A systematic literature review on social media metrics

Tonino Pencarelli[*], *Maria Gabriella Mele*[**]

Abstract

When conducting activities on social media (SM), with strategies related to business aims, it is necessary to monitor the activity over time in order to improve the actions taken. This paper aims to provide a theoretical proposal of measurement framework, based on those analyzed through a literature review. The paper also proposes a classification of the SM performance control metrics, from which emerge five different categories of metrics: business activity, brand sharing, dimensional, engagement and business performance metrics. The research highlights: 1) the agreement among experts regarding the need to constantly measure the activity of SM marketing; 2) the need to have a measurement framework to base the control of the strategy; 3) the need to systematize measurement metrics.

Keyword: Social media marketing, social media, KPI, social media analytics, social media metrics, social media monitoring.

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Introduction

In a digital world, such as the one we live in, the structure of the economy known so far is going through important transformations and «the Internet, which has brought connectivity and transparency into our lives, is the main

[*] Full Professor of business management and corporate strategy at the University of Urbino Carlo Bo, Italy. E-mail: tonino.pencarelli@uniurb.it.
[**] PhD in Economics, Society and Law, curriculum Economics and Management, Department of Economics, Social and Political Studies (DESP), University of Urbino Carlo Bo, Italy. E-mail: m.mele@campus.uniurb.it.

one responsible for these new power structures» (Kotler *et al.*, 2017). "The marketing landscape is changing, and unlike decades ago, today's marketing activities produce a plethora of metrics that can be measured and analyzed to produce significant strategic insight" (Spiller & Tuten, 2015).

In this competitive context, an intelligent management of the company must be implemented, including an activity of continuous monitoring of the activities and actions of the market and measurement of the company performance. In fact, the measurement activities play a key role in the management processes, as it allows management to use cognitive tools to support the adoption of strategic and operational choices (Bruni, 2015). Among many types of organizations, the companies are the most active users of social media analytics. Analyzing social media data to better understand why customers purchase a product or service is an important activity in order to sustain competitive advantage (Brooks *et al.*, 2014). "Social media analytics equipped with advanced techniques has significantly affected a company's ability to leverage otherwise unattainable social media intelligence" (Sigala & Chalkiti, 2015).

With the development of the media and in particular of the Social Networks such as Facebook and Twitter, the need for companies to be actively present is becoming increasingly evident. Customers are no longer passive targets but are becoming active means of communication: if in the past they were easily influenced by marketing campaigns, they searched and listened to the voice of the brand's authority, today most customers believe more in the "Factor F" (friend, families, Facebook fans, Twitter followers) rather than in marketing communications, asking for advice from perfect strangers on social media and trusting more of them than advertising or the opinions of industry experts (Kotler *et al.*, 2017). Furthermore, from a strategic point of view, the fundamental strategy for SM marketing is to engage stakeholders in order to maintain existing relationships but also to gain more followers/fans, which can transform into customers, in order to create a network of relationships. (Moretti & Tuan, 2014).

The data coming from the conversations can reveal the opinions and experiences of the users' purchases and must be collected, measured and interpreted through a continuous process, which evaluates the value of this information and determines the progress of the SM marketing strategy.

Companies, to conduct effectively the measurement activities have to use an approach that highlights the possibility of being able not only to evaluate the effectiveness and success of the strategy, but also to change the actions carried out on social media, through feedback actions.

The topic of the measurement of marketing performance has received a renewed attention in the academic literature, both in empirical and theoretical terms. It is due on the one hand to external factors, as already highlighted

above, relating to the advent and diffusion of the network and technological evolution and information wealth generated by new media (e-commerce, apps and SM), and on the other to internal factors within the company, such as the increasing implementation of systems for measuring marketing performance (Bruni, 2015). This fact highlights the importance of having a metrics' system for monitoring activities, allowing the company to be able to expand its knowledge base. "Performance measurement is a significant area for enterprises that has emerged in recent years and in terms of marketing, the measurement of returns on investment is crucial" (Kosan, 2014). Although marketing experts are debating how calculations should be made, the importance placed on customers has led enterprises to reconsider the value of their intangible assets (Seggie *et al*., 2007).

The renewed focus on marketing metrics is motivated by some of the reasons highlighted by Bruni (2015), such as "the meeting between marketing and finance", "the need for a rigorous process of measuring activities", "the priority assigned to management control", "the need to overcome traditional management practices", which often force management choices to be based on ex-post performance measurements, "the centrality of customer value "that would involve greater focus on measurement of the value of long-term buyers, "the link between measurement and results". Furthermore, the focus on marketing metrics is strengthened by the need to apply a holistic approach to marketing metrics. An approach of this kind in fact allows on the one hand to fully exploiting the strategic role of the function, on the other to guide the strategies of the top management and of the function itself (Valdani & Ancarani, 2011). Moreover, performance measurement has become even more important for marketing, as marketing has started to display the characteristics of being a focus of cost. The amount of expenditure made concerning customers and for marketing purposes and the effect on enterprise performance are significant lines in budget preparation (Shaw & White, 1999).

Mintz & Currim (2013) underline that the regular use of marketing metrics helps to highlight the importance and the critical role of marketing in the company, making the positive impact on performance visible.

In this scenario, we place the performance measurement activity on social media. Today's marketers are faced with a paradox: "The Internet is the most measurable of all the media ever conceived, however, the absence of agreed accepted metrics continues to be an obstacle to marketing initiatives", as claimed by Gillin (2009). Marketing metrics has been defined as the tools which help companies quantify, compare, and interpret their own performance from marketing activities (Kotler & Keller, 2007). It is evident how often managers give the temptation to apply the typical traditional media metrics to evaluate the effectiveness of the strategies implemented on new

media, since in the absence of a shared framework, the measurement systems born for the web 1.0 (already permeated by traditional marketing metrics), are applied to web 2.0 (Cosenza, 2012). This concept represents the starting point for the drafting of this work, whose research is motivated by the question of whether or not a measurement framework exists for the performances conducted on the SM and on the sharing of commonly accepted metrics.

The study will try to answer the following research questions:

RQ (1): Which are the main social media performance frameworks in the literature?
RQ (2): Which are the most common measurement metrics for the evaluation of the social media marketing activities?

The paper is structured as follows: in the next paragraph, the literature review and the methodology followed in its elaboration will be illustrated. In the paragraph 2, we illustrate and discuss the most common measurement frameworks shared in literature. Later, because of the lack of a holistic view of the literature, we propose a new model of performance analysis of social media activities assuming an holistic perspective. The paragraph 3 focuses on the most commonly metrics shared in the literature. A proposal to classify social media measurement metrics will close the work.

1. Literature review

The study was conducted by pursuing the objectives of analysis and comparison of the main measurement frameworks of the activities conducted on the SM shared in the literature, identifying the defining aspects related to the most commonly used metrics and measuring instruments.

In order to identify and compare the main measurement frameworks proposed by the literature sector dedicated to SM marketing, we proceeded with a systematic literature review (Tranfield *et al*., 2003; Pittaway *et al*., 2004) articulated in the following phases: collection and selection of publications related to the topic of measurement, systematization of publications and in-depth analysis of the identified sample.

During the collection phase, a systematic search was conducted on the Google Scholar and Scopus databases, consisting of an advanced search with the following key words in the title of the contribution:
- "Social analytics framework";
- "Framework social network";
- "Social media measurement";
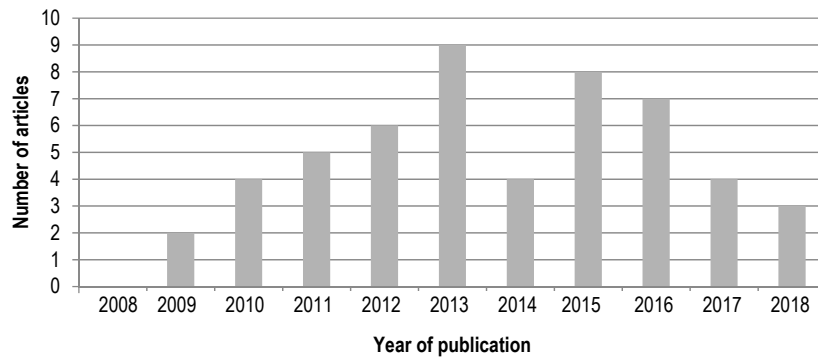
- "Social media ROI";
- "Social media metrics".

The keywords are the result of a preliminary discussion between the authors, integrated with an analysis drawn from interviews with managers and consultants of the sector. The time interval chosen was for the years between 2008 and 2018.

During the collection phase, 197 initial published contributions were identified (of which 161 on Google Scholar and 36 on Scopus). The academic articles published (169) were selected for these contributions. Articles from books and book chapters are excluded from the research. Subsequently, after having read the abstract of each contribution, a further selection was made, identifying only the papers in line with the research objectives (52). Of the sample, 35 papers were published in scientific journal, the remaining 16 presented during conferences and conferences and published as conference proceedings. From the sample of selected papers emerges a particular growing attention starting from 2009 that reaches its peak in 2013 and then decreases later (Figure 1).

From a geographical point of view it is recorded that 48.08% of the paper comes from North American Universities, in particular from the United States, followed by 36.54% of European origin, 11.54% Asian and lastly from 3.85% of Oceania. The presence of almost half of the paper coming from US Universities can be linked to the fact that the main world social players are US companies, such as Facebook, Twitter, LinkedIn and have the greatest diffusion among these countries. This could have led to a solicitation of the use of these tools, and therefore of the measurement of performance on them, in the managerial processes of companies.

Regarding the methodology applied by the authors of the papers, it emerges evident a greater predisposition towards the qualitative methodology (Literature review, interviews, and case studies): 59.62% of the sample has adopted this methodology unlike the remaining 40.38% that instead he applied a quantitative research method (surveys, questionnaires, statistical models).

Figure 1 – Timeline of publication

From the point of view of the issues involved, through the reading of the 52 full texts, a new point of view emerges from the marketing experts: it is no longer necessary to distinguish the B2B from the B2C, as in 2012 we start talking about P2P: People to people (Cray, 2012), this concept is the signal of a change in perspective that involves and influences every area. It is also evident how the reference literature is trying to analyze the company's performance in the promotion activities on SM, through a comparison with the methods of measurement on traditional means (Cray, 2012). Wilcox & Kim (2012) argue that «Social media shares many characteristics with traditional media even though it is obviously a new and a unique medium. Both traditional advertising and social media advertising have similar fundamental goals thus the existing measures of the effectiveness of advertising and other marketing communication may be cautiously applied to social media in an increasingly interactive context». In attempting to apply traditional measurement methods, we add that of formulating performance measurement frameworks and models, establishing objectives and identifying metrics and tools (Murdough, 2009; Cray, 2012; Metzger *et al.*, 2015; Vlachvei & Notta, 2015; Spiller & Tuten, 2015; Skulme & Praude).

However, the measurement of the ROI on SM represents one of the most discussed topics in the literary panorama. The measurement of the ROI is the main topic in nine papers on 52[1]: "The return on investment (ROI) in social media is a hot topic", as Cray (2012) states. In fact, it is the financial impact, which is the most common in the financial world as the ROI and it indicates, "what clients ultimately want to know; however, it is difficult to precisely track" (Cray, 2012). Understanding social media ROI is a topic widely

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[1] The main topics in the other papers concern measurement and metrics on social media.

covered in literature and represents a trend that continues to question many scholars such as Kumar & Mirchandani (2012), Lloret Romero (2011), He & Garnett (2016), Coleman & Heriot (2014), Töllinen & Karjaluoto (2011): these last authors in particular argue that measurement is necessary because "there is a real need for research related to marketing communications performance measurement in social media context, as researchers and managers pay increasingly attention to social media without a clear understanding of how effective the media is or how to measure it".

2. The main performance measurement frameworks of Social Media

2.1. The main frameworks in the literature

This paragraph proposes a selection of SM activity measurement frameworks proposed by both academic and managerial literature.

In both academic and managerial fields, we find many measurement frameworks. We report the three most significant ones. We propose the most significant framework selected by these criteria. The selection of frameworks proposed here considers as criteria of identification the presence of the following analysis points listed as follows:

- The reference, as a starting point of the method of analysis, to clear, well-defined and not limited corporate objectives to the social media sphere;
- The identification of resources and tools necessary for measurement;
- The sharing of the framework by the scholars identified in the literature.

The authors consider these criteria because they are the most popular frameworks and because they take in account the relationships between social media strategy and the strategy structure of the firm, and the relationships between the corporate strategies and the organizational structure of the firm.

The first model proposed by the consulting firm Altimeter (Etlinger, 2011), explores the link between business targets, business metrics and specific metrics of SM in a pyramidal representation that allows to clearly highlight the strategic value of SM. Etlinger (2011) therefore proposes a measurement framework, which envisages a process consisting of four phases and aimed at interweaving the business targets with the SM metrics, as envisaged by the pyramidal structure:

1. Strategy: define business;
2. Metrics: define success (linked to the SM metrics, measures the success of the strategy);

3. Organization: identifies team (resources that will manage the process and training to eliminate learning barriers);
4. Technology: identifies tools.

The second framework can be considered, proposed by Murdough (2009), whose assumptions reside in the SM measurement process consisting of:
1. Concept: definition of the brand and drafting of the measurement map of the business objectives with KPI and performance benchmark.
2. Definition: choice of the analysis program and timing.
3. Design: definition of tactics aimed at improving the company's presence on SM, of the methodology related to data collection, monitoring and choice of reporting tools.
4. Deployment: planning, compilation of the editorial calendar and work-flow management.
   Murdough (2009) provides the following measurement activities:
   • Conduct data collection methods;
   • Verify that the performance reports are complete and in line with expectations;
   • Building data infrastructures useful for aggregating data from multiple sources.
5. Optimization: work synthesis and performance improvement.

The framework proposed by Murdough has a cyclical and procedural dimension, in which the output of each phase influences and conditions the next.

Murdough's study appears to be of particular relevance, as a reference point in the literature, by Wilcox & Kim (2012) and Coleman & Heriot (2014). Coleman & Heriot (2014) define the author's study as "Representative of many examples" thanks to the process that guides the studious through the concept, definition, design, deployment and optimization stages of social media marketing. However, they state, "the specific measures (Sentiment, Site Traffic and Purchase intent) do not address core business performance measures such as return on investment or customer profitability. Wilcox & Kim (2012) underline how the Murdough approach emphasizes "the importance of a commitment to social media that must include active participation in the social media space. He notes that organizations and companies' resources should be "thoughtfully planned for and deployed" to effectively manage an organization's social media presence. The authors consider "Essential to this process is a continual measurement of performance indicators and subsequent adjustment of messages to achieve the communication goals".

On the academic front also Vlachvei & Notta (2015) propose a conceptual model related to the process of measuring SM, called BCCP, ideal for SMEs, where each letter corresponds to a benefit guaranteed by the framework: brand building and awareness (B), community building and engagement (C), customer satisfaction and loyalty (C) and economic performance (P). Each company may not have the need to obtain all the benefits just reported and specifically should identify the priority in achieving the targets: in particular, if the goal is to build awareness, the measure of success will be given by the increase of website views measured by the number of pages visited, the duration of each visit, the number of unique visitors or the total number of visitors to the page. If the goal is to create a community, you can measure the increase of fans of the company page, the number of newsletter sign-ups, reviews or the total number of responses to call-to-actions (Cioppi et al., 2016).

To increase customer satisfaction, you need to respond to comments, private messages, share successful case histories, assist with complaints and respond to negative reviews. The realization of these activities presupposes a listening activity that not only represents the basis of building the relationship of trust with the client, but also the best way to provide immediate feedback. The metrics used to track customer service activities mainly concern the number of complaints, personalization, listening to conversations and online services.

Finally, the last target of this framework, (shown in table 1), is the economic performance, subdivided by the authors into three possible interpretations:

1. e-commerce sales through SM towards the e-commerce page, measurable by means of an increase in sales, revenues, repetition of the purchase rate; in fact, the cost of the customer service can be reduced by the company thanks to the management of a complaint through Facebook or Twitter;
2. savings, achievable thanks to the reduction in the cost of traditional advertising, through an efficient development of activities on SM; in this case the metrics used will be related to traditional advertising such as the reduction of advertising costs;
3. revenue through lead generation and sales increase.

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Table 1 – Framework BCCP (Vlachvei & Notta, 2015)

Goals					
Customer Service (Satisfaction)	*Community Building (Engagement)*	*Brand Building (Awareness)*	*Performance*		
			Earning (make money)	*Saving (Save money)*	*E-commerce sales through SM*
Metrics					
• Increasing traffic (page views, unique visitors, total visitors) • Improved search ranking • Gain visibility • Improved reach • Positive press • Positive wom • Blog comments • Time on site • Employment applications	• FB friends • Twitter followers • Gain newsletter sign-up • Mentions • Recommendations • Respond to criticism • Retweets • Shares • Call to action	• Customer complaints • Customization • On line product services • Listening to conversations	• Increased leads • Generate leads	• Reduced adv costs • Reduced customer retention cost • Listening to conversations • Reduced cost of managing a customer complaint	• Increased sales • Revenue per customer • Repeat purchase rate • Average customer life

On the basis of the various frameworks proposed, we can reconstruct a model of analysis that contains the main indications of the cited authors. It starts from the definition of the targets of SM marketing deriving directly from the business ones, followed by the construction of the KPIs and the choice of the metrics used to measure the achievement of the targets set in the second step of the measurement model, as well as the organization of work through the selection of the social media team members. The next phase involves the analysis and measurement of data: before starting this phase, it is necessary to establish which tools (internal or external) can be useful.
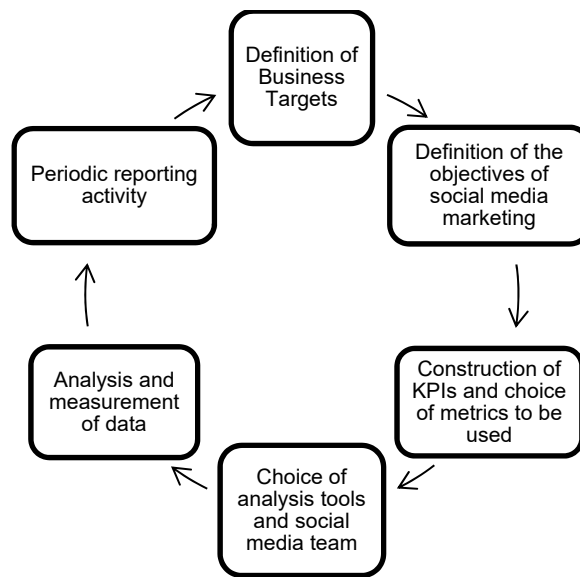
Finally, the measurement phase can end with the visualization and presentation of data in periodic reports that highlight the results and targets achieved, comparing them with pre-established targets, previous analysis and monitoring phases. The continuous and regular measurement activity, therefore not limited to monitoring the SMs exclusively during promotional campaigns, continues with the appropriate redefinition of some phases of the process and of the SM marketing strategy, in light of the data collected and the set targets.

Through this measurement framework it is possible to obtain a holistic view of metric measurement, and to recall classical managerial perspectives: in fact, it presents itself as a circular process diagram, which can be connected to previous approaches of management control (Slavoljub *et al*., 2015; Dlimi & Alami, 2016).

For example the logic Plan-Do-Check-Act or Deming Cycle emerges clearly: adopting this logic in fact, in order to systematically and continuously manage the measurement activities with a view to continuous improvement, it is connected to the Plan phases (establish objectives and processes necessary to deliver results in accordance with the organization's policies), Do (implement the identified and planned processes, through the availability of appropriate resources and organizational procedures), Check (monitor and measure the processes in relation to the policies, objectives and requirements, recording results) and Act (take further actions to improve performance) (Lega, 2011). In this way, following the classic approach of managerial control, the measurement and control of social media metrics are connected with the marketing objectives of the company.

The framework can be represented in Figure 1. Each arrow in the graph indicates important feedback activities that are necessary, for a continuous improvement in the course of the SM performance measurement activities.

Figure 2 – Analysis Framework (our elaboration)

2.2. Discussion on the proposed frameworks

As is clear from the frameworks selected in the literature and compared in Table 2, common points and differences between them emerge, as well as disadvantages and advantages in favor of one process or the other.

First, it appears evident, among the points in common, as already highlighted previously and therefore as a criterion for the selection of frameworks, the fact that they start from the definition of business and business objectives, not limited to the SM Marketing activity.

However, only the framework proposed by the authors of the paper presents a further definition of the objectives of the social media marketing strategy, as a phase following the definition of the business objectives. In fact, it is necessary to be able to define the objectives at the microscopic level and limited only to the social media strategy, in order to direct the activity towards effective performance. The second step in the frameworks proposed by Etlinger (2011) and by Vlachvei & Notta (2015), highlighting a shortness in the definition phase of the objectives, as just emphasized, consists in the choice of the metrics to be used, phase that is presented in the other two frameworks only as a later phase, but not less important.

The frameworks of Etlinger (2011) and of Vlachvei & Notta (2015), in fact, are lacking and too short and exhaustive to be considered as a reference point in the measurement activity, as they do not clearly specify which objectives, nor which tools is good to follow and use and do not have feedback activity.

Table 2 – Comparison between the selected frameworks and the proposed analysis framework (Our elaboration)

Framework	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Etlinger's framework (2011)	Strategy: define business	Metrics: define success	Organization: identify team	Technology: identify tools.	/	/
Murdough's framework (2009)	Concept: definition of the brand and business objectives	Definition: choice of the analysis program and timing.	Design: Methodoloy for data, monitoring and choice of reporting tools	Deployment: editorial calendar and workflow management.	Optimization: work synthesis and performance improvement	/
Framework BCCP Vlachvei & Notta (2015)	Definition of Goals	Identify tools and metrics	/	/	/	/
Authors' framework	Definition of Business Targets	Definition of the objectives of SM marketing	Construction of KPIs and choice of metrics to be used	Choice of analysis tools and SM team	Analysis and measurement of data	Periodic reporting activity

Only the measurement framework proposed by Murdough (2009) presents a cyclical pattern with feedback actions along each step of the measurement process: for this reason, the framework proposed by the authors also considers a monitoring and feedback activity necessary to guarantee a continuous improvement in the measurement process, aimed at increasing the effectiveness of the strategy.

Through the optimization phase (Murdough, 2009) and through the step 6 (Authors' framework) and thanks to the use of reports it is possible to modify the measurement process, however it is necessary that there are feedbacks throughout each phase of the process, so to guarantee further corrections.

In fact, adopting a general point of view, which contextualizes the issue of measurement in a marketing perspective, the control, consisting of the set of tools and methodologies that are used by the company to allow the achievement of corporate objectives (Atkinson *et al.*, 1998), allows measuring performance and taking corrective actions. This is possible thanks to the feedback from phase to phase, it is therefore considered necessary. In this context, the feedback phase, which allows any changes, is very important because, looking for the causal relationships between the performance drivers and the objectives, we can obtain analyzes and reports, which facilitate strategic review (at the micro level of the social media strategy and at the macro level, regarding the feasibility of the marketing strategy) corrections (Negri & Sabbadin, 2010). In fact, the reporting system is indispensable in delineating the process of formation of results, in relation to the different business objectives already established previously.

Therefore, the proposed framework requires feedback elements, since, thanks to the control systems and corrective actions, the strategy is constantly monitored, providing feedback on the achievement of the pre-established strategic objectives (Simons, 1990). We therefore propose a simultaneous control system, which is done day by day, through a reaction mechanism and thanks to a comparison of concrete objectives and results, in order to allow the strategy to be modified. This control system is based on monitoring, intended as a survey aimed at evaluating the outcome of the implementation of a program (Masoni, 1987).

3. The metrics of the social media

Although is evident the need to be able to delineate the measurement activities through a theoretical model or framework that illustrates the steps to be followed to make effective the marketing performance on new digital tools such as social media, an attempt to classify the metrics emerges from

the literature that act as parameters on which to base the measurement. Starting from the internal structure of social media, which allows a variety of metrics to be analyzed and used, free, it is clear that the performance on social media must rely on metrics.

To answer the research question *RQ (2): Which are the most common measurement metrics for the evaluation of the social media marketing activities?*

By the analysis of the papers reviewed, it emerges that the theme of metrics, starting from the definition of which to use, among the many available, up to the effective use of those chosen, turns out to be a hot topic and very topical.

Authors often take up the challenge of measurement, although they encounter numerous difficulties (Luo & Jiang, 2012), and are led to compare the metrics for web 2.0 with the metrics used in the analysis of activities carried out on traditional media (Wilcox & Kim, 2012; Cray, 2012).

Therefore, many authors (Luo & Jiang, 2012; Wilcox & Kim, 2012; Hoffman & Fodor, 2010; Crumpton & White, 2016; He & Garnett, 2016; Töllinen & Karjaluoto, 2011; Spiller & Tuten, 2015;) sought to clarify the multiplicity of metrics available.

Wilcox & Kim (2012), analyzing Facebook and Twitter, have considered three variables: Reach, Frequency and Engagement: specifically, the Reach, defined as "the size of the community accessed through SM activity", represents a strong indicator of the value of the published content, when the community created shares that specific content with its own networks.

The authors define the frequency, including Facebook posts, tweets, answers to questions, as the specific amount of outbound activity. It is measured by counting the total number of posts or tweets published on a daily basis.

Finally, the measurement of engagement, defined as "the overall interactions that the department is experiencing in the social channel", includes sources as likes, comments, the number of the clicks on the links, the number of replies and retweets on Twitter.

From the study of Luo & Jiang, (2012) there are five classifications of measurement of the activities on the SM reported: measurement of production, similar to the variable reactive to the frequency, cited above; measurement of message exposure, which recalls the reach variable, measurement of awareness, or measurement of audience attitudes (e.g. if the target audience has been motivated to adopt an idea, vote, buy a product, or use a service).

Finally, this last category can be traced back to the measurement of the engagement.

Hoffman & Fodor (2010) categorize the metrics according to the objectives that the measurement of these allows to achieve. In fact, if the goal to be achieved is to improve brand awareness, e.g. can be measured: the number of members/fans, the number of impressions, number of reviews; or if the

goal is the improvement of the interaction (which is therefore linked to the engagement), we measure the number of comments/active users/likes on fans' posts; to increase the word of mouth instead, we can measure the frequency of appearances in the timeline of friends, the number of posts on the wall, the number of reposts/shares.

Hoffman & Fodor (2010), therefore, do not deviate from the variables stated at the beginning of the paragraph, such as engagement and reach. Furthermore, one of the dimensional vanity metrics linked to the amplitude of its community is introduced as the measure of the number of fans/followers.

Crumpton & White, (2016), on the basis of the analytics systems provided free of charge by the Facebook and Twitter platforms, state that the subscribers of the page (how many likes for Facebook and how many followers for Twitter have company profiles), reach (number of times people are served to post for Facebook and number of times users are tweeted for twitter) and finally the engagement, (number of clicks anywhere on post/tweet).

He & Garnett (2016), following the example of Hoffman & Fodor (2010), frame the metrics of social media marketing based on the objectives to be achieved: specifically, if you want an increase in brand equity, you measure the number of likes, or shares; if an increase in brand engagement is desired, the number of comments, the number of comments, the numbers of views, visits, likes, shares, posts are measured.

If the goal is an increase in the EVA (Economic Value Added), the conversion rate and the customer lifetime value are measured. The last objectives taken into consideration by the authors evaluate the WOM (Word of mouth), measurable through the number of views and likes, shares, the number of fans and the increasing rate of fans, and the objective of the measurable relationship equity instead through the retention rate of old fans, the ease of use and the activities.

Töllinen & Karjaluoto (2011), taking up the work of Barlow and Thomas (2011), Blanchard (2011), Turner & Shah (2011), propose a list of distinct metrics for three categories: qualitative metrics (egnegative or positive mentions, recommendations, product reviews, geographic distribution of mentions, consumers feelings/thoughts), quantitative metrics (e.g. number of shares/retweets, outbound replies, click-throughs, customer service requests, comments, frequency of transactions, number of visits/subscribers/events awaits, numbers of conversions) and financial metrics (e.g. average buy, customer lifetime value, cost per acquisition, value of online transactions, value of sales/conversions/ lead / prospects converted).

Spiller & Tuten (2015) finally categorize the metrics in three types: activity metrics, interaction metrics and return (financial) metrics:

- *Activity metrics* are "measures of the input the brand is making into develop-

ing a digital/social presence" (e.g. number, frequency and recency of up-dates/posts, comments/reply comments, photo/video posts, tweets, tags);

- *Interaction metrics* are "measures of customer engagement with the brand's digital and social presence; indicators suggest various forms of response from the target audience; beyond basic responsiveness, indicators may also suggest influence beyond the initial target audience to customers' social graph" (e.g. number, frequency and registrations, comments/mentions/tags, fans/followers/friends, share/forward, reviews);

- *Return metrics* are "measures that indicate the outcome of the digital and social strategies and tactics and illustrate the financial value of the actions taken" (e.g. Lead conversion rate, average new revenue per customer, customer lifetime value, earned media values, shifts in average sales/site traffic/search engine ratings, share of voice and return on investment).

Based on the above approaches, you can summarize the different types of metrics in five groups:
1. activity measurement metrics;
2. sharing or brand visibility metrics;
3. dimensional metrics;
4. engagement or interaction metrics;
5. performance or business metrics.

The first group, based on Cosenza (2012), Spiller & Tuten (2015) and Tuten & Solomon (2014), measures the work of the social media manager and evaluates not only the number of posts and tweets published and the frequency in a period, but also the number of comments and messages that have been answered, as well as the speed of response time, thus quantifying also the customer service activity. Brand sharing or visibility metrics can include both vanity metrics like likes, shares, tweets and retweets, post coverage and number of views, and sharing metrics that analyze post quality more than quantity: all the metrics that contribute to increase brand awareness such as mentions and sentiment analysis can be included in this classification.

The number of fans/followers of company accounts represent the dimensional metrics of the community. Engagement metrics measure how much the followers of the brand interact with the contents published on the social networks: the higher the engagement value is, the more it will be possible to link this number to the next and most relevant parameter group for business purposes. The latter in fact measure how much the involvement of the followers has turned into concrete action towards the company, through a conversion to the website, whether it is the compilation of a contact form or the display of an e-commerce page. The following table shows a summary of the five groupings of parameters just illustrated, compared with the metrics identified by the previous authors (Table 3).

Table 3 – Summary of social media metrics (Our elaboration)

Metrics	Typology	Authors
Reach	NA	Wilcom & Kim (2012)
Frequency (tweets, post, messages)		
Engagement (likes, comments, the number of the clicks on the links, the number of replies and retweets on Twitter)		
The number of produced public relations tactics	Measurement of production	Luo & Jiang, (2012)
whether the target audience actually becomes aware of the messages	Measurement of message exposure	
whether the target audience's perceptions and attitudes have changed	Measurement of awareness	
whether the target audience has been motivated to adopt an idea, vote, buy a product, or use a service	Measurement of audience attitudes	
The number of members/fan, number of impressions, number of reviews	Measurement of audience action	
number of members/fan, number of impressions, number of reviews	Target: brand awareness	Hoffman & Fodor (2010)
the frequency of appearances in timeline of friends, the number of posts on wall, re-posts/shares	Target: interaction	
the frequency of appearances in timeline of friends, the number of posts on wall, re-posts/shares	Target: WOM	
Fans/followers	NA	Crumpton & White, (2016)
Reach (number of times people are served a post per Facebook and number of times users are served a tweet per twitter)		
Engagement (number of clicks anywhere on post/tweet)		
Likes, the respond number on users' comments, the number of shares	Target: brand equity	He & Garnett, (2016)
The number of comments, the respond number on users' comments, the numbers of views, visits, likes, shares, posts	Target: brand engagement	
conversion rate customer lifetime value	Target: EVA	
The number of view and visits, likes, shares, the number of fans and the increasing rate of fans	Target: WOM	
retention rate of old fans, the ease of use and the activities	Target: relationship equity	
Negative or positive mentions, recommendations, product reviews, geographic distribution of mentions, consumers feelings/thoughts	qualitative metrics	Töllinen & Karjaluoto, (2011)
The number of shares/retweets, outbound replies, click-throughs, customer service requests, comments, frequency of transaction, number of visits/subscribers/event attendees, numbers of conversions	quantitative metrics	
average buy, customer lifetime value, cost per acquisition, value of online transactions, value of sales/ conversions/ lead generated/ prospects converted	financial metrics	
The number, frequency and recency of updates/posts, comments/reply comments, photo/video posts, tweets, tags	Activity metrics	Spiller & Tuten, (2015)
The number, frequency and recency of registrations, comments/mentions/tags, fans/followers/friends, share/forward, reviews	Interaction metrics	
Lead conversion rate, average new revenue per customer, customer lifetime value, earned media values, shifts in average sales/site traffic/search engine ratings, share of voice and return on investment.	Return metrics	
Posts, tweets, response to comments and private messages. Message response speed.	Activity measurement metrics	Authors
Reach, likes on post, retweets, shares. Brand mentions, sentiment analysis.	Sharing or brand visibility metrics	
Fans, followers.	Dimensional metrics	
Interaction with posts or engagement, media interaction with posts.	Engagement or interaction metrics	
Number of leads. Number of pre-sales interactions Average duration of the contact	Performance or business metrics	

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Conclusions

In the digital competitive landscape, where every company is connected to the outside world thanks to new digital technologies, the need to communicate and promote its activities and products emerges through the creation and management of company pages. Also emerges the need to take part in the conversations that take place in the communities born around their brand, even without having the power to control them. The online communities that create around a brand provide a multiplicity of data, able to reveal opinions and experiences of purchase, which, without a continuous and careful monitoring, are likely to prove useless and get lost in the immense world of the Internet. Therefore, companies have the opportunity to monitor and understand if and how they are pursuing their goals, to understand what are the real and not presumed effects of the campaigns that implement online, to compare their performance over time and to define how and what they can improve in their strategy (Confetto & Palazzo, 2018). The need to collect, measure and interpret data is evident, through a continuous process, which evaluates the value of this information and influences the trend of the SM marketing strategy.

Theoretical and managerial implications emerge from the research work. From the theoretical point of view, through the literature review, changes in perspective emerge from marketing scholars: in fact, the target to which one can turn represents the great signal of change, not only in the context closely linked to the world of social media marketing, but also in a wider optics. In fact, the target is no longer limited to B2B or B2C, the P2P scenario opens, People to People (Cray, 2012). The other emerging issues relate to the measurement and control of performance, which clearly shows the attempt to apply traditional measurement methods to digital measurement, to which is added the formulation of performance measurement frameworks and models, setting objectives and identifying metrics and tools (Murdough, 2009; Cray, 2012; Metzger *et al.*, 2015; Vlachvei & Notta, 2015; Spiller & Tuten, 2015; Skulme & Praude, 2015). However, the most addressed issues are represented by the measurement of ROI on SM (Cray, 2012, Kumar & Mirchandani, 2012; Lloret Romero, 2011; He & Garnett, 2016; Coleman & Heriot, 2014; Töllinen & Karjaluoto, 2011).

The paper, through a literature review that has allowed answering the research question RQ1, proposes a measurement framework that arises from the comparison of the most widespread frameworks and discussed in the literature. It summarizes the measurement steps of the activity conducted on the SM, starting from the definition of the objectives of SM marketing deriving directly from the business ones, followed by the construction of the

KPIs and the choice of the metrics used to measure the achievement of the pre-established objectives, up to measurement performed using the chosen tools and reported in periodic reports.

Therefore, the proposed framework highlights the need to be structured in a circular way, where each step, through control measures and feedback elements, allows recourse to corrective actions, thanks to which the strategy is constantly monitored. The authors therefore propose a simultaneous control system, which is carried out day by day, through a mechanism of reactions and thanks to a comparison of concrete objectives and results, in order to allow the modification of the strategy.

In the second part of the research, the paper tries to clarify the multiplicity of the measurement parameters, focusing on the proposed framework step, corresponding to the identification and choice of the metrics. Therefore, referring to the second research question *RQ (2): Which are the most common measurement metrics for the evaluation of the social media marketing activities?*

From the literature review emerge five categories in which they can be grouped the classifications elaborated by the authors (Luo & Jiang, 2012; Wilcox & Kim, 2012; Hoffman & Fodor, 2010; Crumpton & White, 2016; He & Garnett, 2016; Töllinen & Karjaluoto, 2011; Spiller & Tuten, 2015;):

1. activity measurement metrics;
2. sharing or brand visibility metrics;
3. dimensional metrics;
4. engagement or interaction metrics;
5. performance or business metrics.

Starting from the five categories just mentioned it is possible to identify informational benefits and costs, as well as lights and shadows for each. The first category of metrics allows qualitatively and quantitatively assessing the activities undertaken managed by the team. It highlights the extent and through which types of content the strategy is implemented, quantifying the number of posts published, number of responses to comments and all those customer care activities (through private messages to social accounts) that led to the resolution of a customer problem.

The second category of metrics provides the advantage of ease in measurement with low-cost analytics provided by the same social networks, but limiting the quantitative aspect, and not the quality of the mentions, because they do not evaluate sentiment. Finally, they do not provide any information about the economic return generated by the social media marketing strategy.

The dimensional metrics of the community are useful for the targeting of the strategy of publication of the contents based on the multiple information

generated by the SM dashboards (demographic, work, linguistic studies, etc.). However, this category also does not provide ROI data.

Engagement or interaction metrics guarantee the benefit of comparing information about the quality of views and content ratings, but without providing directions for calculating ROI.

The performance metrics are the only category that can provide an economic assessment of the target set, through the number of leads generated and through the calculation of ROI: it is possible, in fact, not only to understand the effectiveness of the strategy conducted on social networks, but also to reallocate resources within the budget allocated to the marketing function.

From our point of view, the above metric categories are able to measure the impact of SM Marketing activities in the four areas proposed by Tuten & Solomon (2014). The authors group the communication channels similar to each other in four areas:

1. social community (area in which people participate together sharing common interests and experiences on social networks and forums, for example Facebook, Twitter, LinkedIn, Google+);
2. social publishing (area where contents are spread with regular updates on blogs, microsharing / microblogging sites, for example YouTube, Flickr, Slideshare);
3. social entertainment (an area that includes channels where you can play and have fun in virtual worlds and entertainment communities, for example Second Life, Come2Play);
4. social commerce (an area that includes channels where it is possible to sell products and services through social commerce/shopping sites, for example Facebook, LivingSocial, Groupon, TripAdvisor) (Tuten & Solomon (2014).

The models examined, although interesting, however, fail to grasp the entire managerial process of the company: often, the models for measuring performance on SM are developed by software companies with limited strategic marketing skills. Our model goes to this direction.

With regard to managerial implications, this contribution provides, through the proposed measurement framework, a strategic-operational guide to the measurement of SM marketing activities. With a view to holistic performance measurement, it is necessary to underline that the evaluation of a company's strategic performance is a complex and multidimensional activity and requires the use of a systemic and global representation and reading of the data, which represent a medium to understand and improve the monitored activities (Pencarelli, 2014). Therefore, it is important to base the measurement activity on performance control indicators because «we cannot manage what we are not able to measure, and we are not able to measure what we

cannot describe» (Kaplan & Norton, 2004). It is therefore necessary to build a model for the synthesis of indicators that allows the implementation of a holistic measurement on the effectiveness and efficiency of the strategy: a *social media balanced scorecard*. The proposed framework guarantees a synthesis of the measurement phases, with a focus on the metrics to be used, able to provide a strategic mapping for the measurement process.

As a second managerial implication, the research work offers a review of the main metrics useful for enriching the data landscape of the marketing information system able to improve the communication processes. In fact, if managers utilize a holistic model to control how effectively the social media utilized are, they can have a global vision of social performance. In conclusion, from the research conducted, limited by the lack of literature in the field of performance monitoring in SM marketing, a gap emerges regarding the theme of the calculation of ROI. In fact, although the latter represents a topic of broad discussion in the literature, it appears to be still an unexplored thematic thread; it is therefore advisable to continue expanding the research landscape, with greater focus on the aspects related to financial or performance metrics. In fact, through further research, which also ensure greater knowledge of the instruments for measuring and controlling performance, it will be possible to understand the effectiveness of the same in the economic-financial field.

Finally, from our point of view, it is appropriate to compare the proposed measurement model with empirical survey through analysis of extended samples or with case studies relating to companies that are able to analyze the performance measurement activities on social media, through interviews with business managers and professions of digital agencies. In fact, it is important and useful to study further to know if managerial practices are limited to adopting the metrics only in a partial and sectorial way, or if they adopt a complete performance analysis perspective.

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