European Multilevel Governance During the COVID-19 Pandemic: Timeliness, Coherence and Connectivity on Twitter [1]

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Abstract

In public health crises governance, effective communication over risk mitigation measures has been shown to move people from awareness to compliance. Amidst the COVID-19 pandemic, risk mitigation measures have largely consisted in reducing human contact by limiting international and domestic travel, and by imposing physical distancing rules. As they bear enormous social and economic costs, these measures have quickly become politically sensitive and divisive, despite their established efficacy in reducing the spread of the disease. This is especially true in a comparatively integrated system such as the European multilevel governance (MLG), where multiple layers of stakeholders share political accountability over health and economic issues. Coordinated communication is an essential element of effective MLG, in particular in times of crisis. In this paper, we ask whether political actors collectively shape an effective multilevel communication strategy about mobility restrictions during the COVID-19 pandemic. Building on a new and original dataset of over 40 000 tweets from 65 political stakeholders in Switzerland, France, the UK, the EU and the UN, we analyse the effectivity of communication by measuring the timeliness, consistency and connectivity of Tweets about mobility restrictions during the first wave of the pandemic. Using content and discourse network analysis, we find that after an initial phase of high consistency and strong connectivity between actors, the discourse around mobility restrictions becomes more politicized over time. We also find that despite a strong consistency in the message across actors, low inter-level connectivity leads to a lack of coordination across levels of governance in the communication of mobility restrictions. Our results show that this pattern of communication could exacerbate the infodemic problem by overburdening the public with information.

Keywords

COVID-19, Europe, multilevel governance, mobility restrictions, discourse analysis, network analysis

Introduction

Crises can act as magnifying glasses for existing tensions in our societies; the COVID-19 pandemic is no exception. As a transboundary crisis, the pandemic has put the conduct of multilevel governance (MLG) under unusual stress, and even more so in comparatively integrated settings such as the European Union (EU). In the EU, the pandemic presents a resistance test for mobility: whereas free movement is a core principle of EU integration, some of the most sensitive and intrusive political measures implemented to mitigate the negative effects of the pandemic are precisely restrictions imposed on mobility (from social distancing, to domestic displacements, and international travel). In the context of European integration, mobility restrictions take a particular importance, as the liberty to move freely within the EU is not only regarded as a key element of the single market, but also a pillar of political integration sustaining the development of a common sense of identity and the realisation of the idea of a European citizenship. Therefore, effective MLG in the EU hinges as much on the adoption of adequate measures as on the way these are communicated to the wider public.

The political communication about mobility restrictions thus offers a compelling framework to measure two key aspects of the MLG response to the pandemic in Europe: (a) the level of coordination actors of the European MLG are able to sustain in times of crises, and (b) the resilience of shared identity and solidarity discourses in the multilevel setting when the core issue of free movement is at stake.

In this paper we investigate how effective the European MLG of mobility restrictions is by focusing on the crisis communication of elite actors across the different levels of governance. More specifically, we look at three aspects of crisis communication: its timing (is communication early and active), its substantive consistency (is framing phased and coherent), and its connectivity (are actors forming into a communication network).

We address the effectiveness of MLG by examining communication about mobility restrictions on Twitter during the first phase of the COVID-19 pandemic. Seeking variation between EU and non-EU but closely associated European countries participating in the European free movement zone, we target governmental actors and political elites in France, Switzerland, United Kingdom, next to actors in the European Union and the UN. Linking up with the literature on effective crisis communication (i.e. Lilleker et al. 2021; Nord and Olsson 2013), we first assess the timeliness and levels of activity of actors on Twitter across phases of the crisis – from the acute phase early in 2020 to the relaxation of the first wave of measures from May to August 2020.

We then examine the consistency of the frames mobilised to justify the mobility restriction measures using claim analysis, and distinguishing between "managerial" (i.e. technocratic, issue-focused and

health-related), "political" (i.e. cost-benefit/economic and civic-duty-related) and "solidarity" frames (national, European and cosmopolitan identities). Finally, we measure the connectivity of actors in terms of their interaction on twitter and their positioning in the communication network, using network analysis. Given the interdependence among European countries in the fight against the pandemic, and in particular with regard to the regulation of international mobility, we expect that the timelier and more consistent the message, and the more connected the actors, the stronger and more operational multilevel governance is.

The analysis of a new and original dataset of over 40 000 tweets from 65 political stakeholders in Switzerland, France, the UK, the EU and the UN communicated between January and August 2020, yields mixed results on the efficiency of crisis communication in the European MLG. First, timeliness is inconsistent: after a slow start, communication picks up the pace in the acute phase of the pandemic only to recede again. This uneven pattern of diffusion is known to create pockets of information void, which risk being filled by disinformation and misinformation (Purnat et als. 2021). When it comes to framing strategies, we find variations across time and between actors: whereas the temporal evolution of framing is linked with the phasing of the crisis, ideological cleavages drive the framing distinction between actors. The latter, although signalling a functioning democracy, decreased efficiency in times of crises where a clear and consistent message contributes to quell confusion and "improve the understanding of vital information" (Eldridge et als. 2020). Finally, at the actors' network level, we report low horizontal and vertical out-group activity, meaning that networks formation is largely inward bound and national, despite repeated calls for international and European solidarity. State actors from all countries and across political parties focus mainly on the domestic networks construction and reinforcement rather than reaching out towards their international counterparts.

Overall, despite the fact that frames do cross national boundaries, specifically in actors holding similar positions in the network, the European multilevel actors' network of crisis communication lacks reactivity, and remains little connected. Over time, this leads to a multiplication of messengers and suboptimal use of scarce resources rather than to the enhancement of the cooperation necessary to efficient crisis-management strategies. Moreover, as actors systematically promote national solidarity over their European and international solidarity, we find little evidence that more integration in the European MLG system is synonymous with greater participation in the supranational discursive construction. We thus conclude that the European MLG of communication about crisis mobility during the pandemic remains uncoordinated, that is to say that despite high levels of consistency, it lacks connectivity.

The remainder of the paper is organized as follow. The next section reviews the literature on crisis communication and the governance of the COVID-19 pandemic in Europe. Drawing on this literature

we then outline the theoretical framework guiding this study by formulating a series of propositions about the efficiency of a European multilevel crisis communication network in terms of actors' messages timeliness, substantial coherence and connectivity. The third section presents our data and outlines our method of investigation for aggregated and topical networks at the actors and content levels. We discuss our results in a final section.

Crisis communication and the governance of the covid-19 pandemic in Europe

Early in 2020, the COVID-19 pandemic developed into a global public health emergency in which governments and intergovernmental organizations played a central management role. From the onset of the crisis, governments and official actors have been expected to lead in all areas relevant to the pandemic, especially with regards to communication and information dissemination ("2020 Edelman Trust Barometer" 2020). Because the resolution of the crisis largely depends on individual behavior change, the main challenge for political elites is to develop an effective communication strategy that will maximize compliance with new, unusual and unpopular rules, including the implementation (and relaxation) of mobility restrictions.

The literature about crisis communication shows that political elites must work in concert to form a cohesive response plan (Manoj and Baker 2007) aimed at processing and disseminating information required to address the disruptive situation in a timely manner (Coombs 2010; Fraustino et al. 2012). These findings are echoed in the Cambridge Environmental Research Consultants (CERC) framework adopted by the US Center for Disease Control which serves as a reference in crisis communication studies (Coman et al. 2021). According to the CERC (2018: 8) the most common pitfalls of crisis communication are incoherent messages from multiple experts and/or government representatives; untimely and asynchronous messages across these actors; and public power struggles that may manifest themselves also through the shift from more managerial, technocratic and science-led communication to a more political one, distinguishing between the winners and losers of respective measures. Another important aspect of the social psychology of crisis communication is leaders' capacity to unite their addresses in a sense of "we-ness", thereby countering partisan or ideological positions and uniting the society behind the postulated measures (Jetten et al. 2020: 25).

To address these issues, the crisis communication literature thus emphasizes the timing of communication, the importance of different substantive frames, and the connectivity of actors. This however poses additional challenges for political actors operating in a multilevel governance context and using social media.

Timeliness: the challenge of multiple and decentralized actors. Such is the magnitude and scope of the COVID-19 pandemic that multiple-scale communication efforts must be deployed simultaneously (Ansell, Boin and Keller 2010) and in a coordinated manner (Ratzan et al. 2020) to mitigate the risk of creating pockets of misinformation (WHO, 2021)[2], information void (Noar and Austin 2020), or information overload (WHO, 2021)[3]. This is especially true in the context of a global threat where multiple agencies and levels of government are involved in the response (Simon et al. 2015). Because this pandemic reaches far beyond any local geographic zone or individual state, the network of actors producing, coordinating and disseminating the information is large, heterogeneous and lack the experienced of communicating as a unit, thus creating hurdles to the production of a consistent coherent and coordinated communication strategy (Slaughter and Hale 2010). To add to the complexity, the crisis does not follow the same pattern in time, and across neighboring countries and closely interconnected territories, making it complicated to design an effective and consistent message, that also considers regional and temporal variations (Vaughan and Tinker 2009).

The European region represent a singular subset of official actors communicating about the pandemic. Despite a comparatively higher degree of regional integration, recent research has found that the coordinated response "started too late and ended too soon" to prove decisive in mitigating the spread of the virus (Goniewicz et al. 2020; Lichtenstein 2021). Others find that a complete lack of international coordination from the beginning of the crisis lead to a competition between national responses, labeled as "coronationalism" (Bouckaert et al. 2020). The EU itself has been shown as a resilient actor in face on the crisis, emerging stronger in terms of leadership (Wolff and Ladi, 2020), even though its coordinative capacity appears uneven with some institutions largely fulfilling their mandate (e.g. the European Center for Disease Prevention and Control – ECDC), while other were unable to foster cooperation between member-states (e.g. Civil Protection Mechanism) (Schmidt, 2020).

Consistency: synchronicity in the framing of the crisis. The substance of the political message is captured in the notion of "frames", understood as factual interpretations of the underlying problem and normative device for action (Rein and Schön 1991: 264, see also Entman 1993; Vliegenthart and van Zoonen, 2011). In the context of crisis communication, one can distinguish "managerial", that is strictly problems specific, technocratic and science led frames (in our context: health); from more political frames that emphasize either "responsibility" (addressing the wider political and economic cost-benefit implications of health measures and or civic duties and the rule of law) or "moral",

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[2] https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/myth-busters
[3] https://www.who.int/teams/risk-communication/infodemic-management

identity-related arguments that give contours to the sense of "we-ness" (in our case referring to national, European and cosmopolitan identities) (Nord and Olsson 2013).

The effectiveness of frames in managing crises differs across the different phases of a crisis. According to Coman et al. (2021), in the preparatory and acute phase of the crisis, it is important that leaders rally around the science-based, managerial frame in order to give a coherent and clear message, while in the normalization or relaxation phase, more diverse voices may enter the stage, using more political frames.

Connectivity: collaborative communication and diffusion. The challenge of aligning interests and coordinating discourses from very different actors is particularly prominent in the multilevel governance system; it is an issue that predates the COVID-19 pandemic (see Wodak and Weiss, 2005; Schmidt, 2008). But in the context of the pandemic, multilevel communication faces the additional challenge of instantaneity: social media and digital platforms follow the crisis in real time, and institutional actors must invest this space swiftly at the risk of losing the public's attention (Sutton et al., 2020). In the new media environment that institutional actors are called to operate in, public health policy responses on the ground and online have become increasingly simultaneous and intertwined (Abd-Alrazaq et al., 2020).

Over the last decade, the role of social media as a communication tool during crises has gained critical importance, playing coextensive role to traditional media (Kusumasari and Prabowo, 2020). Social media even supersedes written or network media as the main news provider[4-5], especially for younger generations. The COVID-19 pandemic has both contributed to accelerate this trend, and expanded the scope of actors disseminating and accessing information about the crisis online (Király et al., 2020). This is in part because social media provides an opportunity to communicate directly and in real time with the public. Social media offers the institutional actor a public platform to promote a message, rather than only a channel to report on the story. This gives governments and institutional actors more control over the narrative and enhance their legitimacy, but also promote more accountability over the policy results (Limaye et al., 2020; Song and Lee, 2015).

In sum, combined insights from the MLG approach of political interactions and crisis communication on social media, indicate that effective communication does simply arise in the face of shared threats: it demands strategic planning and political will. However, common interests in the face of a crisis can

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[4] Between 75% (France) and 82% (Switzerland) of the population use social media on a regular basis. Twitter users account from 27% (Switzerland) to 44% (UK) of Internet users (https://datareportal.com/reports/digital-2021).
[5] Half of the population get their news from social media "at least some of the time" (https://www.journalism.org/2021/01/12/news-use-across-social-media-platforms-in-2020/).

act as a catalyst for enhanced coordination, especially in high-stakes situations. Building on these insights, we now examine further discourse effectivity in the European MLG system. We do so by investigating the communication strategies of a network of European institutional actors during the first phase of the pandemic. We focus specifically on the discourse network about the most important and consequential decisions of the early stage of the pandemic: the implementation and relaxation of mobility restrictions.

A claim- and network-analytical approach to multilevel governance

Crisis communication literature has established the important role of the response network in information diffusion. It shows how the effective management of transboundary crises such as the COVID-19 pandemic calls for increased international collaboration among states and between different policy sectors (Ansell & al. 2010). This crisis management practice overlaps with the principles of MLG, in which the policy-making process extends beyond central governments to include vertical (political levels) and horizontal (policy types) networks of actors (Hooghe and Marks 2001). Whereas MLG literature suggests that coordination across levels of governance depends in part on the ability to communicate effectively across system boundaries (Lyall & Tait 2004), it falls short to examine the dynamics of interaction for coordinated communication. In this paper, we assess the effectivity of crisis communication as a key element of governance systems when it involves different types of actors from multiple layers of the international governance system. More specifically, we ask: *how effective is European MLG in times of crisis in terms of the contents and coordination of political communication?*

We define effective communication as the ability for a given group of actors to conjointly deliver a timely and consistent message. Early and continual communication efforts lessen uncertainty, while consistency ensures that people do not have to cope with an excessive amount of information. In the context of MLG, this further implies levels of coordination that translate into systemic connectivity between different levels and types of decision-makers. We conceptualize efficient communication in terms of:

1) The timeliness and synchronicity of communication across the phases of the crisis;
2) The consistency in terms of the frames mobilised to justify mobility restriction/relaxation measures. We distinguish between:
    a. "managerial" (i.e. technocratic, issue-focused and health-related),
    b. "political" (i.e. cost-benefit/economic and civic-duty-related) and
    c. "identitarian" frames (referring to national v. European v. cosmopolitan solidarity)

3) The connectivity of actors in terms of their interaction and their positioning in the communication network.

The crossing of consistency of messages with the connectivity across messengers leads us to four ideal-typical constellations of the quality of governance communication in a multilevel perspective:

Table 1: Effectivity of crisis communication in a multilevel perspective

NETWORK CONNECTIVITY SUBSTANTIVE CONSISTENCE	High (connected)	Low (unconnected)
High (consistent)	**Functioning MLG**	**Uncoordinated MLG**
Low (inconsistent)	**Disjointed MLG**	**No MLG**

In a *functioning MLG*, communication is both consistent and connected: actors not only agree on what actions need to be taken and how to justify these actions, but they also present high levels of interaction, reinforcing each other's messages by creating efficient chains of information diffusion through multiple and repeated connections. Overall, this lowers uncertainties and increases the legitimacy of the message. Conversely, if one of these two aspects is lacking, the effectivity of the system decreases. In a highly connected but inconsistent scenario, we find a *disjointed system* where actors, while keeping a high level of interactions, use different frames emphasizing opposing courses of action. This disjointed system is more conflictual and confusing and less effective. It leads citizen to "pick a side" and recreates cleavages and politicization where a coordinated health policy would demand convergence and unity.

In a consistent but unconnected model, which we refer to as *uncoordinated*, discourses largely converge, but remain parallel to one another. The multiplication of the same discourse coming from different sources is a waste of time and resources at a moment where these assets are in short supply. This can lead to information overload for populations, and overburden for messengers who must control all aspects of the communication whereas better cooperation at the systemic level would allow a more strategic distribution of communication tasks. In such distribution, the most trusted messengers could be tasked with diffusing the most sensitive information: in the case of the COVID-19 pandemic, research has found that these trusted actors are scientists, health officials and doctors (Edelman 2020). Finally, absent connectivity and consistence between actors, cooperation in crisis communication is minimal and scattered. In this "*no MLG*" scenario, we cannot speak about any significant level of MLG of the crisis communication. Rather, we observe a multiplication of actors, each reacting to the choc individually and without attempting to coordinate actions or discourses.

To determine the effectivity of MLG in the political communication of mobility restrictions during the pandemic, we perform a comparative discourse and network analysis of positions about mobility restrictions in tweets by political elites in France, Switzerland and the UK, including EU and international actors, during the first wave of the pandemic. We selected these three countries because while they all participate in some respect in the European free movement area, they differ in their degree of integration in the EU multilevel system: France is a full member-state, the UK has just left the EU – and, as an insular country, has greater control over its national borders, and Switzerland is an associated country, surrounded by EU members.

Based on the crisis communication literature, we develop three hypotheses on the timeliness of the communication, and the capacity of actors across levels and types to implement consistent and connected communication strategies. When it comes to the general MLG pattern of political communication throughout the first wave of the COVID-19 pandemic, we hypothesize that:

> (H1) Communication effectivity in the European MLG system is higher in the acute phase of the pandemic when information is scarce and actors less partisan, and lower in the subsequent normalization phase as health issues are becoming more politicized

We also expect variation between countries and types of actors. Accordingly, we hypothesize that the MLG of the Covid-19 pandemic is more efficient:

> (H2) In France as the most vertically integrated actor, and then follows a downwards path to Switzerland, and be lowest for the UK;

> (H3) In the relations between technocratic actors (i.e. the national, EU and UN heath agencies) than between governmental actors and political parties.

Research Design

To examine these propositions, we conduct a content and network analysis of a set of COVID-19 related tweets produced by political actors in the European multilevel governance system during the first wave of the pandemic. The choice of the microblogging site Twitter is motivated by the importance this social media has gained in Europe and in political crisis communication more specifically (Coman et al. 2021). Our objective is to determine whether political communication about mobility restrictions is consistent and connected across the network of actors because these factors influence compliance levels (Reddy and Gupta 2020). We measure consistency through the qualitative content analysis of tweets (timeliness and framing consistency) and connectivity by performing a network analysis of retweets, replies and mentions between actors in the European MLG.

Actors. To build our discourse and actors network, we first identify the most prominent actors in charge of designing the strategical response to the pandemic at the highest national, European and international levels in France, the United Kingdom, Switzerland, the European Union and the United Nations. We selected actors from the executive branch (heads of state and governments; interior, exterior and health ministries), the legislative branch (all major political parties), and top agencies in charge of coordinating and implementing the new mobility directives (police and border agencies as well as health agencies). Overall, we identified 65 actors across countries, levels, and types[6].

Discourse. We collected all tweets from these 65 actors for the period included between January 1st and August 31st 2020. To retrieve the tweets, we used the Twitonomy[7] analytics and management tool which we cross-referenced with the Twitter standard search application programming interface (API). Our initial search consisted of a general tweet scraping for all actors in our database. We then first identified COVID related tweets by looking for tweets that included the mentions "Corona", "Covid" or "2019-nCov". But because public health tweets about COVID-19 are designed to inform and convince, many tweets on topic do not include direct "COVID-19" reference. To capture those tweets, we further built an extensive search dictionary from the empirical data. Using this dictionary allowed us to identify a much wider number of COVID-19 related tweets (almost double the initial number), making the dataset more comprehensive.

We extracted and stored the text and metadata of the tweets using the timestamp, unique ID, number of likes, retweets and user profile information including place of origin and followers. We coded tweets both in English and French and removed all tweets in other languages from the dataset. This is especially relevant for the case of Switzerland where the same tweet often exists in German and/or Italian language. Overall, we identified 80 057 tweets for the period out of which 40 923 were marked as COVID related (51%).

Data preprocessing. This research is interested specifically in the subset of tweets that discuss mobility restrictions. So as a preparatory step for the formal coding of tweets, we first manually coded a general category for each tweet[8]: 8629 tweets (21% of the dataset) were identified as mobility related, in one of three categories of movement (international travel, domestic mobility and social distancing). As a specific preparation for the network analysis, we identified the source and target user for all tweets flagged as "retweets" and "replies". We also extracted all mentions of other twitter users in every tweet (identifiable by the use of the "@" symbol before the username), and similarly labeled both the

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[6] Annex 1 lists all actors.
[7] www.twitonomy.com
[8] See annex 2 for categories of tweets.

source and target users for each pair of actors. As a final step, we transformed our wide data into long data to accommodate the requirements of network analysis.

Data analysis. The processed tweets were each individually coded by a team of three coders. The codebook was designed to identify in each tweet (1) the actor's position about mobility (encourages enhanced mobility v. encourages the limitation of mobility) and (2) the argument they use to justify their position, what we refer to as "frames" (managerial, political or identitarian)[9]. Over three series of inter-coder's reliability tests, the coders maintained an average kappa score of 0.75 for the coding of four different objects per tweet: general category, mobility subcategory, position and frame[10].

We first look at the distribution of positions and frames through time to assess whether the political communication about mobility in the European MLG is timely and consistent with the dynamics of the crisis. We measure consistency through time by sequencing a time series of position and frames distribution across the period, which we compare with the number of new cases within our country cases.

We then measure actors' frame consistency by mapping and comparing the distribution of frames by actors across levels (national, European and international) and type (executive, legislative and top agency) for the two types of mobility measures (restriction and relaxation). Higher levels of consistency are associated with greater efficiency of the political communication in the network of actors.

Moving on to connectivity, we use network analysis to identify the intensity of relations between actors across levels and types. We extract the communication networks by analysing the retweets (RT), replies and mentions (@), and visualise them using the Gephi network analysis software. We use a directed network to represent the information flow between each pair of actors retweeted or mentioned, where the weighted edges between two actors represents the number of times they reference (RT or @) each other. The sender ("source") is said to have appropriated the message (RT) or included another user ("target") in the conversation (@). To determine the connectivity of the network, we look at the relations between the 65 institutional actors, in-group and cross-group. Higher vertical connectivity (between levels) suggests more coordination within the MLG network. Once again, more connectivity is associated with greater efficiency of political communication in the network.

Results and discussion

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[9] List of frames in annex 2.
[10] Detailed kappa results in annex 3.

We submitted that communication efficiency reaches a peak early in the pandemic, before politicization of the issue takes over. The urgent nature of the crisis forces the actors into reacting with a limited, but forceful number of recommendations in order to deal with the most pressing issue of protecting the population against the new threat. Then, after this "honeymoon" phase where political decision-makers from all side converge on the course of action, and as new decisions bring more negative socio-economic impacts, communication become more conflictual as we enter a phase of politicization of the pandemic measures.

Looking at the data, we do see a clear temporal pattern emerge when it comes to the promotion of mobility restrictions. Figure 1 show the distribution of support (n = 4570) and opposition (n = 4060) across time, and its consistency with the cycle of increase – decrease – increase of new cases across the period. We find a significant peak of support for mobility restrictions around mid-March when the cases are rising and lockdowns are announced across our cases (March 12th for Switzerland, 13th for France and 24th for the UK). Then, we find support turning towards the relaxation of the measures as the peak of cases passes. However, this second phase is not so straightforward and from early May until the end of the period, the positions are almost equally distributed between support for keeping restrictions in place, and support for relaxing these restrictions. This mixed-message configuration shows important division and potential conflict within the network about how to move forward during the normalization phase. It can also create confusion among the population over which behavior to adopt as the peak of the crisis is passing. Overall, as expected by H1, we find a pattern of early rally, followed by a polarization of position, with no clear guidance emerging until the end of the period.

Importantly, political elites fail to increase communication levels at the start of the second wave of the pandemic which took off at the end of July. In fact, they maintained the low level of communication of the normalization phase even though infections were starting to peak again. In terms of timeliness, this means that they were already a step behind when the second round of lockdowns hit in the fall of 2020.

Figure 1: Evolution of support for mobility restrictions and new cases per week (CH-FR-UK)
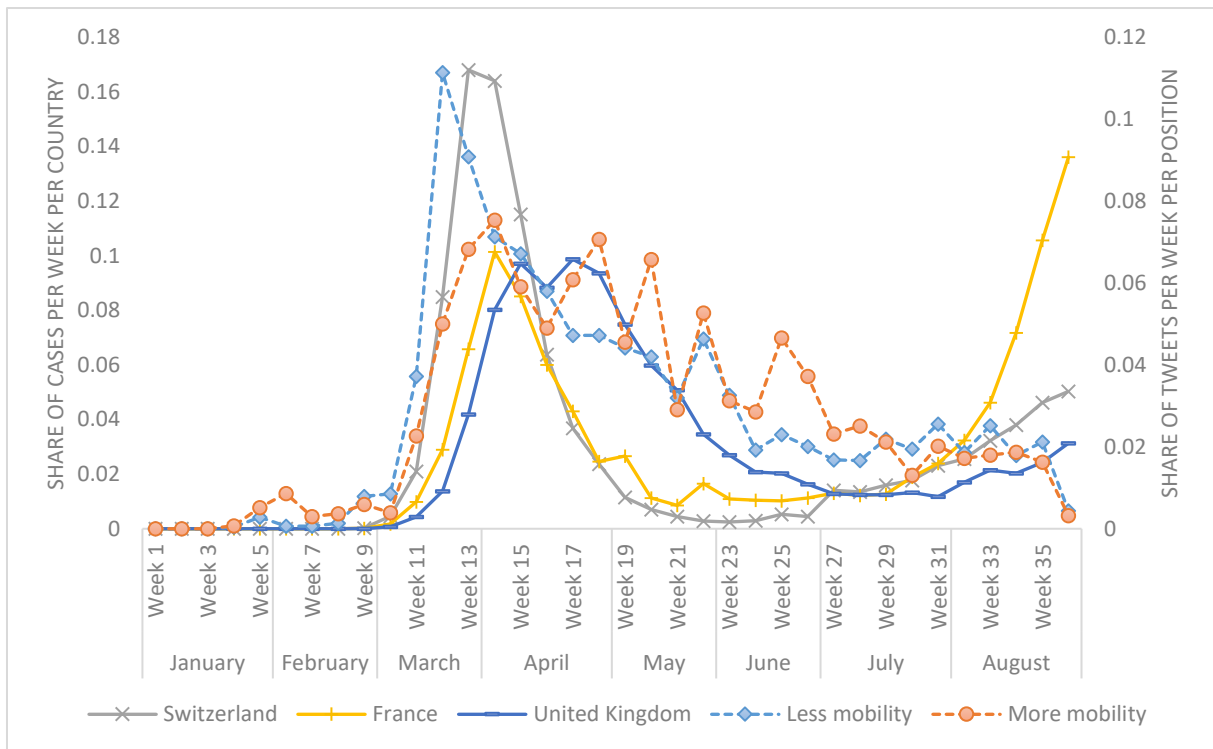
Looking further at connectivity patterns, we find a similar distribution of early strong connectedness between actors followed by a sharp decrease in interactions as the period progresses (n = 2778). To be the most effective, communication at the network level must be timely, sequenced and active. In the European MLG network of political communication over mobility restrictions during the pandemic, we find a strong initial response by the actors, coupled with good interaction and a coherent position. However, we also observe that that pass the peak, all "unity" indicators tend to drop. Overall, the network shows more conflict over measures and less activity as the crisis unfolds, which is in line with our first hypothesis.

Figure 2: Number of connections between actors in the network per week (RT and @)


13
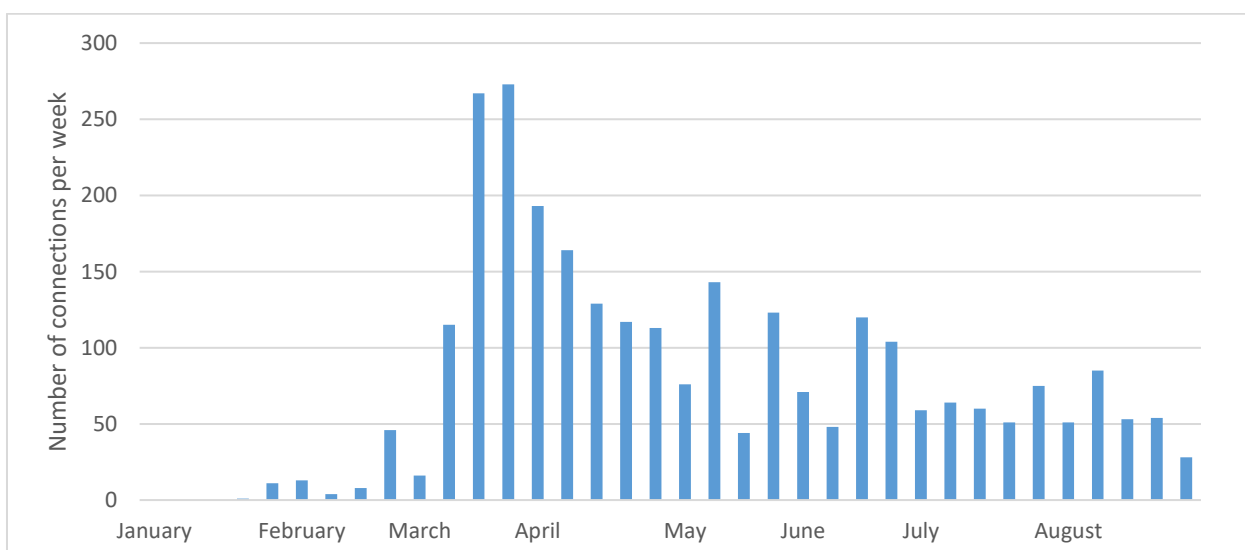
Vertical network: consistence and connectivity across levels

We contend that effectivity varies across actors: the more actors are integrated in the European MLG, the more consistent and connected their communication should be with the rest of the network. To test for consistency, we compare the distribution of frames supporting mobility restriction/relaxation for each actor. The more actors use a similar distribution of frame, the more consistent they are with each other. Vertical cohesion indicates effective communication across levels of governance. Horizontal cohesion points to a disconnect between levels, where actors' discourses run parallel rather than reverberate and strengthen each other.

Looking at the distribution of frames between actors (which frames actors use to justify their position), we find many similarities between all actors in our network. The two most used frames for all actors are health protection and solidarity. The latter also vary according to the level: countries have a majority of national solidarity frames, the EU presents more European solidarity frames, and the UN's identity frames use is dominated by international solidarity frames. This variation is nevertheless consistent with the actor's level: each actor puts forward its own version of identity and solidarity, but the principle remains the same.

In terms of MLG, however, these findings also show the predominance of national frames of belonging over European and international ones. In the context of measuring limitations of mobility and the freedom of movement in Europe, the weakness of European solidarity frames both in the messages supporting and those relaxing mobility measures corroborates the predominance of the national of the national sense of belonging across countries' political elites. While this finding applies to all three countries, it is interesting to note that Switzerland's political elites, despite freedom of movement being strongly politicized domestically, mobilize the frame of European solidarity more frequently than France, which, according to our expectations, as a full EU member state should be the most Europeanized one in terms of MLG. At the same time, Swiss political elites emphasize much more often the national solidarity frame, whereas French elites tend to privilege more neutral political frames of civic duty.

Figure 3: Distribution of frames by actors
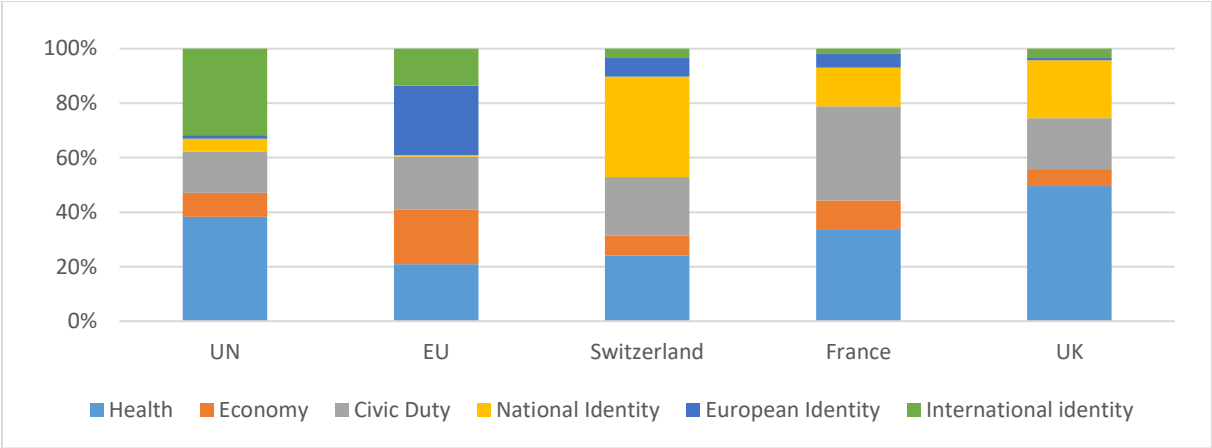
The second variable used to study effective governance is the network connectivity, which we test by investigating the structure of actors' interactions on the issue of mobility. We do so by looking at the modularity of the network, which is a measure of the strength of division of a network into communities. A network with high modularity has dense connections between actors within communities, but sparse connections between actors in different communities.

Figure 4 shows the network modularity for the totality of actors in our network. The nodes represent the actors: their size shows their degree centrality (overall importance in the network) and their color illustrate the community to which they belong. The edges are weighted according to the frequency of connection between actors, and they are colored according to the source of the connection. The overall modularity score of the network is high at 0.712 (on a scale from 0 to 1). This indicates that communities are strongly connected inwards but scarcely connected between each other. The main component of the network is made out of 5 communities almost perfectly intersecting with our cases (UN, EU, CH, F and UK). In this network, outwards connections only make up 2% of the network (62 out of 2840 links). The most connected cases are the UN and the EU (42 links). On the other hand, three pairs of cases are not connected at all (CH-UN; FR-UK and EU-UK).

Figure 4: Modularity in the discourse COVID-19 mobility network
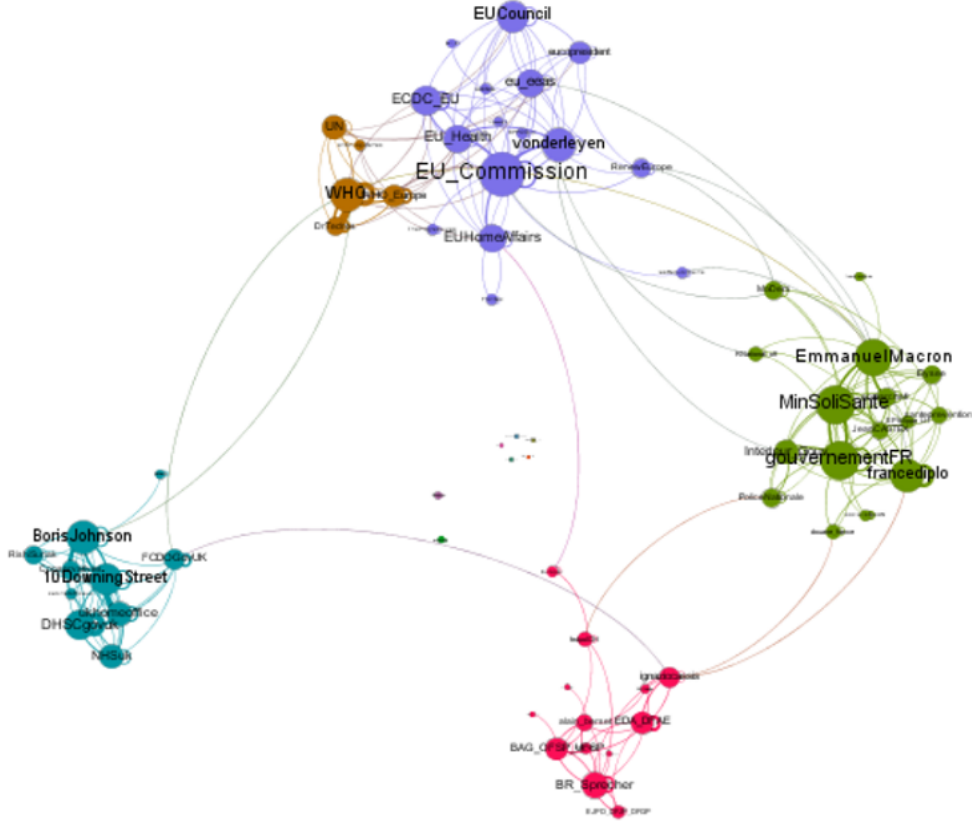
In terms of MLG, these findings show very weak connections between the different levels of governance. This is true across all actors, so we don't find a significant variation between countries despite different levels of supranational integration. France, the most europeanised country in our sample – counts only 6 outside connections (4 towards the EU) on a total of 704, which is equally weak both vertically and horizontally as Switzerland (7 out of 219) and the UK (1 out of 852).

Our findings on vertical efficiency of the European MLG are mitigated: whereas inter-level substantial coherence is quite strong, inter-level connectivity is extremely low, even for parties which share high institutional and political integration such as France and the EU. Our findings suggest an uncoordinated vertical MLG, where similar discourses run parallel to each other, wasting the messenger's resources and burdening citizen with excessive information.

Horizontal network: consistency and connectivity across types

Our third hypothesis suggest that MLG of crisis communication is more efficient in the relations between technocratic actors – i.e. the national, EU and UN heath agencies, than between governmental actors and political parties. The disaggregation of the data across different types of actors at the three level of governance confirms this hypothesis. When it comes to consistency, and perhaps not surprisingly, technocratic actors – the health agencies – are the most consistent in their communication, and almost exclusively use the managerial frame (Table 2). Government leaders also

show a relatively strong attachment to the managerial frame (Table 3), but include a much more identitarian discourse as well. Legislative actors however, show more divergence across countries and political families, and the discourse is less concentrated around health (27% of the time, compared to 32% for heads of state and 60% for health agencies (Table 4).

Table 2: Health agencies

	Health protection	Economic costs	Civic duty	National solidarity	European solidarity	Inter. solidarity	N
@WHO	0.51	0.08	0.03	0.07	0.00	0.31	291
@WHO_ Europe	0.48	0.04	0.06	0.07	0.1	0.25	108
@ECDC_EU	0.59	0.09	0.11	0.01	0.19	0.00	88
@BAG_OFSP_ UFSP	0.54	0.02	0.42	0.02	0.00	0.00	50
@Sante prevention	0.68	0.00	0.20	0.12	0.00	0.00	25
@NHSuk	0.79	0.01	0.13	0.08	0.00	0.00	266

**highlighted cells represent the highest share of frame for each actor

Table 3: Head of state/government

	Health protection	Economic costs	Civic duty	National solidarity	European solidarity	Inter. solidarity	N
@vonderleyen	0.30	0.23	0.03	0.00	0.33	0.11	64
@euco president	0.07	0.27	0.07	0.00	0.27	0.33	15
@BR_Sprecher	0.41	0.19	0.24	0.11	0.03	0.02	63
@Emmanuel Macron	0.30	0.02	0.20	0.35	0.10	0.03	60
@BorisJohnson	0.53	0.08	0.32	0.07	0.00	0.00	173

Table 4: Political Parties

Party	Health protection	Economic costs	Civic duty	National solidarity	European solidarity	Inter. solidarity	N
@MoDem	0.32	0.14	0.18	0.28	0.08	0.01	79
@EPPGroup	0.10	0.43	0.03	0.03	0.35	0.05	60
@Conservatives	0.53	0.11	0.20	0.16	0.00	0.00	238
@lesRepublicains	0.40	0.31	0.15	0.12	0.02	0.00	121
@FranceInsoumise	0.37	0.14	0.07	0.32	0.02	0.08	122
@GUENGL	0.11	0.17	0.17	0.03	0.31	0.63	35
@RNational_off	0.36	0.15	0.15	0.31	0.04	0.00	193
@UDCch	0.24	0.28	0.04	0.44	0.00	0.00	25
@GreensEFA	0.07	0.05	0.12	0.02	0.37	0.37	41

@enmarchefr	0.39	0.09	0.22	0.24	0.05	0.02	271
@LibDems	0.33	0.10	0.09	0.20	0.02	0.26	152
@RenewEurope	0.09	0.38	0.13	0.04	0.30	0.07	56
@PLR_Suisse	0.15	0.20	0.15	0.20	0.25	0.05	20
@socialistesAN	0.29	0.27	0.13	0.25	0.03	0.02	91
@UKLabour	0.50	0.16	0.10	0.19	0.00	0.04	68
@TheProgressives	0.13	0.28	0.07	0.02	0.24	0.26	46

When it comes to connectivity between actors of the same type across levels, we find a higher proportion of outreach from health agencies than both other types of actors. Health agencies cross national and organizational lines almost 20% of the time by connecting with other health agencies (40 connections out of 248 in total). The closer the agency, the stronger the connection: while the WHO, WHO_Europe and ECDC_EU share most of the connections, the other agencies remain largely outside of the network. The situation in even worse among heads of the executive (4 connections between Ursula von der Leyen and Charles Michel) and political parties (only 2 connections overall between the Modem and Renew Europe). This complete lack of connectivity is surprising because many of these actors share ideological positions and could use the reinforcement of other similar actors to push their agenda across Europe. This is especially true when such obvious bridges exist between national and European (or Europeanist) parties.

Figure 5: Number of connections with other actors of the same type, by health agency
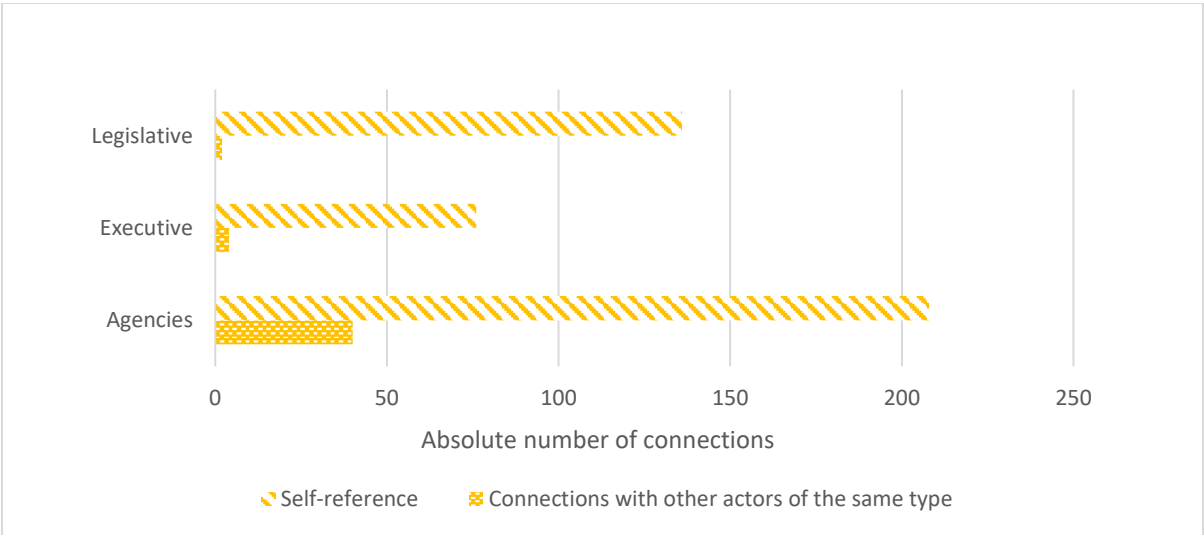
As expected by hypothesis 3, the more consistent and connected actors are the non-political, institutional health agencies. But if they are strongly convergent in their discourses almost entirely centered around health protection framing, they remain comparatively modestly connected between

themselves across levels. The only exception is when there is an actor who can provide an institutional bridge between two agencies, such as the WHO_Europe for the UN and the EU.

Conclusion

Two central findings flow from this analysis of political elites' communication via the social media platform twitter during the first wave of the Covid 19 pandemic in Europe.

Firstly, political elites from the executive and legislative branch and across levels of governance have converged in a highly managerial framing of the mobility restrictions imposed to counter the pandemic. The main argument invoked to justify both restrictions and relaxations is health protection. This provides for a strong degree of consistency, which, from the point of view of crisis communication, is seen as conducive to effective political responses. The crossing of political communication data with infection rates also show that this political communication occurred in a relatively timely manner in the acute phase of the first wave of the pandemic. However, this timeliness decreases over time and political elites have failed to anticipate the onset of the second wave starting in July 2020.

The relatively high consistency focused on the managerial health frame is stronger for health agencies and heads of government than for political parties, but still also the latter have overall stuck to this framing, thereby providing for a relatively low level of politicization. Beyond health, the second most popular frame used in the political communication are arguments related to political community and solidarity, i.e. the identity frames. In this regard, we find more variation across our levels of analysis. From the perspective of MLG in Europe, our findings corroborate what other scholars studying policy-making during the pandemic have coined "coronationalism" (Bouckaert et al. 2020). When it comes to identity frames, in all three countries it is the national community that serves as primary reference. Although the tweets analysed in this paper focus on mobility restrictions which, in so-far as they concern national borders, imply also a major blow for the key principle of freedom of movement in the European Union, French political elites are not more "European" when referring to political community and solidarity than their Swiss and UK counterparts. The European identity frame only prevails in the political communication of the EU actors, while the European Council President Michel shows also a strong sense of international solidarity which is otherwise only shared by UN actors.

Secondly, the relatively strong discursive consistency around the managerial health frame is not matched by our additional measure of effective MLG, actor connectivity. Overall, we find very little connectivity between actors outside of their respective level or type. National actors concentrate on their domestic network and they don't use international or European platforms to boost their messages. The same is also true the other way around: European actors do not seek to penetrate the national discourse in member-states or associated states. Even the international sphere, which

comprises of the sum of national actors seems uninterested in bridging the different levels of governance, despite repeated calls to solidarity. In other words, consistency of the discourse does not translate into practices of cooperation in the communication strategy.

Interaction is also limited between types of actors, that is to say political parties, agencies and heads of states. Actors do not make the somewhat easy step of connecting together on social media, despite ideological closeness, shared goals and plenty of potential influence to tap in. Again, this shows that national actors don't see the gains in fostering connectivity at the European and international level. This could explain some of the lateness in reacting to the common threat at the beginning of the pandemic, or even failures to implement supranational policies (early regulation of mobility in the Schengen space for example). Of course, twitter is not the sole platform where these actors may create interactions.

But in a crisis that is simultaneously unfolding online and on the ground, this lack of connectivity on one of the most popular social media platforms across the world presents as a failed opportunity to use technological tools to foster multilevel governance and devise a comprehensive crisis communication strategy, which could go a long way in improving health outcomes.

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ANNEX 1: LIST OF ACTORS

ID	Level	Type	Name	Twitter account
1	EU	Agency	FRONTEX	@Frontex
2	EU	Executive	EU External Action Service	@eu_eeas
3	EU	Executive	DG Health and Food Safety	@EU_Health
4	EU	Executive	DG Migration and Home Affairs	@EUHomeAffairs
5	EU	Executive	European Commission	@EU_Commission
6	EU	Executive	EU Council	@EUCouncil
7	EU	Agency	EUROPOL	@Europol
8	EU	Legislative	European Conservatives and reformists Group	@ecrgroup
9	EU	Legislative	European's People Party	@EPPGroup
10	EU	Legislative	Group of the Greens/European free alliance	@GreensEFA
11	EU	Legislative	Confederal Group of the European United Left - Nordic Green Left	@GUENGL
12	EU	Legislative	Renew Europe Group	@RenewEurope
13	EU	Legislative	Group of the Progressive Alliance of Socialists and Democrats in the European Parliament	@TheProgressives
14	EU	Executive	Charles Michel	@eucopresident
15	EU	Executive	Ursula von der Leyen	@vonderleyen
16	EU	Agency	EU Centre for Disease Prevention and Control	@ECDC_EU
17	FR	Agency	Direction générale des douanes et droits Indirects	@douane_france
18	FR	Executive	Ministère de l'Europe et des Affaires Etrangères	@francediplo
19	FR	Executive	Gouvernement de France	@gouvernementFR
20	FR	Executive	Ministère des Solidarités et de la Santé	@MinSoliSante
21	FR	Executive	Ministère de l'intérieur	@Interieur_Gouv
22	FR	Agency	Police Nationale	@PoliceNationale
23	FR	Legislative	En Marche	@enmarchefr
24	FR	Legislative	France Insoumise	@FranceInsoumise
25	FR	Legislative	Les Républicains	@lesRepublicains
26	FR	Legislative	Modem	@MoDem
27	FR	Legislative	Rassemblement National	@RNational_off
28	FR	Legislative	Socialistes et Apparentés	@socialistesAN
29	FR	Executive	Emmanuel Macron Compte de la Présidence	@Elysee
30	FR	Executive	Emmanuel Macron	@EmmanuelMacron
31	FR	Executive	Jean Castex	@JeanCASTEX
32	FR	Executive	Edouard Philippe	@EPhilippe_LH
33	FR	Agency	Santé Publique France	@santeprevention
34	CH	Executive	Département Fédéral des Affaires Etrangères	@EDA_DFAE
35	CH	Executive	Ignazio Cassis	@ignaziocassis
36	CH	Executive	Conseil Fédéral - André Simonazzi (Porte parole)	@BR_Sprecher
37	CH	Executive	Alain Berset	@alain_berset
38	CH	Executive	Département Fédéral de l'Intérieur	@EDI_DFI
39	CH	Executive	Département Fédéral de la Justice et de la Police	@EJPD_DFJP_DFGP
40	CH	Agency	Office fédéral de la Police	@fedpolCH
41	CH	Legislative	CVP-PDC	@CVP_PDC
42	CH	Legislative	Les Verts Suisse	@LesVertsSuisses
43	CH	Legislative	PLR Suisse	@PLR_Suisse

44	CH	Legislative	PS Suisse		@PSSuisse
45	CH	Legislative	UDC Suisse		@UDCch
46	CH	Legislative	Vert Libéraux		@vertliberaux
47	CH	Executive	Simonetta Sommaruga		@s_sommaruga
48	CH	Agency	Office Fédéral de la Santé Publique		@BAG_OFSP_UFSP
49	UK	Executive	Rishi Sunak		@RishiSunak
50	UK	Executive	Foreign, Commonwealth and development office		@FCDOGovUK
51	UK	Executive	Department of Health and Social Care		@DHSCgovuk
52	UK	Executive	Home Office		@ukhomeoffice
53	UK	Legislative	Brexit Party		@brexitparty_uk
54	UK	Legislative	Conservative and Unionist Party		@Conservatives
55	UK	Legislative	Liberal Democrats		@LibDems
56	UK	Legislative	Labour Party		@UKLabour
57	UK	Executive	Boris Johnson Office		@10DowningStreet
58	UK	Executive	Boris Johnson		@BorisJohnson
59	UK	Executive	Cabinet Office		@cabinetofficeuk
60	UK	Agency	National Health Service (NHS)		@NHSuk
61	UN	Executive	United Nations		@UN
62	UN	Agency	World Health Organization		@WHO
63	UN	Agency	Tedros Adhanom Ghebreyesus		@DrTedros
64	UN	Agency	World Health Organization Europe Regional Office		@WHO_Europe
65	UN	Executive	Antonio Guterres		@antonioguterres

ANNEX 2: LIST OF CATEGORIES AND FRAMES WITH FREQUENCIES

a) Categories

Category	Count	Percentage
Mobility	8631	21%
Health	10278	25%
Economy	5588	14%
Democracy	7607	19%
Society	7641	19%
Education	680	2%
Environment	394	1%
Total	40923	

b) Frames

Type	Frame	Content	Count	Percentage
Managerial	Pragmatic	Health protection	3624	42%
Political	Utilitarian	Economic costs	842	10%
	Normative	Civic duty	1459	17%
Identitarian	Communitarian	National solidarity	1530	18%
	European	European solidarity	554	6%
	Cosmopolitan	International solidarity	620	7%
		Total	8629	

ANNEX 3: Kappa results

Type of coding	Kappa
Categories	*0.65667*
Subcategories	*0.89667*
Position	*0.79667*
Framing	*0.63*
Average Kappa	**0.745**

Number of coders: 3
N = 716 tweets