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Political communication in Social Networks Election campaigns and digital data analysis: a bibliographic review[1]

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Abstract

The outcomes of a bibliographic review on political communication, in particular electoral communication in social networks, are presented here. The electoral campaigning are a crucial test to verify the transformations of the media system and of the forms and uses of the linguistic acts by dominant actors in public sphere – candidates, parties, journalists and Gatekeepers. The aim is to reconstruct the first elements of an analytical model on the transformations of the political public sphere, with which to systematize the results of the main empirical research carried out in recent years, in particular those conducted with a promising methodology: Digital Trace Data Analysis.

Keywords: Public sphere, political communication, election campaigning, Social Networks, big data, bibliographical review

Riassunto. *La comunicazione politica nei social network. Campagne elettorali e Digital Trace Data Analysis: una rassegna bibliografica*

Sono qui presentati i risultati di una rassegna bibliografica sulla comunicazione politica, in particolare la comunicazione elettorale nei social network. Le campagne elettorali sono un test cruciale per verificare le trasformazioni del sistema mediale e delle forme e degli usi degli atti linguistici da parte degli attori dominanti nella sfera pubblica – candidati, partiti, giornalisti e *gatekeepers*. L'obiettivo è quello di ricostruire i primi elementi di un modello analitico sulle trasformazioni della sfera pubblica politica, con cui sistematizzare i risultati delle principali ricerche empiriche condotte negli ultimi anni, in particolare quelle condotte con una metodologia promettente: la Digital Trace Data Analysis.

Parole chiave: Sfera pubblica, comunicazione politica, campagna elettorale, social networks, big data, rassegna bibliografica

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1. Introduction

The expanding use of Social Networks by political parties, candidates and the public has led to an exponential increase of the scientific literature on the relationship between the political system and new media. These studies include a wide range of disciplines, from political science to sociology, from computer science to law, and of course the field of media research. The attempt to outline a review of the scholars, themes and methodological approaches of this field of study, in order to make a comparison, is therefore highly useful. From my point of view, it is interesting to verify the presence of the structural and functional conditions used in political philosophy and

1 This paper is one of the products of the post-doc fellowship at the *MediaLaB - Big Data in Social and Political Research* of the University of Pisa, directed by Roberta Bracciale and Massimiliano Andretta.

sociology to examine the quality of the public sphere, such as inclusiveness, transparency, symmetry and discursiveness. These aspects, for example, are essential in Jürgen Habermas' deliberative conception of democracy and in American scientific literature (see Floridia, 2017).

The aim of this bibliographical reconstruction is to start building an analysis model. I will focus on two aspects: election campaigns and Digital Trace Data Analysis. On the one hand, election campaigning – a key moment of the political struggle on which the public agenda focuses – is one of the most promising areas of investigations into political communication. On the other hand, from a methodological point of view I limit the attention to Digital Trace Data Analysis directly detecting communications on Social Networks. The results from which I gather the information do not derive from other approaches, such as surveys, experiments, interviews and case studies, which are traditionally used to conduct research into political participation. The analysis of digital data traces is becoming dominant in the studies of social networking activities and has been applied to multiple electoral campaigning, at local, regional, national and European levels, and it has led to a revision in the definition of public opinion (Anstead & O'Loughlin, 2015; Bruns & Highfield, 2015; Klašnja *et al.*, 2017). More generally, in the last decade the attention of the scientific community towards the relationship between Big data and Social science has greatly increased for one main cause: it allows computational analysis to be conducted no longer on the self-referenced behaviour declared by the actors, but on the actual traced behaviour (Chadwick & Howard, 2008). Digital Trace Data Analysis is an aspect of an emerging social and cultural technological phenomenon (Boyd & Crawford, 2012) which, for some, inaugurates the Petabyte Age (Manovich, 2012). For a review of Italian papers on the effects of Big data on social research see Bennato (2015), Boccia Artieri (2014; 2015), Davenport (2015), Agnoli & Parra Saiani (2016) and Lombi & Marzulli (2017).

2. Criteria of the bibliographic research

This review firstly concerns research conducted on social actors – parties, candidates and audiences. Secondly, while not ignoring the "permanent electoral campaign" (Blumenthal,

1980), I decided to limit the investigation to studies of electoral moments only, including the media events. This excludes much research on other events that hold the limelight in the media (the renewal of offices, demonstrations, news stories, etc.) and on the habitual use of new media in the routinary activities of parliaments, governments and other political bodies, but also escludes research on political communication in mass media (Cepernich, 2017). Regarding Social Networks, I have considered only Twitter and Facebook because they are "the" public space where the electoral communication takes place. Of course, this choice has excluded a series of studies on visual communications (images and videos), on Instagram (Filimonov *et al.*, 2016; Larsson, 2017) and Youtube (Kercher & Bachl, 2016). Other limiting criteria have been introduced concerning the selection of sources and the systematic criteria for the identification of the most relevant studies. I am following only partially Andreas Jungherr's model (2016a).

The coding process required three main steps: the selection of database sources, the search by key words and the selection by relevance criteria. Three scientific databases covering different subject areas were used: the Social Science Citation Index (SSCI) for leading peer-reviewed social science journals, the Institute of Electrical and Electronics Engineers (IEEE) Digital Library, and the Association for Computing Machinery (ACM) Digital Library for the literature of computer science studies. In order to include the many titles not present in the databases, I have extended the search by keyword combination to the main scholarly Social Networks: Google Scholar, PhilPapers, Social Science Research Network, ORCID, Academia.edu, ResearchGate, and Mendeley. This has allowed me to expand the survey to include peer-reviewed scientific journals, conference proceedings of complete peer-reviewed documents – widespread in the computer sciences and increasingly frequent in the social sciences – and monographs and miscellaneous volumes. Boolean research was carried out by combination of key words: "big data" OR "digital trace data" AND "Social Network" OR "social media" OR "Twitter" OR "Facebook", with a series of relevant terms and strings of words: "politics", "political communication", "elections", "election campaign", "party", "candidate", and all derivatives in English, French, Spanish, Italian and German. Most of the writings are in English. For the specific methods of consultation, the databases and Scholarly Social Networks required different procedural solutions but with equivalent results. The key word search was conducted in

the titles, abstracts and key words lists of articles and titles, synopses, and indexes of books. For each source, only documents with an ISSN or ISBN code were examined. Furthermore, I have reduced the results by removing, in addition to the duplicates, the texts that were not relevant to the specific object of the bibliographic review. The result is a list of 500 publications. Finally, for this article, a list of 250 writings has been selected on which to conduct a content analysis. The selection of the most significant studies was made taking into account the recurrences in the bibliographical apparatus of the articles and monographs selected on the basis of formal criteria. This makes it possible to highlight the establishment of a real dialogue community of researchers who, for a decade, have been confronting and sharing themes and methods. After collecting and consulting the most interesting essays on electoral campaigns on Social Networks through the analysis of Digital trace data, I have inductively elaborated a classification of their content following, in addition to temporal (when) and spatial (where) categories, those of imputation (who), themes (what), and purpose (why), in order to build a framework of reference in which to place the texts according to whether they mainly dealt with certain subjects, defined specific topics, and had particular cognitive purposes.

The studies examined concern elections held in 45 countries, from 2008 to 2017.

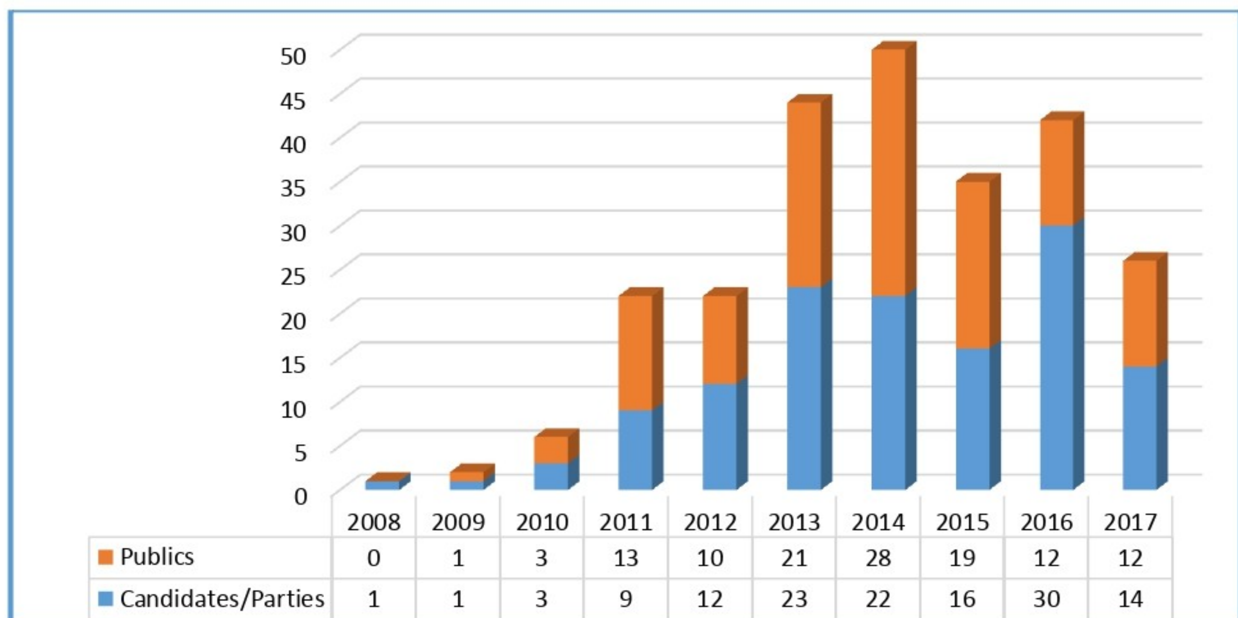
3. Data analysis (1): who, where, when?

The growing spread of Facebook and Twitter has led to an exceptional increase in political information and communications on Social Networks, by candidates, parties and the public, particularly during election campaigns and media events related to the elections. In this review I will not consider the specific characteristics of the networks (see Larsson, 2015; Reimar, 2016).

Many studies show that users are not a homogeneous population. So what was once defined as “mass audience” is fragmented into multiple and differentiated “publics of interest” (Larsson & Hallvard, 2011; Barberá & Rivero, 2014). For the purposes of this review, the public includes all users who are politically active on Social Networks during election campaigns, i.e. those who, in that period, sent politically relevant Twitter messages with hashtags or keywords or wrote similar

Facebook posts, and/or who followed the Twitter or Facebook profiles of political candidates or parties (McKelvey *et al.*, 2014). The public also includes professional journalists and media outlets (Bracciale & Martella, 2016) whose mediatisation is an important object of study for interpreting the communication of political actors (Splendore & Rega, 2017). A new media system with its own media logic has been set up (van Dijck & Poell, 2013; Klinger & Svensson, 2016; Enli & Simonsen, 2017). Its structure and functions significantly differ from those of the Habermasian model of the public sphere. In this research, we can only introduce the main differences: fragmentation, disintermediation and post-discursiveness.

Graph 1 shows the growing interest of the scientific community in the subject matter, especially since the 2012 United States presidential elections, which were characterized by Data-Driven Networked Campaigning (Stromer-Galley, 2014, 140-170). In the following two years publications peaked; some were by scholars attracted by the new phenomena but who did not continue their research activities. Studies have then stabilized and centralized around a homogeneous group of scholars.



Graph 1. The temporal distribution of researches (2008-2017)

Table 1 shows the territorial distribution of the researches carried out. As expected, the United States is the country on which most studies focus. However, today there is a considerable amount of literature on the use of Social Networks in election campaigns in many other countries.

Countries	**Parties/Candidates**	**Publics**
Argentina	Waisbord & Amado, 2017;	
Australia	Bruns & Highfield, 2013; Macnamara, 2011; Macnamara & Kenning, 2011; Bruns, 2016; Highfield & Bruns, 2016; Lukamto & Carson, 2016;	Bruns & Burgess; 2011; Burgess & Bruns, 2012; Chen, 2013; Gibson & McAllister, 2013; Bruns & Burgess, 2015; Bruns, 2016;
Austria	Engesser *et al.*, 2016;	
Belgium	D'heer & Verdegem, 2014;	Harder, 2017;
Brazil	Gilmore, 2012; Recuero *et al.*, 2016;	
Bulgaria	Seizov, 2015;	
Camerun	Ngomba, 2016;	
Canada	Small, 2010; Raynauld & Greenberg, 2014;	Small, 2011; Elmer, 2012; Raynauld & Greenberg, 2014; Small, 2016;
Chile	Waisbord & Amado, 2017;	
Czech Republic	Štětka *et al.*, 2014;	
Costa Rica	Romero, 2015;	
Denmark	Jensen *et al.*, 2016; Skovsgaard & Van Dalen, 2016; Blach-Ørsten et al, 2017;	Larsson & Moe, 2013; Moe & Larsson, 2013; Hussain *et al.*, 2014;
Ecuador	Waisbord & Amado, 2017;	
Finland	Strandberg, 2013;	Strandberg, 2013;
France	Hanna *et al.*, 2013; Papa & Francony, 2016;	Nooralahzadeh *et al.*, 2013; Ceron *et al.*, 2017;
Germany	Stieglitz *et al.*, 2012; Plotkowiak & Stanoevska-Slabeva, 2013; Lietz *et al.*, 2014; Oelsner & Heimrich, 2015; Jungherr, 2016b; Nuernbergk *et al.*, 2016; Nuernbergk & Conrad, 2016;	Tumasjan *et al.*, 2010; Feller *et al.*, 2011; Jürgens *et al.*, 2011; Stieglitz & Dang-Xuan, 2012; Tjong Kim Sang & Bos, 2012; Dang-Xuan *et al.*, 2013; Jungherr, 2013, 2014; Bleier at al., 2014; Trilling, 2014; Jürgens & Jungherr, 2015; Tsakalidis *et al.*, 2015; Holtz-Bacha & Zeh, 2016; Jungherr *et al.*, 2016; Jungherr, 2017; Quinlan *et al.*, 2017;
Greece		Tsakalidis *et al.*, 2015;
India	Jaidka & Ahmed, 2015; Kanungo, 2015;	
Indonesia	Amirullah *et al.*, 2013;	
Iran		Sanjari & Khazraee, 2014;
Ireland	Suiter, 2015;	Bermingham & Smeaton, 2011;
Israel	Haleva-Amir, 2016; Haleva-Amir & Nahon, 2016;	
Italy	Vaccari & Valeriani, 2013; Di Fraia *et al.*, 2014; Bentivegna, 2015; Bentivegna & Marchetti, 2015; Paternostro, 2015; Engesser *et al.*, 2016; Rossi & Orefice, 2016; Bracciale & Martella, 2017a, 2017b; Ceron, 2016;	Bentivegna, 2014; Cornia, 2014; Ceron & d'Adda, 2015; Iannelli & Giglietto, 2015; Marchetti & Ceccobelli 2015; Faggiano, 2016; Ceron *et al.*, 2017; Splendore & Rega, 2017;

Japan	Uenohara, 2014;	
Kuwait	Miller Noah & Ko Rosa, 2015;	
Malaysia		Gomez, 2014;
México	Waisbord & Amado, 2017;	
Countries	**Parties/Candidates**	**Publics**
Netherlands	Voerman & Boogers 2008; Vergeer *et al.*, 2011, 2013; Broersma & Graham, 2012; Verweij, 2012; Vergeer & Hermans, 2013; Graham *et al.*, 2014; Hosch-Dayican *et al.*, 2014; Kruikemeier, 2014; Van Kessel & Castelein, 2016;	Hosch-Dayican *et al.*, 2014; Tsakalidis *et al.*, 2015;
New Zealand	Murchison, 2015;	
Norway	Enli & Skogerbø, 2013; Kalsnes *et al.*, 2014; Kalsnes, 2016 ; Karlsen & Enjolras, 2016; Enli & Simonsen, 2017; Larsson, 2017;	Moe & Larsson, 2013;
Pakistan	Ahmed & Skoric, 2014;	
Philippines		Pablo *et al.*, 2014;
Romania	Pătruţ, 2017;	
Russia		Spaiser *et al.*, 2017;
Singapore		Skoric *et al.*, 2012; Sreekumar & Vadrevu, 2013;
Slovenia	Deželan *et al.*, 2014;	
South Korea	Hsu & Park, 2012; Park, 2014;	Song *et al.*, 2014; Willnat & Min, 2016;
Spain	Aragón *et al.*, 2013; López García, 2015; Ramos-Serrano *et al.*, 2016; Baviera *et al.*, 2017; Casero-Ripollés *et al.*, 2017;	Barberá & Rivero, 2014; Borondo *et al.*, 2014; Calderón-Monge, 2017;
Sri Lanka		Rathnayake & Buente, 2017;
Sweden	Larsson & Hallvard, 2011; Grussel & Nord, 2012; Larsson, 2015; Filimonov *et al.*, 2016; Larsson & Moe, 2016;	Larsson & Moe, 2012; Moe & Larsson, 2013;
Switzerland	Klinger, 2013; Engesser *et al.*, 2016;	
Taiwan	Lin, 2017;	Cheng & Chen, 2016;
Turkey	Bayraktutan *et al.*, 2014; İkiz *et al.*, 2014; Polat & Özdeşim, 2016;	
United Kingdom	Jackson & Lilleker, 2009; Anstead & O'Loughlin, 2011; Jackson & Lilleker, 2011; Baxter & Marcella, 2012, 2013; Broersma & Graham, 2012; Adi *et al.*, 2014; Graham *et al.*, 2014; Margaretten & Gaber, 2014; Engesser *et al.*, 2016; Lilleker *et al.*, 2016; Shephard & Quinlan, 2016;	Ampofo *et al.*, 2011; Kim & Yoo, 2012; Anstead & O'Loughlin, 2015; Di Fatta et al, 2015; Gaber, 2016; Jensen, 2016;
USA	Lassen & Brown, 2010; Shogan, 2010; Chi & Yang, 2011; Hong & Nadler, 2011, 2012; Livne *et al.*, 2011; Mascaro *et al.*, 2012; Parmelee, Bichard, 2012; Peterson, 2012; Adams & McCorkindale, 2013; Caplan, 2013; Christensen, 2013; Conway *et al.*, 2013, 2015; Goodnow, 2013; Hanna *et al.*, 2013; Hemphill *et al.*, 2013; Hong, 2013; LaMarre & Suzuki-Lambrecht, 2013; Mirer & Bode, 2013; Settle *et*	Shamma *et al.*, 2009; Diakopoulos & Shamma, 2010; Wallsten, 2010; Conover *et al.*, 2011, 2012; Gayo-Avello, 2011, 2013; Hanna *et al.*, 2011; Metaxas *et al.*, 2011; Mustafaraj *et al.*, 2011; Shah & Yazdani Nia, 2011; Zappavigna M., 2011; Bond *et al.*, 2012; Parmelee, Bichard, 2012; Bekafigo & McBride, 2013; DiGrazia *et al.*, 2013; Dyagilev & Yom-Tov, 2013; Groshek & Al-Rawi, 2013; Hawthorne *et al.*, 2013;

	al., 2015; Straus *et al.*, 2013; Borah, 2014; Evans *et al.*, 2014; Gainous & Wagner, 2014; Guo & Vargo, 2015; Shah *et al.*, 2015; Bruns & Highfield, 2016; Enli & Naper, 2016; Evans, 2016; Evans & Clark, 2016; Kercher & Bachl, 2016; Kreis, 2016; Lyons & Veenstra, 2016; Enli, 2017; Evans *et al.*, 2017; McGregor, 2017; Santaniello *et al.*, 2017;	Himelboim, Hansen & Bowser, 2013; Himelboim, McCreery & Smith, 2013; Hoang *et al.*, 2013; McKinney *et al.*, 2013; Mejova *et al.*, 2013; Nooralahzadeh *et al.*, 2013; Ackland & Shorish, 2014; Coddington *et al.*, 2014; Colleoni *et al.*, 2014; Gainous & Wagner, 2014; Himelboim *et al.*, 2014; Lawrence *et al.*, 2014; Lin *et al.*, 2014; McKelvey *et al.*, 2014; Murthy & Petto, 2014; Neuman *et al.*, 2014; Vargo *et al.*, 2014; Wayne Xu *et al.*, 2014; Bode *et al.*, 2015; Coffey *et al.*, 2015; Evans & Clark, 2015; Freelon & Karpf, 2015; Huberty, 2015; King *et al.*, 2015; MacWilliams, 2015; Meeksm, 2015; Shah *et al.*, 2015; Rowe, 2015; Sudhahar *et al.*, 2015; Xenos *et al.*, 2015; Bessi & Ferrara, 2016; Just *et al.*, 2016; McGregor & Mourão, 2016; Reimar, 2016; Shin *et al.*, 2016; Ceron *et al.*, 2017; Cornfield, 2017; Jennings *et al.*, 2017; McGregor & Mourão, 2017; Ryoo & Bendle, 2017; Vargo & Hopp, 2017; Zhang *et al.*, 2017;
Venezuela	Waisbord & Amado, 2017;	

Table 1. The distribution by country and object

4. Data analysis (2): what?

This review follows Merton's model regarding the specific tasks of sociology: to describe social phenomena, to identify their causes and to explain the relevant consequences. I have examined studies that take into consideration the variables that influence the propensity to use Social Networks during election campaigns (3.1), other studies that focus on the content of the messages, especially the structural form and communicative styles (3.2) and, finally, others that analyse a series of effects produced by the messages on the public and the media system (3.3).

4.1. Conditions for inclusion and distribution

Among the studies that examine the tendency to use Twitter or Facebook during election campaigns, the influence of several variables, both ascribed and acquired, was analyzed. In his bibliographic review, Jungherr (2016a) points out the surprising consistency of results in research on electoral cycles in different countries. The most frequent variables are age, gender,

education, political interest, power, consensus, money, competition, and emulation, etc. More specifically, young politicians make more use of Social Networks and the data is confirmed in the surveys on the public, especially among the young and most educated (Lassen & Brown, 2010; Jackson & Lilleker, 2011; Peterson, 2012; Straus *et al.*, 2013; Vergeer & Hermans, 2013; Uenohara, 2014; Skovsgaard & Van Dalen, 2016; Blach-Ørsten *et al.*, 2017). There is no unequivocal evidence on the role of gender; some scholars find there to be a greater tendency among male candidates (Gilmore, 2012; Hemphill *et al.*, 2013; Just *et al.*, 2016) while others show a greater presence of women (Jackson & Lilleker, 2011; Evans *et al.*, 2014). There is, on the other hand, gender bias among users (McGregor & Mourão, 2016) and specific gender influences on the candidates' communication style and social topics (Evans & Clark, 2015; 2016). Finally, at a territorial level, it appears that electoral communication on Social Networks is more widely spread in urban districts than in rural ones due to the quantity and density of social ties (Straus *et al.*, 2013).

Social Networks are aimed at those who have a strong interest in politics, which is also expressed in other forms of participation. Opposition parties and candidates appear to use Social Networks more intensively than governmental ones in election campaigns (Lassen & Brown, 2010; Shogan, 2010; Vergeer *et al.*, 2011; Peterson, 2012; Conway *et al.*, 2013; Hemphill *et al.*, 2013; Plotkowiak & Stanoevska-Slabeva, 2013; Vergeer & Hermans, 2013; Ahmed & Skoric, 2014; Jaidka & Ahmed, 2015). Supporters of government parties appear to use them less intensively (Conover *et al.*, 2012; Straus *et al.*, 2013).

If we consider the difference between the parties (and candidates) of larger parties that have already been represented for some time in the parliamentary arc and the smaller, recently formed parties, it appears that the former also hold a dominant position in the new media (Vergeer *et al.*, 2011; Gilmore, 2012; Amirullah *et al.*, 2013; Vergeer & Hermans, 2013; Evans *et al.*, 2014; Raynauld & Greenberg, 2014). There is a correlation between the tendency to use Social Networks and electoral expenditure (Gilmore, 2012; Peterson, 2012; Quinlan *et al.*, 2017).

Moreover, their use increases with the intensification of electoral competition (Settle *et al.*, 2015; Vergeer & Hermans, 2013; Evans *et al.*, 2014). Various studies in several countries show that the volume of messages fluctuates strongly and tends to increase towards the end of a

campaign (Bruns & Burgess; 2011; Larsson & Moe, 2012, 2013; Aragón *et al.*, 2013; Bruns & Highfield, 2013; Hanna *et al.*, 2013; Jungherr, 2013, 2014; Vergeer *et al.*, 2013; Ahmed & Skoric, 2014; Bentivegna, 2014; Lietz *et al.*, 2014; Jürgens & Jungherr; 2015; Shah *et al.*, 2015).

Of considerable relevance is the link between electoral communication and major events covered by traditional media, such as leaders' television debates, party assemblies, talk shows, “concession speech” or news items of general interest (Diakopoulos & Shamma, 2010; Anstead & O’Loughlin, 2011; Bruns & Burgess, 2011; Jürgens *et al.*, 2011; Elmer, 2012; Jungherr *et al.*, 2012, 2013; Larsson & Moe, 2012, 2013; Bruns & Highfield, 2013; Hanna *et al.*, 2013; Jungherr, 2013, 2014; McKinney *et al.*, 2013; Mirer & Bode, 2013; Vergeer et al, 2013; Bentivegna, 2014; Graham *et al.*, 2014; Lietz *et al.*, 2014; Kalsnes *et al.*, 2014; Sanjari et Khazraee, 2014; Štětkaet *et al.*, 2014; Vargo *et al.*, 2014; Conway *et al.*, 2015; Jungherr *et al.*, 2016). In particular, messages peak at crucial moments such as when the public flocks to Social Networks for comments (Bentivegna & Marchetti, 2014; Lin *et al.*, 2014), often, with evaluative, oppositional, ironic-denigrating or conspiracist readings and context considerations, with collective negotiations of meanings (Shamma et al, 2009; Ampofo *et al.*, 2011; Anstead & O’Loughlin, 2011; Elmer, 2012; Haw-thorne *et al.*, 2013; Jungherr, 2014; Kalsnes *et al.*, 2014; Kreiss, Meadows & Remensperger, 2014; Trillng, 2014; Coffey *et al.*, 2015; Freelon & Karpf, 2015; Rowe, 2015; Jennings *et al.*, 2017; Pătruţ, 2017). A central position is held by other politicians and journalists, linked in communication networks (D’heer & Verdegem, 2014; Lawrence *et al.*, 2014; Enli & Simonsen, 2017), whose comments focus on the attention of the public and introduce interpretative keys (Bleier *et al.*, 2014; Lin *et al.*, 2014). Their link confirms the high interconnection between traditional media and Social Networks (Chen, 2013; Himelboim, Hansen & Bowser, 2013; Bentivegna, 2014; Borondo *et al.*, 2014; Sanjari & Khazraee, 2014).

Ideological polarization appears to favour greater use of Social Networks (Conover *et al.*, 2011; Peterson, 2012; Hanna *et al.*, 2013; Straus *et al.*, 2013; King *et al.*, 2015; Ramos-Serrano *et al.*, 2016; Polat & Özdeşim, 2016) and more easily activates positions on competing political orientations (Bekafigo & McBride, 2013; Barberá & Rivero, 2014). Interesting is the attempt to define standardised measures of political polarization for users and hashtags through the construction of specific algorithms (Hemphill *et al.*, 2016). Some scholars point out a kind of

emulation factor, in the case of electoral successes, wrongly or rightly attributed to the use of new media by other candidates – copycat hypothesis (Chi & Yang, 2011; Deželan *et al.*, 2014). Others point to a decisive factor in the spread of electoral communication on Social Networks, i.e.: politicians may not practice it, but citizens will do so against them (Romero, 2015). Finally, there is a rationalization of the way digital tools are used by collaborators and consultants of candidates and parties (Jungherr, 2016b; Kreiss, 2016).

4.2. The communicative style

How do parties, candidates and the public use Social Networks during election campaigns? This question concerns the structure, functions, and content of political communication on Twitter and Facebook. Scholars addressed formal aspects (multimedia and hypertextual elements), rhetorical characteristics, pragmatic intentionality (how language is used) and semantic plots (the themes). The composition of these formal and content elements is condensed into different ideal-typical models of "styles" of political communication (Pels, 2012; Moffitt & Tormey, 2014; Bracciale, Martella, 2017a, 2017b). Also, in this field of study research was carried out in different countries and electoral cycles, obtaining very similar results.

A first dimension concerns the formal structure of messages: the presence of links, images (photos, cartoons, infographics, etc.), videos, Screen-shots (Interactivity Style), and the use of their own functions (shares, retweets, likes, emoticons, etc.). I am less interested in that.

A second dimension regards the use of communication: referential, conversational, and expressive. In Habermas' theory of communicative action (1984; see Corchia, 2010), linguistic acts differ according to whether the dominant attitude is objective about something in the world, relational about other social actors or emotional about subjective experiences. It is an analytical model that could be operationalized in research. It should be pointed out, however, that these are heuristic distinctions. Empirical studies show that generalizations are inappropriate and the use of Social Networks varies greatly among users (Small, 2010; Jackson & Lilleker, 2011; Macnamara, 2011; Baxter & Marcella; 2012, 2013; Aragón et al, 2013; Bruns & Highfield, 2013; Vaccari & Valeriani, 2013; Vergeer *et al.*, 2013; Adi *et al.*, 2014; Ahmed & Skoric, 2014;

Margaretten & Gaber, 2014; Raynauld & Greenberg, 2014; Jaidka & Ahmed, 2015).

Referential use is related to: a) information on something related to politics, policies, news facts, personal aspects of oneself or other actors, etc. ("Informing"); b) and/or "Position taking" on the same matters; c) information about online and offline activities (Self-promotion), in particular: d) institutional interventions (updates on parliamentary work and such like); e) electoral events ("Campaign Updating"); f) support information to other actors ("Endorsement"). In such situations, candidates and parties – more so for the area of government – tend to adopt a "broadcasting" style on Social Networks with informative messages, and less of a conversational style (Shogan, 2010; Small, 2010; Jackson & Lilleker, 2011; Macnamara; 2011; Baxter & Marcella, 2012, 2013; Grindel & Nord, 2012; Adams & McCorkindale, 2013; Aragón et al, 2013; Enli & Skogerbø, 2013; Hemphill *et al.*, 2013; Klinger; 2013; Ahmed & Skoric, 2014; Evans *et al.*, 2014; Graham *et al.*, 2014; İkiz *et al.*, 2014; Kruikemeier; 2014; Jaidka & Ahmed, 2015; Bentivegna & Marchetti, 2015; Suiter, 2015). Semantic models of Network Agenda Setting have also been proposed to reconstruct the issue ownership networks of candidates on Social Networks (Guo & Vargo, 2015). Also relevant are certainly the studies on the fact-checking of their statements and, particularly, on the "correctness" of journalistic information and media outlets, which practice more reporting than critical analysis (Coddington *et al.*, 2014).

Conversational use refers to all forms of interaction with and between the public ("Interacting"), with which one: a) argues ("Discuss"); b) declares ("Announcement"); c) engages with announcements and promises ("Commissives"); d) asks for something ("Requesting input"); e) requires a mobilization ("Call to vote" or "call to action"); f) carries out negotiations ("Bargaining"); g) engages in polemics ("Critiquing"); and h) makes irony ("Humor"). Research has shown that candidates and opposition parties tend to use Social Networks more interactively (Jackson & Lilleker, 2011; Bruns & Highfield, 2013; Ahmed & Skoric, 2014), although relations – with significant exceptions (Graham et al, 2014) – involve above all other politicians, in particular those of the same party or coalition (Livne *et al.*, 2011; Hsu & Park, 2012; Plotkowiak & StanoevskaSlabeva, 2013), journalists or influencers (Verweij, 2012; Ahmed & Skoric, 2014; D'heer & Verdegem, 2014). There is no particular evidence of dialogue between politicians and citizens. In general, the discursive messages are quite a

minority (Graham *et al.,* 2014; Ngomba, 2016). Explicit requests for mobilization and fundraising are rare (Ahmed & Skoric, 2014; Evans *et al.,* 2014; Hemphill *et al.,* 2013; Klinger, 2013; Izkiz *et al.,* 2014; Jaidka & Ahmed, 2015). Considering the number of political messages from the public, only a minority of users is responsible for most of these messages during the elections, while the majority is not posting much (Mustafaraj *et al.,* 2011; Mascaro *et al.,* 2012; Bruns & Highfield, 2013; Mejova *et al.,* 2013; Barberá & Rivero, 2014; Jürgens & Jungherr, 2015; Larsson & Moe, 2016). This gives the central actors in the networks a crucial importance in the circulation of information and in proposing the interpretative key of the contents (Jürgens *et al.,* 2011; Sudhahar *et al.,* 2015; Jensen *et al.,* 2016). The relevance of humour and satire (Mejova *et al.,* 2013; Sreekumar & Vadrevu, 2013; Trilling, 2014; Freelon & Karpf, 2015; Haleva-Amir & Nahon, 2016; Shin et al, 2016), makes plausible the image of Social Networks as media environments for phatic statements in response to events, rather than deliberative spaces for dialogues on topics and values (Hussain *et al.,* 2014; Holtz-Bacha & Zeh, 2016). Other studies have shown that interaction is challenging for political parties and there are certain disadvantages in communication with online voters (Kalsnes, 2016).

Expressive use has been considered in the context of the increasing relief of emotions in political communication (“Emotionalization”). This concerns both candidates and voters, among whom negative emotions (indignation, anger, etc.) prevail over positive ones (joy, hope, etc.). Emotions are detected through sentiment analysis (Diakopoulos & Shamma, 2010; Kim & Yoo, 2012; Nooralahzadeh *et al.,* 2013; Dang-Xuan *et al.,* 2013; Hoang *et al.,* 2013; Murthy & Petto, 2014; Di Fatta *et al.,* 2015; Bavaria *et al.,* 2017; Calderón-Monge, 2017). It is not surprising that iconic gestures and images are often viral (Nuernbergk *et al.,* 2016), as well as narratives that facilitate the emotional involvement of an “affective public” (Papacharissi, 2014) attentive to recognize the claims of authenticity, as components of a possible reconstruction of political trust (Margaretten & Gaber, 2014). Many studies, as we will see, indicate the formation of “filter bubbles” (Pariser, 2011) or “emotional echo chambers” (Himelboim *et al.,* 2014), in which users interact with “like-minded” others, exposing themselves to messages of similar valence.

A third dimension concerns the rhetorical figures of messages. The researchers examined, above all, the communicative form most in tune with the popular culture of the “common

people" (Popularisation). "Pop politics" (Mazzoleni & Sfardini, 2009) is characterized by: informality of language ("Informal"); thematic simplification ("Simplification"); narration ("Storytelling"), instrumentalisation of facts ("Instrumental actualisation"), "Dramatisation", provocations ("Taboo breaker"), trivial lexicon ("Vulgarism") and negative emotionality ("Negative affect"). Research confirms that most public comments tend to have negative emotional tones (Diakopoulos & Shamma, 2010; Dang-Xuan *et al.*, 2013; Jungherr, 2013; Mejova et al, 2013; Gainous & Wagner, 2014; Hosch-Dayican *et al.*, 2014; Park, 2014; Trilling, 2014; Ceron & d'Adda, 2015; Xenos *et al.*, 2015; Haleva-Amir & Nahon, 2016; Rossi & Orefice, 2016; Bracciale & Martella, 2017a). There are also correlations between levels of partisanship and negative campaigns and the dominant position of candidates in the electoral arena (Evans *et al.*, 2017).

The fourth dimension of content is related to the meanings, that is, what we are talking about (topic) and what is said about it (comment). From the semantic analysis of political communication in Social Networks, corroborated by the inductive reconstructions of topic modeling, we can systematize into five basic categories of political discourse the emerging series of themes.

Political issues (relations between parties or candidates, ideological questions) are self-referential or positioning interventions (Positioning) in the electoral campaign, the declarations of values of belonging to a political culture, institutional questions of "palace", the confrontation with other candidates and parties, references to plots within the party or line-up (Livne *et al.*, 2011; İkiz *et al.*, 2014) and the role of the leader (Bentivegna & Marchetti, 2015; Ceron, 2016). Comments on the competition of candidates by political actors and the public are very important (Groshek & Al-Rawi, 2013; Jungherr, 2014).

Policy issues (general themes, education, health, rights, labour, etc.) constitute a significant part of political communication (Shah & Yazdani Nia, 2011; Parmelee & Bichard, 2012; Nooralahzadeh *et al.*, 2013; Cornia, 2014). In electoral campaigns, messages on policies tend to contract with respect to the volume of ordinary periods (Nuernbergk & Conrad, 2016), ending up condensing into a sort of marketplace of keywords (Cornfield, 2017) that is reconstructed by scholars with topic modeling (Song *et al.*, 2014; Ryoo & Bendle, 2017).

With the expression "campaign issues" the literature refers to campaign themes or to events, such as rallies and public meetings, that are frequent on Social Networks (Small, 2010; Macnamara, 2011; Graham *et al.*, 2013; Evans *et al.*, 2014; Graham *et al.*, 2014; Hosch-Dayican *et al.*, 2014).

News or current affairs – more or less political news items, such as terrorist attacks, cataclysms, sports events, art shows, etc. – often fall under the label of "Infotainment" (Bavaria *et al.*, 2017).

Personal issues are contents about personal aspects of candidates, analyzed by literature in the two dimensions of "Personalization", and draw their profiles, beyond the role of delegates, trustees, parties or constituency services (Jackson & Lilleker, 2009): a) "Individualization": references to professional qualities and their commitment, with which politicians define themselves (Self-definition); and b) "Privatization": aspects of biography and private, family, and sentimental life, friendships, leisure time, etc.. Studies show that candidates often use Social Networks to highlight strictly personal content (Voerman & Boogers 2008; Hermans & Vergeer, 2012; Enli & Skogerbø, 2013; Goodnow, 2013; Evans *et al.*, 2014; Kruikemeier, 2014; Bentivegna & Marchetti, 2015; Evans, 2016; Haleva-Amir & Nahon, 2016; Karlsen & Enjolras, 2016; Bracciale & Martella, 2017a; McGregor, 2017).

4.3. The effects of Social Networks

The effects of communication via Social Networks on election campaigns are particularly controversial. At the moment, the analyses carried out using big data do not seem to offer exhaustive answers and research carried out through surveys, interviews and experiments is still used. Although it is widely thought that Social Networks have a decisive influence on election campaigns, there seems to be no clear evidence that the use of Twitter and Facebook leads to success in elections. Some scholars identify correlations (Livne *et al.*, 2011; LaMarre & Suzuki-Lambrecht, 2013; Gomez, 2014; Lin, 2017) but most scholars deny them (Vergeer *et al.*, 2011; Strandberg, 2013; Huberty, 2015; Miller Noah & Ko Rosa, 2015; Murthy, 2015; Prémont & Millette, 2015; McGregor *et al.*, 2017). Similarly, scholars are divided on the link between the

popularity of candidates and political parties on Social Networks and electoral victory. For some the correlation exists (Gilmore, 2012; DiGrazia *et al.*, 2013; Kruikemeier, 2014; McKelvey *et al.*, 2014), but for others there is no correlation whatsoever (Jungherr, 2013; Mejova *et al.*, 2013; Murthy & Petto, 2014; Shephard & Quinlan, 2016). It is not obvious that a positive attitude towards a candidate/political party automatically turns into voting intentions, although some scholars have found correlations between: a) positive feelings and electoral preferences (Tumasjan *et al.*, 2010); b) the presence of a candidate/political party on Social Networks and the number of comments about them; c) the use of Social Networks, political activism and voter turnout (Gaber, 2016). Other scholars have underlined the importance of overlapping online contacts and "real" relationships ("re-intermediation") (Bond *et al.*, 2012).

Lower down the scale, another question concerns the ability of electoral communication on Social Networks to generate political "influence" – a concept not yet unambiguously codified (Dubois & Gaffney, 2014). Scientific literature has identified several dimensions regarding the indirect relationship between the use of and popularity on Twitter and Facebook and electoral success: a) listening; b) forum; c) interaction; d) mobilization; e) agenda setting; f) framing and priming. This is related to the fact that, in the information circuit in today's hybrid media ecosystem (Chadwick, 2010, 2013; Jungherr, 2014; Chadwick *et al.*, 2016; Harder, 2017), the presence in Social Networks produces more exposure in traditional media (television, radio, press, agencies, etc.), which are a phenomenal driver in determining the appearance of an actor or theme in the Trending Topics lists (Iannelli & Giglietto, 2015; Marchetti & Ceccobelli, 2015, Recuero *et al.*, 2016).

The listening effects concern the use of Social Networks in order to obtain opinions and, in general, information about public opinion. Politicians and journalists often tend to use online communication data as an indicator from which to draw impressions or even measures about the climate of opinion in the electorate, not least about themselves (Stieglitz *et al.*, 2012; Lyons & Veenstra, 2016; Skovsgaard & Van Dalen, 2016). Against this simplification, scholars note that users should not be considered representative of public opinion (Barberá & Rivero, 2014; Highfield & Bruns, 2016; Ceron *et al.*, 2017). This is all the more so if we consider the problem of the "homophilia" of networks composed of interested groups and a priori in favour of

candidates or parties (Plotkowiak & Stanoevska-Slabeva, 2013; Ackland & Shorish, 2014; Trilling, 2014; Jungherr, 2015; Jungherr *et al.,* 2016; Klašnja *et al.,* 2017).

A similar situation was found for interaction effects (Parmelee & Bichard, 2012). In order to detect the influence in the election campaign, several scholars have adopted the volume of contacts as a metric , with reference to which, in addition to the greater activism of non-traditional actors (Stieglitz & Dang-Xuan, 2012; Christensen, 2013; Dang-Xuan et al, 2013; Sreekumar & Vadrevu, 2013; Bentivegna, 2014; Sanjari & Khazraee, 2014; Freelon & Karpf, 2015; Jürgens & Jungherr, 2015), it has been confirmed that users (candidates and public) interact mostly within closed networks, held tight by predefined political affiliations – following their protagonists and sharing their messages – and creating common practices and rituals (Conover et al, 2011, 2012; Feller *et al.,* 2011; Mustafaraj *et al.,* 2011; Bruns & Highfield, 2013; Himelboim, McCreery & Smith, 2013; Hoang *et al.*, 2013; Himelboim *et al.*, 2014; Highfield & Bruns, 2016). On Twitter, for example, supporters of the different parts tend to group around different hashtags, thus creating politically separate communication spaces (Hanna *et al.*, 2011, 2013; Lietz *et al.,* 2014). Leveraging the aggregative effect of the hashtags, there is no lack of incursions of adverse factions into the discursive plots (Conover *et al.*, 2011; Bode *et al.*, 2015; Bruns & Burgess, 2015; Cheng & Chen, 2016; Spaiser *et al.*, 2017) – sometimes produced through automated systems (“bots”) (Bessi & Ferrara, 2016; Rathnayake & Buente, 2017). There is a trend towards the balkanization of political interaction, whereby users – fragmented into enclaves or echo chambers – «listen to echoes stronger than their voice» (Sunstein, 2007, 13; Garrett & Kelly, 2009) and opinions are reaffirmed (confirmation bias) in self-referential information circuits (Aragón *et al.*, 2013; Colleoni *et al.,* 2014; Gainous & Wagner, 2014; Vargo *et al.*, 2014).

Twitter and, to a lesser extent, Facebook are increasingly present in the electoral campaigns of candidates and parties as a tool to “transmit” their messages, mainly in a top-down way (Jackson & Lilleker, 2011; Peterson, 2012; Adams & McCorkindale, 2013; Amirullah *et al*., 2013; Vergeer & Hermans, 2013; Di Fraia *et al.,* 2014; Gainous & Wagner, 2014; Pablo *et al.*, 2014; Enli & Naper, 2016; Lukamto & Carson, 2016). There is a general effect of “amplifying” political propaganda (Zhang *et al.*, 2017). Interesting is the case study of populist leaders who

use Social Networks with the same vertical logic of traditional mass media (Waisbord & Amado, 2017). With regard to the use of the “tribune effect”, several scholars have adopted the number of messages as a metric to detect influence in public discourse, partly by finding a correlation with changes in opinion polls that measure the favorable impressions of politicians (Hong & Nadler, 2011). The results are discordant regarding the distinction between traditional candidates and parties and new political forces. Some scholars consider traditional actors to be prominent (Larsson & Moe, 2012) while others find non-traditional ones to be prominent (Small, 2011; Mascaro *et al.*, 2012; Larsson & Moe, 2013). There is a greater propagation of emotional messages (Kim & Yoo, 2012).

Appeals to the mobilization of candidates and parties and the widening of participation during election campaigns seem confirmed by some studies (Strömbäck & Nord, 2014; Papa & Francony, 2016) – although online interactions that are not based on offline networks are weaker in mobilizing participation in the “real world” (Bekafigo & McBride, 2013; Gibson & McAllister, 2013; McKelvey *et al.*, 2014; Miller Noah & Ko Rosa, 2015). In addition, there is evidence that presence and communication on Social Networks contribute to the growth of the collection of electoral funding (Haleva-Amir, 2016), although it seems differentiated between moderate and radical candidates (Hong, 2013; Small, 2016).

An important aspect is the "agenda-setting effect". Social Networks are increasingly present in election campaigns as a tool to influence the coverage and salience of topics in traditional media. Some scholars have noted the specific “attentional dynamics” of traditional media and Social Networks (Neuman *et al.*, 2014; Enli, 2017). Moreover, given the tendency of journalists and media outlets to use messages on Twitter and Facebook as sources, this allows the political class to maintain centrality in the public sphere (Broersma & Graham, 2012; Verweij, 2012; Spain, Borondo *et al.*, 2014; Conway *et al.*, 2015). In the broader context of disintermediation, political communication is also dependent on a few users of the public – the new Gatekeepers (Jürgens *et al.*, 2011; Vaccari & Valeriani, 2013; Bentivegna, 2014, 2015; Wayne Xu *et al.*, 2014). These are central to the structure of the network, politically identifiable and have a strong and selective influence in the salience of information shared online and, vice versa, on the virality of radio and television content in social media (Wallsten, 2010). Recently, some studies have focused on the

active role that the public plays in the choice of different media agendas and in the composition of topics, news and attributes (Vargo *et al.,* 2014; Cheng & Chen, 2016). There has been a process of "agenda melding" (Shaw & Weaver, 2014). An interrelated aspect concerns the influence of celebrities, such as those from show business and sport, in starting and directing political debate, particularly during election campaigning, with posts and tweets monolithically appreciated and shared by fan communities (Iannelli & Splendore, 2017). Another known phenomenon is the "framing" effect, i.e. the interpretative framework with which actors, objects and events are contextualized to favour the attribution of certain meanings rather than others (Borah, 2011). Among the many studies, we mention Parmelee & Bichard (2012) and Groshek & Al-Rawi (2013).

An innovative dimension in electoral campaign studies concerns the priming effect, i.e. a heuristic recognition that, by leveraging our long-term unconscious mnemonic system (Schacter, 1992), stimulates familiarity and a rapid and precise identifiability of candidates and parties through the repetition frequency of their profile and messages (Perloff, 2013; Marquis, 2016). The question of the cognitive and evaluative effectiveness of this form of "solicitation" in political communication on Social Networks is found in the literature under the label of the "third level" of the agenda setting (Guo & McCombs, 2016).

Inquiries suggest that the search for the effects of listening, forum, mobilization, agenda setting, framing and priming is accentuated in aggressive election campaigns (insurgency campaigns), particularly by anti-establishment parties and candidates (Jackson & Lilleker, 2011; Christensen, 2013; Jungherr, 2013; Bentivegna, 2014; Borah, 2014; Jürgens & Jungherr, 2015; Kanungo, 2015). A central phenomenon has become the consensus towards movements with populist ideologies and communicative styles, both on the right and on the left, characterized by the rhetoric of "we against them", the emphasis on the will of the people, the imaginary representation of homogeneous communities, the direct contact with ordinary people, forms of direct democracy, the attack against elites (economic, institutional, media and intellectual), the hostility towards "others" and charismatic leadership (Engesser *et al*., 2016; Van Kessel & Castelein, 2016; Bracciale & Martella, 2017; Casero-Ripollés *et al.,* 2017; Santaniello *et al.*, 2017).

It should be pointed out that many candidates have a presence in Social Networks but use them only rarely. They mark their presence for symbolic aims: as proof of being in step with the *zeitgeist*, rhetorically inside the new politics – interactive, transparent and in direct contact with people (Grussel & Nord, 2012; Enli & Skogerbø, 2013; Nilsson & Carlsson, 2014; Nuernbergk *et al.*, 2016).

Finally, it is interesting to address the Habermas' question (2006): does Social Networks' electoral communication have the effect of structuring a political public sphere with epistemic values? In other words, does it increase cultural and social capital and produce new models of empowerment? (Jensen, 2016; Willnat & Min, 2016). In general, the literature has ascertained that candidates and political parties do not use Social Networks to build the conditions for a deliberative democracy and citizens, for their part, contribute much less to improving the argumentative dialogue (Trilling, 2014). Nevertheless, Twitter and Facebook have become an integrated and enduring element of political communication, and we will have to learn how to use them better.

5. Methodological remarks

Although the digital data trace analysis on the use of Social Networks in election campaigns is relatively recent, fairly homogeneous results have been obtained over a decade in different election cycles and countries. It is not just for the amount and variety of information and the speed of access to and treatment of it that big data research is becoming widespread among scientists working on the borderline between social sciences and information technology. In conclusion, in the wake of Jungherr's considerations (2016a), we point out some methodological aspects that could help advance these studies.

From the point of view of research design, a better knowledge of existing studies would facilitate a more systematic approach to the research objects and to the operationalization of concepts and properties in variables and indicators. The definition of a shared framework, or at least a greater transparency on the methodologies, is a condition for the improvement of methods, in order to detect the same objects of analysis and to corroborate the same research

hypotheses (Karpf, 2012).

At the operational level, scholars should explain the procedures for collection and analysis. This is in order to achieve a standardisation of research and, therefore, a greater reliability of techniques and tools. The bibliographic reconstruction has revealed two interesting aspects about how Digital Trace Data Analysis works. First, the automatic collection of Big data contained in profiles, pages, messages, Feed, Hashtag, etc. is available through two approaches: 1) relying on scripts developed by researchers who query the API (application programming interfaces) of Twitter or Facebook or scraping Twitter and Facebook's Web site; ; 2) using third-party software to collect data on these Social Networks. Many studies in the review did not specify how they collected their data, making it difficult for any attempt to replicate and monitor the results and to ascertain how the choice of modalities affects the construction of data sets. Secondly, data collection depends on the criteria for selecting profiles, pages and messages, for example for users, keywords, Hashtags, @Mentions. The choice of one or more of these approaches as well as the predefinition of the specific terms are not indifferent in the construction of the data. These methodological decisions influence the identification of the users who will be included in the study and the relevance of the collected data to the research object. In this regard, there are still no comparative studies to systematically verify whether, how and to what extent the different selection criteria can produce significantly different data sets and, therefore, incomparable research results.

Another limit is the excessive interest in Twitter and, to a lesser extent on Facebook, compared to other Social Networks: Instagram, Youtube, Google+, LinkedIn, Pinterest, Myspace, Orkut, Tumblr and others. Therefore, there are different audiences and other forms of communication that still require adequate scientific attention even in relation to election campaigning.

Another aspect to be explored is the interdependence between different research methods. In the study of Social Networks each one of those has its own strengths and weaknesses (Giglietto *et al.*, 2012). Therefore, in recent years, the promising combination of Digital Trace Data Analysis and Social Network Analysis has become established (Howison et., 2011; Livne *et al.*. 2011; Conover *et al.*, 2012; Plotkowiak & Stanoevska-Slabeva, 2013; Lietz *et al.*, 2014; Vargo *et al.*. 2014; Sudhahar *et al.*, 2015; Pavan & Caiani, 2017). Triangulation with quantitative

(surveys and experiments) and qualitative (interviews, content analysis, participating observations, etc.) approaches is also important, in order to extend the fields of application and research hypotheses on behaviour during elections (Song *et al.*, 2014; Wells & Thorson, 2017).

Finally, in the study of election campaigns, there is an attempt to combine the big data extracted from Social Networks and the micro-data on traditional socio-demographic categories taken from the Census (Vargo & Hopp, 2017). About the aim of studies: most are descriptions of Social Network activities and explanations of the relationships between particular variables. There are few attempts to develop predictive models of electoral results, starting from the metrics on political activities (Tumasjan et al, 2010; Livne *et al.*, 2011; Gayo-Avello, 2011, 2013; Jungherr, 2011, 2015; MacWilliams, 2015) and the relation between these big data and the opinion polls trends (Tsakalidis *et al.*, 2015; Jungherr *et al.*, 2017).

Ultimately, over a decade the Digital Trace Data Analysis applied to election campaigns on Social Networks has produced a quantity of information previously difficult to find and qualitatively more refined. Further developments will be facilitated by greater comparability of data collection and selection procedures, extended fields of application, integration with Social Network analysis and other traditional research methods, and the development of predictive models of political behaviour. This could foster the emergence of a computational social science in the context of an academic environment open to collaboration, avoiding the risk feared by David Lazer, Albert-László Barabási *et al.*, (2009) that this extraordinary tool for understanding individuals and collectives could become the exclusive competence of private companies and government agencies.

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