

Chapter 6

Social Media Metrics and Analysis

Abstract Information Technology progress and Social media spread, as well as Mobile Social Media development, examined in previous Chapters, contribute to the increasing availability of a large amount of multimedia structured and unstructured content about customers and prospects (called “Big data”). Travel organizations able to gather, analyze, and interpret this information have the opportunity to enhance customers’ knowledge, and consequently, to improve service differentiation and personalization. The synchronization with various target markets allows creating a competitive advantage and increasing financial and operational performance. Therefore, a key issue turns out to be the definition of the most appropriate social media metrics able to evaluate social media performance and, if combined with other measures, to support and improve business strategies.

6.1 Learning from Customers: “Big Data” and Customer Profiling Opportunities

Advancements of Web 2.0 allow companies to capture an increasing volume of data and information about customers, suppliers, and operations, produced during the transactions.

Social media sites contribute to the growth of multimedia content, and, in turn, to the exponential increase in the amount of data (called “Big data”). Blogs, social networks pages (e.g., Facebook, Twitter) record every second data, actions, images, videos, locations, etc. Almost all users’ actions on social media websites (clicking, reviewing, post on a blog, etc.) can be recorded as data (Lovett 2011) more easily and cheaply than in the past. Furthermore, as examined in Chap. 5, IT and Internet connectivity improvements have determined a growth of the quantity of both sensors embodied in physical objects (the so-called “Internet of things”) and new sophisticated mobile devices (i.e., wearable devices) able to read them.¹

¹ For major insights on the topic of “Internet of things” see Chap. 5, Sect. 5.2 “From virtual reality to augmented reality”.

IT progress and Web 2.0 provide firms large quantities of customer information that then can be stored and analyzed to create value. In particular, the availability of an increasing volume of data allows organizations to improve customers' profiles knowledge and, consequently, make decisions related to segmentation and product differentiation. The analysis of user-generated content (ratings, reviews, videos, etc.) of various market segments, combined with other information about customers coming from transactions, allows to differentiate and personalize the service offered to target segments of each booking channel respect to competitors (Varini and Sirsi 2012).

The synchronization of companies with "social" consumers' expectations turn out to be very useful in an environment where customers acquire an increasing power to drive the conversation with the firm, influencing its marketing and sales activities. Knowing target markets' expectations and profiles, companies can develop supplementary services in order to personalize the tourism experience. A large part of travelers are aware of this opportunity. Maybe at first they were a little bit scared, but now they (especially those with a higher experience) expect the tourism website to reference to their past experiences to personalize the offer (PhocusWright 2013).²

Obviously, the opportunity to better segment the market by learning from customer characteristics depends on the ability and the motivation of the company to gather and organize information in a unique and integrated CRM database. This is the starting point to be able to access, analyze, and use data in order to define business strategies. However, as examined in Chap. 4, sometimes companies have not sufficient competencies and resources (Law and Jogaratnam 2005; Law et al. 2008; Milano et al. 2011; Leung et al. 2013).³ For example, the aforementioned study conducted by Varini and Sirsi (2012) pointed out that interviewed firms do not have a unique repository of customers' data. On the contrary, the ability to quickly analyze this huge amount of information produced by IT and more traditional systems, in order to make business decisions, represents for travel companies a way for creating a competitive advantage and increasing financial and operational performance (McAfee and Brynjolfsson 2012).⁴

In light of these trends and opportunities, next sections will examine the concept of "Big data" and how travel organizations can select and organize data in order to develop appropriate analytics.

² The survey of PhocusWright considers travelers' experience on the basis of the number of trips per year (1–2, 3–5, 6 or more). 39 % of travelers defined as expert (6 or more trips) agree/strongly agree with the affirmation: "I expect travel websites to reference my past activities to personalize offers for me" (PhocusWright 2013).

³ The topic of the adoption of IT by travel companies is examined in Chap. 4, Sect. 4.3.4 "Electronic Customer Relationship Management (eCRM) in tourism and hospitality".

⁴ McAfee and Brynjolfsson (2012) created a team of researchers with the MIT Center of Digital Business and McKinsey to understand if a proper use of Big data can increase companies' performance. They found that data-driven companies were characterized by better financial and operational performance indicators.

6.1.1 The Evolution of Analytics: “Big Data”

“Big data” is relatively a new term used to define the explosion of the amount of digital data currently available. It is generally considered an evolution of analytics and refers to “datasets whose size is beyond the ability of typical database software tools to capture, store, manage, and analyze” (McKinsey 2011).

Some key essential features of Big data can be identified that differentiate this concept from traditional corporate databases and data warehouses (McAfee and Brynjolfsson 2012):

- *volume*, the amount of data is increasing exponentially and every second on the Internet we store more than what was collected 20 years ago⁵;
- *velocity*, refers to the speed of data creation. Nowadays, data on the Internet are nearly real time and offer companies the opportunity to be more flexible and react immediately to business opportunities and threats;
- *variety*, data take different forms, they can be structured and unstructured and they can come from diverse sources (not only internal and historical). Social media, smartphones and in general mobile devices provide a large amount of different and unstructured data about people, activities and locations (e.g., messages, images, videos, sensors reading, GPS signals).

Analytics and reports, as traditionally intended, are only one part of Big data analysis process. Therefore, the analysis of both internal structured and external unstructured available information should be jointly considered to fully exploit the opportunities of Big data (PhocusWright 2014). Internal structured information refers mainly to accounting, transaction, and customers’ data, while unstructured external data are information provided by social media (e.g., social networks, blogs, virtual communities, and travel review websites).

Social media and mobile devices offer a large amount of information about both customers and prospects (e.g., personal user information, geolocation data, social graphs, user-generated content such as reviews, rankings, posts, tweets, machine logging data, and sensor-generated data). Differently from customers, prospects are connected with the company on social media but they are not yet customers (i.e., Like on Facebook). Data coming from these online relationships can be very useful to learn about potential customers’ profiles in order to attract them with personalized offers and promotions. For example, by analyzing Facebook users’ nationalities, a hotel could realize the existence of a new market segment and could start studying its potentialities of development.

Some travel companies have recently started to exploit Big data opportunities. For example, some hotels create very detailed customer databases composed by structured and unstructured data to be able to anticipate needs, especially of loyal customers (e.g., luxury hotels). Moreover, softwares like ReviewPro and TrustYou

⁵ The volume of data is relative and depends on the type of organization.

crunch unstructured data from thousands of travelers and can be used by hotels to analyze their online reputation.

Therefore, measuring and proceeding Big data can be very helpful for travel companies to make better predictions and, in turn, better decisions. The central question is how to identify the most appropriate methods to adopt. Next section will try to give some insights about Big data analysis process.

6.1.2 Big Data Analytics

The starting central issue in the development of Big data analytics is understanding how to collect and organize data to be able to translate them into business advantage. Traditional tools and technology seem to be no longer enough (PhocusWright 2014). The large volume of data available implies for travel companies some challenges for both storage and process activities. Fortunately, advances in IT satisfy this need and help companies to measure Big data, thanks to new technological instruments able to analyze semi-or unstructured data. They provide access and process of information located in multiple separate computing devices as if it is on a single device. Main tools that allow this measurement are NoSQL, Hadoop, and MapReduce, along with Semantic web.

NoSQL “Not Only SQL” represents a shift from “structured query language” SQL, the most common language for accessing databases. It allows to process data of various type and size, splitting large databases across multiple computers to enable real-time parallel searching (Mayer-Schönberger and Cukier 2013). NoSQL systems “are distributed, non-relational databases designed for large-scale data storage and for massively-parallel data processing across a large number of commodity servers” (Moniruzzaman and Hossain 2013). They have been increasingly employed by main Internet companies like Google, Amazon, and Facebook in order to collect and to process real-time a large volume of unstructured data.

Hadoop by Apache is an open-source framework that manages high volume of data and enables utilization in computing format. Both firms and social media use this system to store, analyze, and process information in real time. MapReduce is a set of programming libraries that works with Hadoop to analyze and map unstructured data to key values.

The combination of Web 2.0 and semantic web generates the so-called “social semantic web.” A new class of applications that can “leverage the semantic relations that exist between certain kinds of web-accessible data to automatically locate and fuse information, perform basic reasoning and pivot and transform representations to meet a wide variety of user needs” (Mika and Greaves 2012).⁶

⁶ For major insights see the special issue of the Journal of Web Semantics (2012) vol. 6(1). Berners-Lee and Fischetti (1999) defined semantic web as follows: “I have a dream for the Web [in which computers] become capable of analyzing all the data on the Web—the content, links, and transactions between people and computers. A “Semantic Web”, which makes this possible, has

But “it is not so much about the volume of data that is stored, but rather the ability to use stored data in a meaningful way” (Lovett 2011). Big data measurement allows firms to extract value from data in order to improve the service provided and enhance internal operations. Hereafter, some examples concerning how Big data analysis can support firms and create value will be examined.

Provide real-time information. Big data real-time processing allows companies to provide more detailed and personalized information to consumers. For example, transportation companies are able to monitor the real-time position and possible delay of trains and airplanes. This permits to give updated information to customers on the corporate websites or on specific mobile applications improving Social Media Customer Care (SMCC). By means of online devices, users can verify in each moment where the train is, possible delay, and can receive notices and SMS directly from the airlines or the airport about air schedule and gates changes. Moreover, all data are recorded and then can be used to improve internal operations organization, market analysis, predictions, and consequently to refine future corporate decision making.

Provide recommendations. Various firms and social media analyze Big data, in particular users’ buying patterns, in order to provide recommendations to consumers and prospects. An example is the function of LinkedIn “people you may know” similar to that of Amazon, Booking, Expedia, TripAdvisor, etc.: “People who have viewed this item have also viewed...”. Furthermore, the access to social media personal information of customers offers also opportunities to further refine the recommendation process. Some airlines, for example, give customers the possibility to choose where to seat during the online check-in procedure consulting the Facebook profiles of other passengers who have already checked-in online.

Social graph analysis. Social media provide not only information about single users but also about social graph, that is the existing connections among people and the influence they have each other. The opportunity to analyze and combine this large amount of digital data allows some types of companies to improve customer service. For example, Facebook in March 2013 launched “Facebook Search Graph” an improved and new search method for users, for the time being available in the U.S. It combines unstructured internal data acquired from its users and external data into a search engine providing user-specific search results. “Facebook Search Graph” is based, as the previous research function, on relationships and connections among users, but the search method has changed focus: from keywords to semantics. In practice, it is designed to match phrases and not keywords. For example, a user can search “Photos of my friends in New York” and Facebook will display all the photos the user’s friends took in New York and that were shared with him or her. Users can also make researches that go beyond the friends’ network. For example, they can look for “people who live in a certain city” and Facebook will search in the connections

(Footnote 6 continued)

yet to emerge, but when it does, the day-to-day mechanisms of trade, bureaucracy and our daily lives will be handled by machines talking to machines. The “intelligent agents” people have touted for ages will finally materialize” (Berners-Lee and Fischetti 1999).

among friends and “friends of friends”. Since the launch of this new function, privacy concern arose. The mechanism is the same of ever: by properly managing privacy options, users can determine what friends and other people can see when searching on Facebook.⁷

Sentiment analysis. The analysis of unstructured data coming from social media and online conversations can help travel companies to determine the “sentiment” toward a product, service, destination, company, etc. Results of sentiment analysis can be wealthy information that can help firms manage possible complaints, improve the service, as well as monitor brand online reputation. They represent a way for firms to tune in with the market.⁸

Marketing insights. These kinds of analyses allow firms to monitor the results of specific marketing actions. For instance, an advertising campaign can be controlled in order to understand its effectiveness. Facebook advertising monitoring (provided by Facebook Insights) presented in Chap. 4 represents an example.

Other possible analyses could regard churn management. Data mining can help firms to calculate the churn rate⁹ and to develop churn predictions (Hung et al. 2006). Moreover, Big data are available also for competitors and this allow companies to monitor the companies of a predetermined competitive set.

6.1.3 *It is Not Only About Technology, It is About People*

The previous section highlighted the opportunity for firms to collect and analyze a large amount of data about customers and prospects, provided by advanced technology tools. However, in order to transform data into meaningful recommendations and to make successful business decisions, data have to be selected and interpreted (Lovett 2011). Among various raw data extracted from social media, the company should consider only valuable information, respect to its business objectives. On the contrary, data overload could generate a sense of frustration and discourage the management to undertake measurement operations.

We can identify some actions a firm can realize to successfully analyze Big data:

- register Big data;
- select data really important for the organization;
- interpret data in order to understand results (success vs failure);
- assure a proper communication within the organization;
- learn from data to develop recommendations for future strategies.

We immediately notice that most of the aforementioned actions imply a human intervention directed to filter the large quantity of data available, in light of the

⁷ The topic of privacy implications will be examined in Sect. 6.5.

⁸ For major insights about the topic of sentiment analysis consult Sect. 6.3.

⁹ Churn rate is the percentage of subscribers to a service that decide to interrupt their subscription in a given time period.

importance for the organization. Therefore, the staff in charge of data analysis plays a key role in determining the most appropriate metrics able to support the firm in decision making. Data analytics is not a mere operational function that can be carried out by a very restrained group of people, maybe of one single department or even outsourced. Given the importance of selection and interpretation of raw data, firms should preferably commit this function to a group of employees that represents main corporate departments with their different perspectives. Moreover, the results of measurement should then be shared with the rest of the staff within the firm. Internal communication by means of a clear and synthetic reporting that summarizes successfully and unsuccessfully actions and identifies future directions can involve employees in the organization's life.

As examined in Chap. 4, and previously in this chapter, we notice a restrained propensity of travel companies to adopt IT, to analyze data, and to develop metrics, sometimes due to a lack of knowledge and/or to insufficient resources. Moreover, research points out that many tourism organizations adopt a social media approach based on single social media projects that are not always linked to the whole business strategy.

In light of the observations stated in the first part of this section, travel companies should grasp the opportunity offered by social media to gather and analyze unstructured users' information in order to develop appropriate metrics. The combination of these social media metrics with other internal measures is a critical factor to improve business strategies. Therefore, a first issue travel companies should consider is the opportunity to develop a measurement process characterized by proper technological equipment able to register the large amount of data available. Second, the appropriate group of data analysts should be identified in order to select and interpret data considering various objectives for each department. Finally, metrics produced by the analysis should be summarized in reports able to describe results of business actions, ongoing trends, and possible future actions to be undertaken for each department.

6.2 Social Media Metrics

The definition of the most suitable metrics to be used for evaluating social media performance is a controversial issue among operators. As previously mentioned, the selection of data that a firm retains to be important depends on the type of business and on the firm's features and objectives. However, the uncertainty about which are the most appropriate data to consider, generally caused by a not clear definition of social media marketing objectives, along with the large quantity of data available (data overload), can represent a barrier for the development of social media measurement (Gillin 2009).

The development of social media implies a change of perspective about metrics: from more traditional web analytics, based on number of pages views and clicks, to

more recent social media analytics, on the contrary more based on conversations that occur in the online community.

Within social media measurement, we can identify a framework of analysis composed by four different kinds of metrics (Lovett 2011): foundational metrics, business value metrics, outcome metrics (KPIs), and counting metrics.

Next subsections will examine more in-depth the meaning, the calculation, as well as the methods of employment of these metrics. They are not distinct measures but they should be selected, integrated, and combined for each category with a clear business objective.

6.2.1 Foundational Metrics

Foundational metrics are a group of measures that represent the basis for business value metrics and outcome metrics because they help to build specific key performance indicators for each goal. They are cross measures that persist across channels and marketing activities. This allows making comparisons among media and specific marketing actions.

Lovett (2011) identified five main foundational metrics: interaction, engagement, influence, advocacy, and impact.

Interaction assesses people that reply to “call to action” and participate to a marketing activity. It comes from number of views, comments, shares, etc. They can be measured for one single activity or more and for a specific media or across multiple channels.

Engagement evaluates the degree of people participation and involvement to the conversation. Therefore, it is different from interaction that quantifies only the replies to specific incentives. However, we notice sometimes confusion in the distinction between these two concepts that impede the development of shared measures among organizations.

Influence represents the power of one person to influence one or more others on a topic, a brand, etc. Also in this case the concept is interpreted in different ways by various businesses and social media. Therefore, it is difficult to find a unique and shared measure of influence.

Advocates represent people who are so engaged with a company, brand, etc. to become promoter. It is the result of the ability of the company to create an authentic dialog with customers. The measures of advocacy are generally connected with a combination of sentiment analysis and metrics that reflect commitment of people toward a company, a brand, or a product.

Impact measures the ability of a firm to reach its business objectives. Generally, the most employed metric among financial measures is Return on Investment (ROI). The impact of a social media activity can be measured assessing expected outcome against a specific goal. For example, if the starting objective of an advertising campaign on Facebook is to acquire a certain amount of new customers, a measure of impact is the result of total exposure of the marketing activity divided

by total new customers' acquisitions (Lovett 2011). However, ROI can measure short-term, single activities related to specific marketing actions on social media (i.e., a Facebook advertising campaign). It cannot be a measure able to give the total impact of the overall social media activity (Cosenza 2014, Mandelli and Accoto 2010). Indeed, some marketing activities on social media cannot be measured in terms of financial metrics related to the return of investments (e.g., crisis management by means of Twitter).

6.2.2 Business Value Metrics

Metrics that come from social media should be of value for various corporate departments that have their own business goals. Indeed, each department needs to measure the success or failure of specific social media initiatives. Among others, possible business value metrics can regard for example the impact on revenues and on customer satisfaction (Lovett 2011).

In the first case, the company could measure revenues generated by a specific social media marketing activity by considering online purchases. Coupons and special codes allow firms to monitor the effectiveness and conversion of a specific social media advertising campaign, offer or post. However, this means the development of prearranged measurement instruments design and attentive planning.

As mentioned in Chap. 4, social media have become instruments to develop customer care (Social Media Customer Care SMCC). The interactions generated on social media offer a large volume of data to be analyzed in order to monitor customer satisfaction and reasons of complaints. For example, online forms can be sent to customers or published on social media and be then automatically elaborated to provide managers customer satisfaction indexes.

SMCC measures can also help companies to make decisions about future investments. For example, if a travel company, by means of measurement activity, realizes that a vast majority of customers uses social media like Twitter and Facebook for customer care, it could decide to move part of the budget from traditional call centers to social media (e.g., social media training for employees of the call center, additional employees for the SMCC staff).

According to the business goals of a company, social media metrics planning can provide a proper range of measures for each department that should be considered in combination to make successful decisions.

6.2.3 Outcome Metrics

Key Performance indicators (KPIs) measurement is based on the previous examined foundational and business value metrics (Lovett 2011). They measure the degree of success of a company in reaching a specific marketing objective. For these reasons,

they can vary according to the type of business and to the kind of social media activity. KPIs metrics should be established in advance respect to the marketing activity to connect strategies and tactics in reaching a predetermined objective.¹⁰ If properly defined, outcome and business metrics can track the results of social media marketing actions over time, generating a benchmark.

Obviously, a firm can have different business objectives to which match KPIs. Among others, hereafter we will identify some examples starting from the classification of Lovett (2011).

A firm could be interested in measuring brand exposure that is the visibility reached after a certain marketing action. Brand exposure on social media is more persistent and amplified than on traditional media. Therefore, it is difficult to be controlled by companies. A measure of exposure is “Reach” that is the result of a calculation: the total amount of unique visitors of a certain post plus number of shares for each social media considered multiplied by the average number of friends of that social media:

$$\text{Reach} = \text{unique visitors} + (\text{shares on FB} \times \text{average number of FB friends}) + \dots$$

Another KPI employed to measure exposure is Share of voice that measures the brand mentions on social media (Likes, videos, tweets, etc.) among a competitive set. This metric can be calculated for a group of social media or for each medium, in this last case allowing a comparison. Share of voice can be calculated as follows:

$$\text{Share of voice} = \frac{\text{brand mentions}}{\text{total mentions (brand + competitor 1 + competitor } n)}$$

Share of voice is generally presented as a percentage and is measured on a given time period of time to allow historical comparisons.

Both Reach and Share of voice should be assessed before and after the marketing initiative to have an actual measure of exposure increasing.

Another goal of the organization could be to create a dialog with social media users. A measure of a company’s ability to create dialog is represented by Audience engagement that can generate multiple conversations and virality about a topic. This depends on comments and sharing activity by users but it is also the result of Reach. Therefore, we can consider the following two measures that can help firms to evaluate their ability to create a dialog about a topic, product, brand, etc.

Audience engagement represents the number of people that participates to specific marketing initiatives or to the life of a corporate page. By monitoring audience engagement, the company can identify hot topics.

¹⁰ Main social media like Facebook, Twitter, Youtube, etc. calculate automatically some outcome metrics (i.e. Reach, Page engagement, etc.).

$$\text{Audience Engagement} = \frac{\text{comments} + \text{shares} + \text{brand mentions}}{\text{total views}}$$

Multiplying Reach and Audience engagement, we obtain conversation volume that considers the number of unique visitors exposed to a specific brand (product, topic, etc.) conversation across one or more channels and their level of engagement.

$$\text{Conversation volume} = \text{Reach} \times \text{Audience Engagement}$$

If calculated for each social media or for each marketing initiative, these last two metrics allow a comparison of their effectiveness. For example, on the basis of the results of Audience engagement and Conversation volume measurement, a travel company could decide to employ Facebook for some type of topics and activities and Twitter and Pinterest for others.

A third example of goal a company can pursue on social media is to generate interactions: for example, call users to action by means of social media (e.g., ask for their collaboration by means of a contest). Results of this action can be measured by means of the two KPIs: Interaction rate and Conversion rate. The first one measures how many people start the process of interaction and, the second one, how many respond to the call to action respect to the total amount of people exposed to it. For example, a post on Facebook could ask for customers' participation (contest, opinion, etc.). Then, a user can reply to the company's request of activity, participating to the contest or giving their opinion (conversion), or simply he or she can interact with the company by means of like and share options without actually responding to the call to action (interaction). Calculations of these two metrics are the following:

$$\text{Interaction rate} = \frac{\text{people that interact to the call to action (likes, shares, etc.)}}{\text{total people exposed to call to action}}$$

$$\text{Conversion rate} = \frac{\text{people that respond to call to action}}{\text{total people exposed to call to action}}$$

Other metrics can help specific departments to understand the effectiveness of their activities. For example, in the case of SMCC is crucial to understand the response rate and timing (hours, days, etc.), the effectiveness, as well as the satisfaction. These metrics can help to support business activities and decisions. Hereafter, some examples of rates are reported:

$$\text{Issue resolution rate} = \frac{\text{issues resolved}}{\text{total issues submitted}}$$

$$\text{Issue response rate} = \frac{\text{total responses to inquiry}}{\text{total inquiry}}$$

$$\text{Customer satisfaction index} = \frac{\text{satisfied customers}}{\text{total customer feedbacks}}$$

Customer satisfaction indexes can be referred to single services or social media. They generally ask customers to give a score to different services offered on a scale of values (e.g., from 1 to 10).

Some firms go beyond satisfaction and try to stimulate advocacy that means to transform engaged and satisfied customers into promoters of a product, a brand, or a company. In order to reach this objective, sometimes firms develop the so-called ambassador programs, dedicated to a selected part of consumers to whom personalized services are directed. For example, main international hotel chains have created exclusive clubs and loyalty programs (i.e., Starwood Ambassador Program). The development of social media allows their extension by means of more and more personalized offers. In other cases, ambassador programs can be connected with particular events (anniversaries, launches of new products, etc.).

Results of these marketing actions can be measured in different ways. For example, a possible metric can be “advocates’ activity rate” that measures the members or participants’ level of activity to the program or to a specific event. A calculation generally applied is the following:

$$\text{Advocates activity rate} = \frac{\text{active advocates}}{\text{total advocates}}$$

Other metrics can be identified also to measure the results of crowdsourcing.¹¹ Companies may ask social media users to provide ideas to develop a specific product, an event, etc. sometimes supported by a contest. Measures in this sense can identify how many ideas are appropriate to the request and how many are the most appreciated by other participants.

6.2.4 Counting Metrics

Counting metrics refer to a large amount of data coming from single social media. They are called “raw data” because they come directly and automatically from the databases of social media without any elaboration (e.g., Likes, followers, number of visits, etc.).

Social media counting metrics are improving over time. They are increasingly available and can be exported by firms. Main social networks provide generally specific tools aimed at extracting all the available data allowing some sort of filtering functions and some kinds of elaboration (e.g., Facebook Insights). The continuous improvement of social media metrics tools represents definitely an advantage for firms even though sometimes this process may generate confusion in the comparing activity. For example, in the case of Facebook, the option “Like,” previously called “Fan,” was renamed by Facebook in 2010 “Like” in order to

¹¹ For major insights about crowdsourcing see Chap. 4.

simplify and standardize the choices that people have on the social networking site. The meaning is the number of unique people who like the specific Facebook Page. However, the calculation remains the same and the word fan has continued to be used by both Facebook and companies to create a sort of continuity. Moreover, in 2013, Facebook proceeded to a new restyling of Insights and some metrics were removed or split:

- “People Talking about this” was the number of unique people who have created a story about the Facebook Page. A user could create a “story” when liked a page, commented on, or shared the page post, answered a question the company have asked, responded to an event, mentioned the Page, tags the Page in a photo and finally checked into or recommends the Place posted on the company Page. This metric was split into separate elements: Page Likes, People Engaged, Page tags and mentions, Page check-ins, and other interactions on a Page (Facebook for business, October 2013).¹²
- “Friends of fan” was the maximum potentiality of exposure possible to be reached. It occurred when all the fans would have shared contents with others.

Despite, the discontinuity and the possible temporary confusion created with the past, the new version of Facebook Insights provides more punctual information and very valuable functions and opportunities. Section. 6.4 will examine the services offered by the new version of Facebook Insights.

Therefore, counting metrics cannot be “the one and only” data used by managers. However, they represent an important record, to be interpreted combined with other measures in order to make business decisions.

Sometimes the large quantity of data that can be extracted from social media metrics tools may worry managers and hinder the process of data interpretation.

6.3 Sentiment Analysis

The literature on the topic identifies two kinds of analyses for the assessment of conversations and opinions: sentiment analysis and opinion mining. The two terms are generally used as synonyms, even though they had a specific and parallel evolution (Pang and Lee 2008). Since 2001, the expression sentiment analysis started to be used to define specific applications aimed at classifying reviews on the basis of their polarity (either positive or negative). In 2003, the term opinion mining was used the first time to define tools that “process a set of search results for a given item, generating a list of product attributes (quality, features, etc.) and aggregating opinions about each of them (poor, mixed, good)” (Dave et al. 2003). Given the two definitions and the similarity of tasks, nowadays these expressions are generally

¹² For more information consult <https://www.facebook.com/business/news/pageinsights>.

referred to a more broadly concept that includes the “computational treatment of opinion, sentiment, and subjectivity in text” (Pang and Lee 2008).¹³

Sentiment analysis has become particularly employed in marketing measurement activities. The term “sentiment” refers to the polarity of the opinion toward a firm, a brand, or a product. It can be positive, neutral, or negative (Lovett 2011):

- *positive sentiment* identifies advocates and communities where the brand/product is well accepted;
- *neutral sentiment* allows the firm to understand in which communities conversations about a topic should be reinforced;
- *negative sentiment* helps companies to understand where a direct support is needed to improve dialog.

Sentiment analysis can be both manual (human) and/or automatic. Manual or human sentiment analysis requires the action of a human element into the analysis. It is more accurate than automatic procedures but obviously very time consuming. The advantage offered by human sentiment analysis is the opportunity to identify and interpret the true sentiment expressed also through abbreviations, sarcasm, emoticons, slang etc. On the contrary, automatic sentiment analysis employs complex algorithms that process text strings and determines the overall sentiment (either positive, negative, or neutral). They are less expensive and time-consuming than human analysis but they are unable to differentiate between subtle languages nuances.¹⁴

Automatic sentiment analysis can be operated by means of a wide range of tools, from more sophisticated and expensive (e.g., Radian 6, Sysomos, Alterian SM2, Buzztracker) to low cost solutions that can provide simpler services (e.g., Google Alerts, Social mention). The first type allows companies to monitor sentiment and conversations for multiple social media (Ceron et al. 2014a, b). The company has generally a reporting on a different base: real-time, daily, or period reports. Moreover, the firm can set specific rules to be warned in case of particular events. For example, if the conversation about a specific brand is generally 100, the system will warn the company in case of an exceptional increase. On the other hand, the second type of tool, low cost instruments, can be particularly helpful for small-medium size companies that are in the first steps of development of a social media approach.

A common solution increasingly employed by firms is a combination of the two practices (both automatic and human) in order to maximize efficiency and accuracy. A first automatic system analyzes text strings to identify positive/negative sentiment and then, in a second step, a human analysis occurs. New tools are developing to

¹³ For a review of literature of the concepts of opinion mining and sentiment analysis see Pang and Lee (2008).

¹⁴ Automatic sentiment analysis adopts “data scraping”: a technique that allows organizations to analyze unstructured data on third-party websites by means of a web crawler. It is a program searching content on web pages according to predetermined keywords. The crawler spider “traverses the web site starting from a given set of initial URLs and follows the links matching a given pattern to a certain depth” (Banic et al. 2013).

support this new mixed approach. For example, a study of Schmunk et al. (2013) propose a novel approach for automatically extracting and analyzing travel customer reviews that divides the mining task of sentiment analysis into different steps: recognition of property, recognition of sentiment, and recognition of subjectivity.

Sentiment analyses are frequently used in the travel sector to monitor online reputation and conversations. Some investigations employed automated methods. For example, Kasper and Vela (2012) developed a specific tool (BESOHOT) in the hotel sector to analyze and classify textual content of hotel customers' reviews. Other studies focused on hotel reviews are those of Banic et al. (2013) and Aureli et al. (2013). Some other investigations employed a mixed approach both qualitative (text mining and expert judgment) and quantitative approaches (correspondence analysis) in order to content-analyze the narrative and visual information on a sample of websites (Choi et al. 2007). Stevenson and Hamill (2012) undertook a social media monitoring exercise among ten most visited cities in the world.

Independently from the tool used (human or automatic), what is really important for the effectiveness of sentiment analysis is to define in advance main research questions and then create a set of key phrases/words related to research questions.

6.4 A Focus on Facebook Insights

Main social media are aware of the importance of analyzing Big data and offer to their corporate users a free instrument to manage the Page, in order to monitor performance and trends of conversations and to investigate users' profiles.

Facebook provides a tool called Facebook Insights that allows firms to consult Page metrics. Some of them can be consulted directly on the Facebook Insights dashboard while the overall amount of data can be exported (xls and csv format).

The most recent version of Facebook Insights launched in 2013 is composed by six sections: Overview, likes, Reach, Visits, Posts, and People (Facebook, July 2014).¹⁵

Overview section contains a general outlook of the page overall performance (Fig. 6.1):

- **Page Likes:** Total Pages Likes is the number of unique people who like the corporate Page. This section offers also the indication of the number of new likes the Page received during the last 7 days (New Page Likes), compared with the previous 7-day period;
- **Post Reach:** Total Reach is the number of unique people who have seen any content associated with the corporate Page, including ads, during the last 7 days. Post Reach shows the number of unique people who have seen the Page posts;

¹⁵ The analysis reported in this section was conducted in July 2014.

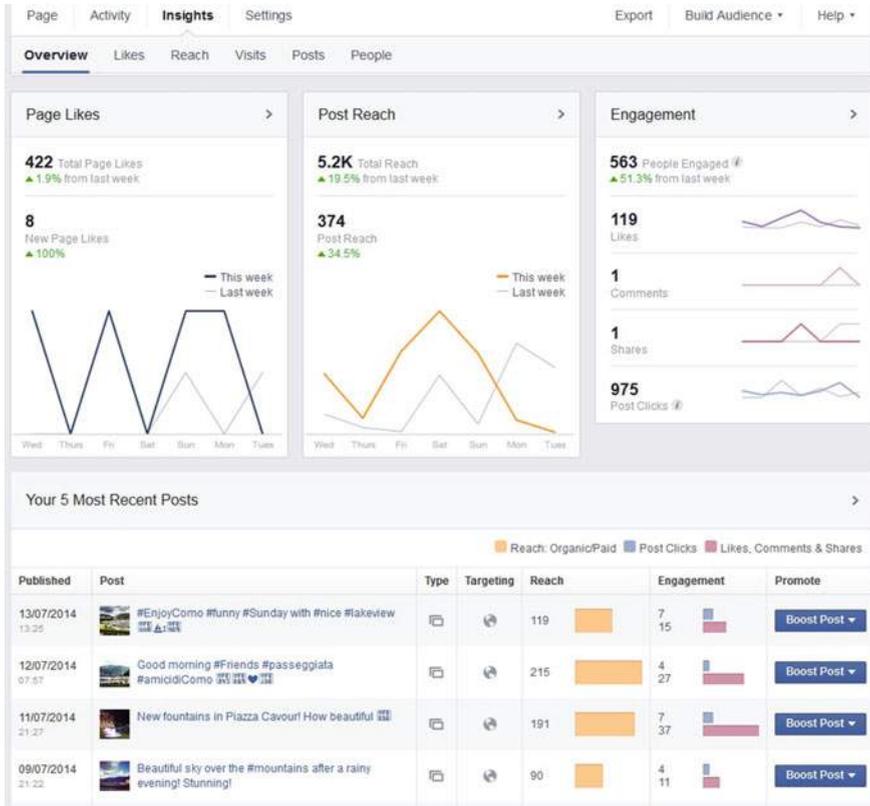


Fig. 6.1 Facebook insights: overview section. *Source* Facebook insights (July 2014), Hotel Metropole Suisse, Como, Italy

- **Engagement:** People Engaged is the number of unique people who have clicked, liked, commented on, or shared the firms' posts during the last 7 days. Likes, Comments, Shares, and Post Clicks show the totals for these actions during the last 7 days. The concept of Engagement was clarified in this new version of Facebook Insights. The previous calculation included all the cited actions in the same measure, while the new one split engagement in separated values: Post clicks, Comments, Likes, and Shares.

Finally, this section reports some metrics related to the five most recent firms' posts. Apart from the date and the identification of the Post, new filtering options were added in order to allow the selection of different Reach and Engagement metrics. For example, the firm can filter data about posts according to the kind of Reach (organic vs paid) or filter the various dimensions of Engagement and visualize which posts received the most likes or shares or which one were only clicked, in this last case demonstrating a lack on interaction and engagement of users.

Like section contains detailed information about Page Likes by means of three main graphs (Fig. 6.2):

- “Total Page Likes as of Today”. It helps firms to understand the growth trend of the Page Total Likes;
- “Net Likes: What Changed”. It is the result of Total Likes minus Unlikes. The graph allows also to visualize various types of Likes (Organic Likes, Paid Likes);¹⁶
- “Where Your Page Likes Came From”. It describes the number of times the Page was liked according to where this action happened: On Your Page, Uncategorized Mobile, Page Suggestions, Page Likes, Others.

New information provided by the updated version of Insights is the benchmark opportunity to compare the actual performance of the Page with the average performance between time periods. A company, for example, can compare the variation in average Page Likes from one period to the other.

Reach section allows comparing more easily the following data (Fig. 6.3):

- Post Reach shows the number of people who actually have seen the firm’s post (both organic and paid);¹⁷
- “Likes, Comments and Shares” is a graph that permits to analyze all these items on a daily basis;
- “Hide, Report as Spam and Unlikes” is a graph that offers an overview of the actions that negatively influence Reach: the number of people who hide content, indicate it as Spam, or simply unlike the page. The optimal situation is finding this graph completely empty. The last part of this section offer;
- Total Reach shows the number of people who have seen whatever activity of the Page (posts, check-ins, comments, etc.).

Visits section provides information about the type of users’ interactions with the Page content other than posts (Fig. 6.4):

- “Page and Tab Visits” shows the number of times various sections of the Page have been visited (Timeline, Likes tabs, etc.) and the number of posts;
- “Other Page Activity” refers to the number of actions of people that involved the Page (i.e., Page Mentions, Page tags);
- “External Referrers” shows the number of times people of websites other than Facebook came into the corporate Page (i.e., search engines, other websites).

¹⁶ The difference between organic and paid likes is the following: organic likes are the total number of people who liked the Page from unpaid distribution, while paid likes are the total number of people who liked the Page from a paid ad (web or mobile) or a sponsored story (Facebook, July 2014).

¹⁷ The difference between organic and paid reach is the following: organic reach is the total number of unique people who were shown the post through unpaid distribution, while paid reach is the total number of unique people who were shown the post as a result of ads (Facebook, July 2014).

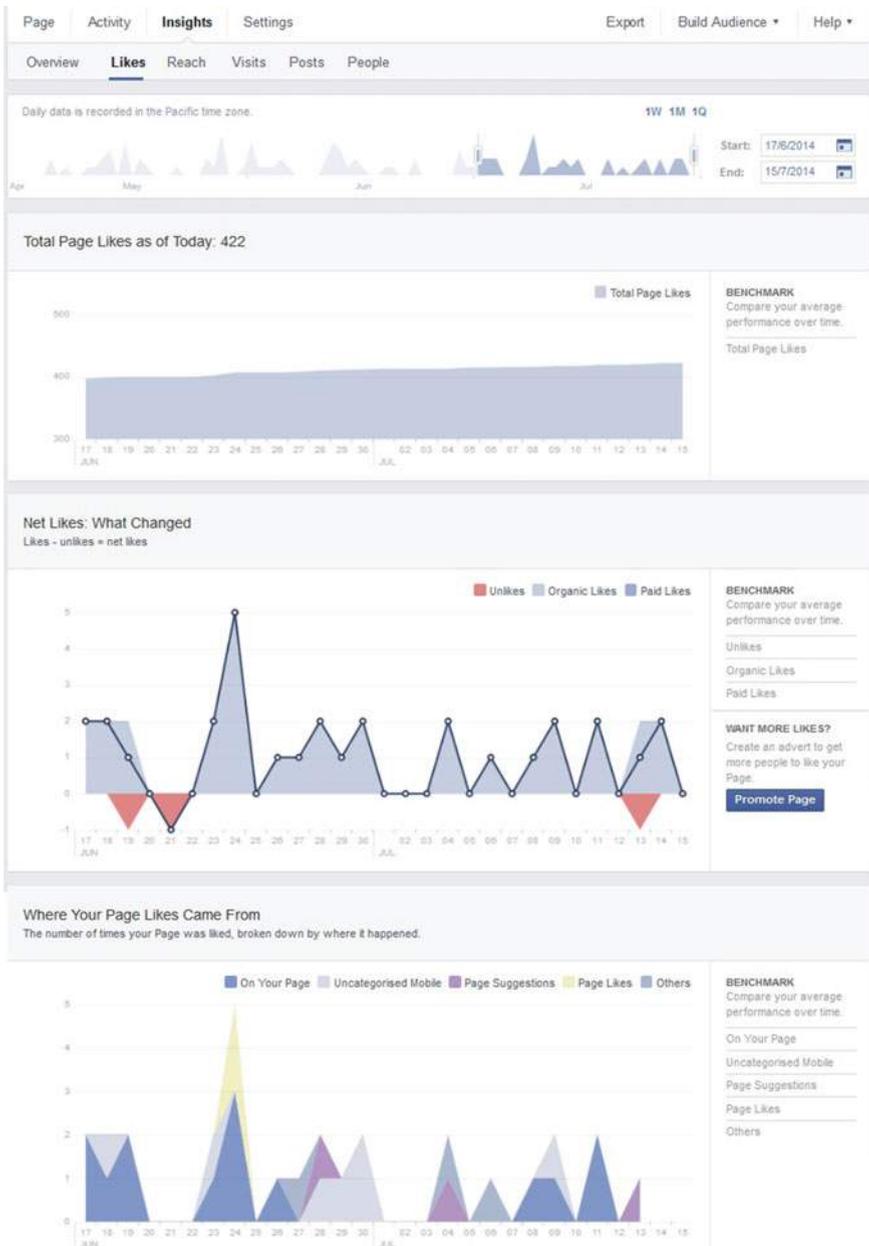


Fig. 6.2 Facebook insights: likes section. *Source* Facebook Insights (July 2014), Hotel Metropole Suisse, Como, Italy

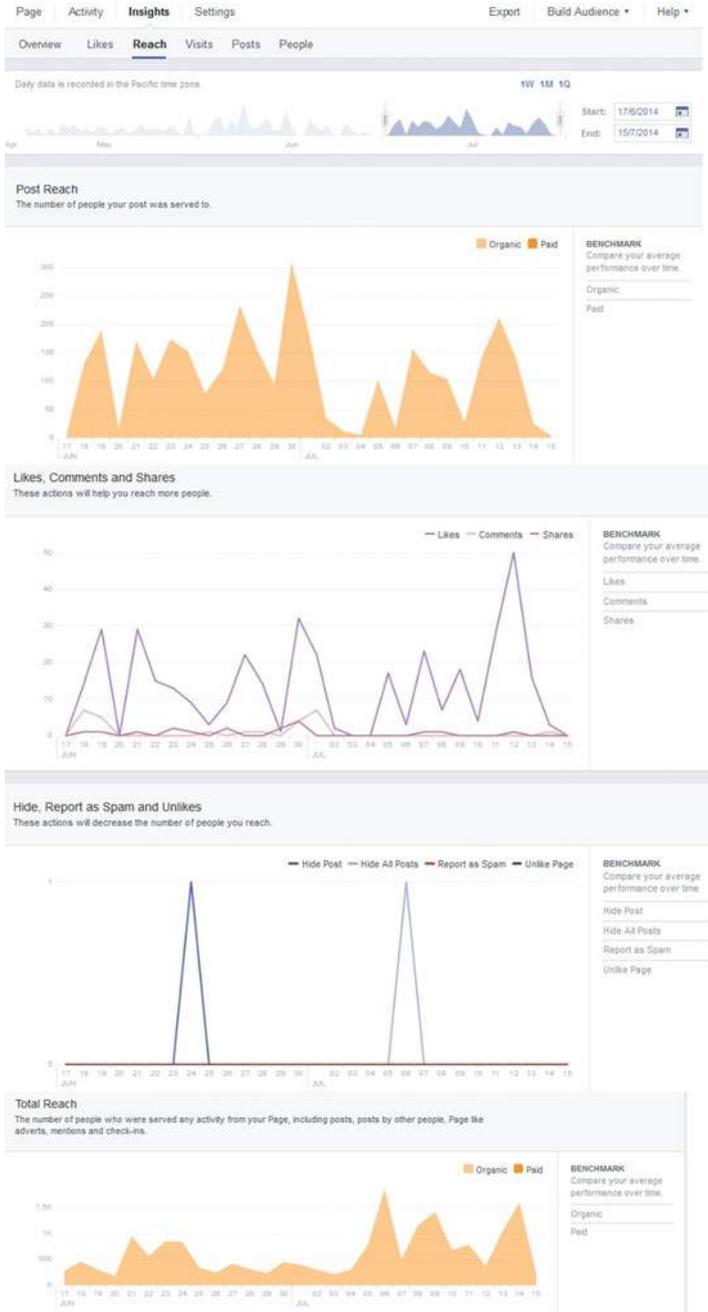


Fig. 6.3 Facebook insights: reach section. *Source* Facebook insights (July 2014), Hotel Metropole Suisse, Como, Italy



Fig. 6.4 Facebook Insights: visits section. *Source* Facebook insights (July 2014), Hotel Metropole Suisse, Como, Italy

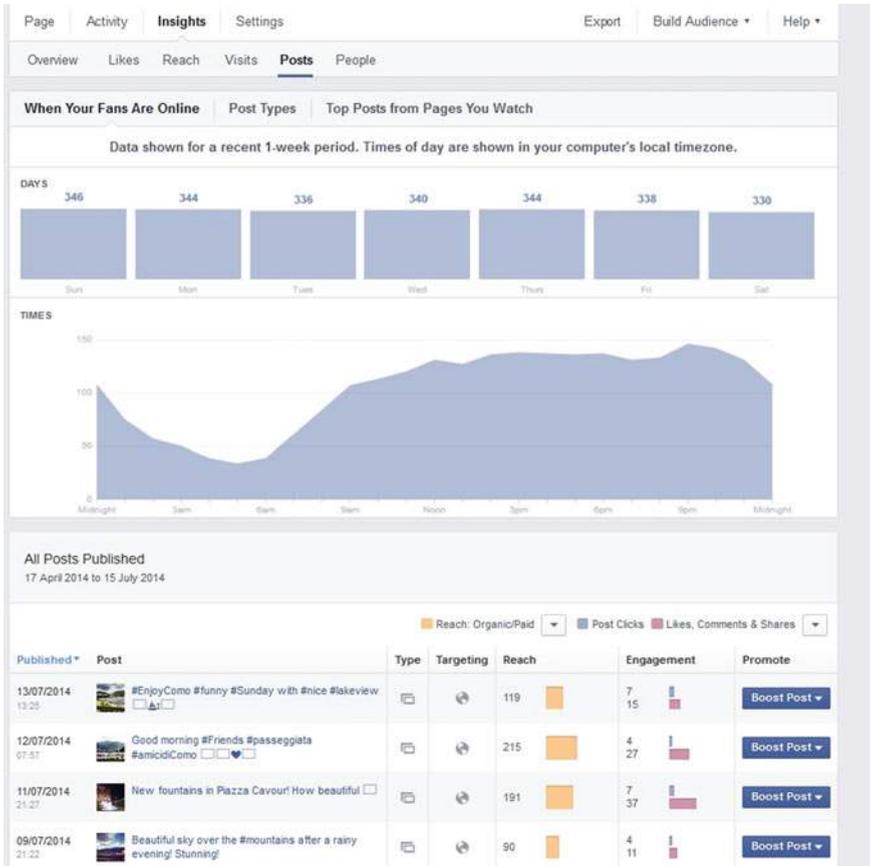


Fig. 6.5 Facebook Insights: posts section “when your fans are online”. *Source* Facebook insights (July 2014), Hotel Metropole Suisse, Como, Italy

Posts section contains data about When Your Fans Are Online, Post types, and Best Post Types.

- The new function “When your fans are online” (Fig. 6.5) allows understanding which days and hours of the day Fans are online and consult content (not only corporate posts but content in general). Even if the data time range is of only 1 week, this information can be really important for marketers to make decisions about the posts’ distribution and publication timing. A company could realize that a large part of Fans is online during the lunch time and then decide to move part of the activity in that time range.
- “Best Post type” is a graph that allows comprehending the success of different types of posts (i.e., status, photo, link, video, offer) on the basis of average reach and average engagement (post clicks separated by likes, comments, and shares).

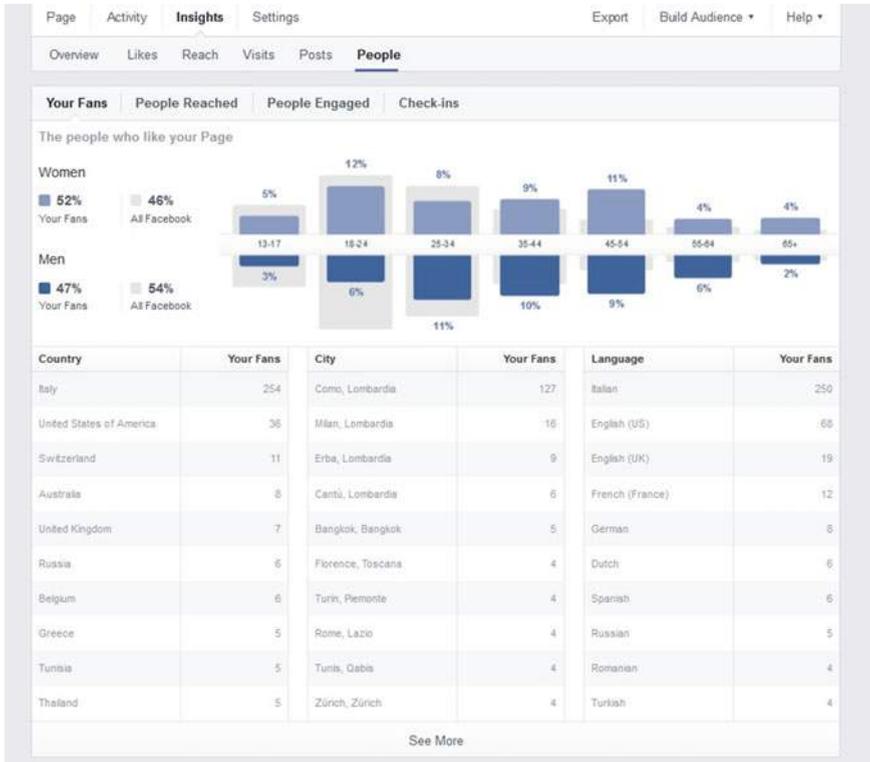


Fig. 6.6 Facebook insights: people section “your fan”. Source Facebook insights (July 2014), Hotel Metropole Suisse, Como, Italy

- “Top Posts of Pages to Watch” shows the five most engaging posts from the Pages the company is watching at.

People section shows the demographics of people who like the page (Your Fans), who are reached by content (People Reached) and engage with content (People engaged) (Fig. 6.6). Demographic data regards age, gender, geography (country and city), and language. The set-up of the page is the same for each type of People investigated apart from one aspect. The Fan graph compares Fans data with all Facebook users while People Reached and People Engaged are compared with Total Fans. A new graph of People section called “Check-ins” was recently implemented in order to identify people who have checked-in the previous days, probably connected with the launch of the location-based service of Facebook (Fig. 6.7).¹⁸

As previously mentioned, more detailed data can be exported to Excel or csv. Due to the large amount of data that Facebook allows to export, it could be useful to

¹⁸ Location-based services and Mobile Social Media have been examined in Chap. 5.

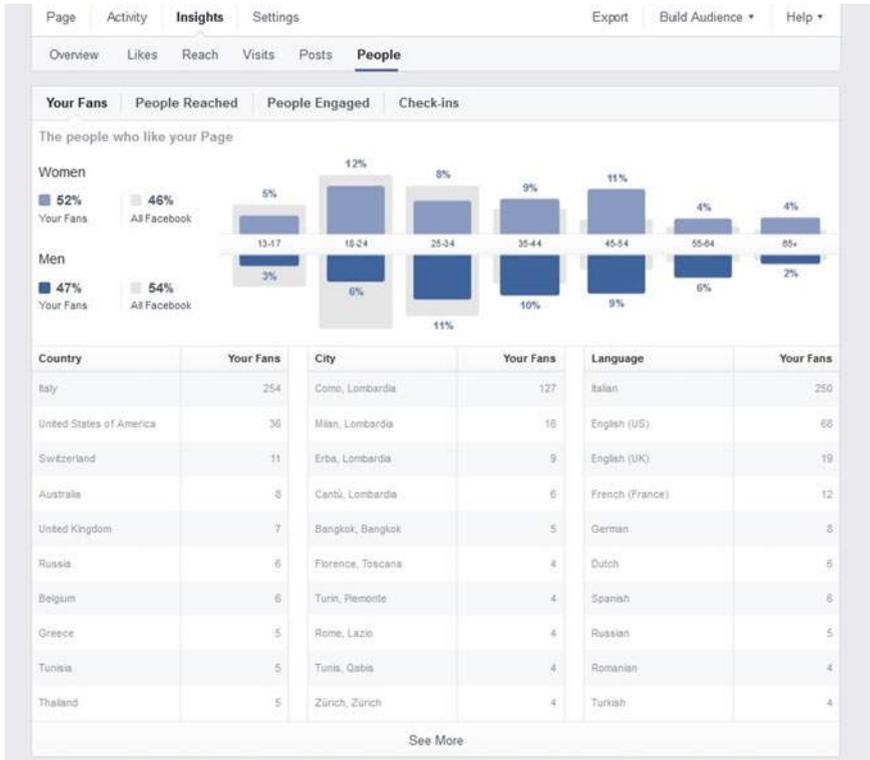


Fig. 6.7 Facebook insights: people section “check-ins”. *Source* Facebook insights (July 2014), Hotel Metropole Suisse, Como, Italy

define a Facebook scorecard that contains only useful information, aligned with business objectives. Among others, we can identify some basic metrics that should be always considered: Like, Reach, Impression, and Engagement (Cosenza 2014):

- Impression is calculated as the number of times a social item (e.g., post, photo, video, etc.) is displayed into the timeline.
- Engagement can be measured for the Page and Post. Page Engagement is the percentage of people who interacted with the Page (liked, shared, clicked or commented on it) respect to all Fans. Post Engagement is the percentage of people who saw a post that liked, shared, clicked, or commented on it respect to all the posts published.

Other metrics are available for advertising campaigns on Facebook by means of Ads Manager. For example Reach, Response (clicks ad connections), and Impressions.¹⁹

¹⁹ For further insights on Facebook advertising see Chap. 4.

6.5 Privacy Implications

IT progress and social media have definitely changed the way consumers communicate each other and with firms. Several times within the book, we highlighted how people increasingly participate in online conversations, sharing user-generated content, posting personal photos, videos, information, and allowing other people to tag them in photo they post. Moreover, in the previous Chapter, we examined how people increasingly adopt location-based services mobile applications to share their location in a specific moment of time (e.g., Foursquare). Social media users' is also offered the opportunity to log-in into various social media with Facebook, connecting networks, and allowing messages to travel across social media.

Firms and social media gather all these data obtaining a benefit for the business. They can learn by customers and prospects, use this information to personalize the service provided and the communication activities and relationships. On the other hand, users may obtain personalized services and interact easily and directly with firms and friends. However, these opportunities imply also a critical issue related to users' privacy management, especially in ubiquitous contexts.

If we compare the results of ongoing statistics we notice an increasing restrained level of concern about privacy especially among young social media users. A recent report of Pew Internet & American Life Project (2013), conducted on teen social media users found that the propensity to publish personal information and content on social media has increased in comparison to a previous report of 2005. In particular, 92 % of interviewed have posted their real name, 53 % the email address, 20 % the cell phone number, 91 % publish photos of themselves, and 24 % videos. Moreover, other information is provided on interests, location, education, relationship status, etc.

On the other hand, social media and firms are not always clear in explaining terms and condition regarding privacy policy. Sometimes, long and complicated documents, written in legal language, discourage people to read all the conditions behind the permission given to use personal information. In these cases, some people are skeptical and abandon the activity while an increasing number of users proceed because less attentive and sensitive to privacy issues.

Firms can violate privacy in different ways and with diverse intentions. Unauthorized information transfer, weak security, data magnets, and indirect forms of information collection are generally the four major violations.²⁰

Among dimensions of Web privacy,²¹ marketing activities of capturing, storing, processing, and exchanging customers' preferences to provide personalized services are generally those considered with suspect by web users. With the development of Semantic Web, data semantics will be able automatically understood by online systems (websites, search engines, social media). Obviously, this is more

²⁰ For major insights about Web privacy violations see Eltoweissy et al. (2003).

²¹ Eltoweissy et al. (2003) identifies the following dimensions of We Privacy: information, collection, usage, storage, disclosure, security, access control, monitoring, policy changes.

convenient for both sides (firms and consumers) but it also implies an increasing intrusion in people's privacy

Therefore, more effective techniques are necessary to protect social media (and in general web) users by possible cited violations. Until now, legislation had limited effect on these issues even though legislators in both U.S. and Europe are beginning to face this problem (Kaplan 2012). Definitions of privacy vary from one country to the other according to context, culture, etc. that generate differences and incompatibilities in privacy regulations and standards to be applied.²²

Privacy concern, along with the relative impact that this issue could have on customers' perceptions of fairness, highlights the opportunity for travel companies to think about possible operations aimed at protecting and preserve users' privacy. Lovett (2011) developed some guidelines for practicing ethical data collection. In particular, firms should:

- tell consumers how they intend to use consumers' data in a concise and clear language;
- inform web users about the reasons that motivates data collection and analysis providing insights about the benefits they will receive;
- let them choose to opt out of these practices;
- respect what have declared about data collection and utilization procedures and motivations;
- in case of request, being able to give information about how the data have been actually used.

Adopting these guidelines, travel companies could increase customers' perception about the firm's practice fairness. In addition, they could also have the opportunity to reach also skeptical web and social media users generating trust.

However, due to the continuous evolution of Web 2.0, Web 3.0, and Semantic Web, the topic of privacy will be increasingly in the public eye. Research by both academics and practitioners, along with regulation improvement, are necessary to understand future developments.

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²² See European Union (1995), Tene (2013) “the reform processes fail to address challenges to the definition of personal data and science of de-identification”.

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