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Issue segmentation by public agencies: Assessing communication strategies of EU agencies related to Covid-19

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Abstract

An agency's self-portrayal can help to protect its jurisdictional turf and strengthen its reputational uniqueness. While prior reputational studies have shown that agencies are attentive to the media and political principals, they have not assessed how inter-agency dynamics might shape their public outreach and message. This paper argues that if multiple public agencies are confronted with a shared salient issue, such as the Covid-19 pandemic, they engage in 'issue segmentation': mindful of each other's distinct jurisdictional and reputational profiles, their communication centers around sub-issues that do not overlap with core missions of other agencies. We assess this expectation via a study of Twitter communication of 38 European Union agencies related to Covid-19. Using an automated thematic analysis of tweets, we show that agencies engage in issue segmentation and focus on unique sub-issues. The findings contribute to a better understanding of public outreach of agencies in times of crisis.

1 | INTRODUCTION

Reputational uniqueness has been shown to ensure the long-term survival of political organizations (Gilad & Yogev, 2012) and can assist them to secure political and public support, ensure additional resources or to expand their policy competencies and task portfolios (Carpenter, 2014;

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Gilad et al., 2015). Being seen as unique is particularly difficult for public agencies in the European Union. In the EU regulatory state (Majone, 1997), the public agency landscape is dense and competitive. Individual agencies must be mindful of other agencies when they communicate to avoid competing for similar reputational features or policy responsibilities with other adjacent agencies and to protect their own mandated authorities (henceforth ‘jurisdictional turf’; Wilson, 1989). While we know that public agencies strive for reputational uniqueness and protect their jurisdictional turf, we lack deeper knowledge of how they do so (but for a notable exception, see Busuioc, 2016). Given that scholars have shown that agencies use strategic communication as a reputation management tool (Maor, 2020), it can be expected that they also use communication to establish reputational uniqueness. Therefore, this article asks the following question: *How do public agencies maintain reputational uniqueness and protect their jurisdictional turf via means of public communication?*

Departing from earlier findings in from the bureaucratic reputation literature (and its predecessors) we expect that agencies use a strategy that we call “issue segmentation” to establish their reputational uniqueness and protect their jurisdictional turf (Busuioc, 2016; based on arguments from Macchiarola & Wilson, 1990). This implies that agencies will embrace opportunities to highlight the unique ways in which they can contribute to the public good. When they are faced with encompassing policy issues, we expect individual agencies to identify specific sub-issues that closely align with their core competencies. These sub-issues are chosen in a way that avoids overlap and conflict with other agencies’ reputational profiles. We theorize that agencies use these strategies to protect their own jurisdictional turf, to establish their unique reputational profiles, and to signal competence and expertise to their respective (often specialized) target audiences. At the same time, we acknowledge the complexity of this exercise. Public organizations, like agencies, face difficulties to satisfy all subgroups within their audiences with a single narrative—after all, any agency’s audience is not a homogeneous group but rather composed of many subgroups with varying interests and preferences (Maibach et al., 2011; Müller & Braun, 2021; Slater, 2013; Slater & Flora, 1991). While applying issue segmentation and clear messaging has important benefits, these diverse audiences might at times also result in mixed messages, or cause agencies to focus on similar issues that are (to a lesser extent) unique to them—a behavior that we would call issue convergence.

To study the research question, we chose to empirically investigate how European Union agencies communicated during the Covid-19 pandemic. The pandemic presents the greatest public health threat in modern history and stalled public life in most parts of the world and resulted in humanitarian and economic crises. Public communication by governmental bodies has proven to be particularly important, as fighting the disease requires behavioral changes and compliance by the citizens (e.g., mask-wearing, willingness to be vaccinated). The Covid-19 pandemic provides a unique case, as it is a highly salient, extraordinarily complex, and cross-regulatory issue (henceforth we will refer to these kinds of issues as ‘encompassing issues’). Given the importance of cross-continental coordination during the pandemic, EU agencies quickly found themselves in the spotlight of the public discussion. At the same time, all European agencies were affected by the pandemic, as it had important financial, economic, health, and humanitarian implications. With policy responsibilities that are often closely related, European agencies found themselves in a difficult situation. If they managed to represent their organizations’ capabilities and knowledge in a good light, they would be able to secure public and political support. In contrast, if they could not show that they can deliver unique contributions to the presented policy challenges, they could risk major reputational damage. If issues segmentation can be observed—as suggested by

the bureaucratic reputation literature— we are most likely to observe it for this case, as the situation requires action and public communication of many agencies at once.

Using an extensive dataset of the communication output of 38 EU public agencies regarding the Covid-19 pandemic on the social media platform Twitter, we show how agencies strategically choose to prioritize niche dimensions of a salient issue to capture and satisfy niche audiences they care about. In this way, they establish unique ‘niche monopolies’ regarding the Covid-19 pandemic, which are closely related to their core responsibility and tend not to overlap with the niches of other agencies. At the same time, some common themes that relate to morality, appear across agencies.

This research contributes to existing bureaucratic reputation literature in important ways. When studying reputational communication patterns, it is important to consider how agencies respond to other agencies or anticipate their behavior and communication. In doing so, this research complements earlier work focused on reputational responses regarding threats or reputational dimensions in everyday communication (Gilad et al., 2015; Maor et al., 2013; Rimkutė, 2018; van der Veer, 2021). In addition, most of the bureaucratic reputation literature observes strategic communication of regulatory agencies via their audiences (Boon & Wynen, 2017), or the news (Boon et al., 2019; Gilad et al., 2015; Müller & Braun, 2021). This research adds another component to this communicational interaction, by stipulating those individual agencies are also mindful of *other agencies* when crafting strategic public responses.

Furthermore, adopting a multi-agency focus allows us to test earlier findings from (mostly) single or small *n* case studies. While these approaches are highly insightful to clarify the mechanism behind the establishment of bureaucratic reputation, it is valuable to examine these findings more systematically (Salomonsen et al., 2021). Our study uses a comparative design of 38 public agencies in the EU and is based on 1251 agency tweets about the COVID pandemic, allowing us to observe communication about the same topic across several organizations.

The following theoretical section will present existing knowledge on how public organizations establish and maintain their reputational uniqueness (Carpenter, 2020) and protect their jurisdictional turf (Macchiarola & Wilson, 1990) and, secondly, how they use strategic communication to do so (Maor, 2020). Subsequently, we will present case expectations that relate to the idea of issue segmentation before presenting the empirical investigation of this research and discussing the key findings and implications of our study.

2 | REPUTATIONAL UNIQUENESS AND JURISDICTIONAL TURF

Reputation-based explanations have helped to understand a multitude of aspects relating to public agency behavior. Originally thought to explain bureaucratic behavior that aimed at forging organizational autonomy (Carpenter, 2020; Maor, 2020), it has since been used to explain—amongst others—internal coordination of regulators (Blom-Hansen & Finke, 2020), rule enforcement (Maor & Sulitzeanu-Kenan, 2013; van der Veer, 2021), prioritization of tasks (Carpenter, 2002), and the strategic use of communication (Gilad et al., 2015; Maor et al., 2013). A reputational perspective is based on the idea that it matters how an organization presents itself and how that actor is perceived by external audiences (based on seminal work by Goffman, 1959). The sum of self-portrayal and external perception is called reputation and is commonly defined as “a set of symbolic beliefs about the unique or separable capacities, roles, and obligations of an organization, where these beliefs are embedded in audience networks” (Carpenter, 2014). By responding to expectations from an agency’s audience, it can cultivate and shape a unique and distinct reputation. That reputation is the organization’s “primary source of power, which can allow it to

enlist support, build its autonomy, protect it from external attacks and ultimately help ensure its survival” (Busuioc, 2016; Carpenter, 2014, 2020).

Following this line of research, two concepts are particularly relevant to understand in the context of issue segmentation: reputational uniqueness and jurisdictional turf. Public agencies strive for “reputational uniqueness” (Carpenter, 2020, p. 5), which enables these organizations to support their claims of making unique contributions to society and becomes their *raison d'être*, in other words, their long-term survival strategy (Gilad & Yogev, 2012; Maor et al., 2013). More specifically, reputational uniqueness “[...] refers to the demonstration by agencies that they can create solutions (e.g., expertise, efficiency) and provide services (e.g., moral protection) found nowhere else in the polity” (Maor, 2010, p. 138). In consequence, reputational-aware organizations seek ‘niche roles’ (Busuioc & Lodge, 2016 refer to it as “niche monopolies”) that are distinct from that of other agencies in their environment (Gilad & Yogev, 2012). They also resist tasks that are outside their constructed domain (i.e., the task they were founded to fulfill) to limit the chance of competition and potential losses (Gilad, 2008; Macchiarola & Wilson, 1990). They only seek new roles if the responsibilities fall strictly within their constructed domain and when not claiming jurisdiction would undermine their reputation—and seen as a sign of weakness (Maor, 2010). In other words, organizations seek to capture niche monopolies and avoid interdependent and competitive areas at these imply reputational risks.

How do organizations establish reputational uniqueness? To address this question, we build on earlier work that has connected reputational considerations to Wilson's notion of jurisdictional ‘turf’ (Busuioc, 2016; Macchiarola & Wilson, 1990). Turf, in this context, is understood as an agency's distinctive jurisdiction (or mission) (Macchiarola & Wilson, 1990, p. 182) or ‘regulatory dominion’ (Maor, 2010, p. 136). Jurisdictional turf and reputation uniqueness are complementary concepts, as one (jurisdictional turf) is required to accomplish the other (reputation uniqueness). In other words, agencies need to claim certain regulatory responsibilities to show to the relevant audiences that they are capable regulators in these specific fields. Claiming regulatory responsibilities can be complicated, particularly when facing complex policy issues. When a new complex policy issue arises, individual agency jurisdictions are often not clearly defined and might overlap. If two agencies claim similar areas of regulation, they might have to spend additional resources to compete with their opponents. They may not have the expertise or capacity to carry out new tasks or they might lose the competition with other agencies claiming similar responsibilities. Therefore, the concept of reputational uniqueness assumes that regulators are aware of jurisdictional overlap with other agencies and “strategically anticipate jurisdictional battles with rival regulators” (Maor, 2010, p. 138). Given that regulators are generally risk-averse, they will avoid making jurisdictional claims if doing so would create new political or organizational adversaries. Furthermore, they are highly protective of their own turf, as this is essential for their reputational uniqueness and long-term survival (Baldwin et al., 2015, p. 368; Macchiarola & Wilson, 1990).

Considering key insights and findings from previous work on reputational uniqueness and jurisdictional turf and translating these assumptions to the realm of public communication, we assume that regulators will engage in ‘issue segmentation’ when they face an encompassing policy issue. Issue segmentation can be understood as the practice of dissecting a broad issue into multiple sub-issues and claiming the ones that best advance one's own reputation. Encompassing issues usually touch upon various regulatory fields, and even within each regulatory field, the distribution of responsibilities among specialized regulatory organizations might not always be clear or overlap. Therefore, we would expect individual agencies to split encompassing policy issues up into sub-issues that they can convincingly claim.

Following our logic, issue segmentation comes with multiple advantages for each individual agency involved in an encompassing policy issue. Firstly, it is a much more manageable task for an agency to convincingly display expertise regarding a sub-issue compared to the overall policy issue. Secondly, issue segmentation allows agencies to avoid direct conflict with each other by competing for similar regulatory responsibilities. Lastly, by carefully communicating about a set of sub-issues, public organizations can craft a unique public reputational profile that is different from the profile of similar organizations.

While issue segmentation has not been specifically discussed in prior research, agencies have been shown to engage in audience segmentation strategies (originating from health communication and first mentioned in the context of bureaucratic reputation by Maor (2020)). These strategies are meant to divide their audiences into meaningful groups based on what the agencies want to accomplish (Slater, 2013). These audience segmentation strategies can be based on either audience characteristics (e.g., sociodemographic attributes, closeness to political principals) or issue characteristics (e.g., what issue to focus on), or a mix of both (Grunig, 1989; Kim et al., 2011; Slater, 2013). Audience segmentation strategies become particularly important if multiple agencies compete for similar responsibilities. In this case, communication signals are likely tailored so that two agencies do not compete for similar audiences to avoid potential defeats—that is, losing responsibilities or losing audiences (Maor, 2020).

At the same time, issue segmentation is not the only pattern that might occur. Rather than focusing on distinct issues, the public communication efforts of various EU public agencies might overlap and concentrate on similar issues—this could be called issue convergence. From a pragmatic point of view, issue convergence could signal the unity of EU institutions during challenging times and further instill trust in the European population that any EU actions are well coordinated. Secondly, previous studies of the communication of individual agencies suggest that agencies seek to use external shocks to strategically expand their mission or policy responsibilities (Gilad et al., 2015; Müller & Braun, 2021). This view is often supported by neofunctionalist explanations of crisis moments as possibilities for agencies rather than pure threats (Bergmann, 2019), and confirmed by work on “bureaucratic drift” (Calvert et al., 1989; McCubbins et al., 1987). If all agencies would attempt to expand their mandates at the same time, as they, for instance, are (almost) all directly or indirectly affected by an emerging encompassing issue, we would find significant similarities and overlaps in their communication. Notably, issue segmentation and issue convergence do not have to be mutually exclusive. There might be variation across policy issues, or across or even within agencies (over time, depending on the specific policy issue).

3 | THEORETICAL EXPECTATIONS

Based on the concept of issue segmentation, we will formulate two theoretical expectations regarding the communication of regulators in the context of an encompassing issue. While the first expectation directly relates to Wilson's notion of turf protective behavior, the second expectation focuses on how agencies establish reputational uniqueness by communicating about mutually exclusive issues.

Public organizations will emphasize protecting their jurisdictional turf and take decisions that primarily allow them to keep those regulatory responsibilities that have become part of their core mission. For instance, Busuioc (2016) shows that public agencies only cooperate with other organizations when they can ensure that their jurisdictional turf stays protected, and they will be able to keep—or even better extend—their unique reputational profile. We expect to find a similar behavior regarding the sub-issues that agencies focus on: public agencies will mostly focus

on those sub-issues that relate closely to their core missions and disregard issues that lay at the periphery of their organizational mission. This would allow them to protect their jurisdictional turf and their current reputational profiles. While we might see occasional advances into issues that are not directly related to an agency's core mission, we expect the organizations to only attempt to expand their reputational profiles when a good opportunity arises.

Expectation 1: When communicating about an encompassing issue, a public agency predominantly focuses on sub-issues that relate to the agency's core mission.

Secondly, in line with previous observations regarding establishing reputational uniqueness, we can expect agencies to communicate about 'unique' sub-issues that do not overlap with those of other agencies. They are expected to do so because it would allow them to show that they occupy a unique niche in the overall organizational landscape they are placed in (Gilad & Yogev, 2012). Furthermore, public organizations are typically seen as risk-averse (Chen & Bozeman, 2012). Two agencies are rarely seen to compete for similar audiences or competencies (Maor, 2020). For instance, Maor et al. (2013) show that the Israeli banking authority remains silent regarding public allegations about issues that are within another agency's jurisdiction. This also relates to the general self-representation of each agency; agencies are interested in being perceived as unique and not conflictual with other agencies' core tasks, which might cause conflict and friction (Gilad, 2008). By focusing most attention on unique sub-issues, they avoid competition with other agencies for similar audiences or competencies. If agencies would communicate about a broader set of issues, they would risk entering the jurisdictional turf of other agencies and might not be able to demonstrate their unique contribution to the polity.

Expectation 2: When communicating about encompassing issues, public agencies will prioritize unique sub-issues that do not overlap with issues prioritized by other agencies.

4 | DATA AND METHODS

We explore a real-life case of issue segmentation by examining how EU agencies communicated during the Covid-19 pandemic in 2020. The pandemic provides a fitting example of an encompassing issue. As other encompassing policy issues such as climate change or technological revolutions, the Covid-19 pandemic presents both a risk and an opportunity for the communication efforts of EU public agencies.

This research employs analysis of Twitter communication of EU public agencies during the COVID-19 pandemic to uncover and explore patterns of issue segmentation. Particularly during the height of the pandemic, other communication channels were severely limited (no travel, stay-at-home orders—therefore fewer traditional press conferences, face-to-face meetings, or other public events). Additionally, the only other consistent public communication channel of most agencies—the news sections on most agencies' websites—is typically used for administrative announcements rather than ad hoc communication (e.g., websites tend to feature new reports, or upcoming events, rather than quick reactions to currently unfolding situations). Furthermore, Twitter has been shown to be used by public agencies as an instrument for reputation-building (Jason Anastasopoulos & Whitford, 2019; Mergel, 2013). Studying other communication venues such as online or print newspapers is not feasible in this context due to journalists filtering communication by agencies to accommodate their reporting requirements—this would lead to a potentially biased representation of agency communication, as some agencies generally receive much more media attention than others.

The sampled EU agencies are the full population of EU public agencies with a social media presence (to our knowledge). We collected all tweets of 38 public agencies on Twitter from

January 1st, 2020, to July 31st, 2020, (for a specification of all agencies and abbreviations, see Appendix B). This broadly covers the timeframe of the first infection wave of the pandemic in most countries, starting from the European Center for Disease Control's first tweet about the novel coronavirus on January 9th, 2020. We deliberately chose this timeframe, as it ensured a sustained period of common focus on the issue, as well as high salience of the communication on Covid-19. The data was collected by accessing Twitter's REST API (Representational State Transfer Application Programming Interface) via the *R* library "rtweet" and downloading the Twitter timelines of each of the organizations in the sample. Using a dictionary approach, we identified all tweets about the COVID-19 pandemic (this approach is used in a similar context by Green et al., 2020). Given that tweets about the coronavirus are very often recognizable by specific hashtags (e.g., #coronavirus), the dictionary was constructed through a reiterative process. We collected a keyword list, applied it to the tweet collection and then identified the tweets that were not captured by the current keyword selection and updated the dictionary with new words that would then capture the false negatives.

Subsequently, we subsampled the ten agencies that were the most active 'Covid-tweeters' (meaning that these agencies posted the most tweets about COVID-19). We chose the top ten agencies, as we see a sharp 22.5% drop in Covid-related tweets between the tenth (EU satellite center) and the eleventh agency (European Agency for safety and health at work) in the dataset. We did not include the full population of agencies and tweets in this study, as the uneven distribution of tweets across agencies would bias the construction of the structural topic models (see below). An extremely uneven distribution of tweets across agencies (e.g., out of 38 agencies, one agency tweets less than 0.5% of all tweets) could potentially lead the topic model algorithm to 'overlook' topics of agencies with very few contributions towards the COVID-19 debate.

We consciously did not pre-select our subsample based on the organizational relevance of the organizations to the COVID-19 pandemic, but instead used a bottom-up approach to allow unexpected patterns to arise from the data. The tweets of the Covid-tweeters were then used to generate multiple structural topic models (STM), of which the model with the best fit was used for further analysis. Building upon other probabilistic topic models, structural topic models are a form of semi-supervised text analysis that can discover latent topics in a set of documents (Roberts et al., 2019). The STM is a generative model of word counts, meaning that it follows the assumption that words that co-occur in the same text tend to form coherent topics. A key innovation of STM is that it can incorporate (and test) additional co-variables into the model, allowing the researcher to discover topics and estimate their relationship with document metadata. The nature of the metadata is arbitrary and can be continuous (e.g., time) or categorical (e.g., the political leaning of the author). This ability makes STM particularly useful for this research, as it allows us to observe topics to vary across time or contexts and performs well with short texts (Rodriguez & Storer, 2020). It has, therefore, been used in similar contexts such as the analysis of Twitter communication after terroristic attacks (Fischer-Preßler et al., 2019) or how judges use social media for public communication (Curry & Fix, 2019).

To uncover how agencies communicate about the COVID-19 pandemic, we used a structural topic model with 28 topics. While structural topic models do not require prior hand-coding of documents, the number of topics the model searches for must be set before the model can be calculated. To do this, we constructed models with 5 (number of agencies) to 50 topics and manually selected the best 3 models based on a range of quantitative measures (i.e., held-out likelihood, residuals, and semantic coherence). We used a range of indicators, as no one 'ground truth' indicator would clearly indicate the number of topics in a text corpus, and multiple indicators should be compared to arrive at a reasonable number of topics (Roberts et al., 2019).

The models included a topic prevalence co-variate for time and agency. We account for time, as it can be assumed that topics appear at different times throughout the pandemic. Furthermore, we include a co-variate for the agency posting each tweet, to account for the fact that agencies might discuss different topics. However, the identified topics are extremely similar to a model that does not include agencies as a co-variate. Lastly, the three best models were manually checked to examine which topic model would provide the most interpretable topics, with 28 topics providing the best overall balance between semantic coherence and held-out likelihood (and other indicators, see Appendix D). Each topic was labeled based on the content by examining words that were highly correlated to each topic and examining tweets that displayed a high correlation with the topic (for a full overview of the topics, see Appendix A).

Since structural topic models provide topic-per-document predictions, each tweet in the text corpus is assigned a probability that it belongs to each of the 28 topics. As tweets are very short texts, we assumed that each tweet mainly belongs to one topic, as incorporating two or more topics in one tweet is unlikely to happen. To test this, we calculated the average theta value of the highest theta value for the topic model, indicating a median theta value of 0.75 (i.e., the median tweet contains 75% of words from one topic within the topic distribution, while the other 25% of words are likely to come from other topics). The median second-highest theta value per tweet is 0.09, indicating that around 9% of each tweet is generated from the second most-likely topic. In the context of this research, it is therefore unlikely that many tweets contain a significant portion of a second topic. However, to exclude the possibility that our approach masks nuances in our findings, we have computed 28 regression models for each of the topics for which we test the impact of each Twitter account on the prevalence of a topic (Appendix C). The models confirm our findings. Therefore, each tweet was labeled with the topic that it most likely belongs to.¹ If a topic was mostly covered by one or two agencies, it was considered as an example of issue segmentation.

5 | RESULTS

In the COVID-19 debate, public agencies in our sample communicated about a wide range of issues, ranging from very general issues such as international unity to fight the disease (topic 1), administrative issues such as invitations for webinars (topic 2) or invitations to online press conferences (13), to highly specific topics such as how to tackle disinformation (topic 11), or banking measures to alleviate personal financial hardship (topic 14). A complete topic list can be found in Appendix A, a list with the highest word-per-topic and topic-per-document probabilities can be found in Appendix E. Certain topics could intuitively be linked to one of the agencies in the sample due to their specificity. For instance, topic 9, violence against women, can intuitively be linked to the European Institute for Gender Equality EIGE. Other topics are more ambiguous and could relate to multiple agencies. An example here could be topic 22, which can best be described as hygiene recommendations to contain the spread of the disease. Lastly, almost all topics are related to policy issues, except a few topics that have no direct relationship with regulatory issues (topics 2 and 25). However, these administrative topics appear rarely (in less than 5% of tweets).

5.1 | Expectation 1: Issue segmentation within individual agencies

To identify whether and to what extent agencies select sub-issues within the Covid-19 debate, we looked at the distribution of each topic across all agencies. Despite communicating about the same political event, the messages of the sampled EU agencies rarely overlap. While certain

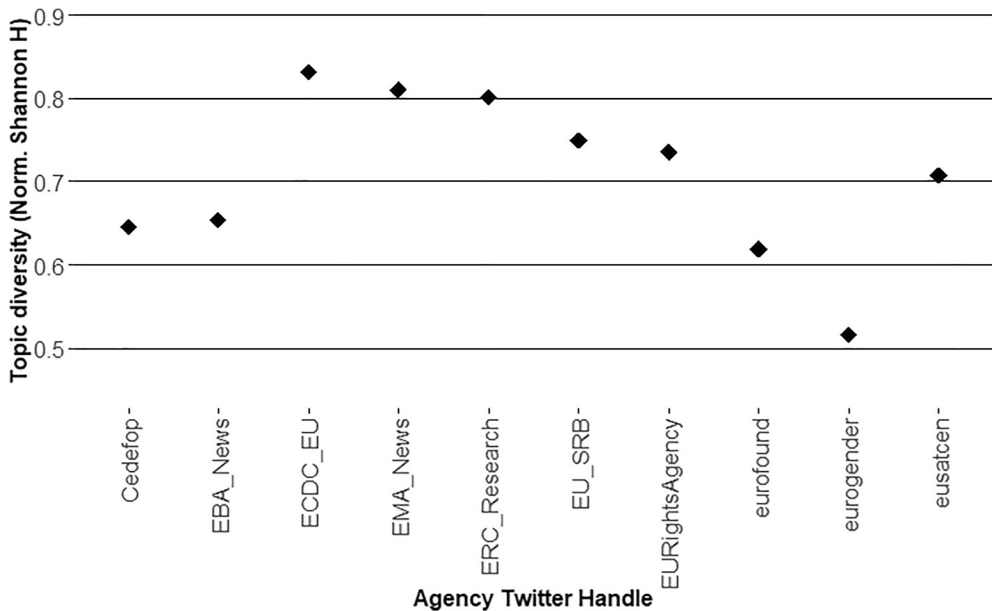


FIGURE 1 Topic diversity within agencies.

topics are more evenly distributed across agencies, they present a minority. Topics that are more evenly distributed typically refer to general issues, such as international solidarity to find a cure for the virus (#7), tackling disinformation (#8), or global coordination regarding Covid-measures. These general topics seem to share a rather moral or normative dimension, suggesting that such topics seem to matter less when aiming to establish a unique reputation (for a deeper discussion and application of reputational dimensions, see Overman et al., 2020; Rimkutė, 2020). Most tweets are only posted by one single account in our sample and only roughly 12% of all tweets appear more than twice in the dataset (i.e., only 12% of Tweets are retweets of the same Tweet).

As a test of whether agencies communicate broadly or instead focus on specific issues in their communication, we calculated the topic diversity across agencies via Shannon's H index (Shannon, 1948). Similar to the Herfindahl-Hirschman Index and other diversity indices, the Shannon index calculates the diversity of a population (in this case the diversity of topics used by each agency) in which each member (each tweet) belongs to a unique group (topic). A high topic diversity, therefore, shows that the Tweets that an agency posts about Covid-19 are relatively evenly distributed across topics, whilst a low topic diversity signal an agency's focus on only a few topics and disregard of other topics. The Shannon index has been used in many other settings to measure (aspects of) diversity, for instance, related to policy agendas, stakeholder engagement, or interest group populations (Boydston, 2008; Braun et al., 2020; Sheingate, 2006). We chose the normalized version of the Shannon index, meaning that all values range between 0 and 1 – 1 meaning large topic diversity and completely even distribution of messages across topics (Boydston et al., 2014).

The findings are visualized in Figure 1. Topic diversity is highest for the agencies that are most responsible for key areas of the Covid-19 pandemic (ECDC, EMA, ECDC). These agencies, therefore, have more applicable mandates for many of the sub-issues of Covid-19 and subsequently communicate about them. They stand in contrast with those agencies that do not hold key responsibilities for the fight against Covid-19, but still communicated relatively frequently

about the pandemic. Agencies such as Cedefop, Eurofound, and EIGE (@eurogender) show a much lower topic diversity, indicating that these agencies focus on very few topics instead of communicating more broadly.

To fully evaluate expectation 1, we assessed whether the sub-issues that agencies focus on respectively are related to their core missions or not (Table 1). Based on a thorough analysis of each agency's website and its legal mandates, we determined the core responsibilities of each organization. This was done by identifying the main themes that the agencies communicated about and their self-understanding (sections such as “mission” or “about us” on their websites). We subsequently clarified which sub-issues that agencies tweeted about related directly to the core missions of each agency, and which sub-issues either do not relate to the core responsibilities or are shared across multiple agencies. As the table shows, most sub-issues that the agencies communicate about are closely related to their core responsibilities. However, there are certain exceptions, most notably related to the European Center for Disease Prevention and Control. While the agency mostly communicates about its core areas of expertise, it also posted (and retweeted) messages that urged the public and politicians to work together to fight the pandemic and shared insights into technological developments to fight the pandemic.

5.2 | Expectation 2: Issue segmentation across agencies

To evaluate our second expectation, we aggregated the distribution of tweets of each topic across all agencies to uncover which topics are unique to agencies and which topics are more evenly distributed. The results are visualized in Figure 2.

In line with expectation 2, we find that many topics are dominated by one agency that communicates about this particular issue. The European Center for Disease Control (@ECDC_EU) captures the most topics, followed by the Stability Reserve Board (@EU_SRB). Other agencies that post frequently about COVID-19 each dominate one issue. Surprisingly, the European Medicine Agency (@EMA) and the European Banking Authority (@EBA_News), and European Research

TABLE 1 Relation of sub-issues to agencies' core missions (only including agencies that dominate sub-issues as shown in Figure 2).

Agency	Sub-issues dominated	
	Core task of agency	Not core task
Cedefop	3: Impact on job market	-
ECDC	4: Early information on outbreak; 16: General medical information about the disease; 22: Hygiene recommendations; 23: ECDC risk assessments; 24: Data updates (global death reports)	1: Unity against pandemic; 15: Technological developments to fight covid
EU SRB	5: Eu banking resolution against financial impacts; 14: Banking measures to alleviate personal financial hardship	2: Web event invitations
FRA	27: Impact on human rights	-
Eurofound	6: Covid survey	
EIGE	9: Gender issues (violence against women)	-
EU SatCen	20: Military response	-

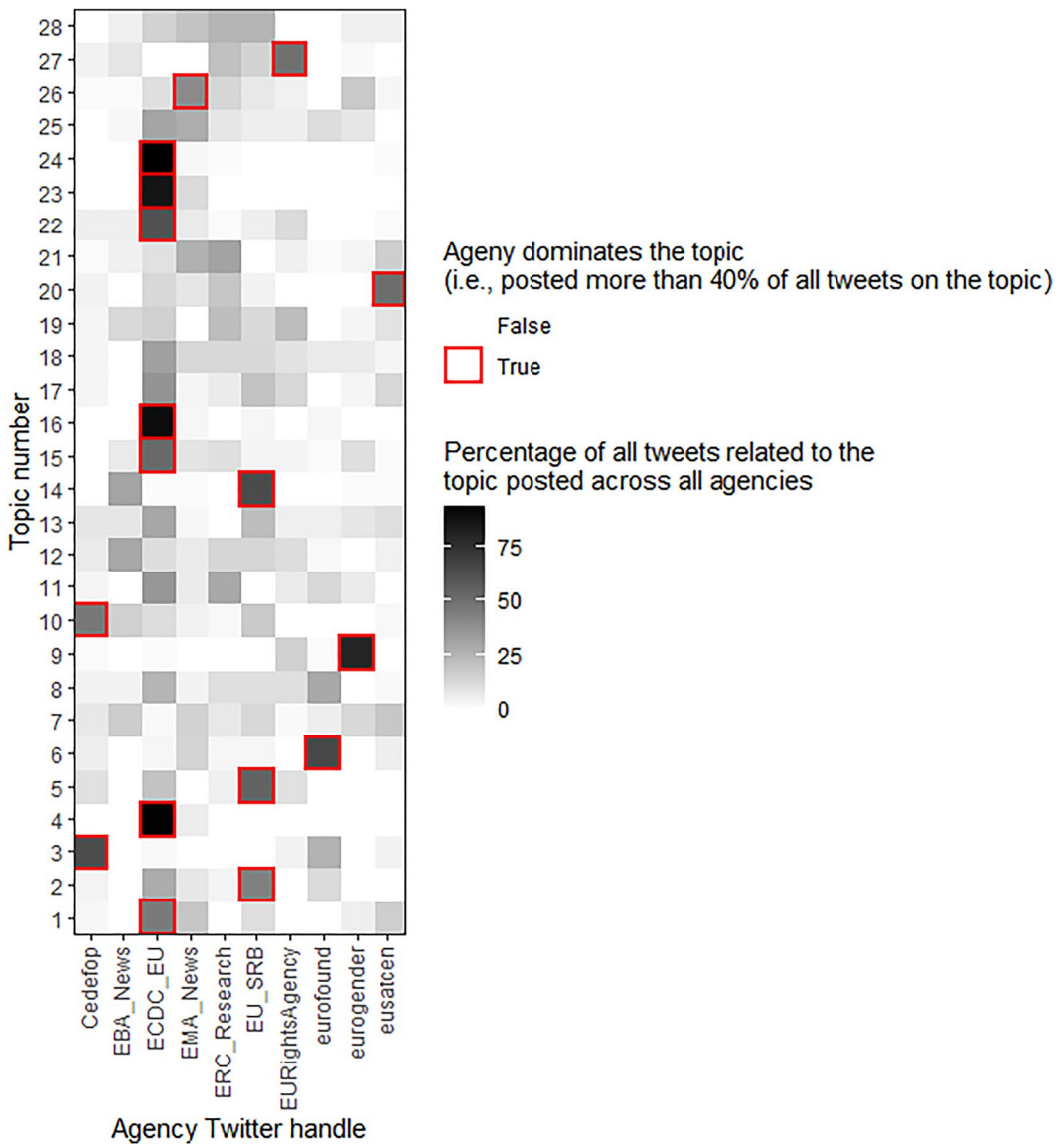


FIGURE 2 Topic distribution across agencies. Rows are the topics while columns are the various Twitter accounts of the included agencies. Shading of each cell signals the overall percentage of tweets of a certain topic that each agency has posted.

Council do not capture any of the topics of the model but seem to communicate more broadly. Rather than focusing strongly on one particular sub-issue, they appear to focus on various issues they consider relevant, and as such represent a case of issue convergence rather than segmentation. However, this can be mainly ascribed to the 40% threshold, as a lower threshold would have resulted in more dominated topics for these agencies. Furthermore, certain issues were indeed occupied by two agencies. For instance, topic #21 on Covid-19 research was used to almost equal parts by the European Research Council and European Medical Agency accounts, as it falls within both their jurisdictions. However, a closer look at their use of the topic revealed different angles towards the topic, as the European Medical Agency published tweets that concerned the use of

research to produce effective medicines and vaccines against the disease, whilst the account of the European Research Council focused on the research work itself and the researchers behind it.

6 | DISCUSSION

The analyses presented above have allowed us to test the theoretical expectations that were identified in this research. The findings show evidence of issue segmentation, both within (expectation 1) and across (expectation 2) agencies.

Firstly, we find support for expectation 1. The broader discussion of the pandemic is segmented across agencies, as most agencies in the sample focus on specific sub-issues of the Covid-19 debate. While the agencies with the most important responsibilities regarding Covid-19 also managed to capture the largest number of sub-issues, they also addressed the most diverse set of sub-issues through their communication. When calculating the within-agency topic diversity (Shannon's H), we find that agencies with many Covid-19 related responsibilities—such as the European Center for Disease Control or the European Medical Agency—also displayed the largest topic diversity. By dominating one or multiple unique sub-issues regarding the pandemic, agencies can show to the public that they are able to deliver unique goods to the polity and the public (Maor & Sulitzeanu-Kenan, 2016; Rimkutė, 2018). Furthermore, dominating one sub-issue means that potentially competing organizations find it more difficult to convincingly show that they are better suited to exercise related responsibilities (Busuioac, 2016).

Our issue segmentation approach also helps to explain the appearance of perhaps “unexpected” agencies amongst the most frequent Covid-19 communicators in the data—for instance, the European Centre for the Development of Vocational Training, the European Institute for Gender Equality, or the EU Satellite Centre. We consider these organizations as “unexpected”, because they are comparatively small agencies (both in terms of areas of responsibility, staff, and budget size) and occupy areas of expertise that do not seem to be directly related to a health pandemic. So why do they still communicate so actively about Covid-19? The topic models show that these unexpected communicators focus almost exclusively on very narrow and specific issues, such as for example, violence against women or changes in the work conditions of European citizens. In contrast, other agencies that are responsible for areas that are directly impacted by the pandemic, such as the transportation sector, did communicate less about Covid-19 than could have been expected (e.g., the EU Aviation Safety Agency or the European Railway agency).

The exploratory analysis showed that most of the dominated sub-issues were directly related to the core missions of the agencies. This lends support to the idea of turf-protective behavior (Macchiarola & Wilson, 1990). By communicating extensively about how Covid-19 relates to their core missions, agencies can demonstrate that they are capable and knowledgeable to execute the core tasks that are allocated to them. At the same time, they ensure that no other organizations with adjacent task areas compete for similar responsibilities. For the unexpected communicators in our sample, whose core responsibilities do not clearly relate to Covid-19, there might be an additional rationale. By highlighting how their core responsibilities are relevant to the highly salient issue of the pandemic, they are able to show that they still matter and are an important component of the EU bureaucratic and administrative system—thus ensuring their long-term survival (Gilad & Yogev, 2012).

We also find support for expectation 2, as we observe issue segmentation across the agency landscape as well. Many sub-issues are talked about by one single agency, while other agencies stay relatively silent on the same issue. Even agencies within a similar regulatory domain (such

as public health or financial agencies) communicate in unique ways with little overlap with each other. We, therefore, find support that agencies aim to communicate in a way that allows them to establish and maintain reputational uniqueness, by differentiating themselves from other agencies in the organizational landscape.

However, Figure 2 also shows nuances to issue segmentation behavior by agencies. Firstly, not all agencies dominate at least one sub-issue. While the European Banking Authority, the European Medicines Agency, and the European Research Consortium are frequent COVID-19 tweeters, they focus on a relatively broad range of issues and do not dominate a single sub-issue in the sample. Equally, not all topics are dominated by a single agency—some topics are distributed relatively evenly across agencies. Furthermore, we do not exclusively find issue segmentation across all topics and agencies—in certain select cases, we find that two agencies talk a lot about the same sub-issue. For instance, both Eurofound and Cedefop talk about the impact of the pandemic on the job market (topic 3). There seem to be certain agencies and topics that favor issue segmentation, while others do so to a lesser extent, and at times demonstrate a certain level of issue convergence.

7 | CONCLUSION

This research has addressed the important question of whether and how public agencies communicate about a shared and encompassing issue. Drawing on previous research on reputation management strategies of public organizations, we have argued that if multiple public organizations communicate about the same (salient) issue, they will aim to further forge their reputational uniqueness and protect their turf. Whilst doing this, we expected organizations to be risk averse by avoiding competing for similar responsibilities with other public organizations. To do so, we expected to see patterns of issue segmentation, both within and across agencies, as large and complex issues are dissected into many smaller sub-issues, which are then 'claimed' by individual public organizations.

To test these expectations, we examined the communication of 38 public agencies of the European Union regarding the Covid-19 pandemic on the social media platform Twitter between January and June 2020. Using an automated text analysis approach, we dissected the sample of Covid-19 related tweets by the ten most frequently communicating agencies into 28 different sub-issues and examined the topic distributions within and across agencies. Albeit important nuances, we saw our previous expectations confirmed by the subsequent analyses: EU agencies use communication regarding the pandemic to protect their organizational turf, to establish and defend their reputational uniqueness, and to demonstrate to the public and political principals that they are important and relevant actors, even if their core missions do not seem to directly relate to the most salient issue at the current time. Our findings show that the frequency of communication seems to be in part related to how closely each respective agency's core mission is related to Covid-19. However, communicational strategies also seemed to have played a role, as certain agencies with no obvious connection to Covid-19 communicated frequently about the topic, while other agencies with more apparent relevance to the topic communicated less than expected. Furthermore, we find clear traces of issue segmentation, as many agencies seem to focus on sub-issues regarding the pandemic that other agencies do not communicate about. These sub-issues are frequently related directly to their core missions, indicating that they aim to show their audiences that they can execute the tasks that are allocated to them.

This research comes with important limitations that should be addressed by further research. Firstly, we have examined the case of EU agency communication regarding Covid-19. While this

provided a perfect opportunity to study communication behavior regarding a subject, the Covid-19 pandemic is a unique and rather exceptional case in public communication. It is exceptional in that it is a highly salient and highly urgent policy problem that touches on many policy fields. Whilst other comparatively policy problems are typically highly salient (e.g., climate change) or highly urgent (e.g., regulating modern technologies such as bitcoin), they are typically not both at the same time and do not touch upon as many different policy areas. Furthermore, we have focused on public agencies of the EU, whilst other public organizations with different tasks and more representative functions (such as the EU parliament or the Commission) might adapt different communicational approaches. Secondly, we have only observed the communication of agencies on the social media platform Twitter and do not know if similar behavior of issue segmentation also translates to other media environments such as the news media or public press releases of the agencies in our sample. Other venues such as the news media follow different dynamics (e.g., conditions for participation), which might result in different communicational practices by public agencies (or a different perception of their communication activities).

Further research could address both limitations of this study, as well as new theoretical avenues that we have identified here. For a better understanding of communicational strategies and issue segmentation in particular, researchers could study communication behavior in different contexts than this study. This includes, on a topic level, issues that are less encompassing and crisis-driven than the Covid-19 pandemic, which is a unique case of public communication. On an organizational level, researchers should address how communicational strategies differ across public organizations and whether other organizational variables such as the size and mandate of the organization or issue salience impact the choice of communicational strategies. Furthermore, the findings of this research raise further questions about the motivations behind issue segmentation and the decision-making process of communication officials within the agencies under observation. This could be addressed with qualitative research designs that dive deeper into the motives of public officials in charge of communication. Furthermore, while this study examined the phenomenon of issue segmentation in an explorative and data-driven manner, we need more research into the nature, strategy, and effect of issue segmentation to fully understand its existence and impact. For instance, while our method clearly shows the presence of segmentation in the agencies' communication, we do not know why we see such a pattern and whether it is the result of conscious or subconscious action by communication officials within the respective agencies. Qualitative insights into the motivations of communication officials within the agencies would be valuable evidence, as well as studies that investigate many different public organizations within a single policy area. Future studies should also explore topics such as failed issue segmentation attempts, patterns of issue convergence, and the specific trade-offs that agencies are confronted with when addressing their diverse audiences.

Our findings have several theoretical implications. They confirm previous findings about the rational calculations that many regulators engage in when communicating with the public (Maor, 2020). Our analysis shows that the communication follows distinct and recognizable patterns that are consistent across our sampled organizations. Using the theory on turf-protective behavior and reputational uniqueness, we were able to explain these patterns, indicating the underlying strategies of regulators. Furthermore, this research shows the value of a comparative empirical approach toward public communication by agencies. By including many different public agencies of the EU, we were able to identify communicational behavior that is consistent across organizations. This signals that besides relying on single case studies, further research should also continue the very recent development of observing agency communication across organizational contexts (e.g., Salomonsen et al., 2021). This research

also demonstrates the value of using automated text analysis as part of a broader research strategy. We have combined structural topic models to structure the data into comprehensible topics and then proceeded with the output of the topic models as input for further empirical analyses. Whilst we used a relatively simple approach to structuring a larger amount of text, it shows the value of combining human and computational judgment to make sense of substantial amounts of text. Lastly, our research adds another perspective regarding the question of who is involved in the communication between agencies and the public. Whilst previous research has adopted varying definitions of who are the audiences of public agencies, these definitions typically include the news media, specialist audiences such as professionals and private organizations, or the wider public. Our analyses imply that public agencies also pay close attention to *other agencies* when engaging in public communication. We do not currently know if they explicitly do so or if it is an implicit process of carving out reputational profiles vis-à-vis other organizations (this could be explored in further research). Issue segmentation could happen either because agencies pay attention to other agencies or because agencies select the sub-issues that are best suited to advance their own reputation and these sub-issues happen to be mutually exclusive.

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CONFLICT OF INTEREST STATEMENT

The authors report no conflict of interest.

DATA AVAILABILITY STATEMENT

The data and replication files underlying this article are available in the DANS EASY data repository: [10.17026/dans-x93-t9u8](https://doi.org/10.17026/dans-x93-t9u8). Due to the rules and regulations of Twitter, the Tweet data cannot be made available directly. However, we provide Tweet IDs that can be used to independently assemble the dataset via the Twitter API (we provide a simple method in the replication files).

ENDNOTE

¹ We have attached the output of every regression model ($n = 28$, because we use 28 topics) in appendix C of the supplementary material. The findings from the regression model largely confirm the findings that we gained from the one-topic-assignment strategy. In every case for which our method predicts that one agency dominates a certain topic, the regression model confirms this with a statistically significant, positive coefficient for this agency. In some cases, a second (or third) agency is also statistically significantly related to a topic, but in these cases the relation is either negative or the coefficient is very small (close to 0). In one exceptional case (topic 15), our method suggests that the ECDC dominates a topic, while the regression suggests that both the ERC and the ECDC are associated with the topic. However, in this case the coefficient for both agencies is very low. As it turns out, our approach is even somewhat conservative towards the issue segmentation argument, as there are multiple topics for which the regression result indicates issue domination, our one-topic-assignment model does not pass the issue domination threshold (e.g., topic 7). For the topics that we describe as 'shared', the regression model suggests similar conclusions and indicates that multiple agencies are positively associated with a given topic (albeit with comparatively low coefficients).

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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