

# The NEREUS Platform on a Bank Service



**D. Gritzalis, M. Kandias, V. Stavrou**  
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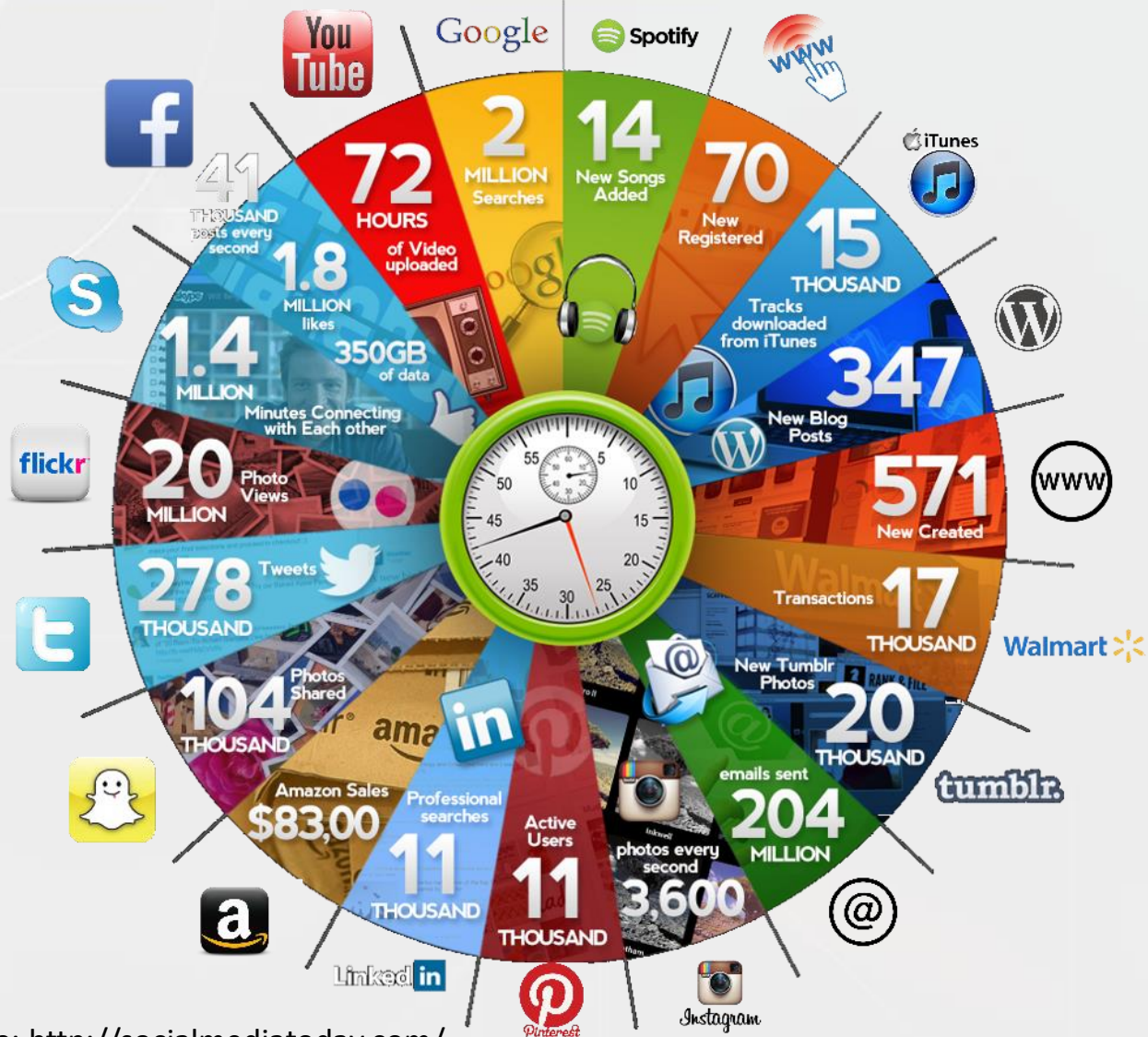


**ΟΠΑ**  
AUEB

**Dimitris Gritzalis, Miltos Kandias, Vasilis Stavrou**

Information Security & Critical Infrastructure Protection Laboratory  
Dept. of Informatics | Athens University of Economics & Business

# Web 2.0 and Online Social Networks (OSN)



Source: <http://socialmediatoday.com/>

# A generic professional motto...

Security & Marketing  
should pay, not cost!



# Banking goes social!

- ✓ Major banks around the globe exploit OSN opportunities
- ✓ ICICI Bank Twitter Banking
- ✓ Barclays 6 Facebook Apps
- ✓ ASB Bank Facebook payments
- ✓ Axis Bank 12 Facebook Apps



The image shows a screenshot of the Axis Bank Facebook page. At the top, there is a blue banner with the word "facebook" on the left. The banner features three smartphones displaying different mobile banking app interfaces. The first phone is labeled "FABULOUS", the second "ROCKSTAR", and the third "GENIUS". To the right of the third phone, it says "MEET YOUR NEW BANKERS". Below the banner is the Axis Bank logo, a red circle with a white 'A' and the text "AXIS BANK". To the right of the logo, it says "Axis Bank" and "1,648,125 likes · 28,302 talking about this". Below this is a section titled "Bank" with a brief description: "Axis Bank was the first of the new private banks to have begun operations in 1994. We welcome you to the official fan page of Axis Bank". Below the description is a grid of 12 app icons, each with a small description: "Photos", "Likes", "ProgressTogether...", "Youth Card", "Customer Sup...", "Plan Your Money", "Axis Bank Bra...", "Meri Zindagi K...", "Axis SpeedPay", "My Face My Tr...", "Buy Tickets", and "PicBadges".



# ...and then goes viral!

## **GT Bank** (<https://www.facebook.com/gtbank>)

- 12 Facebook Apps
- 2,359,205 likes



## **ICICI Bank** (<https://www.facebook.com/icicibank>)

- 12 Facebook Apps
- 3,510,663 likes



## **Barclays** (<https://www.facebook.com/BarclaysUK>)

- 6 Facebook Apps
- 557,968 likes



## **HDFC Bank** (<https://www.facebook.com/HDFC.bank>)

- 10 Facebook Apps
- 2,320,108 likes



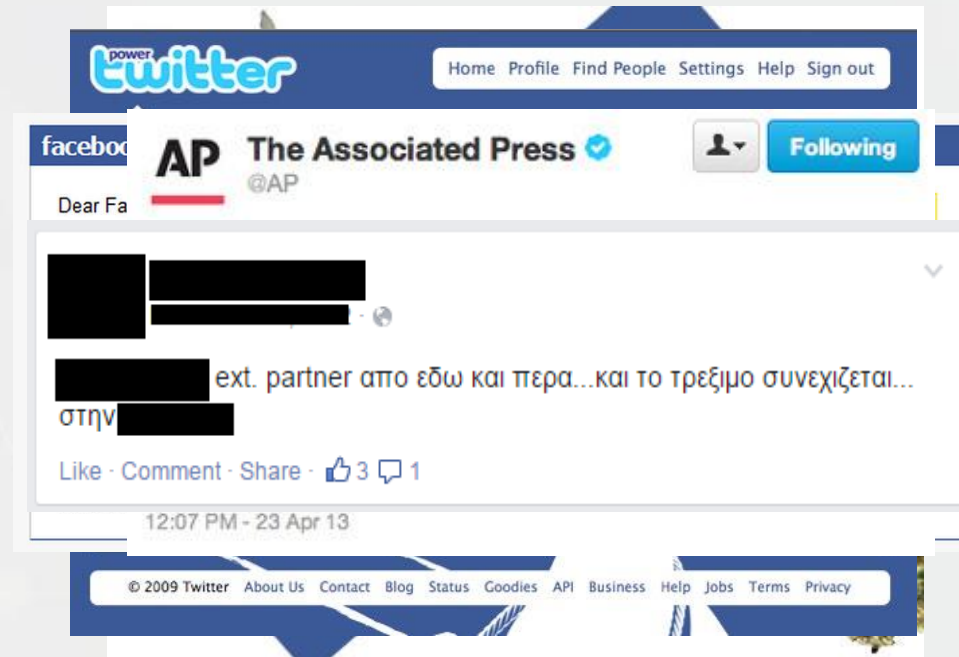
## **Axis Bank** (<https://www.facebook.com/axisbank>)

- 12 Facebook Apps
- 3,070,646 likes



# Threats

- ✓ Socioware man-in-the-middle
- ✓ OSN orchestrated DoS/DDoS attacks
- ✓ New age Phishing
- ✓ Social Engineering attacks
- ✓ Customer profile hijacking
- ✓ Data leakage









# Opportunities




- ✓ Detect Socioware infections, protect your clients
- ✓ Clients are good beta testers - collect their intelligence
- ✓ Aggregate crowd generated intelligence over your systems
- ✓ Evaluate performance and security
- ✓ Utilize Social Media Intelligence to enhance fraud detection
- ✓ Manage and mitigate data leakage
- ✓ Predict potential insiders



# Examples


   
 


To  e-banking της  χρησιμοποιεί [MD5](#) για message authentication....


   


Χειρότερο e-banking πεθαίνεις....

[Like](#) · [Comment](#) · about 6 months ago · 25 Reviews

   
January 9 · 

 the slowest bank in !! Don't deposit here or else it'll be the year 3015 before you can get your money out again.

[Share](#) ·  3  3



# Beyond Security

- ✓ Utilize results beyond ICT security
- ✓ Enhance Business Intelligence
- ✓ Gamify content
- ✓ Focus on individuals, and...
  - ...strengthen engagement
  - ...personalize offers/services
  - ...personalize content



# What do people/customers say?

[Redacted] [Redacted] · Athens · Edited · [Redacted]

Τον [Redacted] του [Redacted] αποπλήρωσα ολοσχερώς και κατά [Redacted] χρόνια νωρίτερα καταναλωτικό δάνειο και παρά τις διαμαρτυρίες μου η [Redacted] ουδέποτε μου επέστρεψε τα ασφάλιστρα ζωής που αφορούσαν το δάνειο από [Redacted] έως [Redacted]. Σήμερα όμως μου απέστειλε σοβαρότατη επιστολή για να εξοφλήσω και τα ασφάλιστρα ζωής από [Redacted] έως [Redacted]. Να τους αφήσω να μου κάνουν αγωγή? 😊 [Redacted]

Like · Comment · Share · 👍 54 💬 25

[Redacted] [Redacted]

οταν τηλεφωνω στα customer service των τραπεζών [Redacted] εχω την εντύπωση ότι μου μιλάει κάποιος που αργότερα θα τον μαστιγώσουν.

Share

Πριν από λίγο έκανα μια ανάληψη σε ευρώ από την [Redacted] στη [Redacted]. Το ποσό ήταν από συνάλλαγμα και ο υπάλληλος αντί να το περάσει στο κομπιούτερ μου το έγραψε χειρόγραφα και προσπάθησε να μου κλέψει 1000 ευρώ περίπου. Ευτυχώς το κατάλαβα και διόρθωσε το "υποτιθέμενο" λάθος του... Αν κάποιος ξέρει από αυτές τις διαδικασίες τον παρακαλώ πολύ να επικοινωνήσουμε για να με βοηθήσει στη καταγγελία που θέλω να κάνω, γιατί είναι σαφές τί πήγε να κάνει [Redacted]

Like · Comment · Share · 💬 1



# A bank asking important questions

- ✓ How can I boost customers engagement?
- ✓ How can I take advantage of top influential social media users?
- ✓ How can I enhance customers' satisfaction?
- ✓ How can I meet customers' expectations?



# A-Bank-in-a-Bank

- ✓ Every bank has many vaults
- ✓ How about yet another “vault”, i.e., the “vault” of data, transactions, and preferences for every client

**Why not systematic and in-depth-use of this data?**

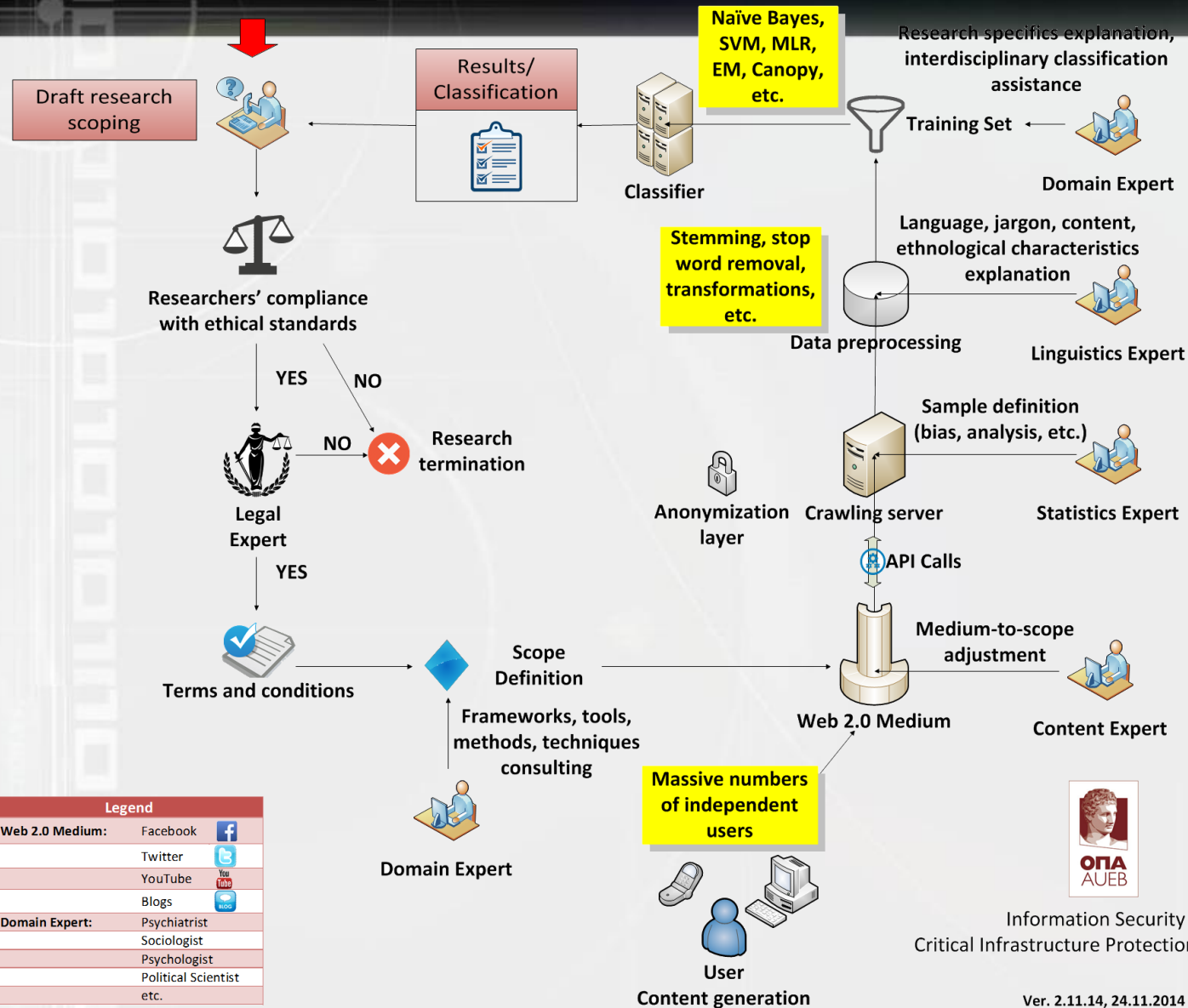
(where applicable, given informed consent of the user)



# NEREUS Base: Big Data Analysis



# NEREUS Platform: Generic Architecture



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



Information Security & Critical Infrastructure Protection Laboratory

# NEREUS Platform: Capabilities

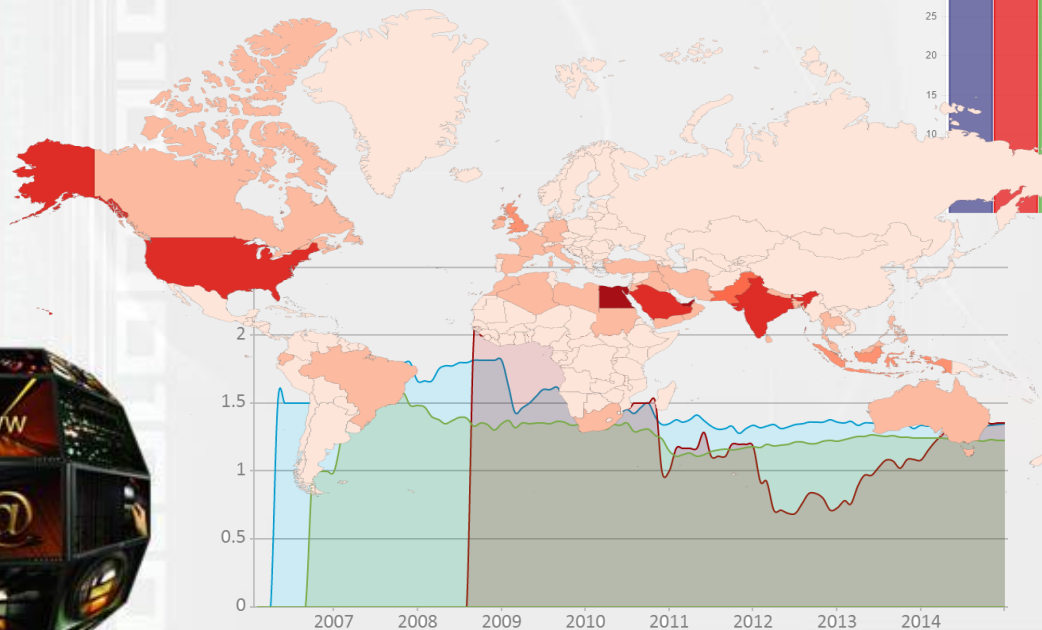
- ✓ Intensive data gathering and aggregation platform
- ✓ Online sources: Social Media, websites, blogs, portals, etc.
- ✓ Calculate specific OSN and Business Intelligence metrics
- ✓ Chronicity analysis
- ✓ (Automated) Sentiment analysis (14 languages + Greeklish)
- ✓ Qualitative, penetrating and reliable information, timely
- ✓ Not an opinion poll - gathers all of the sampling space
- ✓ "You-put-the-question, we-provide-the answer" capability



# NEREUS Platform: Data analysis options

Συλλογή και ανάλυση των **απόψεων**  
που εκφράζουν οι **πολίτες-πελάτες**  
στα **ψηφιακά μέσα**

**Αυτόματη ανάλυση**  
εκφραζόμενου **συναισθήματος**  
(ελληνικά + greeklish + 14 γλώσσες)



Εμβριθής **ανάλυση**  
και εύληπτη **απεικόνιση**  
απόψεων πολιτών-πελατών



# Real flexibility

(You put the question. We provide the answer!)

**3M**

**KORRES**

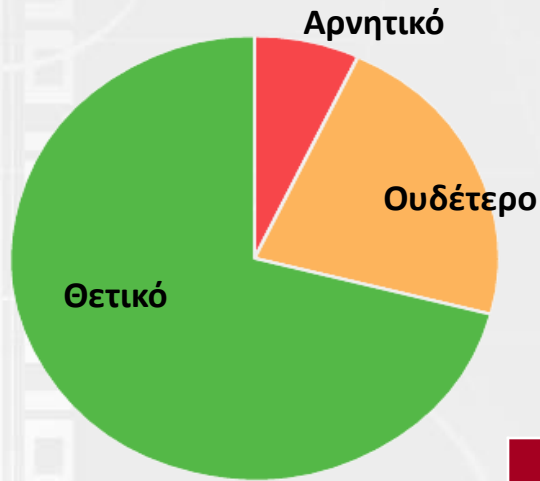


CITIZENS' OPTIONS		AREA OF INTEREST					
		Issue		Topic of interest $i$		Service $j$	
Context		Field $1$	Field $2$	Field $1$	Field $m$	Field $1$	Field $n$
OSN	attribute						
Facebook 	Location						
	Language						
	Target group						
	Time Period	From					
	To						
Twitter 	Location						
	Language						
	Target group						
	campaign						
	Time Period	From					
	To						
e-Market	attribute						
Amazon 	Location						
	Language						
	Time Period	From					
		To					
Blogs	attribute						
BLOG $x$ 	Language						
	Time Period	FROM					
		To					





# Google+: (Automated) Sentiment analysis



Sentiment	Positive	Neutral	Negative
# of posts	112	31	7

For 14 languages, including Greek & greeklish

Sentiment	Post
Positive	World on 44, Warwick Dubai signature Restaurant, officially opens its doors this next Sunday the 10th. Enjoy 360 degree panoramic views and an excellent cuisine with a blend of South American and Mediterranean flavors! #MyDubai #MyDSS #Eatingout
	What's on your must-do list for a perfect Eid? On this #TravelTuesday, we recommend you to enjoy the many off the beaten path & popular attractions Dubai has to offer, or travel by car and discover other Emirates to experience a Five-Star holiday with your loved ones! #eidholidays #eidalfitr #mydubai
Neutral	Can you guess the name of this traditional Arabian tower that can be found across the U.A.E? Tip: It was used centuries ago to provide natural ventilation to buildings. #Warwick #Dubai Photo Credit: Pinterest



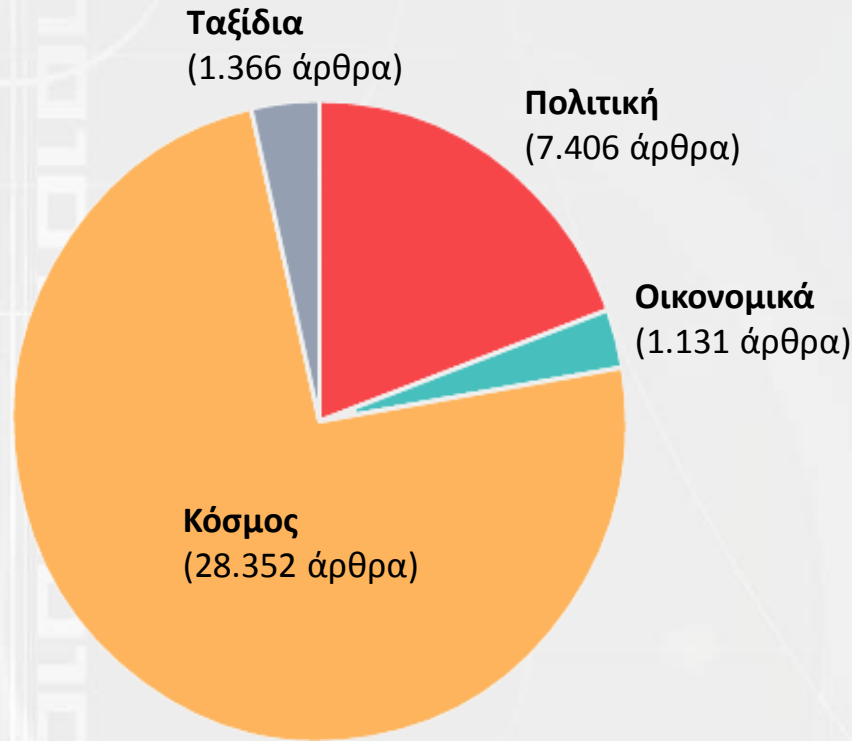


# Twitter: Most popular tweets/posts

Post	Likes
Atlantis The Palm tree is awesome, look at this picture and you will love it	770.712
Super Fireworks! Do you look forward to see what will happen in 2015? Follow and share!	486.778
Solid hospitality, amazing hotels and places to go sightseeing...	467.468
Full package experience, perfect for families and package holidays lovers! Check it.	395.446
Currently tax form completion #thunderstorm #saveme #yolo	381.796
#Airlines , New A380 Hub Concourse At #Airport	355.518
There's always a reason to celebrate. #GreatHoliday #letshavefun	349.137
A City Like No Other City, you must visit!!!	340.899
Guess where ?	313.152
Luxury boat tax free	306.281



# The Guardian: Article selection & assessment



- ✓ Η αρθρογραφία της εφημερίδας είναι έντονα αρνητική για τα ΗΑΕ
- ✓ Τα περισσότερα άρθρα αναφέρονται στα «Νέα του Κόσμου» και συσχετίζουν τα ΗΑΕ με την πολιτικά ασταθή περιοχή τους
- ✓ Αρκετά άρθρα της εφημερίδας αναλύουν την πολιτική κατάσταση της χώρας
- ✓ Σχετικά λίγα άρθρα της εφημερίδας αναφέρονται στα ΗΑΕ ως ταξιδιωτικό προορισμό
- ✓ Σχετικά λίγα οικονομικά άρθρα της εφημερίδας αφορούν τα ΗΑΕ

Sentiment	Positive	Neutral	Negative
# of articles	1.857	8.472	29.604





# The Guardian: Assessment of critical articles

Considering the price for this, it's **not worth** it in my opinion[...] . Not sure why, but this service **didn't blow me away**. It's **just ok**.

**Don't like the place**, municipality should have designed it better.

Previous process was **better** and **easier** to follow, they have **messed up**...



- ✓ Μία άποψη μπορεί να έχει θετικό, αρνητικό ή ουδέτερο περιεχόμενο
- ✓ Πολύ χρήσιμο στην αποτίμηση τραπεζικών υπηρεσιών





# Twitter:

## Who talks about the Bank? What about?



Narcissist

Mildly prone  
to high stress  
periods

Highly  
Influential

Mildly predisposed  
towards law and  
authorities



Economic  
Liberal

### Specific individual

Joined Twitter	23/04/2009
Age	25
Location	Greece
Profession	Journalist

### Specific individual

**Followers' profiling** on an individual basis.  
**Example: Top influencer w.r.t. a specific bank.**

# A sample of generic (answerable) questions

**You put the  
question.  
We provide  
the answer!**

- How could I exploit trends, so as to launch a new service campaign?
- How could I prepare content/gift/offer personalization?
- How could I engage customers on my service/product?
- How could I customize my products on each customer?
- What product should I promote to each customer, based on her preferences?



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