

## European Twitter Networks: Toward a Transnational European Public Sphere?

JAVIER RUIZ-SOLER<sup>1</sup>  
Simon Fraser University, Canada

In this article, I explore whether and to what degree the discussion of European issues on Twitter remain within nationally bounded communication spaces or whether such a discussion transcends borders and becomes transnationally European. This article explores the interactions formed around Twitter issue publics of European relevance (Schengen and TTIP), with their geographic locations. Out-degree metrics of the interactions conducted (retweets and mentions) under both #schengen and #ttip hashtags are applied. A network of 28 nodes—one for each of the 28 members of the European Union—has been created. In each node, Twitter data collected from each hashtag is embedded, forming six different weighted networks—one for each hashtag—and all six, with the same number of nodes. The networks contain replies, retweets, or quotes of other tweets in the data set (for which location data is available). This article shows with conclusive, empirical evidence, that there is indeed a transnational European public sphere to a certain degree, at least with respect to these topics analyze.

*Keywords: European public sphere, Twitter, transnational, networks, geolocation.*

The European public sphere (EPS) has been a frequently discussed topic, especially since the emergence of the notion of EU citizenship in connection with the Maastricht Treaty in 1992 and a growing recognition of the need for a space where Europeans can discuss common matters. One of the discussions in the literature concerns the question of whether a transnational EPS exists. Investigations have mainly focused on the content of national mass media and on whether the same topic has been simultaneously covered in different media (Heinderyckx, 2015; Koopmans & Statham, 2010; Pfetsch & Heft, 2015).

This study focuses on citizens' digital communication beyond the mass media. I map specific Twitter hashtags and reconstruct networks of interactions around them. I empirically test whether interactions on Twitter relating to two European topics—Schengen and the TTIP—occur transnationally. This article aims to elucidate the extent of interactions across countries within the European Political Twittersphere (EPT). Specifically, the extent to which Twitter users from across Europe are connected and how they interact is examined—that is, the extent of transnational communication on the selected topics.

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Javier Ruiz-Soler: [Javier\\_ruiz\\_soler@sfu.ca](mailto:Javier_ruiz_soler@sfu.ca)

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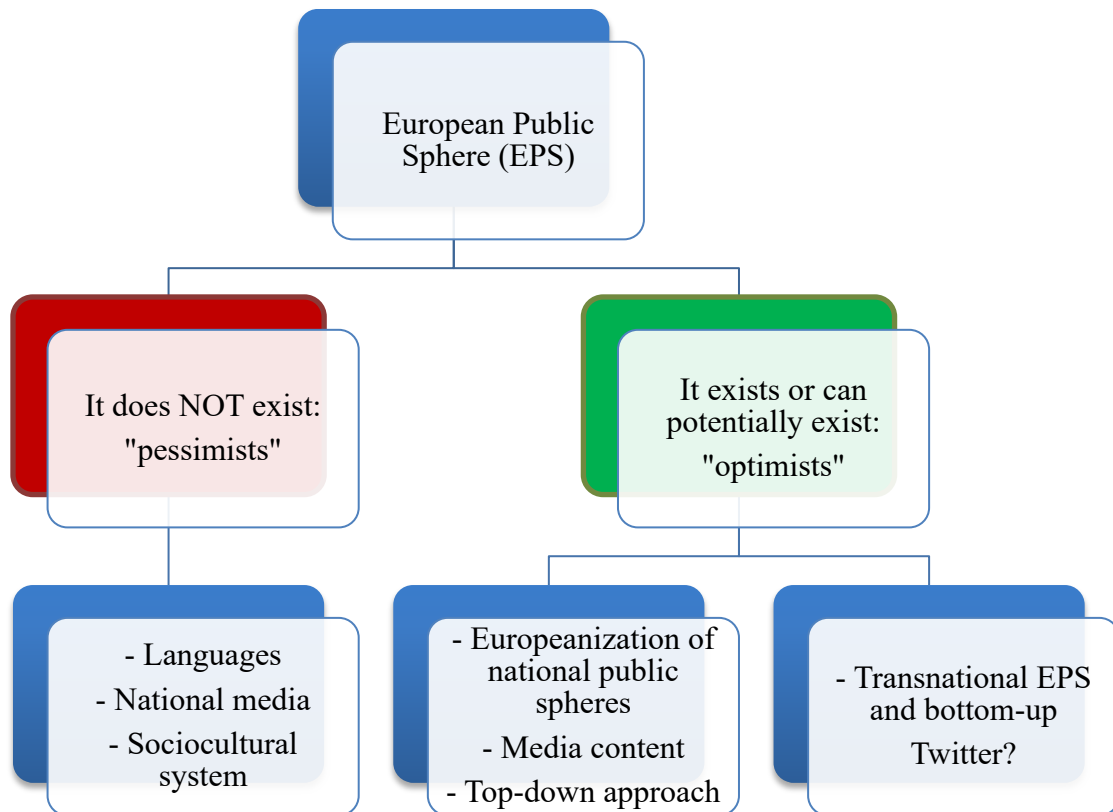
This research angle, entailing an exploration of citizens' own bottom-up initiatives within a European context, remains relatively underexamined, which is problematic, especially given the reported gap between European institutions and citizens (Morganti & Bekemans, 2012).

This article is organized as follows. In the first part, I present and discuss the main theoretical strands that are relevant for conceptualizing the structural form of the EPS. These are divided into two categories: (1) Europeanization of national public spheres and (2) a transnational and supranational EPS positioned above the national level. The angle and approach of previous—and future—research is modified according to the approach that is applied to understand the EPS. The other part of my discussion relates to the contextualization of research question(s) and hypotheses. A set of hypotheses about the structure of the networks, network users' modes of engagement, and the degree of their transnational interaction are tested. Next, the methodological approach employed to answer the research question and to test my hypotheses is described. Finally, the results of the analysis are provided. The article concludes with a discussion that relates the results obtained from the data analysis to the theoretical EPS framework.

### **The Debate on the Existence of a Transnational European Public Sphere**

The main components of a public sphere we find in the main literature are (1) the participants, such the state (including all of its political institutions), civil society, and individual citizens; (2) public spaces, such as television, radio, and online news portals that constitute the means and channels of political communication; and (3) topics generated through the content of public communication (Habermas, 1991; Sicakkan, 2016b). Acknowledgement of these components implies that there is no unique definition of a public sphere (Adam, 2016). The presence of different elements that constitute a public sphere vary depending on how this is measured (Bee, 2014; Beers, 2006).

Following this rationale, it can further be argued that there is no unique definition of an EPS. This is especially the case because the context of an EPS is even more sophisticated and ambiguous than that of a national public sphere (entailing differences in national media, languages, and cultures within Europe). The literature reveals two main tendencies (see Figure 1) relating to definitions of an EPS. On the one hand, the "optimists" suggest that development of an EPS is possible or that it already exists (Conrad, 2010; Eriksen, 2005; Koopmans & Statham, 2010; Risse, 2010a, 2015; Trenz & Michailidou, 2014). On the other hand, the "pessimists" suggest that an EPS is an impossibility (Kaitatzi-Whitlock, 2007).



**Figure 1. Prevailing views in the literature on the European public sphere.**

Following the mainstream definition of what comprises a public sphere in the European context, the participants could be identified as the (European) civil society; a (European) citizenry that acts as a public capable of generating (European) public opinion and a (pan-European) mass media (Sicakkan, 2016a). The two other required elements would be a (European) space and (European) topics. Previous attempts to test empirically for the presence of these elements as a firm indicator of the existence of the EPS have met with little success. The conclusions of these studies were that an EPS does not and perhaps cannot exist. For the “pessimists,” an EPS is not impossible to achieve because the three main barriers—namely, different languages, national media, and sociocultures cannot be overcome (Kaitatzi-Whitlock, 2007). Thus, individuals speaking different languages cannot communicate. Further, topics are filtered and customized by the media according to the peculiarities of the particular national society and its interests. Finally, cultures and ways of being differ considerably moving from Northern to Southern Europe and Western to Eastern Europe.

“Optimists” who consider an EPS to be possible are divided into two groups. The first group of scholars posits that while the EPS does not yet exist as a transnational sphere, all of the necessary elements are in place to prompt its development (Michailidou & Trenz, 2013; Tarta, 2009). The second line of thought is that the EPS already exists and is functional (Sicakkan, 2016a). However, because of significant barriers

constraining its development (languages, socio-cultures, and national media), it actually entails Europeanization of national public spheres rather than a genuine transnational EPS. Some have argued that EPSs exist at different levels and that different topics coexist. Accordingly, these scholars theorize that it is not possible to extend beyond the Europeanization of national public spheres to form a transnational EPS (Eriksen, 2005; Risse, 2010b).

To clarify, the main difference between the two optimistic perspectives is that in the view of the first group of academics, a transnational EPS is possible, and the starting point for its development is the current situation. They suggest that a Europeanized national public sphere would represent the first step toward a genuine horizontal transnational public sphere (Wessler, Bernhard, Brüggermann, Kleinen von Königslow, & Sifft, 2008). By contrast, the second group of optimists affirms that an EPS already exists in the form of Europeanized national public spheres or overlapping EPSs that cannot be developed any further. This group believes that existing barriers (differences in languages, sociocultures, and national media) are too large to overcome, as do the "pessimists." Both agree, however, that traditional theories of the public sphere focused on nation-state-oriented concepts do not take into consideration the existence of a postnational entity such as the EU. This article presents empirical evidence to support the possible existence of a transnational EPS, which therefore places it among the "optimists" camp.

Because the Internet is, by definition, borderless and transnational, it seems reasonable to argue that online interactions, and, more specifically, those occurring on a digital platform such as Twitter, could generate transnational interactions (Barisione & Michailidou, 2017; Sicakkan, 2016b). Transnational communication is conventionally understood as the communicative exchange of arguments and counterarguments across borders (Liebert, 2013; Splichal, 2012). It occurs when at least two culturally rooted public spheres begin to intersect and overlap (Bohman, 2004). In other words, transnational political communication can be conceptualized as a process that enables ordinary citizens who are part of different national media arenas to interact and discuss issues of mutual relevance that are not confined within national borders (DeBardleben, 2011).

The national media that have so far been investigated may not be able to provide the necessary foundations for transnational interactions because they are associated with individual states and languages. A better understanding of a transnational EPS necessitates a consideration of the singular features of the European context: its nonhomogeneous nature, multilingualism, a lower degree of institutionalization compared with national public spheres, and a polycentric and multilevel structure (Hepp et al., 2016a; Sicakkan, 2016a). As a borderless digital platform, Twitter could provide an opportunity for transnational interactions among individuals, because these messages entail common public spaces (hashtags) where users are free to interact in different languages (Dutceac Segesten, Bossetta, & Trenz, 2016).

The importance of a transnational EPS is related to the creation of a space that differs from those of national systems where citizens interact and engage directly with issues that affect them all. A transnational EPS could counter the democratic deficit that is reportedly associated with the EU (Conrad, 2010). A transnational EPS contributes to a more democratic and participatory EU, reflecting a step further from the Europeanization of national public spheres. It entails the formation of cross-country

linkages among citizens belonging to different national publics. Indeed, as early as 2005, Wallström, the European Commissioner at the time, suggested that the Internet in general and social media in particular could support enhanced transnational engagement of citizens and recommended that European institutions should focus on these (then) new digital tools to boost such a model of a transnational EPS (Wallström, 2005).

I conduct a case study of a social media platform, Twitter, and two hashtags of European relevance. I apply network analysis to address the following research question:

*RQ1: Does the discussion of European issues on Twitter remain within a nationally bound communication space or transcended this space to become transnationally Europeanized?*

The process of transnational Europeanization can be assessed according to the extent to which a portion of public debate extends beyond a particular national political space (Koopmans & Statham, 2010). By contrast, a completely closed national public sphere is characterized by communication flows that remain confined among national actors discussing European issues included within this scope, which can be conceptualized as Europeanization within national public spheres.

The Internet and various online tools that are currently available, especially social media platforms, have opened up opportunities for individual users to connect and interact with other users (Ruiz-Soler, 2018). These new communication possibilities are characteristically bottom up and occur at the individual user level. However, the findings of previous studies indicate that the extent of transnational interaction is limited or nonexistent (Schünemann, Stier, & Steiger, 2016). It seems feasible that in recent years, the balance may have changed to incorporate more transnational communication. A bottom-up platform such as Twitter demonstrates where transnational encounters could be established. Although there are embedded networks within the countries themselves.

*H1: The majority of interactions is cross-national, boosted by social media platforms with Twitter characteristics: bottom-up interactions initiated at the individual user level in a cross-border communications platform.*

Indeed, transnational interaction was weakly detected or found to be intermittent within earlier studies on the EPS (Hepp et al., 2016b; Koopmans & Statham, 2010; Risse, 2015). At the same time, the transnational potential of the communicative construction of Europe in citizens' online forums is thought to be highly promising (Bennett, Lang, & Seberberg, 2015; Rasmussen, 2013). The question that is raised is whether transnational interaction is weak in itself, or whether it is simply not captured in analyses that have been conducted until now (Bennett, 2012). I suggest that part of the answer may be found in the latter explanation. To analyze transnational dimensions of the EPS, it makes sense to look beyond national spheres to the increasingly common alternative forms of public communication that citizens may be using.

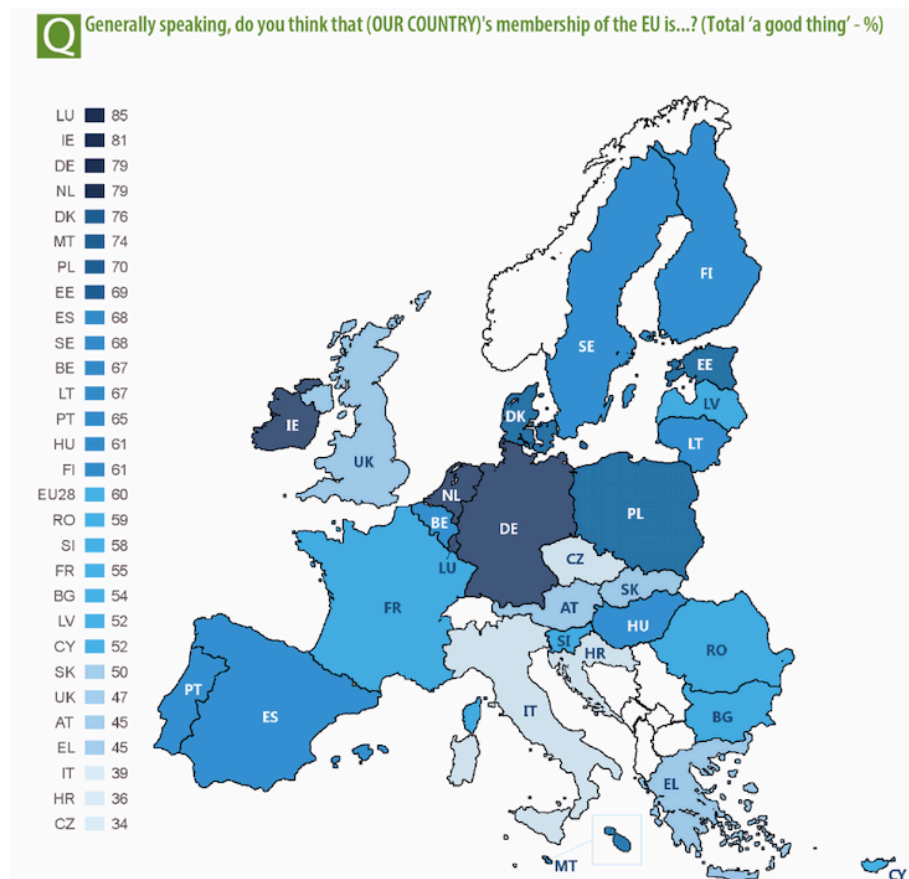
According to previous studies, countries where membership support for the EU is greater could evidence more transnational interest (Risse, 2010b). As Risse (2010b) explains, the rationality behind is

because there is a greater support in these specific countries in participation of their country in the EU project, the population in these countries are more eager to interconnect with others transnationally, as they consider the EU project a common one among the countries. In Risse's argumentation, despite there are few mentions about the Internet's role building transnational interactions, there is nothing explicit about the use of social media, and Twitter in particular. I take up this aspect as missing in his pathbreaking study of the EPS to be tested here.

Therefore, it is expected that in line with the Eurobarometer (European Commission, 2018):

*H2: The highest level of transnational interactions occurs in countries where there is more support for the EU (Luxembourg, Ireland, Germany, Netherlands, Denmark, and Malta).*

I take the Eurobarometer Question 23 to check this hypothesis, as it provides data on how supportive populations are of the EU (see Figure 2).



**Figure 2. Support of the EU membership. Source: Eurobarometer 2018 89.2, QA23.**

It is further expected that:

*H3: The networks are dominated by the English language.*

English functions as a lingua franca that transcends the national level, serving as a vehicle for Twitter users from different countries and cultures to communicate (Leetaru, Wang, Cao, Padmanabhan, & Shook, 2013). I deemed that English dominated the networks when 50% or more of the total number of transnational tweets are in this language. In addition,

*H4: Networks would be dominated by retweets (the spread of information) instead of mentions (genuine conversations among users).*

Previous studies applying Twitter data have shown that the number of retweets exceeds that of organic tweets or mentions (Cherepnalkoski & Mozetic, 2016). In this regard, the analysis of networks of European topics should not differ from analyses conducted in other countries or on other topics (Benkler et al., 2015; Cherepnalkoski & Mozetic, 2016).

### **Motivation and Scope: Why Twitter?**

Digital media technologies associated with user-generated content and interaction, such as Twitter, have the potential to constitute more grounded spheres than those of mass media and institutions because of the myriad capacities for information transmission and enabling public inputs that they entail (Bruns & Burgess, 2015).

In recent years analyses of Twitter communication have developed dynamically within the social sciences. The number of cross-country comparative analyses on political actions or movements has increased (Barberá, 2014; Theocharis, Lowe, van Deth, & García-Albacete, 2015). Some of these recent studies reveal processes of transnational interaction and the diffusion of information. For example, Twitter use relating to participation in protests during the Egyptian and Tunisian revolutions (Lotan, Graeff, Ananny, Gaffney, & Pearce, 2011) and in support of anti-austerity movements in Spain (the Spanish Indignados movement) and Greece (Theocharis, 2016) have been apparent. Indeed, scholars have argued that given its unique characteristics, Twitter may be a more suitable platform than other forms of social media for promoting transnational encounters and stimulating cross-country political participation (Dutceac Segesten & Bossetta, 2016).

In spite of this potential, there is a paucity of literature on the specific topic of the EPT. Indeed, only two projects have dealt with this issue. The first is a marketing report on interactions relating to the European Parliament election held in 2014 (Maireder, Shlögl, Schütz, & Karwautz, 2014). This report is of particular interest because it proposes feasible future research that is addressed in this article. The second research project examined how the circulation of the #austerity hashtag within national public spheres became Europeanized (Hänska & Bauchowitz, 2018). In sum, several studies have been conducted on Twitter. Though some of these studies suggest an exploration of transnational interactions, only a few come close to the research topic addressed in this article: an examination of transnational interactions within Twitter networks relating to European topics.

## Data and Methods

### *Twitter Data*

All of the tweets posted during the period from August 1, 2016, to April 30, 2017, on two hashtags are collected. The first hashtag, #schengen, refers to the Schengen Agreement—a treaty that led to the creation of the Schengen Area, conceived as an internal borderless space within Europe, wherein citizens of member countries can cross borders without going through checkpoints. The second hashtag, #ttip, refers to the Transatlantic Trade and Investment Partnership forged between the EU and the United States. These two hashtags are selected because of their European relevance and use across different countries. European relevance is evidenced by the fact that the issues covered in related tweets, such as mobility within Europe and the EU space or trade agreements, not only affect the daily lives of Twitter users but also are regulated at the European level and subsequently implemented at the national level. Moreover, the two hashtags are simultaneously used in different European countries by different national publics: the chosen topics are of common concern for all EU citizens (Ruiz-Soler, 2018).<sup>2</sup>

The period of the data collection is relevant because of the occurrence of various events during or close to the periods of data gathering. For Schengen, the wave of refugees in summer of 2016, the terrorist attack in Berlin in December 2016, and the travel of the terrorist to Milan, where he was killed by the police. For the TTIP, demonstrations were organized on the same day in different European cities as a show of unanimous opposition against the TTIP during the period of data collection (Ruiz-Soler, Curini, & Ceron, 2019).

I use the Twitter Capture and Analysis Toolkit (TCAT) available from the University of Amsterdam to gather the data through the Twitter Stream API. Table 1 shows the total number of tweets for each hashtag and the number of unique users. In addition, the type of tweet (mention or retweet) and the language are included in the data sets.

**Table 1. The Schengen and TTIP Data Sets.**

	Hashtag	Nature	Tweets	Users
The treaty that led to the creation of Europe's borderless Schengen Area.	#schengen	Political	232,113	114,295
The Transatlantic Trade and Investment Partnership	#ttip	Economic	796,721	222,696

The networks are constructed according to the type of interaction (retweets or mentions, including replies), one for each data set. Table 2 shows the precise numbers of interactions for each of the networks. There are 111,136 unique users, who have at least one interaction with other users, and a total of 232,768 links for the #schengen hashtag. For the #ttip hashtag, there are 207,437 unique users within the network and a total of 774,200 interactions.

<sup>2</sup> These public issues have some transnational impact; they reach large mediated publics, and entail political conflicts.



**Table 2. Networks Before and After Geolocation.**

	Network before geolocation		Network after geolocation		Percentage of geocoded	
	Nodes	Edges	Nodes	Edges	Nodes	Edges
#schengen	111,136	232,768	84,268	166,709	76.3%	71.6%
#ttip	207,437	774,200	155,048	557,271	74.7%	72%

### **Geocoding Process**

In each of the data sets, the number of geolocated tweets is less than 5% of the total number of tweets. There are several other methods that can be used to identify the coordinates of tweets and users, the use of which increased the results to 34% for city locations and almost 80% for country locations (Cheng, Caverlee, & Lee, 2010; Leetaru et al., 2013). For this study, I employ a geocoding strategy using the Google geocoding API (Kulshrestha, Kooti, Nikraves, & Gummadi, 2012; van der Veen, Hiemstra, van den Broek, Ehrenhard, & Need, 2015). First, I identify the "location" field of the users to extract their location (e.g., Madrid, Italy, or New York). Next, I checked whether the location matches the time zone (e.g., Madrid and the Central European Time [CET] time zone). If the location and time zone do not match, then they are discarded (e.g., Madrid and West Africa Time [WAT]). As a final step, I obtain the latitude and longitude coordinates of the extracted locations, thereby completing the geocoding process. As Table 2 shows, not all of the tweets are successfully geocoded.

The question of how many tweets needed to be geocoded for the data set to be valid is not a concern in light of the study objective. My aim is not to compare and discuss geolocating strategies and their effectiveness, or to geocode entirely the data sets; rather, it is to determine whether the geocoded tweets included any transnational interactions and the extent of these interactions. A sample of geolocated interactions is deemed sufficient.

Table 2 shows the final figures of the data set. For the #schengen hashtag, the number of successfully geocoded nodes is 84,268, entailing 166,709 interactions. For the #ttip hashtag, the geocoded network encompassed 155,048 unique users who engage in a total of 557,271 interactions. In my analysis, the percentage of geocoded tweets indicate the size of the successfully geocoded network. The nodes represent Twitter users, while the edges reflect their interactions comprising tweets, retweets, or mentions.

Once the data sets are geocoded (see Table 2), I select tweets between users in the 28 EU member states. The tweets, which do not originate in one of these 28 EU member states, or are directed outside of these states, are discarded. Table 3 shows the users (nodes) and interactions (edges). A total of 61.8% for #schengen, and 60.1% for #ttip of the geocoded data reflected interactions among the 28 EU member states. The percentages indicate the quantities of tweets geolocated within the 28 countries compared with the total amount of nodes and edges geolocated, shown in Table 2.

**Table 3. Networks of the 28 European Union Member Countries.**

	Networks of 28 countries geocoded		Percentage from geocoded data	
	Nodes	Edges	Nodes	Edges
Schengen	47,477	103,029	56.3%	61.8%
The TTIP	88,710	334,731	57.2%	60.1%

### Methodology

To address the research question framing the study, a network of 28 nodes—one for each EU member—is created using iGraph in R. Twitter data collected from each hashtag are embedded within each node, forming two weighted networks (one for each of the two hashtags) with the same number of nodes, namely the 28 EU members. The networks contain tweets, retweets, and mentions obtained from the data set (for which location data are available).

The second step is to determine the extent of the transnationality of the hashtags. For this purpose, the out-degree is calculated. Out-degree denotes outgoing interactions to any of the 28 countries, including national-level interactions. Applying this procedure, I analyze the main characteristics and patterns for each of the two hashtags and compared these in relation to the integrity of the network of 28 nodes and the amount of transnational interaction.

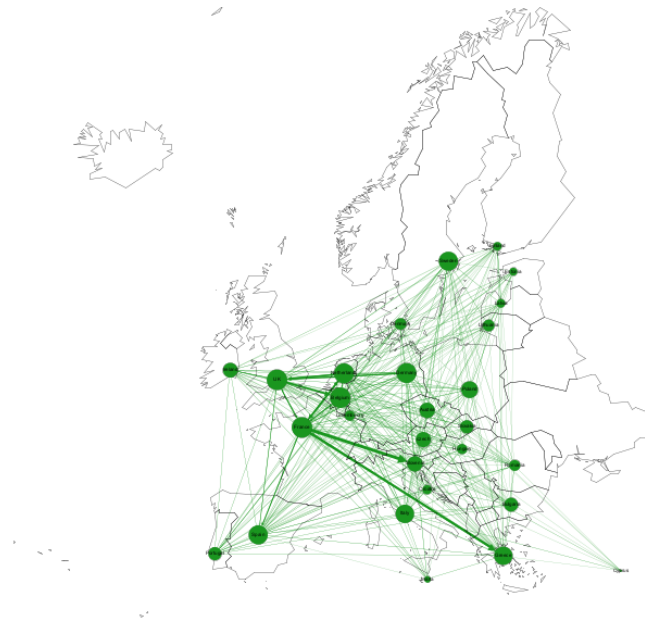
In addition, language and the type of interaction are included as variables for investigation. These two variables relate to Hypotheses 3 and 4. The reason for including the language variable is to ascertain whether there was any relation between the transnational interaction and the language used. The language of the tweet is very important, as multilingual users are key nodes facilitating the transmission of information among different language communities (Cheng & Wicks, 2014).

The purpose of including the tweet type is to explore the type of interaction within the geolocated networks. Specifically, my aim is to determine whether the networks evidenced information transmission through retweets or whether they reveal genuine conversations through the use of mentions. If the majority of tweets are retweets, this would indicate that the network served as a relay station. However, if the majority of tweets are mentions, this would indicate a conversation among users.

### Analysis

#### ***Cross-National Engagements***

Figure 3 depicts a directed graph of the interactions among EU countries. To enhance the clarity of the visualization, loops, which result from the interactions within one country (e.g., from the UK to the UK), are not included.



**Figure 3. Visualizations of European interactions.**

This visualization, using Gephi software, enables a graphical illustration of the state of the transnational network for each of the hashtags. In the graph, the nodes are ranked, size wise, by the in-degree centrality: the bigger the node, the more interactions are received. Edges are ranked by the out-degree centrality: The thicker the edge, the greater the number of interactions emanating from a specific country.<sup>3</sup>

The 28 nodes are connected within the visualizations plotted for each of the hashtags. None of the nodes (countries) is separated from the others, and all of them have more or less interconnections, revealing their interactions with others. There are no clusters formed among specific countries or regions, such as the Baltic countries or southern Europe. However, it is important to clarify that even a single interaction between one of the countries and another will show up in the visualization. Therefore, the quantity of interactions of each node needs to be analyzed to quantify the extent of its transnational interactions. These visualizations indicate that whereas some countries captured more attention (evidenced by node size), others are more active (as revealed by edge thickness).

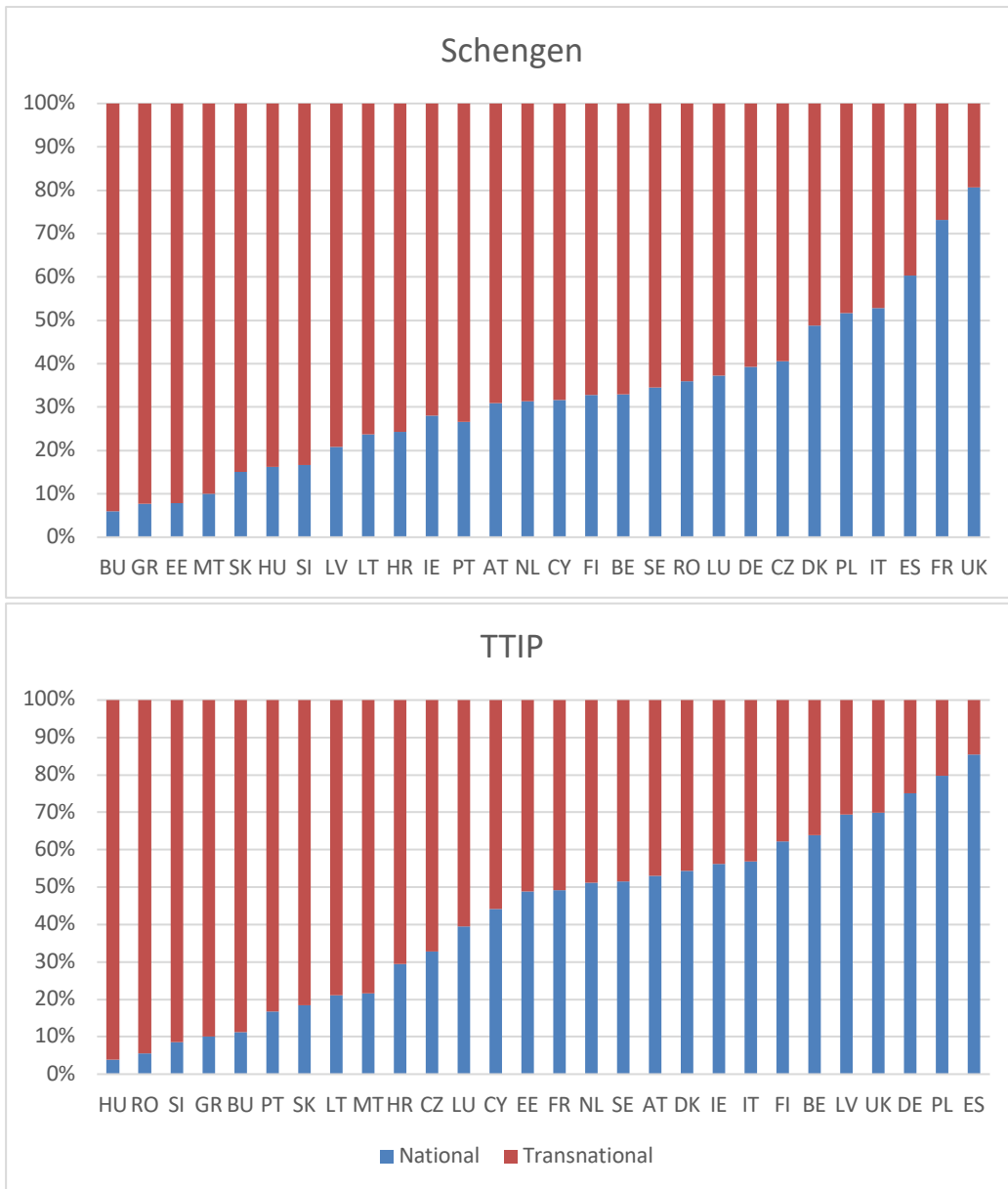
### ***Hypothesis 1: Transnational Versus National Interactions***

Figure 4 provides a more in-depth depiction of interactions per country. It reveals that for the Schengen hashtag, there are more national than transnational interactions in the case of 5 of the 28 EU countries (France, Italy, Poland, Spain, and the UK). For the remaining 23 countries, transnational

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<sup>3</sup> See the Appendix for matrices of the networks.

interactions account for more than 50% of the total interactions. For the TTIP hashtag, the number of countries with a majority of national as opposed to transnational interactions increase to 13 of the 28 states (Austria, Belgium, Denmark, Finland, Germany, Ireland, Italy, Latvia, the Netherlands, Poland, Spain, Sweden, and the UK).



**Figure 4. National and transnational interactions per country.**

This result confirms what is shown in Table 4, indicating more national-level discussions under the TTIP hashtag and in more countries.

**Table 4. External and Internal Indexes of #schengen and #ttip.**

Hashtag	E/I Index
Schengen	0.27
TTIP	-0.33

To compensate the skewed result in which a high number of tweets in some countries affect the total sum of national and transnational interactions, I calculate the external-internal (E/I) index (Krackhardt & Stern, 1988). The E/I index is a measure of group embedding based on a comparison of the number of ties existing within and among groups. In this case, the following calculation is performed: The number of ties of a country to outsiders ( $E$  denotes external ties), subtracts the number of ties to a country itself ( $I$  denotes internal ties), and divides by the total number of ties of a country (Esteve del Valle & Borge Bravo, 2018):

$$x = \frac{E - I}{E + I} \quad (1)$$

Applying the E/I, the extent to which hashtag-related networks are internal (national) or external (transnational) within the 28 countries can be calculated, considering the weight of each node and its interactions. In sum, this is a feasible way to normalize network data. The E/I index values ranges from  $-1$  (all ties are internal, in this case, they are national) to  $+1$  (all ties are external, or, in this case, transnational), while zero denotes equal quantities of national and transnational ties.

Table 4 shows mixed results from the application of the E/I index to the networks. Whereas Twitter conversations about Schengen tend to entail cross-country interactions and are therefore transnational, the TTIP scores are negative, thus revealing a tendency toward national interactions. However, the TTIP score reveals that while the majority of communication flows remain confined within national borders, some amount of transnational interactions occurs. Otherwise the score would have been  $-1$ , indicating the complete confinement of interactions to national borders. In sum, the E/I index values show that the majority of interactions are transnational for the Schengen hashtag, but for the TTIP hashtag it is the opposite. Nevertheless, transnational interactions occur for the TTIP hashtag, even if they are fewer compared with national interactions. These findings provide empirical evidence that a space exists above the national level where transnational interactions on EU affairs occur.

Thus, overall, Hypothesis 1 is partially confirmed. More than 50% of interactions for a majority of countries under both hashtags are cross-national. New digital technologies, in this case Twitter, open up possibilities for transnational encounters. However, the sum of the total interactions showed that national interactions accounted for two-thirds of the interactions because of the weight of some countries with high numbers of users.

***Hypothesis 2: The Biggest Contributors to Transnational Interactions***

Bigger countries with bigger populations will have a higher number of Twitter users, and therefore, statistically, they will account for a higher number of the total interactions. Therefore, a further calculation is performed in which the number of transnational interactions is divided by the unique users in each country. The application of this procedure illuminates those countries with more transnational activity, independently of the size of the data set per country. This new data is presented in Table 5. The score represents the number of transnational tweets per individual user in each data set.

***Table 5. The Most Active Countries by Userbase***

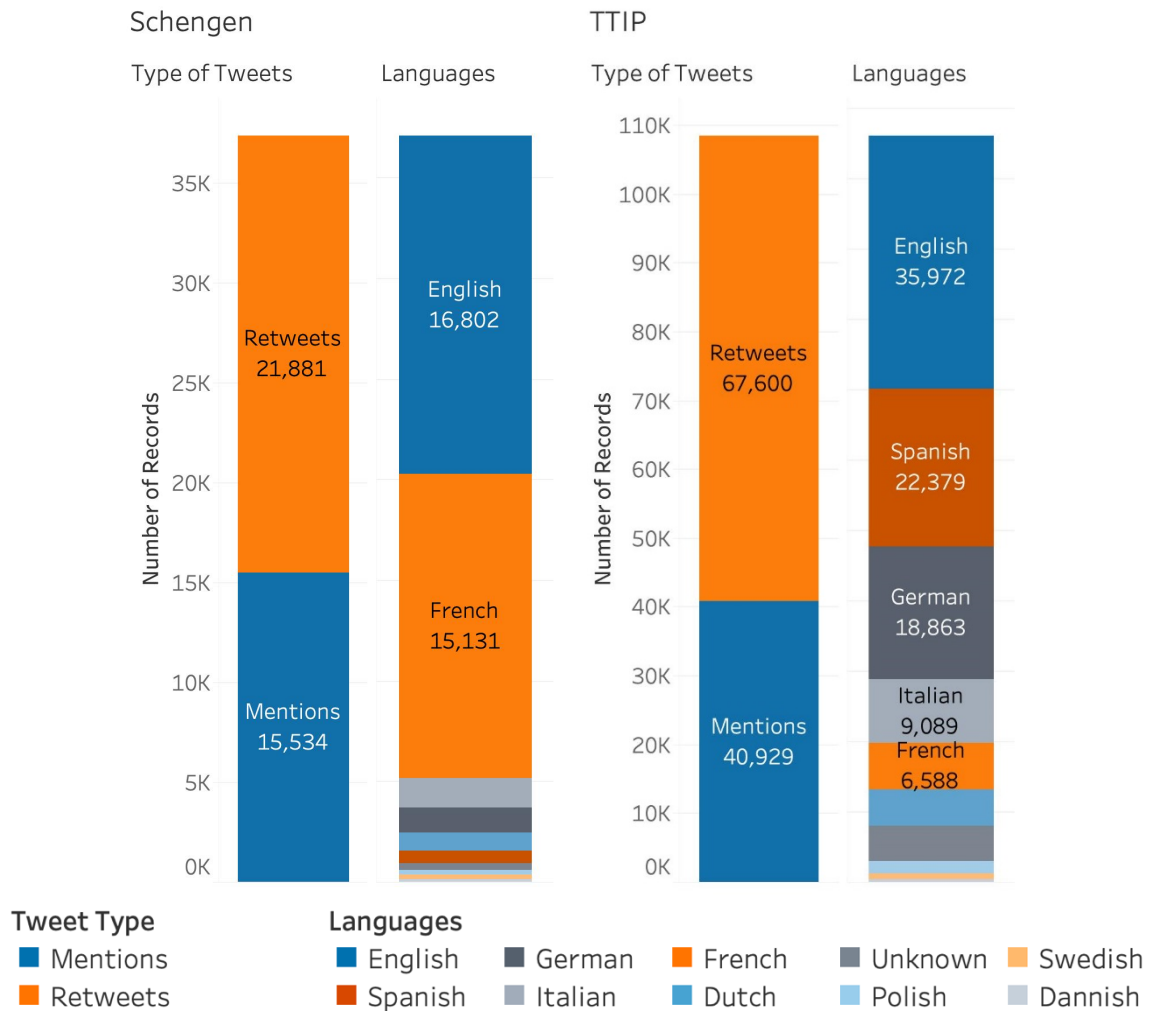
Schengen		TTIP	
Country	Score	Country	Score
Slovenia	31.21	Slovenia	16.91
Bulgaria	14.00	Belgium	11.03
Greece	11.76	Ireland	7.63
Belgium	8.96	Greece	6.50
Lithuania	5.62	France	5.17

The results show that three countries are common to both hashtags: Slovenia, Belgium, and Greece. Twitter users in these countries demonstrate a high degree of transnational mobilization. However, these countries differ from those featured on the Eurobarometer, with the highest degree of membership support for the EU at the time of data collections (see Figure 2)—namely, Luxembourg, Ireland, Germany, Netherlands, Denmark, and Malta. Even though citizens of these countries are not the strongest supporters of the EU, they evidence high levels of transnational mobilization, at least on Twitter. This finding may be expected for Belgium because of the strong presence of European institutions, international organizations, and white-collar workers in Brussels, but it is surprising for Slovenia and Greece. Therefore, Hypothesis 2 is not confirmed: Countries with higher levels of transnational interaction are not the most supportive of the EU.

***Hypotheses 3 and 4:***

***Languages Used and Typology of Interactions in Transnational Interactions***

Figure 5 shows the typology of tweets (mentions and retweets) and the languages used transnationally. Mentions represent organic and first-time tweets by users, including mentions to others, and replies. Retweets represent tweets that have spread through personal networks, without being modified, within what can be conceived as a sort of relay station.



**Figure 5. A typology of tweets and languages.**

It is apparent that for the Schengen hashtag, English and French are the most widely used languages transnationally. Italian is ranked third, but is used much less often than English and French. In the case of the TTIP hashtag, there is more language diversity: English is ranked highest as the most widely used language, followed by Spanish and German. Italian and French are the fourth and fifth most used languages. This diversification of languages for the TTIP hashtag reveals that the discussion on the TTIP is more widely distributed, occurring in different languages. At the country level, few of the countries in the study evidenced a majority of transnational interactions in a language other than English. For the Schengen hashtag, the most widely used language, transnationally, is not English in eight countries (Austria, Croatia, Denmark, France, Greece, Italy, Slovenia, and Spain). For the TTIP hashtag, this figure increased to 12 countries (Austria, Croatia, the Czech Republic, France, Germany, Greece, Italy, the Netherlands, Poland, Portugal, Slovenia, and

Spain). In sum, 45.3% and 36.8% of transnational tweets on Schengen and the TTIP, respectively, are in English. For each of these hashtags, the total number of transnational tweets in English do not exceeded 50% of the total. Therefore, Hypothesis 3 is partially confirmed: The largest proportion of transnational interactions are conducted in English, but they count for less than 50% of the total.

In terms of interaction, in both data sets the majority of tweets (around 60%) are retweets. In the case of Schengen, 58.5% are retweets and 41.5% are mentions. Similar results are obtained for the TTIP: 62.3% are retweets and 37.7% are mentions. These results are not surprising, as retweets, in contrast to organic tweets, are very common on Twitter (Cherepnalkoski & Mozetic, 2016). In addition, an examination of the distribution of tweets/retweets per country reveals that retweets predominated in the majority of countries. There are a few countries that are exceptions for the Schengen hashtag, such as Austria, Denmark, Estonia, Finland, Greece, Latvia, and the Netherlands. In these countries, there are more mentions than retweets, indicating a transnational conversational effort or intention to establish a dialogue on the part of Twitter users in these countries. In the case of the TTIP, Estonia, Lithuania, Malta, Romania, and Slovakia are the exceptions. In all, Hypothesis 4 is confirmed: Networks are dominated by retweets instead of mentions.

### Discussion

The above analysis is aimed at developing an understanding of Twitter interactions on the two selected European topics. Its findings reveal not only the geolocated network's external structure, but also the types of interactions that users have when interacting in relation to these specific European issue publics. In addition, the results advance understanding on how the EPS is evolving and how it contributes to increasing participation and exchanges among different national publics. Moreover, it fosters new insights on how Twitter can contribute to more genuine and democratic participation, addressing one of the criticisms levelled against the EU—namely, that of a democratic deficit and lack of participatory public spaces. The empirical data mapped in this article reveal that users on this digital platform interact transnationally in relation to the European topics under investigation. Clear transnational networks created from different national clusters and engaged in cross-national interactions are identified.

These results are of critical importance for an emergence of a transnational EPS that transcends national public spheres. There is an undeniable process of transnational Europeanization beyond national political spaces (Koopmans & Statham, 2010). The results in this article are indicative of an "optimist" model of a transnational public sphere (Michailidou & Trenz, 2013; Tarta, 2009). Twitter enables citizens to interact and engage in conversations in different countries, and in different languages. The EPT has gone one step beyond simply achieving the Europeanization of national conversations. It can therefore be concluded that the mapping of these two issue publics on Twitter constitute an example or model of a transnational EPS.

More than 50% of interactions for a majority of countries under both hashtags are cross-national. New digital technologies, in this case Twitter, open up possibilities for transnational encounters. However, the sum of the total interactions showed that national interactions accounted for two-thirds of the interactions because of the weight of some countries with high numbers of users.



The result of Hypothesis 2 contradicts previous studies. In previous studies, it is theorized that countries with higher membership support to the EU would have at the same time the highest level of transnational interactions (Risse, 2010c). The results here show that, at least on Twitter, membership support to the EU does not correlate with transnational interaction—except for Ireland. This might be explained by the sociodemographic differences between those polled by the Eurobarometer and those who are active on social media. Future research should explore this phenomenon to revise that is not necessary, for the emergence of transnational interactions about EU affairs, to be the most supportive of the EU. Especially for those active on social media. As shown here users in specific countries are more engaged transnationally. Twitter users in these countries contribute actively to the development of a transnational EPS on Twitter. This is especially significant for countries that are featured for both the Schengen and TTIP hashtags (Slovenia, Greece, and Belgium).

In terms of languages, it was expected that English would be the dominant language for these two hashtag discussions. Despite the indication in the results that English is the most widely used language, it is not the dominant language. For both hashtag discussions, English did not account for more than 50% of the total interactions. It is the most widely used language for transnational tweeting, but it is not predominant. This is an insightful finding that diverges from the traditional conception prevailing within the literature that English serves as a bridge between different language bubbles in the European public sphere, and it is used by those with a stronger attachment to Europe (Cherepnalkoski & Mozetic, 2016; Risse, 2010a).

Hypothesis 4 raises the question of whether users on Twitter are discussing the topic or merely acting as relay stations for others. The findings suggest that the level of discussions is low, with interactions comprising more of information transfer than actual conversations. The distribution of mentions and retweets indicated that the conversations followed a relay-station model, where users disseminate what they considering relevant without entering into discussions. Although the retweets indicate information dissemination rather than engagement in conversations, this result is still important because at a minimum, it shows transnational awareness: #schengen and #ttip tweets from by different European countries and different national publics circulate cross nationally, sometimes even in different languages (Ruiz-Soler et al., 2019).

Although measuring the level of deliberation and discussion was not the primary objective of this study, data used in the analysis indicated that users interacted transnationally through the use of retweets. This finding confirms that of previous studies on other topics (Benkler et al., 2015; Cherepnalkoski & Mozetic, 2016), and on the EPT (Hänska & Bauchowitz, 2018; Ruiz-Soler, 2018). It can be argued that transnational European networks rather than a functioning transnational EPS have emerged. The EPT facilitates the inclusion of nonelite actors (Ruiz-Soler, 2018) and their transnational interactions through information dissemination. However, if the number of tweets versus mentions is considered, the level of deliberation remains low.

In light of these empirical results, can the main interactions of users (retweets) on a platform such as Twitter be considered deliberative? After all, retweets function as echoes conveyed throughout Twitter networks, spreading information, content, and even action (Cherepnalkoski & Mozetic, 2016; Margetts et al., 2016; Theocharis et al., 2015). Modified retweets, such as retweets with comments, could even be

considered a second and more sophisticated type of engagement differing from basic retweets. Perhaps this type of interaction is the most that can be achieved given the existing technical capacities of Twitter, leading to the requirement of a new or different definition of a public sphere in the context of social media platforms. The quality of deliberation on Twitter, and on other social media platforms, is rapidly emerging as an important field of research (Oz, Zheng, & Chen, 2018) and is gaining prominence, especially in the European context (Eriksen & Fossum, 2018). Advocates of deliberative democracy have always hoped that the Internet would provide the means for developing an improved public sphere. But what are the particular features of a platform needed to promote deliberative debate online? Some studies have examined which particular platform features promote deliberative online debates (Esau, Fries, & Eilders, 2017). Accordingly, after the number of characters permitted per tweet was doubled, researchers observed that there is a discernible and growing orientation toward deliberation, evidenced by less casual and more analytical content, leading to healthier online discussions with less hate speech. However, concerns about the quality of political deliberation are ongoing notwithstanding these changes (Jaidka, Zhou, & Lelkes, 2018).

Following this discussion, seems pertinent to revise the very own concept of public sphere itself. In the current world of global politics, new communication technologies favor the direct participation of citizens with different and new types of engagement and deliberation. This article, with a focus in a European context, contributes to the new trend in the literature of postnational and virtual public spheres (Bennett & Pfetsch, 2018). The concept of the public sphere received revisions in the past. Perhaps it is the moment to define, with the use of the Internet, social media, and new communications tools future new meanings and concepts.

While the two data sets differed in size, they shared a similar structure, and the results obtained indicated that the characteristics of the two networks are similar. However, a comparison of networks linked to the two hashtags revealed one main difference: The TTIP appeared to generate more national-level conversations than did Schengen. The results shown in Figure 4 show an increase in the number of countries with the majority of the interactions being held nationally for the TTIP compared with Schengen. In addition, the results of the E/I index calculation confirm conclusively that Twitter users making use of the TTIP hashtag tend to interact with other users in the same countries.

The finding that more national interactions occur in relation to the TTIP compared with Schengen is surprising. This is not only because of the nature of the topic, with Schengen border control matters being expected to be of more concern to national audiences but also because the TTIP is a transatlantic topic shared with the United States. In fact, 60% of the geolocated tweets are based in the 28 EU members. The result for Schengen is very similar (62%). However, it can be argued that while Schengen is a topic that matters more to European countries, the TTIP is a concern shared with the United States, which would presumably account for a significant proportion of TTIP tweets. Consequently, the number of geolocated tweets for the TTIP hashtag in Europe would be expected to be much lower than that for the Schengen hashtag. Consequently, the similarity of the results for geolocated tweets on the TTIP and Schengen only shows that the economic treaty had a very important impact on national audiences in the member states. This is correlated as well with more diverse use of languages transnationally. Indeed, previous studies showed that the TTIP was highly contested at national levels across Europe (Caiani & Graziano, 2018; Ruiz-Soler, 2018).

### Conclusions

In this empirical study, two European issue publics of the EPT relating to the #schengen and #ttip Twitter hashtags are explored. To date, research on Twitter has focused on networks in specific countries as well as different national topics such as #sopa and #outcry (Cantijoch, Gibson, & Ward, 2014). Studies have been confined to specific territories or have relied on comparative designs that are also tied to a methodological nationalism: a framework that is exclusively oriented to the nation-state, which is too narrow to account for the interconnections created through transnational interactions. This study overcame that limitation through an exploration of the transnationality of topics of European relevance by applying network analysis to specific issue publics where users can interact directly with each other. The results showed that there are in fact transnational interactions.

The approach in this empirical study is different from the structural-functionalist approach that has been prevalent in earlier EPS research, by focusing on a communication platform (Twitter) that is already more deterritorialized than the national media investigated in previous studies of the EPS. The findings in this article not only complement those of previous studies on the EPS but they also open up avenues for future research on other digital platforms where such transnational networks may be evolving or could be boosted. However, Twitter is just one platform within an ecosystem of digital tools and social media that can be accessed through the Internet. Although Twitter has contributed to some extent to the transnational debates and conversation on European affairs, it would be a mistake to consider Twitter as the ultimate platform. It is only one platform that citizens can avail of, in conjunction with other social media tools and traditional media, to interact publicly. After all, use of Twitter is not as broad as use of other platforms such as Facebook or Instagram. Indeed, all of these platforms and media, with their various strengths and weaknesses, should be considered as part of the public sphere. In the contemporary environment entailing multiple displays (Vaccari, Chadwick, & O'Loughlin, 2015), the simultaneous use of different platforms by citizens to become informed, interact with each other, and discuss issues has become the norm.

Future studies could include non-EU European countries to enhance the networks. In this study about 60% of the interactions in the geocoded data set are within the EU. It is easy to imagine that this percentage would increase if we take other countries in the network such as Norway, Switzerland, or the Balkan countries.

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**Appendix**

From	Country to																											
	AT	BE	BU	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK
AT		73			1	110	4		7	3	44	11			1	7	2	3			47	1		2	5	3	2	92
BE	22		1		4	304	12	8	75	7	794	64	5	9	25	110	4	15	1	3	286	24	12	11	18	44	5	438
BU		20			1	13			1		49	4	2			8					8	1	6			10		18
CY		6				5					2	1				3					2			2				16
CZ	5	29	1			18			2		11	6			1	6			1		35	5		1	8	5	1	57
DE	82	409	5		11		8		67	15	505	85	1	5	24	53	7	9	2	1	367	24	18	5	43	54	2	1,111
DK	2	92	3			21			7	1	16	27			1	1				1	73	2	1		26	2	1	91
EE		17	1			1			1		2						1		2		1				4	1		16
ES	4	194	2		3	74	3	2			275	91	1	2	7	32	1	2			87	9	12	2	9	15	1	524
FI	5	69	1		1	16	1		6		8	8			2	2	2		3		48	1		1	16			88
FR	22	857	14		9	265	5	4	989	4	2,359	2	2	8	125	2	26	3	1	1,372	66	9	4	56	3,040	1	810	
GR	5	159	3		4	128	19		171	4	1,265	3		3	128	1	2	2	3	219	18	1	4	24	111		168	
HR	1	15	2			2			1		12	2		1		12					4		2		1	12		10
HU	2	35	1			19		1	8		14	1				7	1				14	3	3		1	3		52
IE	4	143	3		3	43	1		15		51	6	2	2		7				1	76	7	2		4	3	1	565
IT	13	216	2	1	3	111	1	2	18		368	302	127	12	6					3	275	10	12	4	14	44	3	305
LT		11			2				1		2								1		1				1			8
LU	2	33			1	12			2		68	5		1		4					10	1			1			27
LV	2	15			2	2			1	2	8				1		7				1	5			3			12
MT		6				1	1		1		1	1			1	5					2				1			7
NL	28	644	17		9	342	28	1	150	8	1,669	212	3	12	28	166	3	7		1	31	5	1	27	139	1	1,417	
PL		68			1	26		3	11		78	25		1	1	4	7	2	2		64		2		15	9	1	94
PT	1	57	2			32	2	1	27	1	64	6			2	6		2			29	2		1	2	4	2	81
RO	5	14	2		2	7			4		13	1	1		2	2					4	2	1		2	1	2	22
SE	3	77	7		3	46	8		16	7	65	46		4	3	3	2		6		61	9	3	2		7		344
SI	2	29			1	37	4	1	31		377	45	3	1	4	49	1				64	9	1		7		1	58
SK		30			1	4					11	3				1					6				2		1	4
UK	29	1,801	168	2	17	897	34	4	194	34	849	88	2	16	327	136	4	18	1	22	1,170	184	63	6	128	51	19	

**Figure A1. Schengen Matrix.**

From	Country to																												
	AT	BE	BU	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK	
AT		601			6	1,283	4		56	14	64	72		2	54	31					160	13			18	43	2	147	
BE	262		1	3	40	2,201	91	13	837	143	1,211	185	15	11	222	225	12	43	16	15	1,403	73	26	5	170	129	7	942	
BU	3	62				29			7	19	12	2		1	8	6					5				3	3		23	
CY	1	26			1	32	2		4		4	16			2	7					5				4	2		13	
CZ	12	122				300	1		20	3	8	23		1	17	5			1	4	38	12	1		5	16	14	63	
DE	1,203	3,062	10	6	127		116	11	927	56	836	631	12	15	426	232	2	43	3	5	2,001	190	23	24	148	391	9	1,414	
DK	4	300				208			129	15	33	85			34	6			3	2	85	3			42	20		102	
EE		19				7			1	8	4				4					2	1	3			4			10	
ES	46	2,666	1	1	13	1,350	92				23	1,714	2,446	7	20	245	225	2	21	3	1	2,427	27	86	1	171	1,155	3	1,353
FI	14	332			3	105	2	7	32		38	19		1	52	2	1		7		62	4		2	42	3	3	205	
FR	93	2,750		20	10	1,137	16		1,279	13		187	5	4	256	122			13	2	1	620	37	17	3	37	85		692
GR	142	1,125	1	8	14	1,670	29		4,243	59	580		26	1	189	839			4	5	873	106	7	5	84	281		362	
HR	5	106			4	43			6		22	2			7	18					7	5			6	4		12	
HU	16	106			3	107	3		55	2	19	2			57	14			2		31	13	1	1	3	2		53	
IE	13	521	1		4	212	5	7	102	6	110	27	6	2		19			2	2	1	143	13	4	1	9	12		801
IT	111	2,084	7	4	10	779	22	1	524	21	581	763	198	2	186				9	3	17	937	15	16	3	60	2,288	1	522
LT		12				3			1						4														3
LU		69				50	1		21	15	24	4				11					6								25
LV	1	43			1	18		4	1	4	3				3		1				5				11				9
MT		21				8			1		3	1			1	9						1					1		4
NL	226	3,388	3	2	41	3,977	74	3	3,830	33	846	460	16	6	471	702			25	2		195	35	9	176	267	5	2,022	
PL	12	273			10	180	3	1	45		105	103	1	2	38	16			3		3	199		124	4	23	30		280
PT	5	190				85			307	3	52	11	3		58	21					2	80	12			6	5	1	135
RO	8	59				37		2	32	2	10	13	4		20	10			1	5	8	9			1			33	
SE	15	586	4		4	323	29	1	372	38	116	47		3	138	36			3	8	1	319	40	2	1		11		283
SI	140	546			6	1,429	17		1,380	8	162	129	7	3	58	259			2		321	73	9	3	17			1	190
SK		39			6	21	1		38		6	4			3	4					5				4	2			5
UK	99	3,310	8		18	1,875	67	22	1,048	93	748	177	27	22	1,717	276	1	28	10	5	1,394	163	57	7	163	84	4		

Figure A2. TTIP Matrix.