

The Role of ICT in our Daily Life Applications: Obstacles and Challenges

The Impact of Social Media Adoption on Entrepreneurial Ecosystem

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ABSTRACT

Since entrepreneurship is important driving for economic growth, researchers should be helpful to develop greater strategic insight into innovation technology in this group. This paper is a content analysis that seeks to systematize the studies carried out on the use of social media in the entrepreneurial ecosystem. Twenty-four studies were reviewed using a synthesis-and-interpretation-based approach. The results of the content analysis reveal the effectiveness of social media in connecting the key actors in the entrepreneurial ecosystem such as partners, suppliers, universities, and resource providers in many aspects. The available literature suggests that social media-Twitter and Facebook-in particular-have been the most platforms used by entrepreneurs. Startups presence in social media more than established companies. Social media affects positively on startups' performance. The use of social media in the entrepreneurial ecosystem is affected by a number of variables, such as the organization culture, region, gender, age, and business environment. Moreover, most of the studies follow a quantitative approach, to measure frequency of the use of social media by SMEs. The relevance of this study lies in the fact that it illuminates future research as it identifies the research gaps in the use of social media as a communication channel between Small and Medium Enterprise SMEs and other stakeholders in the entrepreneurship ecosystem.

KEY WORDS: SOCIAL MEDIA, ENTREPRENEURSHIP ECOSYSTEM, STARTUPS, ENTREPRENEURS, TWITTER, FACEBOOK, LINKEDIN, SMES

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INTRODUCTION

In the last few decades, new information and communication technologies have taken the world of entrepreneurship by storm. The market dynamics and the competitiveness of businesses- be they established companies or startups- have been challenged by the increasing power of the Internet and Internet-based social media. These new technologies have a significant impact on how entrepreneurs operate and how they interact with each other [1]. They provide new ways of firm-to-firm communication, information sharing and thus link companies to the different players in the ecosystem [1][2][3].

Social media is a set of “virtual communities” that allow users to sign up for a public profile and establish a network of relationships with people of same interests [4]. Advances in information technologies, such as the advent of Web 2.0 and the rise of social media applications (Facebook, LinkedIn, Twitter, Slack etc.) have revolutionized the communication landscape. People can now connect with their real-life friends or make new friends with whom they interact and exchange news. It is noteworthy; however, that social media have more to them than mere chatting and networking. Their impact on news, politics, economy and marketing should not be downplayed [5]. For instance, social media have modernized business management and strategic thinking, and they have introduced a new form of firm-to-firm and firm-to-ecosystem communications [6]. It is for this reason that social media are being hailed as great asset for individual entrepreneurs who are wary of entering the market [7]. They help attenuate uncertainty and give new businesses a good start-up [8]. Moreover, social media allow the entrepreneur to diversify their communication tactics, claim new customers and manage crises [5]. In today’s competitive and complex business world, entrepreneurs need to be constantly present on social media to interact with their customers and communicate with the different stakeholders [9]. By increasing their presence on social media, entrepreneurs increase their crisis management skills.

The number of social media applications and platforms is increasing every day. To ensure their survival, these applications and websites work hard to offer unique features that make them stand out from the rest. Each of these applications seem to provide its users with different functions and uses. For example, Facebook is now considered as the largest online-based social network with 2.2 billion active users per month. Its uniqueness lies in the way it allows friends and family to connect and communicate easily. Other platforms, such as LinkedIn, choose to focus on professional matters to enrich the job market with growing individual experience [10]. However, Twitter seems to be the best

platform for entrepreneurs due to its follow and share feature [7].

This paper is motivated by the scarcity of literature on the role of social media in the entrepreneurial ecosystem. This paper is a content analysis that seeks to systematize the studies carried out on the use of social media in the entrepreneurship ecosystem. It defines the entrepreneurial ecosystem in detail to establish the link between social media and the ecosystem. Then, it reviews and analyzes twenty-four studies carried out on the issue. Finally, it reports the latest findings and finding the gap in the literature, which will enlighten future researches.

To ensure relevance and replicability, this paper adopts a systemic approach. A systemic review reflects a satisfactory trustworthiness of the existing body of literature [11]. This approach has as its purpose to discover, summarize and analyze any relevant literature in the light of transparency and replicability [11].

The remaining parts of this paper are organized as follows: section 2 discusses the theoretical background. Then, Section 3 explains the methodology, which followed in this paper. Section 4 defines the entrepreneurial ecosystems based on previous studies. Finally, section 5 reviews and analyzes the studies carried out on the issue of using social media by entrepreneurial ecosystem stakeholders.

BACKGROUND

In this section, the research discusses the theoretical background that defines SMEs and its role in economic growth, the important of social media in the business world, and the relation between the entrepreneurs’ success and their social relationship.

Small & Medium-Sized Enterprises (SMEs)

There is a significant variance in the way SMEs are defined. It seems that the notion of SME defies formal definitions [12]. Different criteria are used to define this type of business, such as the amount of economic activity, status within the country [13], capital assets, labor skills, level of turnover, legal status, method of production and type of activity [12]. Whatever the definition may be, it is evident in the literature that SMEs play an important role in the economy of any nation. These types of businesses have a high potential to generate job, provide jobs, increase export and bring innovations for Young. SMEs are a fertile ground to experiment with new forms of innovation in order to empower young entrepreneurs. This cannot be achieved unless a strong supply chain is created to improve competitive [13].

Social Media

Social media becomes essential for business [13]. Facebook and Twitter are considered the most used social

media [10]. However, Twitter seems to be the best platform for entrepreneurs due to its follow and share feature [7].

Twitter is a microblogging platform that offers an effective way for people to interact through the creation and sharing of tweets. Its effectiveness is enhanced by its 280-character limit that suits people who are looking for quick, precise and to the point information [7]. The character limit increases the speed and the frequency of tweets on a daily basis [14]. Moreover, Twitter allows its users to choose whom and what to follow and once following is done, the follower will automatically receive all updates of the followed user, including tweets, news and information. This feature makes the microblogging application an effective tool to disseminate information [15] and to enjoy transparency with little or no filtering of the content [16]. This accounts for the popularity of Twitter in the business world as communication platform between companies and their customers and between companies and the different stakeholders. In fact, a review of the biographical profiles of Twitter's most active members reveals that the majority of them introduce themselves as entrepreneurs [7].

Social media is, then, an asset in the hands of young entrepreneurs who seek to connect with their ecosystems. This research hypothesizes that social media have radically changed the entrepreneurial ecosystem, which is in line with the findings of many studies [8] [7]. Traditional forms of communication within the ecosystem were inefficient, which slackens economic growth and sustainability. The ineffectiveness of the ecosystem in the pre-social media era made it difficult for entrepreneurs to access and share information [1]. The idea of this research was born out of the intersection between social media and the business world. Given the effectiveness of social media (Twitter in particular) as a communication platform, startups should employ it to build and extend a large network of business relationships. The assumption behind this research is that Twitter can be effectively used to enhance firm-to-firm and firm-to-ecosystem interaction for SMEs.

Social Networks and Entrepreneurial Activities

The use of social network in entrepreneurial activities is growing in importance. There have been numerous studies on how social networks benefit entrepreneurial activities [17]. It has been found that social networks or social relationships help entrepreneurs to have access not only tangible resources, such as labor and capital [18], but also to intangible resources, including social support, information, reputation and risk-taking habits [18][19]. Moreover, social networks make it possible for entrepreneurs to create new business ideas [20], and enhance business performance [19]. Another way these

networks can benefit business is by alleviating demand uncertainty and enlightening decision-making [21]. Access to venture capitalists is another key benefit provided by social networks as investors are more likely to be interested in business proposals by people in their networks [22]. Intangible resources, such as knowledge and experience through social networks are also key factors of the success of startups [23]. It can be argued, therefore, that having strong network connections is a prerequisite to success.

Analysis Methodology

This paper is a content analysis that seeks to systematize the studies carried out on the use of social media in the entrepreneurship ecosystem. The research consists of three sections. The first section defines the entrepreneurial ecosystems based on previous studies. This definition seeks to establish the link between social media and the ecosystem. The second section reviews and analyzes twenty-four studies carried out on the issue. This section aims at reporting the latest findings and finding the gap in the literature, which will enlighten future researches.

Understanding the Entrepreneurial Ecosystem

Entrepreneurship plays a vital role in the economic growth and stability of any nation. It is through entrepreneurship that the gaps and the shortcomings of the national economic systems are addressed. The launching of new businesses should aim at filling these gaps. However, entrepreneurship is not a unilateral process, as it is contingent on the environment in which the entrepreneur operates. For instance, the success of Silicon Valley is largely due to the systematic cooperation between venture investors, entrepreneurs, researchers, anchor companies and business supporters [24]. These key players make up what is referred to in the literature as the "entrepreneurial ecosystem" [25]. It is a socio-economic framework, with different actors who collaborate together to promote initiatives and entrepreneurship at the local level. However, what these actors really are has been a matter of variance among scholars.

There have been several attempts at defining and understanding the entrepreneurial ecosystem. The diversity of studies on the topic reflects two verities about the ecosystem. First, the entrepreneurial ecosystem is not a constant entity. It is a multifarious concept that adjusts to the socio-economic changes, which accounts for the addition of new factors in every new study. Second, the ecosystem is culture specific. The actors that affect entrepreneurship vary from one geographical region to another.

One of the first theories of the ecosystem as a systemic entity recognizes it as a complexity of actors (basically environmental) that determine the regional performance

of the ecosystem [26]. This conceptualization stresses the locality or the regionalism of the different factors and assigns a symmetrical role to each of the factors. Later attempts departed from the notion of a systemic entity to investigate what these actors really are. For example, a study carried in Washington D.C. in 2001 identified social capital, venture capital, support services of entrepreneurship, entrepreneurs and universities as active players in the entrepreneurial environment of the region [27]. The results of this study differ from another study done in Boulder, CO. The latter recognizes six factors in the ecosystem: spin-off firms, networks (both formal and informal), incubators, culture and physical infrastructure [28]. This concept of the ecosystem highlights the importance of the interaction between these six elements to create the entrepreneurial environment.

Over the last decade, interest in the entrepreneurial ecosystem takes a turn from identifying the different elements to highlighting their roles anchors for entrepreneurial innovations and activities. For instance, the World Economic Forum (2013) identifies 8 factors “accessible markets, human capital/workforce, funding and finance, support systems, government and regulatory system, education and training, universities, and cultural support”. All of these elements intersect with a previous study carried out by Isenberg [29]. Theories of the ecosystem continue to develop in recent years. What is remarkable in recent years is the tendency in the literature to use categorical labeling to group those factors that are similar in nature. In 2014, the ecosystem was defined as the systemic collaboration of three major factors: 1. Entrepreneurial actors (both existing and potential), 2. Entrepreneurial corporations (firms, banks, venture investors) and 3. Institutions (universities, public agencies and financial institutions) [30]. The relevance of this categorization lies in the way it categorizes the factors into three types: entrepreneurship, and the type of support it can access either financial or in the form of research and planning. Another attempt at categorizing these actors appeared in the same year from The Center for Rural Entrepreneurship [31]. Within this study, the ecosystem is the sum of the five Cs: “Capital (financial resource), Capability (entrepreneur and owner skillset), Connection (resource and relationship network), Culture (the local communities’ perception and support of entrepreneurship) and Climate (regulatory, economic development and policy environment)”.

In 2017, another attempt at presenting the actors in the form of categories was published. Within this study, the ecosystem is introduced as a community made up of two levels: the system level and the socioeconomic contextual level [32]. This view focuses on the socio-economic environment as a matrix for entrepreneurship. This implies that entrepreneurial activities are set by

their socio-economic environment and that these activities vary across cultures. Similarly, the factors of the ecosystem can be grouped into three classes: cultural attributes (attitudes to entrepreneurship in a specific culture as told by the success stories), social attributes (support from investment capital, mentors and talents) and material attributes (tangible support from universities and policy makers) [33]. These three categories are equally important and mutually-contingent in their support of entrepreneurship. It is noteworthy, however, that no definition of the ecosystem can be exhaustive unless it recognizes culture-specific parameters [34]. The dynamics of entrepreneurial ecosystem vary from one country to another and largely depend on the organizational context and the level of economic development. What these studies have tried to do is identifying the different actors involved in the entrepreneurial ecosystem. However, the nature of the relationship between these elements still need to be investigated.

Focusing on the constituent elements of the ecosystem does not account for the internal relationships between them. Studying the different ways these elements interact with each other is a necessary step if we were to understand the dynamics of the ecosystem. Otherwise, how can such disparate elements as social capital and networks be reconciled? The past 5 years have been characterized by two tendencies in the research on the ecosystem. The first tendency was—as discussed above—to classify these elements into big generic categories. The second tendency is a remarkable shift from an “element-based approach” to a “connection-based approach” [35]. A system-based approach has significant implication not only for pioneering entrepreneurs, but also for policymakers. It provides them with an exhaustive view of how the performance of a business is mediated by a bunch of economic activity [36]. One way of studying the dynamics of the ecosystem is by looking at spin-off from the prism of a local anchor company, like “entrepreneurial recycling” [37]. In 2018, there was an attempt to account for the social connectivity among entrepreneurs. The connection that this study established were long-term and region-based [38]. The shortcoming of these connections is that they do not explain the day-to-day activities of entrepreneurs. Measuring daily activities is a prerequisite to understand how the different stakeholders interact with each other. What entrepreneurs are keen to get is state of the art information to help them cope with the volatile nature of the market and technological innovations.

Social Media and Entrepreneurial Ecosystem

Applying the systemic review, this revealed table1, which summarizes the findings of twenty-four studies on the use of social media as communication tool

between the entrepreneurs, startups, and SMEs and the different stakeholders in the ecosystem. Special focus has been laid on startups and SMEs. A synthetical discussion sections follows the review. The attributes of the table are: the purpose of the study, the stakeholders and social media sites that targeted by the study, the sample size, the method that used to analysis the samples, and finally the relevant findings.

Social Media Platforms and Entrepreneurship

Twitter and Facebook are the most popular social networks used by entrepreneurs. Their popularity in the entrepreneurial ecosystem can be easily ascribed to their popularity as social networks [39]. Accordingly, using these two social networks helps young entrepreneurs to maximize their presence in the ecosystem and to reach new potential customers and business partners. SMEs seem to be more active and present on social network than big companies [40]. The presence of the CEOs of big established companies on Twitter and Facebook is insignificant [40][39]. Moreover, entrepreneurs have employed different social media platforms for diverse reasons.

The Drivers of Social Media Adoption.

There are a few differences in the way social media is used in SMEs. The choice of one social platform over the other is determined by the type of services the platform provides [41]. However, there are other factors that influence the choice of a platform, such as the geographical location, organizational and environmental constructs of SMEs [13], gender and age [42], technological and organizational [43].

The studies have revealed that the discourse of the entrepreneurs is also different across cultures [44]. For example, the discourse of African entrepreneurs seems to be loaded with negative emotions, while that of the entrepreneurs from the developing economies is more positively loaded.

The Motivations and Benefits for Entrepreneurs to Use Social Media

Entrepreneurs use social media for different reasons, such as mobilizing financial resources, [45][46], connecting with potential investors in an attempt to get funding [47][48][49][50], connecting with other startups [49]. Another use of social media was to consult with advisors for knowledge creation, [51], the process of innovation [40][43][52] and innovation capabilities [53], which allows them to find more opportunities [54]. Moreover, novice entrepreneurs and CEOs of established companies seem to be looking for different things via social media: the former would search for any type of

support from any source, while the latter is more interested in knowledge and experience [40][39][55].

Entrepreneurship Activities Analysis Techniques in Social Media Networks

According to the literature available, there are six techniques to analyze activities on social media:

- Social Network Analysis (SNA) Techniques.
- Natural language processing Techniques.
- Grounded Theory Approaches
- Statistical Techniques.
- Case Studies Approaches.
- Hand Labeled Classification.

Social Network Analysis (SNA) Techniques

SNA is a sophisticated field that joins statistics, social psychology, sociology, and graph theory. It is beneficial in extracting insights from networks and consequently solving problems [56]. As to entrepreneurship on Twitter, SNA was used to analyze the interaction between startups and organizations of support in developing countries. The authors used community detection algorithms and measures of density to understand the interconnectedness of network, and Betweenness centrality and degree centrality to recognize the role of a specific actor in the network [1]. SNA-based metrics are also used to analyze the data gathered around Twitter hashtags, understanding the active factors and stakeholders in the innovation startup ecosystem [3].

To understand and identify the factors that drive crowdfunding, community detection algorithms were employed to cluster companies according to investors [47]. Another use of SNA was to reveal where entrepreneurs take information [40].

Natural language processing Technique

Natural language processing (NLP) is part of artificial intelligence (AI). NLP can understand and decode human language [57]. In the study context, NLP was used to analyze the speeches of Entrepreneurs on social media [44].

Grounded Theory Approaches

Grounded Theory is a research method that enables researchers to categorize and integrate the concerns of the population and produce it as theory. Simply put, the grounded theory provides researchers with guidelines to recognize categories and set relations between them. Thus, Grounded theory gives framework to explain the phenomenon under study [58]. In the current literature, the Grounded theory was used to Study the effect of social media on business leadership [9], and to study

how social media is used by opportunity-based entrepreneurs to meet their resource challenges [53].

Statistics Approaches

Statistical methods are mathematical techniques, models, and formulas. Statistical methods are used to collect, organize, analyze, and interpret the raw research data [59]. Two statistical methods are employed in the previous literatures to analysis the data; they are inferential statistics descriptive statistics. Descriptive statistics provide information that represent the data in a particular manner. Inferential statistics, on the other hand, uses samples of data to inferences and make generalizations on the populations of these samples [59].

Descriptive statistics

Descriptive statistics are used to describe a correlation between social networks in startups and their financial performance [50], the effectiveness of online social media among entrepreneurs in the Arab Gulf [60], to demonstrate that there are correlations between the UK startups' activity in Twitter and the amount of invested they get [48], to measure the effectiveness of online social media among entrepreneurs in the Arab Gulf [60], to analyze the presence of CEOs on SNS, and their use of Twitter as a communication tool [39]. Identifying the motivations, benefits and intentions for entrepreneurs to use online social media [42].

Several studies used Partial Least Squares method (PLS) to describe entrepreneurs' phenomena. PLS uses latent variables to estimate complex relationship of cause-effect models. PLS is getting popular in management and entrepreneurship research [54].

As to entrepreneurship in social media, PLS was used to investigate the relation between environmental, organizational, and technology context and the adoption of social media by SMEs [13]. It was also used to discover whether the employees' sharing knowledge through social media affects the relationship between innovation performance and human resource practice [43].

Another use of PLS was to Study the relationship between social networks, innovation & performance, and absorptive capacity [52], and to Identify the factors of the two stages of the business-creation process: opportunity discovery and creation [54].

Structural Equation Modeling (SEM) is another statistical description methods used to analyze structured relationships between latent constructs and measured variables [61]. For example, SME was used by [62] to study the relation between companies' usage of the social media in their innovation process and their long-run performance.

Inferential statistics

Ordinary Least Squares (OLS) is one of the of linear regression methods, it uses samples of data to infer and generalize on the populations. OLS estimates the obscure parameters in a linear regression model by reducing the sum of squared errors between variable being predictor's values and the values predicted by the linear function [63]. Ordinary Least Squares (OLS) were employed to study the relationship between social media use and venture capital financing [49], and to study the impact of social media on knowledge creation process in SMEs [51].

Case Studies Approaches

Case studies are in-depth investigations on individual, groups, events or communities. In case studies, the researchers gather the data from diverse sources and use various methods such as interviews and observations [64]. Some studies observed entrepreneurs' behaviors in social media [55]. They applied a case study in *communities of practice* (COPs) to identify how entrepreneurs express themselves and engage in conversations. Another case study of entrepreneurship activities in social media interviewed and studied in detail how SMEs in North America perceive Social media [65].

Hand Labeled Classification.

Some of authors of previous literature labeled the data manually to investigate impact of social media on emerging existing entrepreneurial firms, B2B relationship through resource mobilization [2], and to Investigate the dialogic communication between stakeholders [66].

DISCUSSION

Social media is a good way for entrepreneurs to interact with the other stakeholders in the ecosystem, such as partners, suppliers, universities, and resource providers [1] [2] [66] [3]. Social media as connection tool, can also allow entrepreneurs to reach out to actual or potential customers for feedback and inquiries [60][65]. It is remarkable also that startups are more active on Twitter than established companies, which will have a positive effect on their performance in the long run [62]. This is all the more so given the fact that social media positively affect the entrepreneurial leadership both intra-organizational and inter-organizational [9]. What seems to be evident, however, is the effectiveness of social media in connecting the key actors in the entrepreneurial ecosystem in many aspects. This can range from crowdsourcing, to crowdfunding, to marketing. Accordingly, communication channels between SMEs and the whole ecosystems have to be in place. However, researches on this topic

Table 1. Comparison between studies of entrepreneurship activities in social media

Study	Study Purpose	Target	Social media	Sample Size	Method	Relevant Findings
[1]	Content analysis of interaction between startups and organizations of support in developing countries.	Support Organizations & startups	Twitter	3200 tweets	SNA techniques	<ul style="list-style-type: none"> There is interaction between startups and support organizations as per their technology profile, business model and region. The profile of the startup determines the interaction behavior.
[47]	Identifying the factors that drive crowdfunding.	Startups	Angellist, Twitter, Facebook, and CrunchBase	744,036 Angellist, 10,156 CrunchBase, 37,761 Facebook and 70,563 Twitter companies' profiles	SNA techniques using Spark	There is a positive correlation between social media engagement and the company's success to raise funds. When companies have no social media accounts its likelihood to raise fund is only 0.04%. if it uses Facebook it is 12.2 % and Twitter 10.2%.
[3]	Understanding the active factors and stakeholders in the innovation startup ecosystem	The Entrepreneurial Ecosystem	Twitter	An ongoing project in 33 European Countries. 200,000 tweets and 1,792 stakeholders	SNA techniques	Social media allows us to see the regional differences in startup and innovation ecosystem. Twitter has attracted the same stakeholders with an average of 88%. The remaining 12% were drawn otherwise.
[13]	Understanding why SMEs use social media	SMEs	Twitter	questionnaires in 144 SMEs	Partial least squares	The decision to adopt social media by SMEs is determined more by the organization and the environment constructs than by technology.
[50]	Establishing a correlation between social networks in startups and their financial performance	Startups' Founders	Linked In	227 founders' accounts	statistics	<ul style="list-style-type: none"> LinkedIn Founder Profiles are positively correlated with success. The number of LinkedIn followers indicates the rate of fundraising by the company.
[55]	How do entrepreneurs use CoPs to express themselves?	Entrepreneurs	Young Entrepreneur.com	Observations	Case Studies	Entrepreneurs use CoPs in a story-telling way, while the domain expert has little command on the discussion.
[42]	Identifying the motivations, benefits and intentions for entrepreneurs to use online social media.	Entrepreneurs	Twitter	368 Turkish firms analyzing 8000	statistics	Turkish young male entrepreneurs are aware of the benefits they can get from online social media.

[2]	The impact of social media on emerging existing entrepreneurial firms, B2B relationship through resource mobilization.	Firms	Facebook and Twitter	Facebook / Twitter posts, then interviews with 8 firms to understand the data	Hand labeled classification	Facebook and Twitter increase the firms' network engagement, information sharing, collaboration, reconfiguration processes, operations and coordination.
[54]	Identifying the factors of two stages of the business-creation process: opportunity discovery and creation	Entrepreneurs and CEOs	General	questionnaires in 177 Entrepreneurs and CEOs	Partial least squares	<ul style="list-style-type: none"> The use of social media decreases the negative effects of prior knowledge Information got from social media may intervene with the finding of business opportunity as per previous knowledge and experience. Social media can disrupt business planning and model built upon the entrepreneur's previous knowledge and experience.
[43]	Identifying the factors affecting online knowledge sharing on the performance of SMEs.	Manufacturing SMEs	General	questionnaire in 1291 participation	Partial least squares	<ul style="list-style-type: none"> Social online knowledge sharing is mainly driven by technological and organizational factors. This sharing mediated between HR and innovation practice.
[66]	Investigating the dialogic communication between stakeholders.	All stakeholders	Twitter	93 accounts and 930 tweets posted by them	Hand labeled classification	61 % of organizations use Twitter dialogically to conserve their visitors compared to 39 % who have no dialogic orientation.
[40]	Who do entrepreneurs get inspiration from in terms of information?	Entrepreneurs	Twitter	74 active Entrepreneurs' accounts with of 18,928 followers	SNA-based metric to interrupt the network.	<ul style="list-style-type: none"> Entrepreneurs rely more on local sources for information. In their early stages, entrepreneurs follow Twitter accounts from various sources. At an advanced stage, entrepreneurs rely on sources that focus on entrepreneurship. Entrepreneurship-focused sources are more popular among entrepreneurs.
[48]	Investigating the use of Twitter by Startups in EU	Startups' Founders	Twitter	15,192 Twitter's Accounts	Statistics	There is a positive correlation between the use of Twitter in EU startups and the amount invested in the country per capita.
[62]	Studying the way social media technologies (SMT) improve the proficiency of firms and redefine business resources.	Firms	General	Questionnaires on 201 technological firms	Structural Equation Modeling	The more a company uses the potential of connectivity and innovation of social media in its innovation process, the better its performance in the long-run.
[51]	Studying the impact of social media on knowledge creation process in SMEs.	SMEs	General	A questionnaire in 96 SMEs.	Ordinary Least Squares (OLS)	Social media favors the innovation process by influencing three of the four knowledge creation processes.

[60]	Measuring the effectiveness of online social media among entrepreneurs in the Arab Gulf	Entrepreneurs	Facebook	questionnaires in 50 entrepreneurs	Statistics	<ul style="list-style-type: none"> 87 % of the participants think that their Facebook profiles were helpful. 98 % of the participants believe that social websites help entrepreneurs.
[44]	Analyzing the speeches of Entrepreneurs on social media	Entrepreneurs	Twitter	219 M posts, authored by 135K entrepreneurs of 65 countries	Natural language processing	<ul style="list-style-type: none"> African entrepreneurs display more negative emotions than the rest of the population. Entrepreneurs from developed economies display more positive emotions than their counterparts in the developed world.
[52]	Studying the relationship between social networks, innovation & performance, and absorptive capacity.	SMEs	Twitter	A Questionnaire in 215 SMEs.	Partial least squares	There is positive correlation between social networks, innovation & performance, and absorptive capacity.
[53]	Studying how social media is used by opportunity-based entrepreneurs to meet their resource challenge.	Entrepreneurs	General	Interviews in 19 entrepreneurs	Grounded theory coding	<p>Entrepreneurs use social media to create new types of capabilities and to maximize efficiency by using social networks to solve their resource limits.</p> <ul style="list-style-type: none"> Social media has a positive impact on entrepreneurial leadership.
[9]	Studying the effect of social media on business leadership	Entrepreneurs	General	An interview with 7 entrepreneurs.	Grounded theory coding	<ul style="list-style-type: none"> Social media helps the company to manage its internal tasks and communication. Social media is a database of human capital that helps build a network with other entrepreneurial leaders in the ecosystem.
[39]	Analyzing the presence of CEOs on SNS, and their use of Twitter as a communication tool.	CEOs	General	14,153 tweets	Statistics	<ul style="list-style-type: none"> Only 25% are present, LinkedIn is by far the most elected SNS by CEOs. Only 25% of those present on SNS are using their Twitter accounts.
[65]	Studying the use of social media by SMEs in North America.	SMEs	General	An Interviews in 12 SMEs	Case Studies	<ul style="list-style-type: none"> Facebook is the most widely used platform. The social media are used to claim new customers
[49]	Studying the relationship between social media use and venture capital financing	Startups	Twitter	2,880 startups twitter account	Ordinary Least Squares (OLS)	<ul style="list-style-type: none"> The Presence of startups in social media has a positive effect on their funding outcome. Social media facilitates the entrepreneurial financing strategy by luring investors.

is still in its infancy. While the studies reviewed in this paper have managed to establish correlations between social media and the ecosystem, their work is largely quantitative. What still needs to be studied is the potential of Twitter to create an interactive entrepreneurial ecosystem.

CONCLUSION

This paper is motivated by the scarcity of literature on the role of social media in the entrepreneurial ecosystem. Through a systemic approach, the paper has demonstrated that -so far- research has focused on determining the different actors in the ecosystems and on demonstrating the effective use of social media in the ecosystem. Empirical evidence on the use of social media in the ecosystem is relatively scarce. What has been understood is the role of Twitter to create an interactive entrepreneurial ecosystem. Further research is needed to explore the perspective of each stakeholder in the ecosystem to use the social network, especially in identifying the obstacles and barriers that hamper them. Moreover, most of the studies reviewed in this paper made a quantitative approach, focusing on the frequency of the use of Twitter by SMEs. The effects and the motivations behind using Twitter in the ecosystem are better grasped when approached qualitatively.

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