

# Social Media Analytics (SMA)

## *Social Media*

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DIPARTIMENTO DI  
INFORMATICA, SISTEMISTICA E  
COMUNICAZIONE

# The Social Web

- The **social aspect of communication** favored thanks to the technologies underlying Web 2.0 was to facilitate interaction between people who:
  - Share **strong relationships** (e.g., friendship, family, ...)
  - Share the **same tastes and/or interests** (tastes and interests vary depending on who the target audience is and what they are looking for)
  - Find themselves within **specific geographical contexts** or for specific purposes (for example the workplace)

# Retrieve information on the (Social) Web

- The availability of information is made possible not only by network protocols, but also by the presence, diffusion, ease of use and efficiency of **Web browsers** and **Search Engines**, as well as currently social media and mobile applications
- The discipline that deals with the study of Search Engines (and Recommender Systems) is called **Information Retrieval**
  - **Information Retrieval Course** (Master of Science in Computer Science)
  - **Text Mining & Search Course** (Master's Degree Course in Data Science)

# Another possible classification of data

- A distinction can be made between data that can be found, collected and analyzed through the Web and social media:
  - Virtual data
  - Digitized data
  - Digital data

Rogers, Richard. [\*Digital methods for web research\*](#). Emerging Trends in the Social and Behavioral Sciences: An Interdisciplinary, Searchable, and Linkable Resource (2015): 1-22

# Virtual data

## *Dati virtuali*

- By **virtual data** we mean those obtainable through the use of **conventional research methods**, such as surveys, interviews and focus groups, suitable for virtual use, online
- Virtual data derives from the use of the Internet and the Web as technologies aimed at the **recruitment of participants/respondents** and the performance of data collection
- These data can also be defined as **provoked data**, as they are answers provided by users following specific questions or requests made by the researcher

# Digitized data

*Dati digitalizzati*

- **Digitized data** consist of materials present on the network but also available in other formats (e-books, online newspaper articles, radio-television recordings, music, etc.)
- In this case, the Web and social media represent an "**immaterial archive**" of data available or potentially available also in an "analog" format

# Digital data

## *Dati digitali*

- **Digital data** represent the "traces" left by users in a multitude of socio-technological contexts
  - Web page visits
  - Searches carried out
  - Interactions of different nature with social media
- In the case of digital data, they are **generated spontaneously** by the will of the individual

# Social Media

Definitions, Terminology, Characteristics



# Social media characteristics

- According to Andreas Kaplan and Michael Haenlein\* social media has **specific characteristics**:
  - Social media are **interactive Web 2.0 applications**
  - **Content is generated by users**, such as text posts or comments, digital photos or videos and other data generated through all online interactions
  - **Users create service-specific profiles** for the website or app designed and managed by the social media organization
  - Social media facilitates the **development of online social networks** by linking a user's profile with those of other individuals or groups

\*Kaplan Andreas M., Haenlein Michael (2010). [\*Users of the world, unite! The challenges and opportunities of social media\*](#). Business Horizons. 53 (1): 61

# Social presence

## *Presenza sociale*

- The **theory of social presence**\* states that media differ in the degree of “social presence” - defined as the acoustic, visual and physical contact that can be achieved - between two communication partners
  - Social presence is **influenced by the degree of intimacy** (interpersonal / mediated) and by the immediacy (asynchronous / synchronous) of the means of communication.
  - Social presence is **lower for mediated communications** (e.g., telephone conversation) **rather than interpersonal** (e.g., face-to-face discussion) and for asynchronous communications (e.g., e-mail) compared to synchronous communications (e.g., live chat)

*“The higher the social presence, the larger the social influence that the communication partners have on each other’s behavior”*

\*Short, J., Williams, E., & Christie, B. (1976). *The social psychology of telecommunications*. Hoboken, NJ: John Wiley & Sons, Ltd

# Media richness

## *Ricchezza informativa dei media*

- Concept related to that of social presence
- The **media richness theory**\* is based on the assumption that the goal of any communication is the resolution of ambiguity and the reduction of uncertainty
- The theory claims that the **media differ in the degree of (information) "richness" they possess** - that is, the quantity and quality of information that can be transmitted in a given time interval - and that therefore some media are more effective than others in resolving ambiguities and uncertainty

\*Daft, R. L., & Lengel, R. H. (1986). *Organizational information requirements, media richness, and structural design*. Management Science, 32(5), 554—571

# *Social Presence/Media Richness*

Social presence/ Media richness		
Low	Medium	High
Blogs	Social networking sites (e.g., Facebook)	Virtual social worlds (e.g., Second Life)
Collaborative projects (e.g., Wikipedia)	Content communities (e.g., YouTube)	Virtual game worlds (e.g., World of Warcraft)

From: Kaplan Andreas M., Haenlein Michael (2010). [\*Users of the world, unite! The challenges and opportunities of social media\*](#). Business Horizons. 53 (1): 61

# Self-presentation

## *Auto-presentazione*

- With respect to the **social dimension** of social media, the concept of **self-presentation**\* states that in any type of social interaction people have a desire to control the impressions other people form of them.
  - **On the one hand**, this is done with the **aim of influencing others to obtain a counterpart** (for example, making a good impression on future in-laws);
  - **On the other hand**, it is driven by the **desire to create an image that is consistent with one's personal identity** (for example, wearing a fashionable dress to be perceived as young and fashionable).
- The concept of self-presentation is related to the concept of **self-disclosure** (that will be treated in detail in the lesson on **privacy**).

\*Goffman, E. (1959). *The presentation of self in everyday life*.  
New York: Doubleday Anchor Books

# Self-disclosure

## *Auto-rivelazione*

- **Self-disclosure** refers to the act of **revealing personal information**, thoughts, feelings, or experiences to others.
  - It involves sharing aspects of one's inner self with varying degrees of depth and intimacy.
  - On social media, self-disclosure can manifest as sharing personal stories, emotions, achievements, challenges, and life updates. It can occur through status updates, photos, videos, and written posts.
- The **extent** and **nature** of self-disclosure on social media can vary greatly among individuals.
  - Some may engage in authentic self-disclosure, sharing their inner thoughts and feelings;
  - Others may disclose more selectively, sharing only certain aspects of their lives.

Schlosser, A. E. (2020). Self-disclosure versus self-presentation on social media. *Current opinion in psychology*, 31, 1-6

# Relationship between self-presentation and self-disclosure on social media

- People may use **self-presentation** to shape the way they are perceived by others, including by choosing which aspects of their lives to disclose.
  - For example, someone might present themselves as a fitness enthusiast by sharing workout routines and healthy meals.
- The level of **self-disclosure** can affect the authenticity and intimacy of online interactions.
  - Individuals who engage in high levels of self-disclosure may be perceived as more open and genuine, while those who disclose very little may appear more guarded or reserved.
- The **balance between self-presentation and self-disclosure** varies from person to person and platform to platform.
  - Some social media platforms are more conducive to authentic self-disclosure (e.g., personal blogs), while others may encourage more curated self-presentation (e.g., professional networking sites).

# A definition of social media

*“Social media are **interactive computer-mediated** technologies that facilitate the **creation** and **sharing** of information, ideas, career interests and other forms of expression via **virtual communities** and **networks**”\**

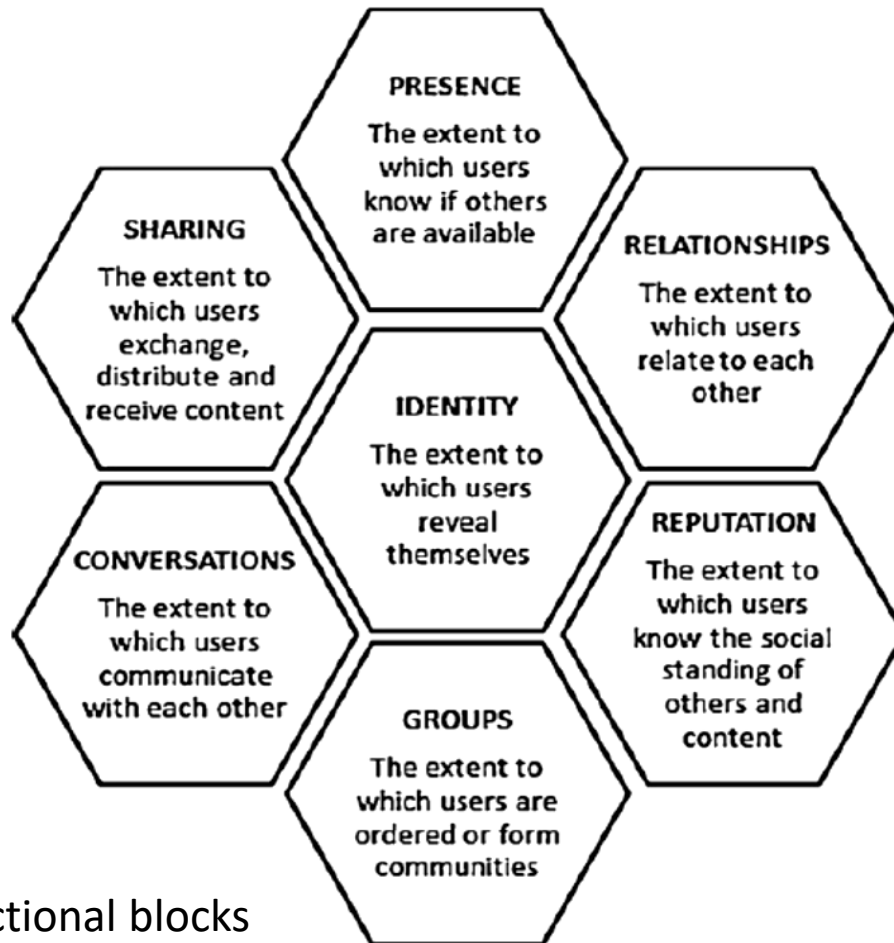
- **Main aspects:**

1. Interactive computer-mediated technologies
2. Creation and sharing of information
3. Virtual communities

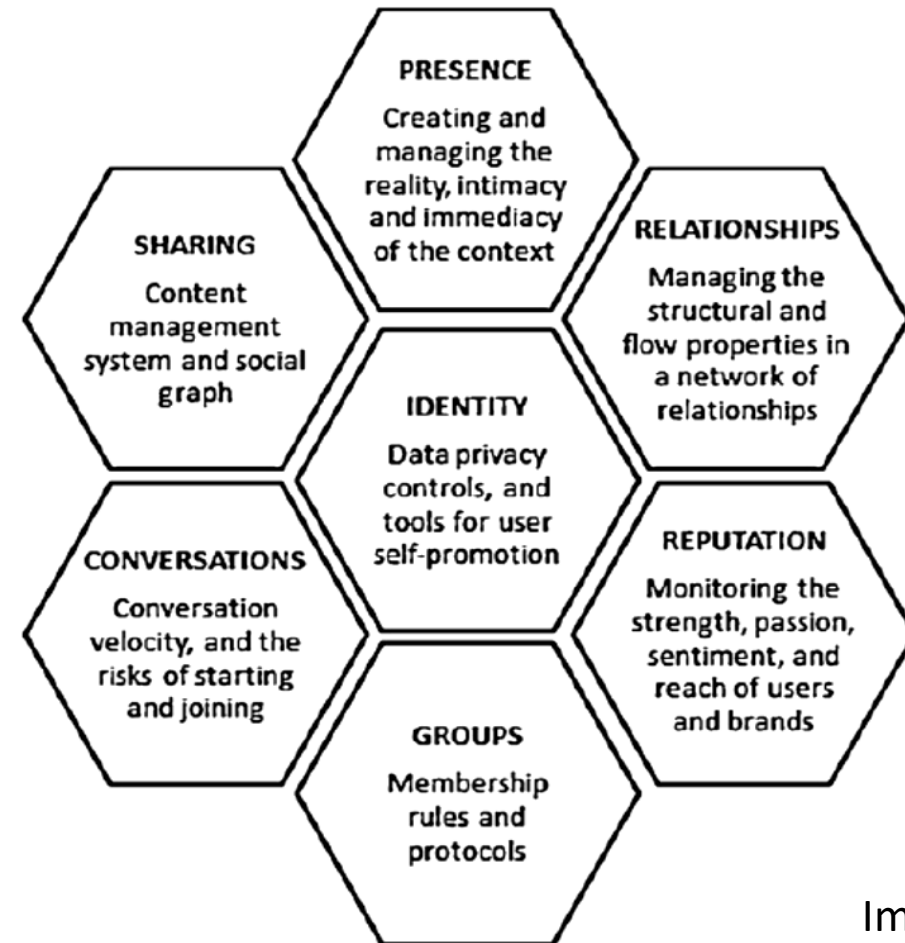
\*Kietzmann, Jan H.; Kristopher Hermkens (2011). [\*Social media? Get serious! Understanding the functional building blocks of social media\*](#). Business Horizons. 54 (3): 241–251



# Functional blocks

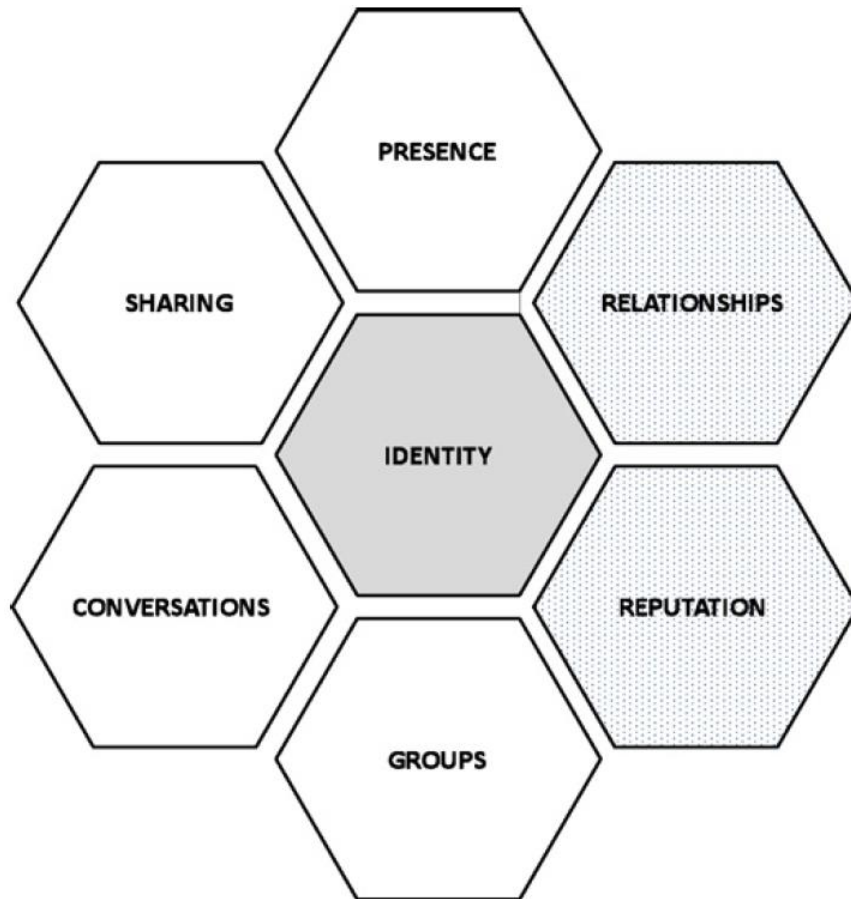


The 7 functional blocks

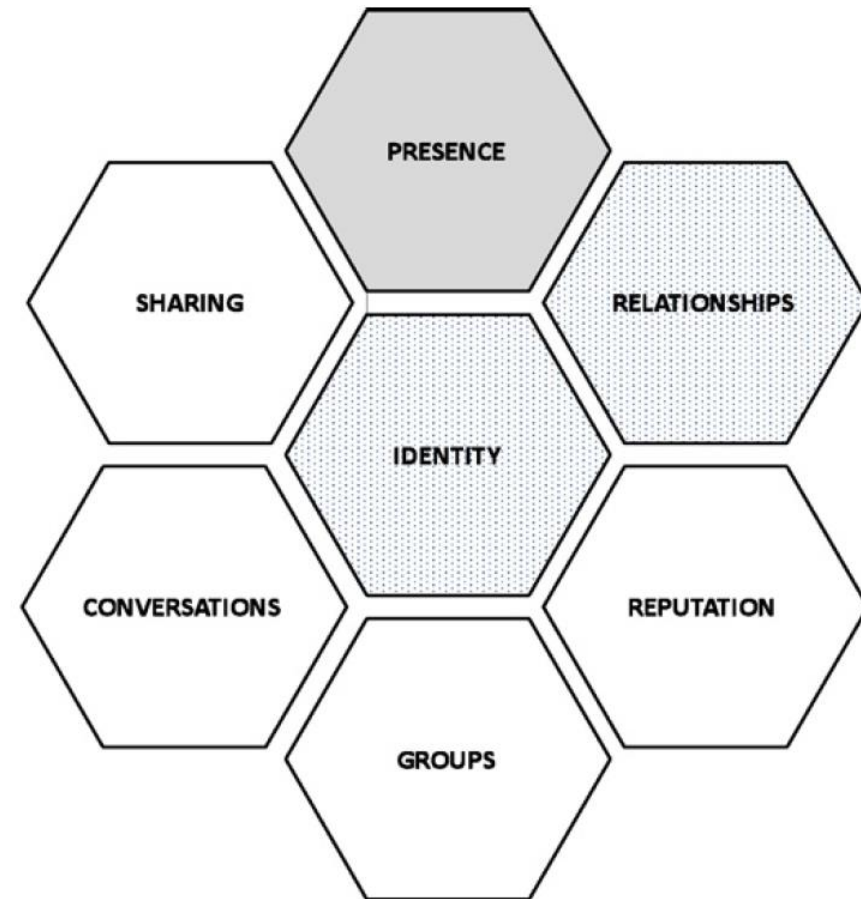


Implications

# Examples of functional blocks (1)

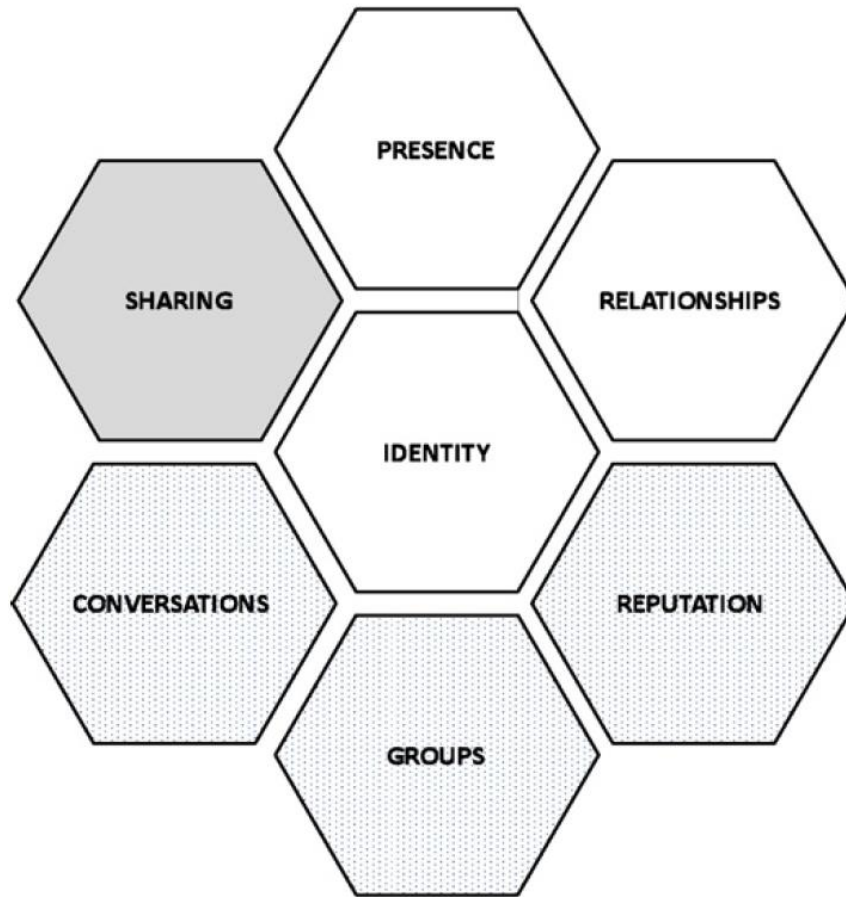


**LinkedIn**

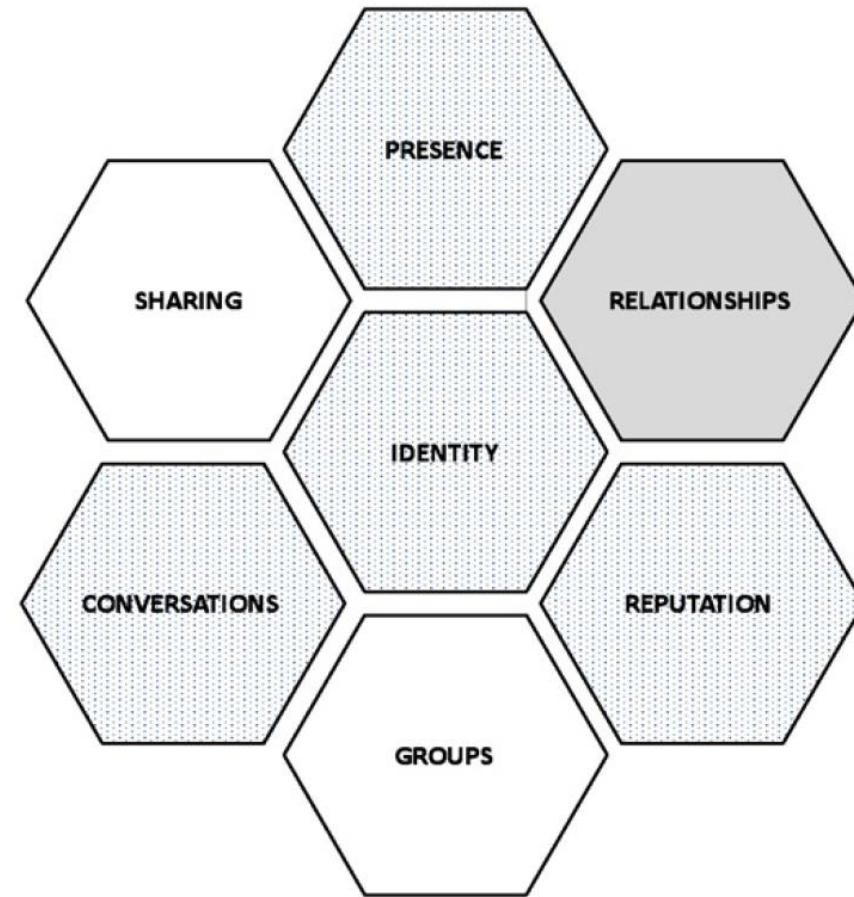


**Foursquare**

# Examples of functional blocks (2)



**YouTube**



**Facebook**

# User-Generated Content (UGC)

*Contenuto generato dagli utenti*

- The expression **User-Generated Content** (UGC) denotes any form of content created by users of an online system or service, often made available via social media
- **Reasons** for creating UGC:
  - Implicit incentives
  - Explicit incentives

# Implicit incentives

## *Social incentives*

- They are **not based on anything tangible**, directly "monetizable"
- **Social incentives** are the most common form of implicit incentives
  - They allow the user to feel good as an **active member** of the community
  - They can include the possibility of establishing **relationships** between users, e.g., Facebook friends or X followers
  - They also include the ability to **share media** and **experiences**
    - While using a particular product/service. This will improve the customer experience as they can make **informed decisions** in purchasing a product, which makes them smart buyers
    - While talking about their own health problems. This will improve both **health literacy** and **support and community building**. Online support groups, forums, and hashtags related to specific health conditions

# Implicit incentives

## *The concept of Social Capital*

- **Social Capital** in the context of social media refers to the network of social relationships, connections, and interactions that individuals build and maintain online.
- It represents the **value that these relationships** and connections hold, both in terms of **personal** and **professional benefits**.
- Social Capital on social media can be categorized into **three main types**:
  - **Bonding Social Capital**
  - **Bridging Social Capital**
  - **Linking Social Capital**

Campante, F., Durante, R., & Tesei, A. (2022). Media and social capital. *Annual Review of Economics*, 14, 69-91



# Implicit incentives

## *Bonding Social Capital*

- **Bonding Social Capital:** the close connections and relationships individuals have with their family, friends, and close associates on social media
  - These connections provide **emotional support**, a sense of belonging, and social cohesion
  - Often characterized by **strong ties** and a high degree of trust and reciprocity
    - For example, staying in touch with family members or close friends on social media platforms

# Implicit incentives

## *Bridging Social Capital*

- **Bridging Social Capital:** the connections and relationships that individuals have with acquaintances, colleagues, and individuals from diverse backgrounds on social media
  - These connections facilitate **access to a broader range of information**, resources, and opportunities
  - Characterized by **weaker ties** but a wider network
  - Valuable for accessing new job opportunities, gathering information, and engaging with different perspectives
    - For instance, connecting with industry professionals or joining online communities of interest



# Implicit incentives

## *Linking Social Capital*

- **Linking Social Capital:** the connections with individuals or organizations in positions of authority, power, or influence
  - These connections can help individuals access resources, navigate bureaucratic systems, and advance their professional or personal goals.
  - Often associated with one's ability to tap into external resources through their network
    - Examples include connections with mentors, influencers, or leaders in a specific field or industry

# Implicit incentives

## *Achieving a status*

- Other common incentives are the **achievement of a particular status** or level within the social media, without obtaining any additional privileges
  - Influencer status
  - Verified status
  - Moderator status
  - Content creator status
    - Meme creator status
- These types of incentives **cost very little to the host site** and can help growth; however, their very nature requires a sizable existing community before they can function

# Explicit incentives

- These incentives **refer to tangible rewards**
- Explicit incentives are **easily understood** by most people and have immediate value regardless of the size of the community:
  - Entering a contest, obtaining a voucher, a coupon, etc.
  - The **Amazon Mechanical Turk** crowdsourcing service uses financial incentives to encourage user participation
- The **disadvantage** of explicit incentives is that they can make the user believe that the only reason for participating is the explicit incentive
  - This reduces the influence of the other type of social or altruistic motivation, making it increasingly expensive for the content host to retain contributors for the long term

# Virtual community

- A **virtual community** is made up of a **social network of individuals** who interact through specific means of communication, potentially crossing geographical and political boundaries in order to pursue mutual interests or objectives
- Some of the most pervasive virtual communities are online communities operating in the social media environment (also known Social Networking Services or Social Networking Sites - SNS)

Howard Rheingold, *The Virtual Community* - <http://www.rheingold.com/vc/book/intro.html>

# Social network

## *Definition*

- A **social network** is a social structure made up of a set of **social actors** (such as individuals or organizations), a series of **dyadic links**, and other social interactions between actors



# Social network

## *How to analyze it*

- There are a number of methods for **analyzing the structure** of social entities, as well as a variety of theories that explain the patterns observed in these structures (concepts detailed in subsequent lessons)
- The study of these structures uses **Social Network Analysis** (SNA) techniques to identify local and global patterns, identify influential entities, and examine network dynamics

# Evolution of social media (1)

- It is **1971** when **Ray Tomlinson** - American programmer involved in the development of ARPANET - has an idea: to transfer messages from one node to another of the network - made up of computers located in different US universities - using the @ sign to divide the recipient's name from that of the machine
- **Curiosity:** What was written in the first e-mail of the story? For years this question has been chasing Tomlinson, but he has only vague memories. "Maybe I wrote QWERTYUIOP, all caps," he said in the past
  - Like many inventors, Tomlinson did not become a millionaire. In fact, he didn't earn a single dollar from the email: "The fact that people still talk about me, and the origins of email is my only reward," he said

# Evolution of social media (2)

- **1973** - The **Bulletin Board Systems** (BBS) are developed, i.e., computers that use software to allow external users to connect to them via the telephone line, giving the possibility to use centralized messaging and file sharing functions
- **1988** - **Internet Relay Chat** (IRC): is an instant messaging protocol on the Internet. It allows both direct communication between two users and the simultaneous dialogue of groups of people grouped in discussion "rooms", called "channels"
  - IRC is considered to be the forerunner of instant messaging



# Evolution of social media (3)

- **1990** - Birth of the **World Wide Web**
- **1997** - **SixDegrees** (made by **Andrew Weinreich**).
  - It can be considered the first site with all the main features of modern social networks
  - The site offered users the ability to create their own public profile online, manage a contact list and interact with other users through private messaging



# Evolution of social media (4)

- **2003 - MySpace**. The most important social media until 2006, which introduced the ability to customize the graphic appearance of each user profile and to share music and videos
  - Platform based on fostering the exchange of interests and promoting personal talent
- **2004 - Facebook**
- **2006 – Twitter**
- **Today** - Instagram, instant messaging services (WhatsApp, Snapchat, Telegram, ...), various apps characterized by elements of social interaction (TripAdvisor, Yelp, Amazon, Booking, ...)

For a more "interactive" view ...



<https://avalaunchmedia.com/history-of-social-media/>

# Types of social media

## *Blogs and microblogs*

- **Blogs**: websites containing one or more posts that interactively discuss a certain topic. Posts usually presented in chronological order
  - Blogosphere (Blogosphere): the collection of blogs available on the Web
- **Microblogging platforms**: aimed at the constant publication of “small content” in the form of (short) text messages, with the possibility of including images, videos, audio, but also bookmarks, quotes, notes
  - The most popular microblogging platform is nowadays Twitter (X)
  - Some microblogging aspects also in other social media
    - LinkedIn
    - Mastodon (a decentralized social media platform)

# Types of social media

## *Discussion*

- **Forums/Discussion social media:** diverse and specialized communities, extensive comment sections, and focus on facilitating in-depth conversations on a wide range of topics
  - Asynchronous communication tool. Discussion threads can stay alive for years.
  - **Question-Answering (QA) systems**
  - **Reddit:** a social media platform that is primarily organized into thousands of user-created communities called "subreddits"
    - Each subreddit focuses on a specific topic, interest, or theme.
    - Within these subreddits, users can post text, links, images, videos, and comments to engage in discussions, share information, and participate in the community

# Types of social media

## *News*

- **News sites:** they represent the digital identity, mirror or complementary, of the paper edition of the main national, local and international newspapers.
  - Although not properly classifiable as social media, they increasingly provide the possibility to leave comments and interact with other users who follow the magazine
- **Microblogging platforms**
  - ~~Conversational content~~
  - Newsworthy content

# Types of social media

## *Other social media types*

- **Social Networking Sites** (e.g., Facebook, LinkedIn)
- **Virtual game worlds** (e.g., World of Warcraft)
- **Virtual social worlds** (e.g., SecondLife)
- **Collaborative projects** (e.g., Wikipedia)
- **Content communities**: based on the exchange of (multimedia) contents:
  - Sharing of images (Photo Sharing) (e.g., Instagram, Snapchat, Pinterest)
  - Sharing videos (Video Sharing) (e.g., YouTube, Facebook Live, Periscope, Vimeo)

# Types of data on social media

## *“Individual” content*

- **Articles**: mainly from news sites. What constitutes news?
- **Posts**: generally, blog and Social Networking Sites (e.g., Facebook) contents, even if these media have different analytical metrics
- **Microblogging content**: short text messages enriched with URLs, images, videos and other multimedia content
- **Reviews**: These are the ratings (reviews) left by users.
  - They may concern apps (e.g., App Store or Google Play Store), hotels and restaurants (e.g., TripAdvisor, Booking), books (e.g., Amazon)
  - Reviews can come out of the spaces where the good/service is purchased and be hosted on blogs and newsgroups, as well as on various social media



# Types of data on social media

## *“Collective” content*

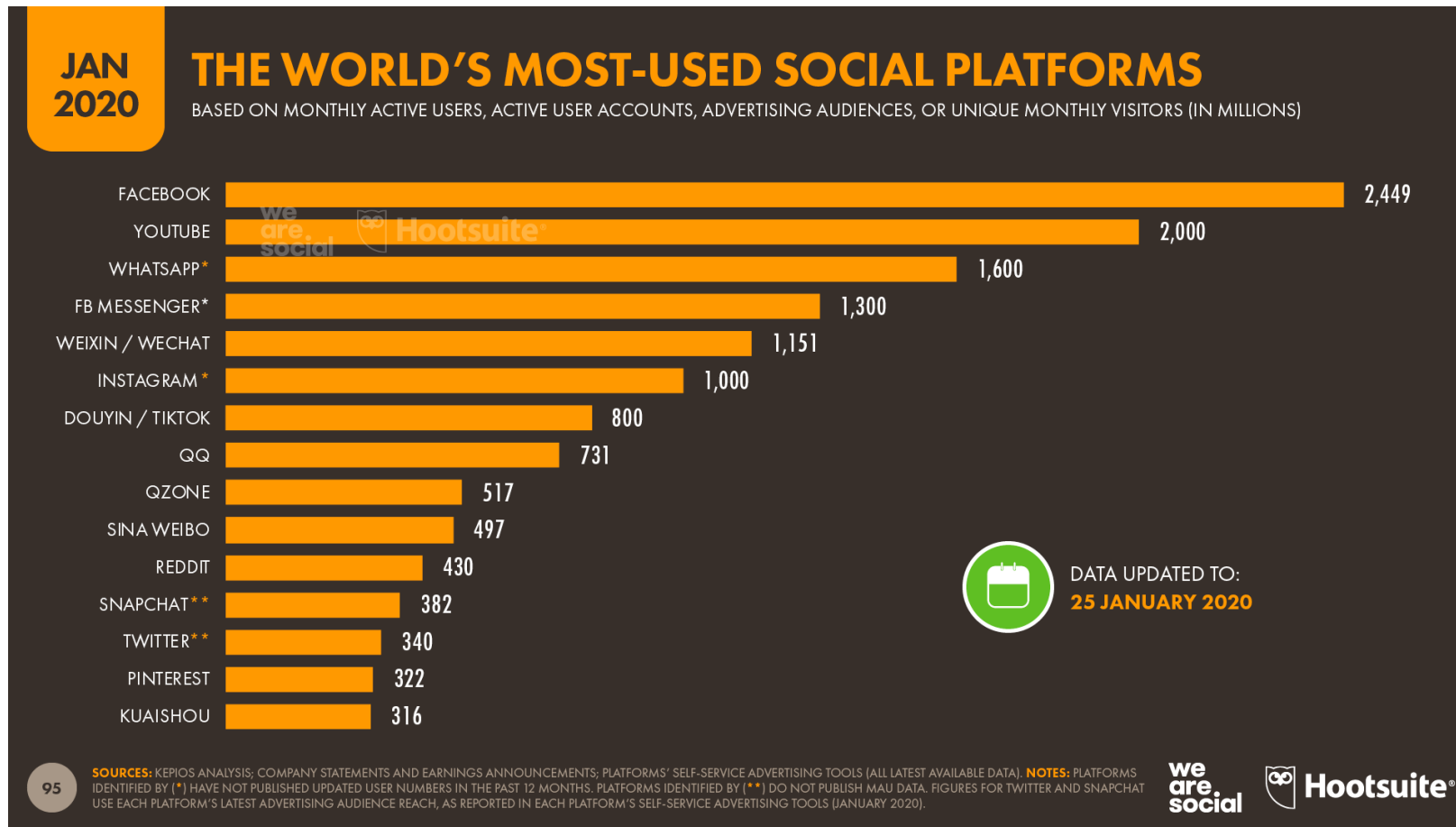
- **Threads:** In the jargon of forums, newsgroups and chats, a thread indicates the **conversation developed between multiple users**
  - Usually, the discussion arises from a **topic** proposed by a user
  - Some threads can last for years and be fed multiple times
  - Forums, discussion-based social media, microblogs, etc., are essential for monitoring specific topics (thematic interests)

# Types of data on social media

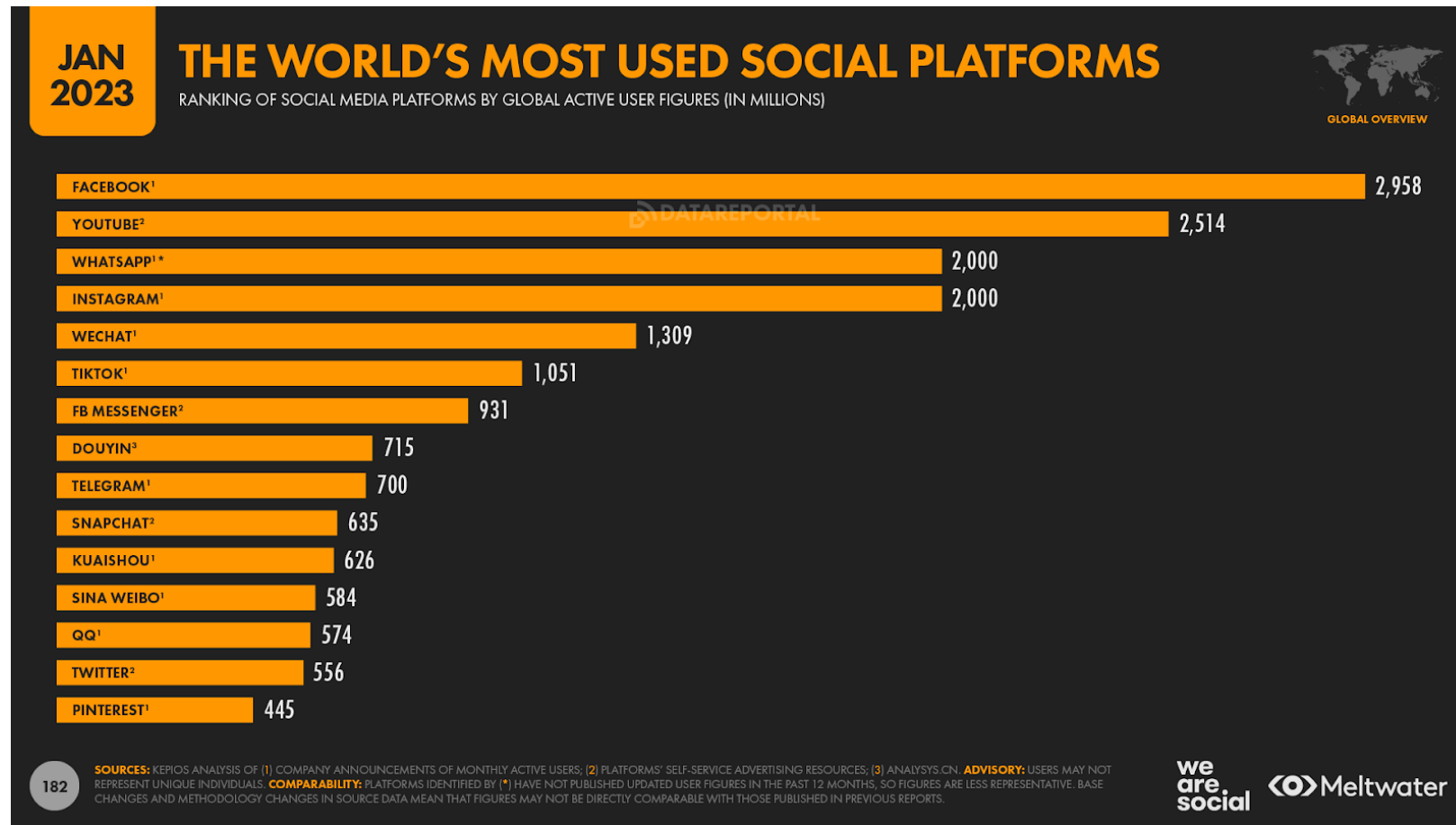
## *Multimedia content*

- **Images and videos:** data that have been driving the market since 2016
  - Growth of Instagram globally
  - Snapchat spread
  - Facebook Live, Instagram Stories
  - GIF (Graphics Interchange Format) → Diffusion of “memes”
  - Vertical video spread → They are gaining momentum driven by the combination of smartphones and apps

# Evolution in the use of social media (2020)



# Evolution in the use of social media (2023)



# Other social media characteristics (1)

- **Accessibility**: access is easy and usually free ("extra" services may require special tariff plans, governments can restrict access to platforms)
- **Global audience**: the opportunity to communicate directly and simply with a global audience, so that the message (if well conveyed) can be amplified by contact networks
- **Usability**: anyone, regardless of the level of education or training, is able to publish and retrieve a considerable amount of information (with different levels of detail)

# Other social media characteristics (2)

- **Permanence**: once created, the contents can be deleted, but depending on the type of platform used they can remain the property of that platform or remain accessible as "digital traces" even for a long time (is it possible to be "forgotten"? → [Lesson on privacy](#))
- **Speed**: it is possible to access the information in real-time mode, in the very moment in which it was published
- **Measurability**: unlike traditional media, everything that can be found online is potentially measurable: comments, responses, reactions, likes, frequency in the use of words, etc.

# Social Media Architectures

# Centralized social media

- Main social media (e.g., Facebook, Twitter, Instagram, etc.) follow nowadays a **centralized paradigm**:
  - Most of the social media providers grant free services to its users and in exchange reserve the rights to use the data shared/published by users in any possible way
- ISSUES:
  - **Privacy concerns**: data collection and data breaches
  - **Lack of user control**: limited control and content removal
  - **Monopoly power**: market dominance and algorithms manipulation
  - **Filter bubbles and echo chambers**: polarization, misinformation
  - **Lack of interoperability**: data migration



# Towards decentralized social media (1)

- A **Decentralized Online Social Network** (DOSN) is an online social network implemented on a distributed platform
- In a DOSN, there is no single service provider but a set of nodes that cooperate to guarantee all the functionalities offered by a centralized OSN
- Decentralization gives several benefits in terms of privacy
  - There is no central entity having control on users' data or changes the existing terms of service, and this gives to the users more control over their data

Guidi, Barbara, et al. [\*Managing social contents in decentralized online social networks: a survey\*](#). *Online Social Networks and Media* 7 (2018): 12-29

# Towards decentralized social media (2)

- Moving from a centralized to a distributed architecture gives the opportunity to develop the social network platform by exploiting different **distributed models**
- Following the way of how people interact with each other in a social network, makes **P2P architectures** a natural way to implement DOSNs
- Several alternative solutions:
  - Exploiting network of **trusted servers**, or **opportunistic mobile networks**
  - **Hybrid solutions** where the user exploits both the storage of its own device and a cloud storage service

# (A parenthesis: opportunistic mobile networks)

- **Opportunistic mobile social networks** are a form of mobile ad hoc networks that exploit the human social characteristics, such as similarities, daily routines, mobility patterns, and interests to perform the message routing and data sharing
- In such networks, the users with mobile devices are able to form **on-the-fly** social networks to communicate with each other and share data objects

# Towards decentralized social media (3)

- While decentralization gives interesting possibilities for increasing the privacy level of users' data, it introduces many **challenges**, still to be solved
- These mainly concern the **management of social data in a distributed environment**
  - How to guarantee the availability of social data, in an environment characterized by a high level of dynamism
  - How develop techniques for propagating social updates in an efficient way
  - Even if data is no more stored on centralized servers, new privacy issues have to be solved, for instance detecting trusted nodes that may host the profile of off-line users

# Blockchain Online Social Media

- To consider issues related to DOSNs, platforms based on blockchain technology, named **Blockchain Online Social Media** (BOSM), were introduced
- The idea behind BOSM is to employ blockchain technology for different purposes, such as:
  - To **decentralize control** on social data, in some cases letting users maintain control of their social content
  - For introducing a **rewarding system**
- Using blockchain, BOSM have the capability to track the contribution and level of participation of a particular creator, or even users

Guidi, Barbara. [\*An overview of blockchain online social media from the technical point of view\*](#). Applied Sciences 11.21 (2021): 9880

# (A parenthesis: blockchain)

- A **blockchain** is a type of **Distributed Ledger Technology** (DLT) that consists of growing list of records, called blocks, that are securely linked together using cryptography
- Blockchains are typically managed by a **Peer-to-Peer** (P2P) computer network for use as a public distributed ledger, where:
  - Validating new blocks is followed by a set of **protocols** and **consensus** from every participant of the network
  - A block is a collection of data that stores **transaction details**, such as the timestamp and link to the previous block, which is generated by a secure hash algorithm
  - Any involved block **cannot be altered retroactively**, without the alteration of all subsequent blocks

# (How does blockchain technology work?)

1. Some person **requests** a transaction. The transaction could be involved cryptocurrency, contracts, records, or other information
2. The requested transaction is **broadcasted** to a P2P network with the help of nodes
3. The network of nodes **validates** the transaction and the user's status with the help of known algorithms
4. Once the transaction is complete, the new block is then **added** to the existing blockchain. In such a way that is permanent and unalterable



<https://www.guru99.com/blockchain-tutorial.html>

# BOSM properties (1)

- **Data control and content management**

- In a decentralized network, there is no central authority that collects and stores data. Indeed, users are part of the network and are able to establish their own rules for the content that they generate
- Blockchain authentication process makes data leaks almost impossible

- **Censorship and democratized governance**

- Decentralized networks offer users independence because of the lack of a central authority
- Users can set their own rules for censorship and governance

Guidi, Barbara. [\*An overview of blockchain online social media from the technical point of view\*](#). Applied Sciences 11.21 (2021): 9880



# BOSM properties (2)

- **Content originality and authenticity**
  - BOSMs use distributed consensus technologies (DCT) to ensure both the originality and the authenticity of content → solution to fake news?
- **User reward strategies**
  - BOSM have a reward system to evaluate content, such as liking, sharing, etc. Usually, these systems use different types of rewards, depending on the role of the user
- **Interoperability, open access, and flexibility**
  - The infrastructure is built in a way that supports a range of assets and blockchain platforms

Guidi, Barbara. [\*An overview of blockchain online social media from the technical point of view\*](#). Applied Sciences 11.21 (2021): 9880

# BOSM drawbacks (1)

- **Scalability issues**

- Many blockchain networks, especially public ones like Ethereum, may struggle to keep up with the demands of a mainstream social media platform (high number of users and transactions)

- **Complexity**

- They require users to manage private keys and interact with cryptocurrencies

- **Transaction costs**

- Users may need to pay transaction fees to perform actions on the blockchain, such as posting or interacting with content

# BOSM drawbacks (2)

- **Content storage and accessibility**

- Storing content on the blockchain can be expensive and inefficient
- Accessing content on a blockchain can be slower compared to traditional centralized hosting

- **Content moderation**

- BOSMs (and DOSNs) aim to provide censorship resistance. Striking a balance between freedom of speech and responsible content moderation is difficult.

- **Speculative nature**

- Users may be drawn to BOSMs for speculative purposes rather than genuine interest in the platform's functionality

# An example: Steemit

- **Steemit** is a platform for user-generated content and community building that blends blockchain technology, social media, and cryptocurrency
- The social community creates and curates content in exchange for 50 percent Steem Power and 50 percent Steem Dollars
- It was founded on the [Steem blockchain](#)

<https://steemit.com/>

# Possibility of Master's Thesis

- A research strand is currently open on these topics **in collaboration with the University of Pisa**, combining BOSM, Natural Language Processing, and Social Media Analytics
- To have an idea: <https://dx.doi.org/10.2139/ssrn.4192514>

# Social Media Analytics

# Web Analytics

*“**Web Analytics** is the measurement, collection, analysis and reporting of Web data for the purposes of understanding and optimizing Web usage”\**

\*[https://www.digitalanalyticsassociation.org/Files/PDF\\_standards/WebAnalyticsDefinitions.pdf](https://www.digitalanalyticsassociation.org/Files/PDF_standards/WebAnalyticsDefinitions.pdf)

# Social Media Analytics

*A possible general definition*

*“**Social (Media) Analytics** is monitoring, analyzing, measuring and interpreting digital interactions and relationships of people, topics, ideas and content. Interactions occur in workplace and external-facing communities”\**

\*<https://www.gartner.com/it-glossary/social-analytics>



# Social Media Analytics

*Another possible general definition*

*“**Social (Media) Analytics** include **sentiment analysis, natural-language processing and social networking analysis** (influencer identification, profiling and scoring), and advanced techniques such as text analysis, predictive modeling and recommendations, and automated identification and classification of subject/topic, people or content”\**

\*<https://www.gartner.com/it-glossary/social-analytics>

# Social Media Analytics

## *Network- and content-based analysis*

- It is possible to divide the analyzes that can be carried out on social media into **two macro categories**
- **Social Network Analysis**
  - Centrality measures
  - Community detection
  - ...
- **Social Content Analysis**
  - Natural Language Processing
  - Text Mining
  - ...

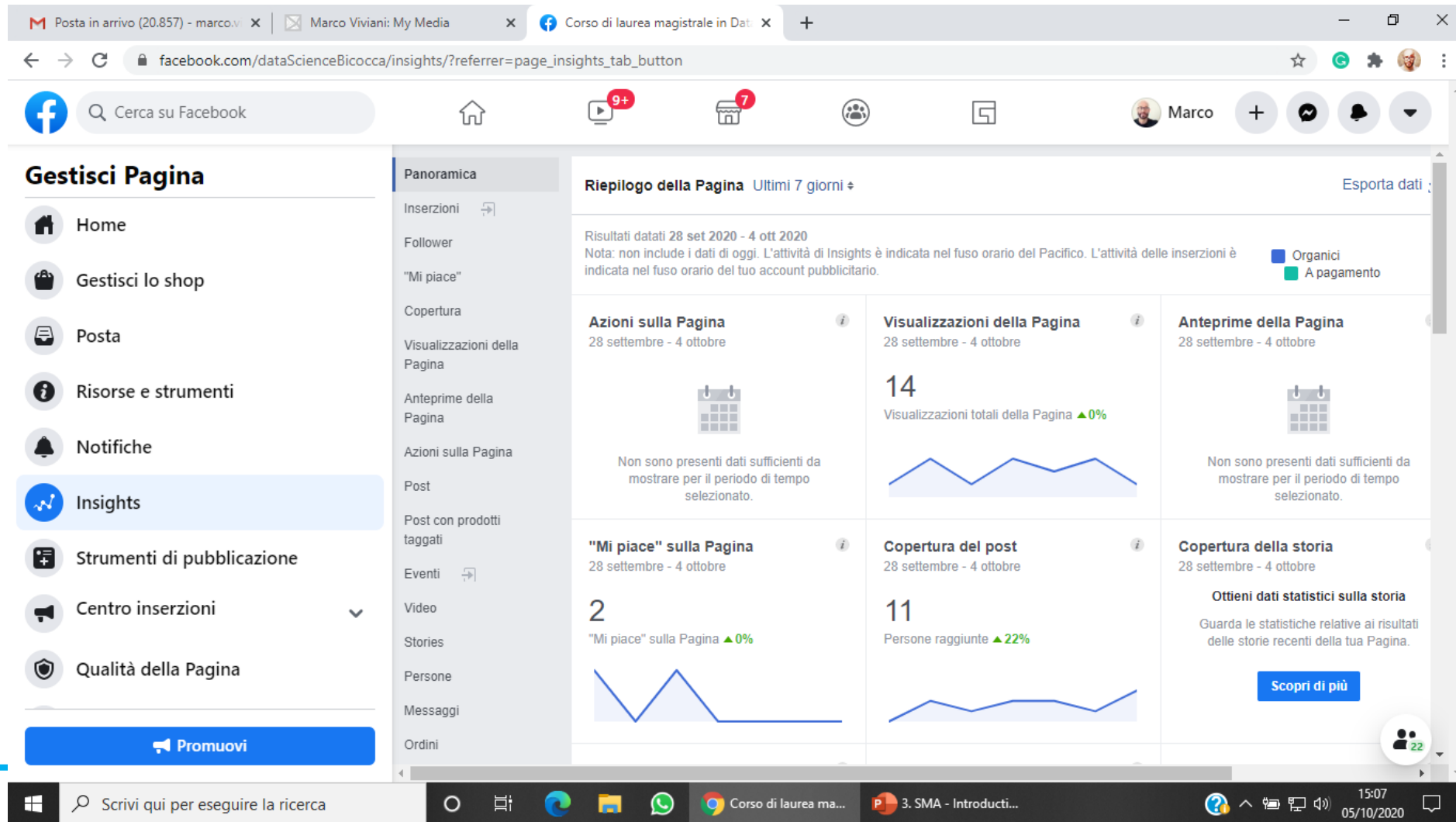
# Social Media Analytics Tools

Internal and External tools

# Internal tools

- Main internal tools:
  - Facebook Insights
    - <https://www.facebook.com/help/search/?q=insights>
  - Twitter Analytics
    - <https://analytics.twitter.com/about>
  - Instagram Insights
  - LinkedIn Analytics
    - <https://www.linkedin.com/help/linkedin/answer/4499/linkedin-page-analytics-overview?lang=en>

# Facebook Insights



# Twitter Analytics

## Link Clicks

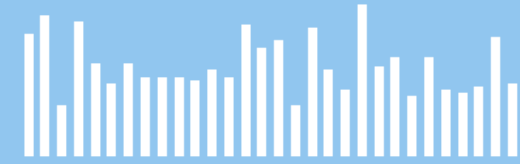
1,295



On average, you've earned 43 link clicks per day and 133 per Tweet

## Likes

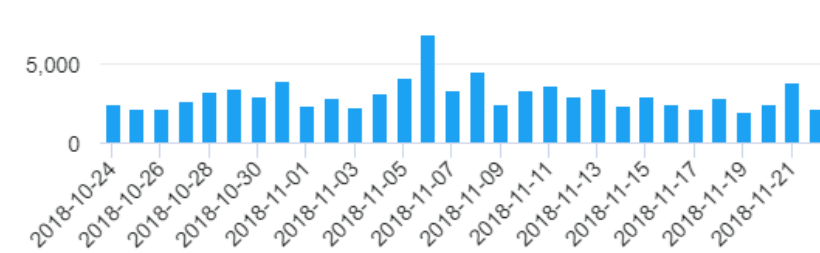
866



On average, you've earned 29 Likes per day and 90 per Tweet

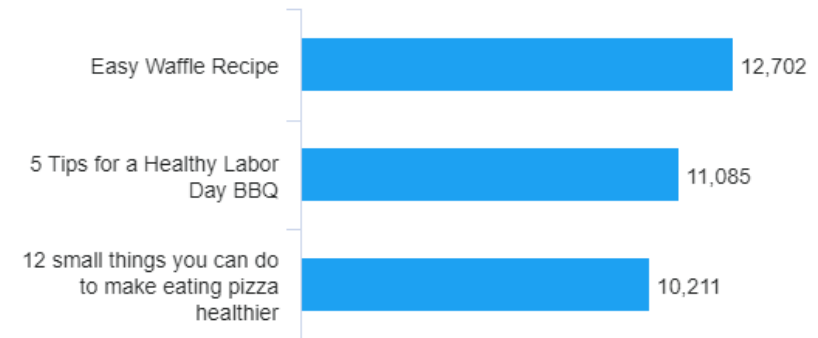
## Impressions

10,000



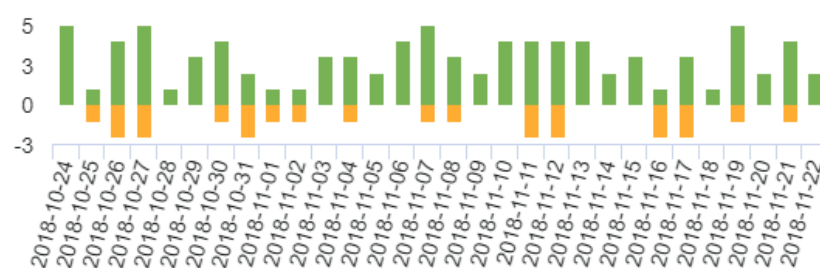
You've had an average of 9,465 Impressions per Tweet in the last 30 days and a Total of 94,650.

## Top 3 Tweets by Impression



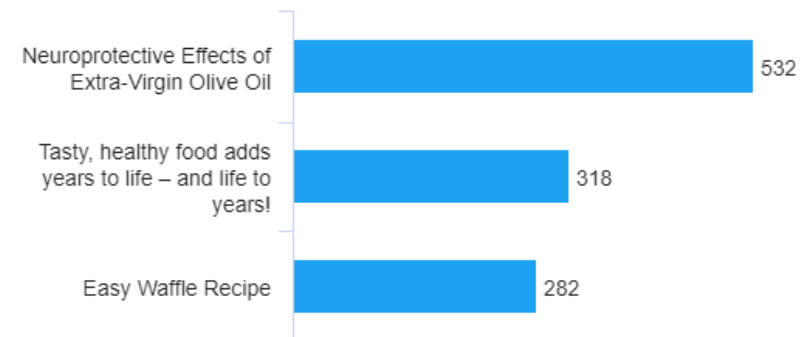
## Follower Gained & Lost

8

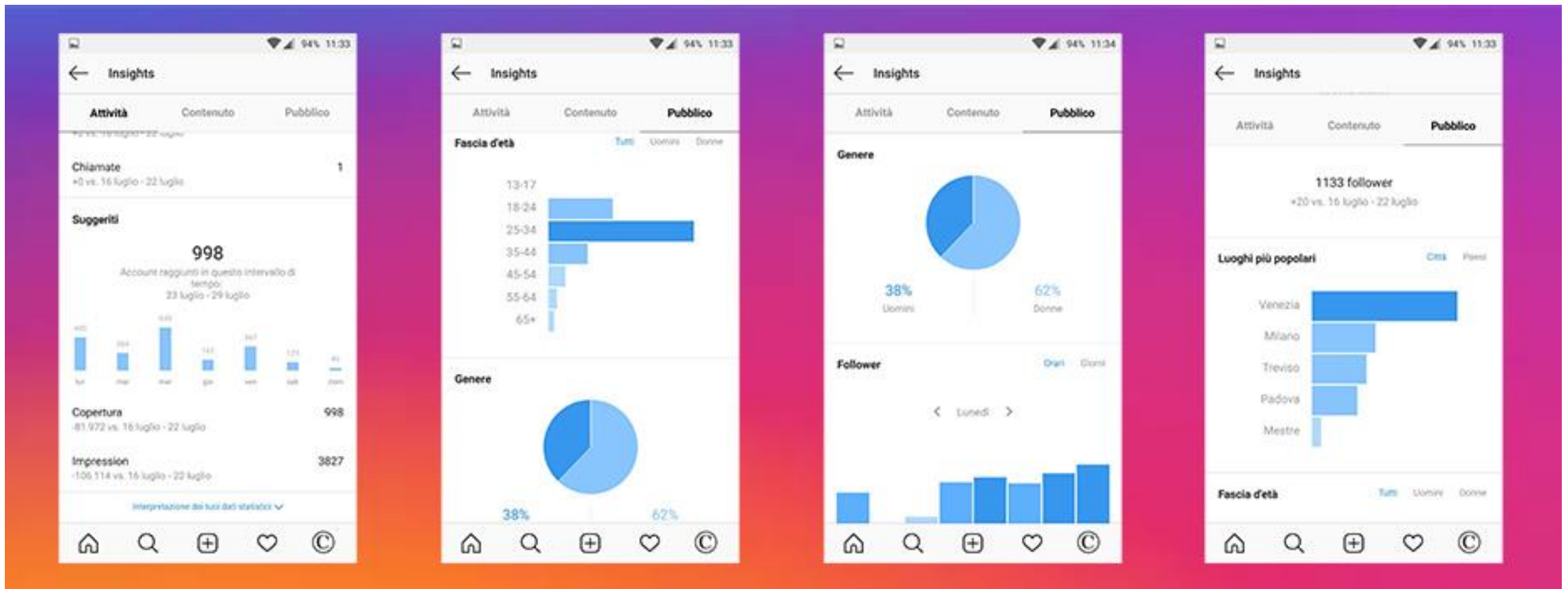


■ Follower Gained ■ Follower lost

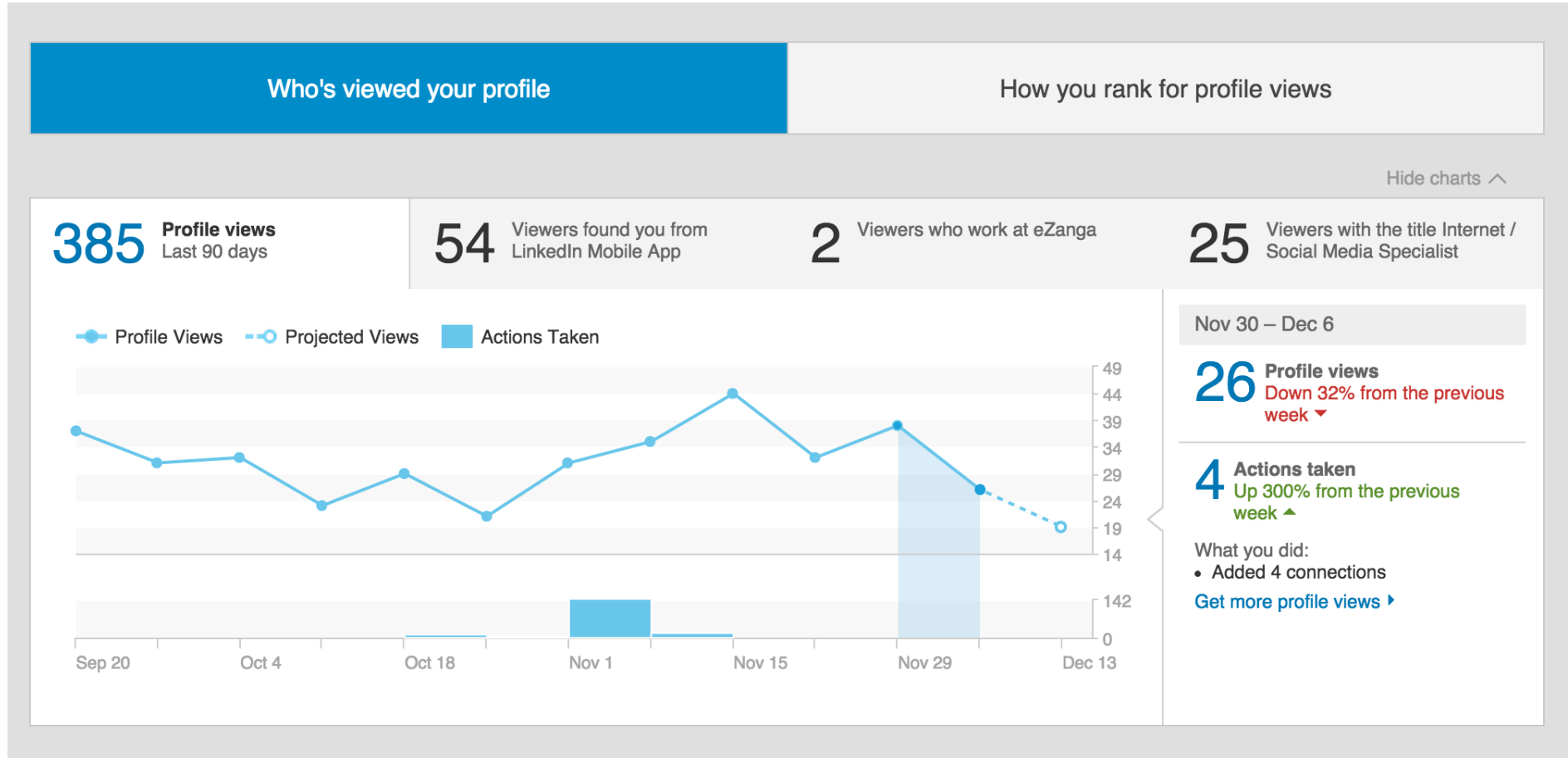
## Top 3 Tweets by Engagements



# Instagram Insights



# LinkedIn Analytics





# External tools

- **Open-source software** and related libraries for data analysis, representation, and visualization
  - R and Python libraries
  - Gephi
- **Open-source and proprietary tools** for data analysis, representation, and visualization
  - Neo4j: <https://github.com/neo4j/neo4j>
  - Tableau: <https://www.tableau.com/>