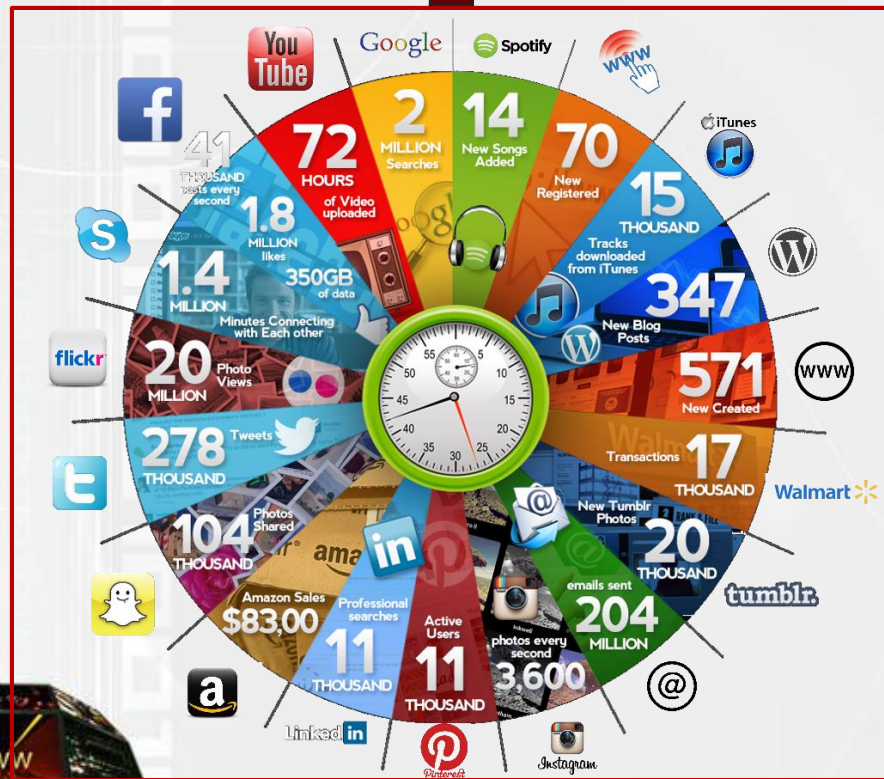
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Web 2.0 and Online Social Networks (OSN)

qmee.com

ONLINE IN
60
SECONDS
A YEAR LATER

WE ALL KNOW ACTIVITY ON THE INTERNET ON A DAILY BASIS MOVES AT LIGHTNING SPEED, BUT THERE'S SOMETHING ABOUT HAVING THE NUMBERS IN FRONT OF YOU THAT MAKES IT JUST A LITTLE MORE FASCINATING. LAST YEAR, WE PUBLISHED THE INFOGRAPHIC "ONLINE IN 60 SECONDS" AND WE THOUGHT IT WOULD BE GREAT TO TAKE A LOOK AT HOW THE NUMBERS EVOLVE, IN JUST ONE YEAR.



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Open Source & Social Media Intelligence

Open Source Intelligence (OSINT) is produced from **publicly available** information, which is:

- Collected, exploited and disseminated in a **timely** manner
- Offered to an **appropriate** audience
- Used for the purpose of addressing a specific **intelligence requirement**

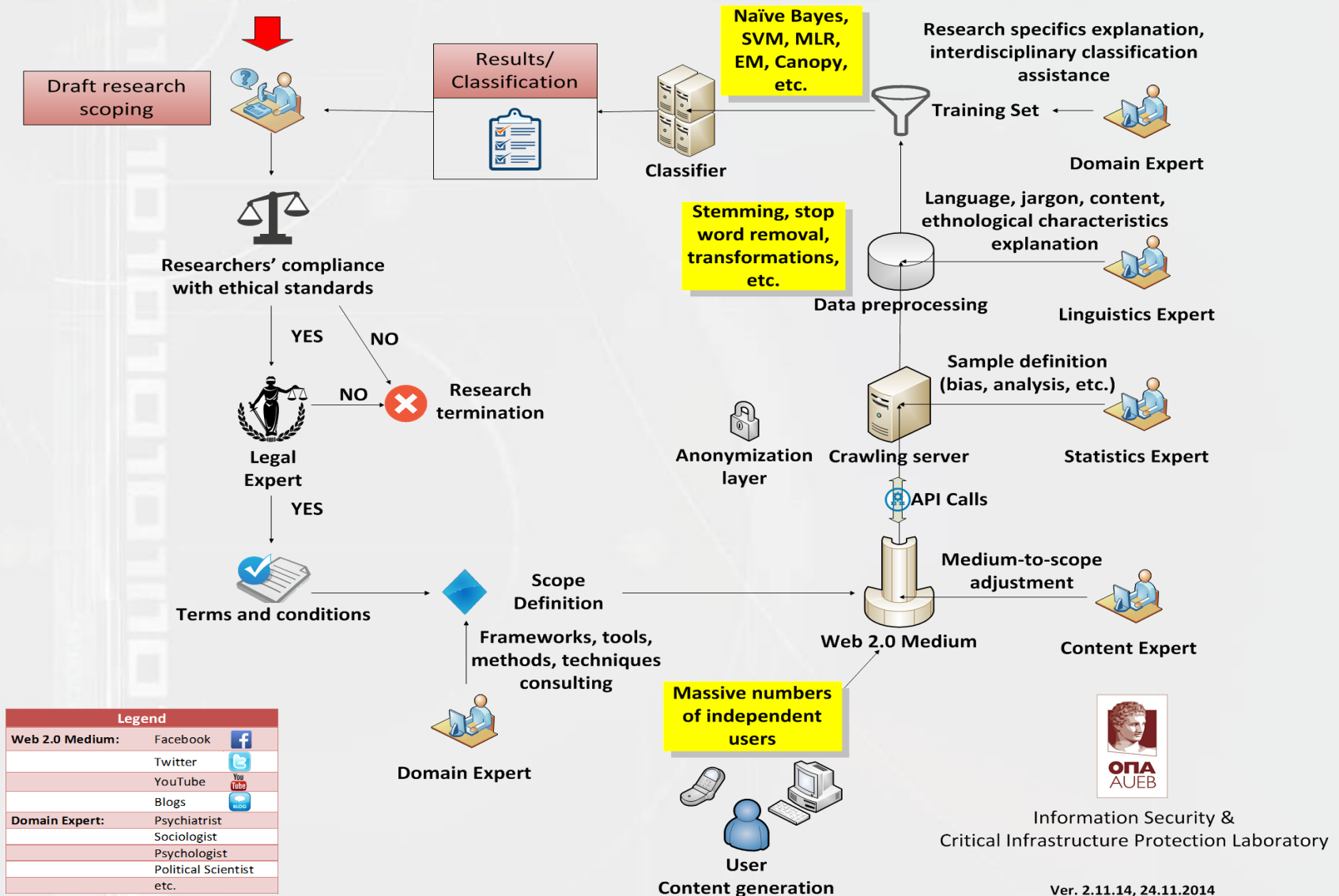
Publicly available information refers to (not only):



- **Traditional media** (e.g. television, newspapers, radio, magazines)
- **Web-based communities** (e.g. social networking sites, blogs)
- **Public data** (e.g. government reports, official data, public hearings)
- **Amateur observation/reporting** (e.g. amateur spotters, radio monitors)

Social Media Intelligence (SOCMINT) is produced from Online Social Networks and the Web 2.0.



NEREUS: Architecture in a nutshell



Legend	
Web 2.0 Medium:	Facebook 
	Twitter 
	YouTube 
	Blogs 
Domain Expert:	Psychiatrist
	Sociologist
	Psychologist
	Political Scientist
	etc.





NEREUS: Insider threat detection indications based on Narcissism

Narcissistic behavior detection

Study: Motive, ego/self-image, entitlement

Means: Usage Intensity, Influence valuation, Klout score

- ✓ Individuals tend to transfer offline behavior online.
- ✓ Utilize **graph theoretic** tools to perform analysis.
- ✓ Valuation of social media **popularity** and **usage intensity**.
- ✓ Assist in detecting **delinquent behavior**
- ✓ Assist in predicting **deviant behavior of minors**

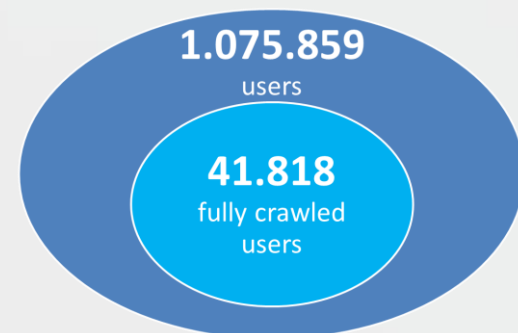




Dataset description

- Focus on a Greek Twitter community:
 - Context sensitive research
 - Utilize ethnological features rooted in locality
 - Extract and analyze results
- Analysis of content and measures of user influence and usage intensity
- User Categories: Follower, Following and Retweeter
- 41.818 fully crawled users (personal and statistical data)
 - Name, ID, personal description, URL, language, geolocation, profile state, lists, # of following/followers, tweets, # of favorites, # of mentions, # of retweets

Twitter (Greece, 2012-13)



7.125.561 connections
among them





Graph Theoretical approach

Strongly connected components:

There exists 1 large component (153.121 nodes connected to each other) and several smaller ones

Node Loneliness:

99% of users connected to someone

Small World Phenomenon:

Every user lies <6 hops away from anyone else

Indegree Distribution:

of users following each user
Average 13.2 followers/user

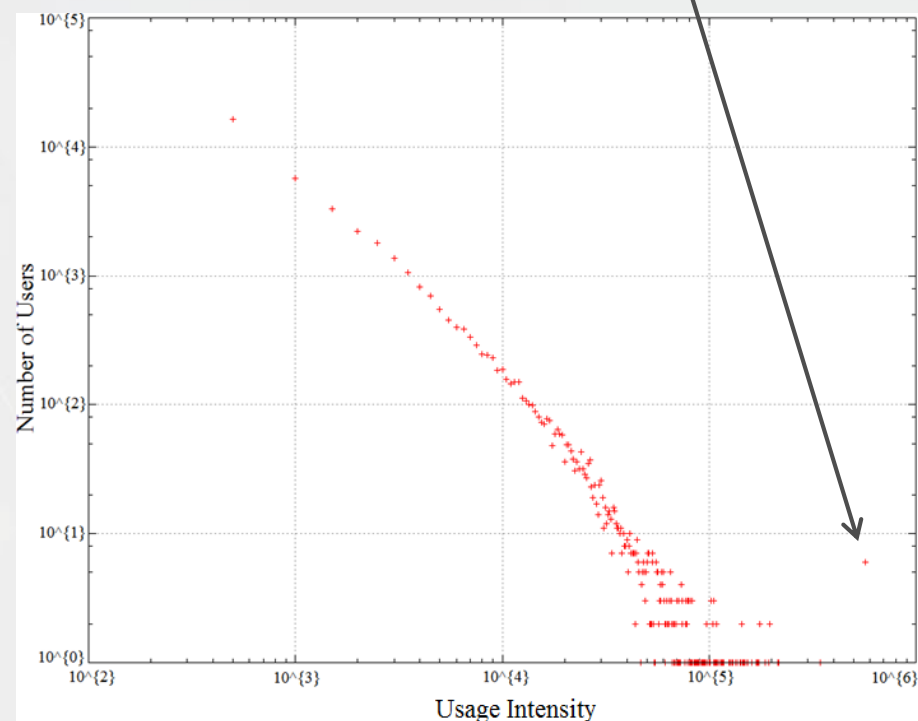
Outdegree Distribution:

of users each user follows
Average 11 followers/user

Usage Intensity Distribution:

Weighted aggregation of {# of followers, # of followings, tweets, retweets, mentions, favorites, lists}

Important cluster of users





Narcissism detection

Majority of users make limited use of Twitter

- A lot of “normally” active users
- Very few “popular” users
- Users classified into 4 categories, on the basis of specific metrics (i.e., Influence valuation, Klout score, Usage valuation)

Above a threshold:

- User becomes **quite influential/performs intense** medium use
- User gets a “**mass-media & persona**” status

Category	Influence valuation	Klout score	Usage valuation
Loners	0 - 90	3.55 - 11.07	0 - 500
Individuals	90 - 283	11.07 - 26.0	500 - 4.500
Known users	283 - 1.011	26.0 - 50.0	4.500 - 21.000
Mass Media & Personas	1.011 - 3.604	50.0 - 81.99	21.000 - 56.9000



Research collaboration opportunities

- ✓ Several **psychosocial characteristics** can be studied via **SOCMINT methods**.
- ✓ Contribution from psychiatrists and psychologists could **facilitate** further understanding of **online human behavior**.
- ✓ New opportunities for **analysis** of **results** and **findings**.
- ✓ **Psychiatrists** and **psychologists** could benefit from **massive, automated data processing** offered by **data scientists**.





General conclusions

- ✓ Major research opportunities do exist for collaboration between **psychiatrists**, **psychologists** and **computer scientists**.
- ✓ SOCMINT can transform into **intelligence** the vast amount of data produced by Web 2.0.
- ✓ SOCMINT is an intrusive technology and could put **in danger civic rights**.
- ✓ SOCMINT utilization is not - and should not be considered as - a solely **technical issue**.
- ✓ SOCMINT could assist in predicting **attitude towards law infringement** and **narcissism**.
- ✓ SOCMINT could assist in predicting **delinquent behavior** of **minors**.



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