





# INFLUENCE OF PRO-KREMLIN PUBLIC PAGES IN BULGARIA'S AND ROMANIA'S FACEBOOK ECOSYSTEM



#### **List of Abbreviations**

**AUR** – Alliance for the Union of Romanians

**BSP** – Bulgarian Socialist Party

**DSB** – Democrats for Strong Bulgaria

**GERB** – Citizens for European Development of Bulgaria

PNL – National Liberal Party (Romania)

**PSD** – Social-Democratic Party (Romania)

**UDMR** – Democratic Alliance of Hungarians in Romania

**USR** – Save Romania Union







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#### **DEVELOPMENT OF THE REPORT**

In preparing this report, lists of sources consisting of public Facebook pages were provided to Graphika, a company which uses AI to map and reveal communities online<sup>1</sup>. They included the most popular pages on the Facebook information landscape such as, among others, mainstream media and influential public accounts, politicians and political parties, problematic outlets (ranging from pro-Kremlin, manipulative pages to disinformation and conspiratorial ones to those that have galvanized a broad swath of the public), pages focused on various political and social causes, pages of local and international institutions, entertainment pages, and social media marketing pages.

Based on the comprehensive lists of Facebook sources, provided by national partner organizations to Graphika, a machine-learning algorithm was utilized to discover related pages and communities. The network-reduction computing method ensured that only relevant pages were included in the final cartographic landscape of the Bulgarian and Romanian Facebook maps.

Graphika's final outputs are two maps of networked nodes, one for each country examined. The maps are tautological (cartographic - map) representations of the most influential public pages on the Romanian and Bulgarian Facebook information landscapes. The Bulgarian map covered the period between 16 September and 16 October, 2020, and the Romanian map – between 26 July 2020 and 25 August 2020. As such, these maps offer unique insight into the diverse information communities present in each country and the ways in which they interact with and influence one another.

It is important to bear in mind that many of these pages are international in scope, with pages in the local languages often linked strongly with Facebook pages abroad that hold similar ideological affinities. According to Graphika's natural language processing method (the map-making process), some pages, furthermore, have a presence in the information spaces of both Bulgaria and Romania. This indicates only limited ideological, political, and cultural overlaps between the two countries

One node in a map represents a Facebook page<sup>2</sup>. These nodes/pages were aggregated by Graphika's mapping process into clusters and then into groups, based on the identification of common interests, according to which these clusters and groups of clusters are also color-coded. The size of each node (page) depends on the number of Facebook user accounts on the map that like or follow that page. Proximity of pages is generated through information on the interconnections between these pages. Pages with similar content and/or narratives are included in common clusters.

The clusters were then labelled by human analysts based on common characteristics between nodes included in each cluster. Subsequently, the clusters were aggregated into groups, again, based on content similarities. Although generally precise, the labels assigned to each cluster and group are indicatory only, as the system itself has limitations. For example, some clusters were quite large and for this reason included a number of pages which could be considered thematic outliers within the cluster. Cluster and group descriptions, therefore, reflect the content of the majority of pages within those clusters/groups.

#### INTRODUCTION

The aim of this report is to provide in-depth contextual assessment of about pro-Kremlin influence operations and networks active on Romanian and Bulgarian public Facebook pages. To this purpose, GLOBSEC has teamed up with Graphika to create a powerful social media landscape visualization of networks and information diffusion through these networks.

The result displays a complex picture in each country with the Bulgarian and Romanian maps containing 13,179 and 4,741 pages<sup>3</sup>, respectively.

This data was subsequently analysed by the authors of this report to provide interpretative insight into the identification of instrumental Facebook accounts involved in an intricate web of pro-Kremlin influence operations in the region. This has produced a visual and contextual overview of the Facebook information landscape allowing for the discovery of network affiliations and potential ideological overlaps with pro-Kremlin outlets which may have been previously overlooked.

Pro-Kremlin influence in Bulgaria is linked mostly to left-wing political pages and some nationalistic accounts that advance pro-Russian interpretations of Bulgarian history. The latter pages are located in a cluster in close proximity to mainstream pages, thereby indicating a possible channel through which Russian disinformation, intermixed with general content, could be disseminated to a broader audience.

In Romania, meanwhile, openly pro-Kremlin discourses are largely marginal in importance in the online public sphere. Only a few pro-Russian websites, like Sputnik.md4, are responsible for distributing the bulk of this content. That said, outlets and accounts favorable to the Kremlin have adopted a strategy that sees them redistributing persuasive content. Though these materials may not be overtly pro-Russian, they exploit cynicism towards Romania's transatlantic partners and promote nationalist sentiments.

https://graphika.com/our-story

To avoid word repetition, we might refer to "Facebook pages" as pages, accounts, or nodes. All of them are used synonymously with "Facebook pages".

<sup>3</sup> The large difference in nodes between the Bulgarian and Romanian maps is due to the fact that the Romanian map went through an additional whitelisting process that further narrowed down the scope of the clusters present in the map to areas more closely related to the current affairs conversation.

https://sputnik.md/

#### **MAPS OF BULGARIAN AND ROMANIAN LANDSCAPES**

#### Bulgaria

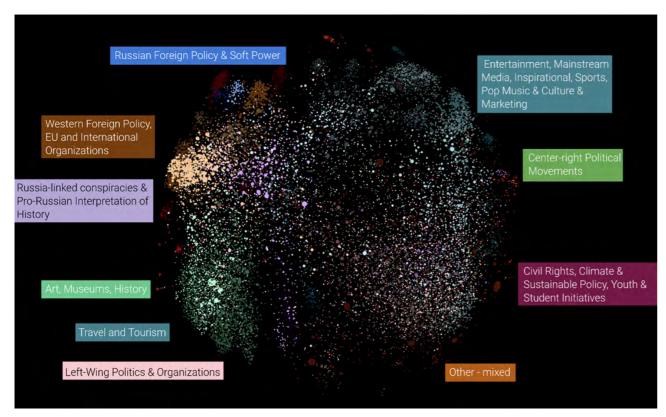


Figure 1: Map of the Bulgarian Facebook landscape





Civil rights & Climate & Sustainable Policy

#### Romania

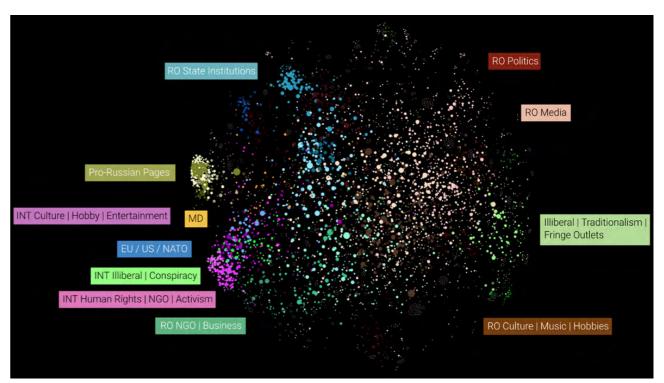


Figure 2: Map of the Romanian Facebook landscape



8) Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook

#### Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook (9

**KEY FINDINGS** 

#### **BULGARIA**

- The Russian foreign policy and soft power public pages on Bulgarian Facebook form a small cluster on the periphery of the map close to pages that focus on Western foreign policy, the EU, and international organizations. Pages that are explicitly pro-Kremlin, however, do not interact actively with other more mainstream pages and their primary thematic activities include interviews with high-level Russian politicians and the sharing of official documents on Russian foreign policy and other topics.
- 2. The Russian cluster, however, is tightly linked to a neighboring larger group focused on conspiracy theories that have originated in Russia and problematic interpretations of history. This group, in turn, serves as a vehicle for ensuring broader pro-Kremlin reach and influence. The propaganda narratives of this group indeed span a considerable number of pages situated centrally on the Bulgarian public Facebook space. Some of these pages are, in fact, connected to central mainstream clusters attuned to topics, among others, like travel and tourism, entertainment, and inspirational quotes.
- 3. The primary link between pro-Kremlin disinformation channels and mainstream groups is found on pages attached to a Russophile interpretation of Bulgarian history and pseudo-patriotic ideas. These nodes demonstrate a proclivity for diffusing nationalistic narratives that often spill over to racist, xenophobic, and other discriminatory rhetoric. Influencers from this cluster were also identified in mainstream entertainment clusters, underlining the risk that the pseudo-patriotic cluster could inundate the population with problematic and/or disinformation content. Mainstream pages, in this regard, can serve as amplifiers for these narratives. This happens through nationalistic narratives based on a skewed, often pro-Russian, interpretation of history and through the negation of minority groups and the affirmation of ultra-conservative, "traditional values" in society.
- **4.** The problematic pseudo-patriotic and Russophile cluster is also located in very close proximity to the community of civil society pages, again signalling that problematic content could be seeping into more general discussions across the Facebook public space.

#### **ROMANIA**

- In Romania, there is limited overt pro-Kremlin influence on Facebook. Unlike many of its neighbours, Romania shares few cultural affinities with Russia and its population rather perceives Moscow as the foremost threat to the country's national security and even territorial integrity<sup>5</sup>. These attitudes persist primarily due to historical grievances that still live on in the public psyche<sup>6</sup>. Pages oriented around Russian patriotism, culture, and political leaders, consequently, are tightly clustered on the periphery of the map.
- 2. The cluster of Moldovan accounts (political, cultural, and civil society) appears to bridge the isolated group of Russian clusters to more mainstream-oriented Romanian political discourse. This fact suggests that Moldovan accounts could provide an entry point for pro-Russian narratives to find their way into the Romanian information space.
- **3.** The periphery of the map also hosts numerous clusters of potentially problematic accounts including conservative Orthodox, antiabortion, and ultra-conservative pages. Fringe media outlets such as ultraconservative Revista Rost<sup>7</sup> (created by AUR senator Claudiu Tarziu) also appear at this outer edge. The implication is that these polarizing ideas are not especially pervasive in mainstream discussions. They are, nonetheless, advanced by fervid activists and supporters who are split off from mainstream conversations. The more conservative and ultraconservative clusters tend to be positioned on the opposite side of the map from the overtly Pro-Russian clusters, confirming findings from prior GlobalFocus research8 purporting that far-right groups are often involved in anti-Russian discourses.
- Despite the hostility of ultraconservatives to ardently pro-Russian narratives, the Kremlin still indirectly utilizes and promotes some elements of these fringe ideologies. These ideas, often Eurosceptic and illiberal narratives disseminated by pro-Russian accounts, buttress Russia's strategy of seeding societal distrust in Romania's Western partners and democratic institutions.

 $<sup>\</sup>frac{\text{https://www.inscop.ro/20-mai-2019-gandul-inscop-research-pentru-644-dintre-romani-rusia-ramane-principala-amenintare-la-adresa-romaniei/https://www.global-focus.eu/2018/03/propaganda-made-measure-vulnerabilities-facilitate-russian-influence/https://www.global-focus.eu/2018/03/propaganda-made-measure-vulnerabilities-facilitate-russian-influence/https://www.global-focus.eu/2018/03/propaganda-made-measure-vulnerabilities-facilitate-russian-influence/https://www.global-focus.eu/2018/03/propaganda-made-measure-vulnerabilities-facilitate-russian-influence/https://www.global-focus.eu/2018/03/propaganda-made-measure-vulnerabilities-facilitate-russian-influence/https://www.global-focus.eu/2018/03/propaganda-made-measure-vulnerabilities-facilitate-russian-influence/https://www.global-focus.eu/2018/03/propaganda-made-measure-vulnerabilities-facilitate-russian-influence/https://www.global-focus.eu/2018/03/propaganda-made-measure-vulnerabilities-facilitate-russian-influence/https://www.global-focus.eu/2018/03/propaganda-made-measure-vulnerabilities-facilitate-russian-influence/https://www.global-focus.eu/2018/03/propaganda-made-measure-vulnerabilities-facilitate-russian-influence/https://www.global-focus.eu/2018/03/propaganda-made-measure-pulnerabilitate-russian-influence/https://www.global-focus.eu/2018/03/propaganda-made-measure-pulnerabilitate-russian-influence/https://www.global-focus.eu/2018/03/propaganda-made-measure-pulnerabilitate-russian-pulner$ 

https://www.facebook.com/RevistaRost/

https://www.global-focus.eu/wp-content/uploads/2020/12/Revisionism-Report.pdf

10) Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook

#### **BULGARIA**

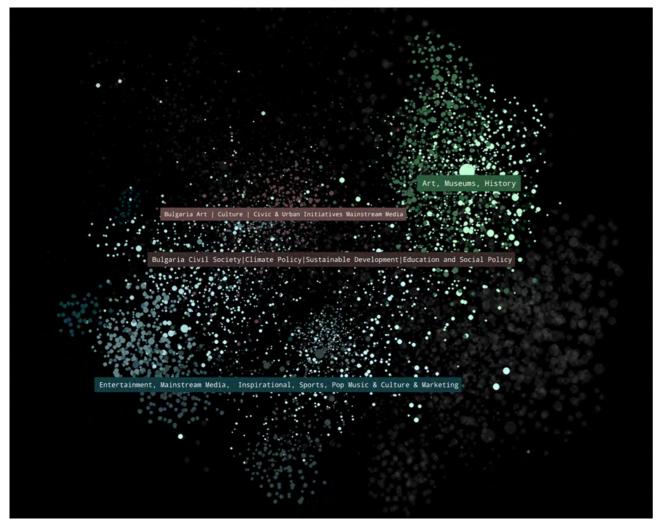


Figure 3: The Central Section of the Bulgarian Facebook Map

# Disinformation and problematic channels on the fringes of the Bulgarian Facebook information space

The Bulgarian Facebook information space is dominated by a dispersed group of innocuous pages comprising entertainment-themed content and accounts of famous athletes and mainstream media organizations. They also encompass the pages of an array of civil society, arts, and lifestyle groups. These groups, occupy more than 50 percent of the map's area. The nodes, however, are widely scattered, with limited density/mutual interactions recorded<sup>9</sup>. An exception is found, though, in the proximity of pages focused on lifestyle topics, inspirational quotes, famous figures, and cultural activities in Bulgarian society.

The Bulgarian map, altogether, contains 13,179 pages, with the most prominent groups being Civil Rights, Climate & Sustainable Policy, Youth & Student Initiatives (28 percent of the map), Entertainment, Mainstream Media, Inspirational, Sports, Pop Music & Culture & Marketing (25 percent of the map) and Art, Museums, History (17 percent of the map). The centre of the Bulgarian Facebook space consists of a large cluster of pages (part of the Civil Rights Group) loosely connected to, among other topics, civic activism, civil rights, sustainable development, media activism, and non-profit organizations (See Figure 3). This cluster, visualized above in the form of light brown nodes, contains 2,234 pages and comprises nearly 17 percent of the map. Another smaller cluster (part of the same group) lying at the centre of the map includes Bulgarian youth & student associations, civil & gender rights pages, family planning pages, and likeminded causes (see middle cluster title on Figure 3). This cluster, highlighted in dark brown on the map, includes 573



Figure 4: Russian Government Channels and International Pages with Proximity to the Russian Pages

pages, 4 percent of all pages. A large blue cluster (at the bottom of Figure 3), part of the entertainment group, is also situated at the core of the map, encompassing 625 pages (5 percent of all pages) on a range of topics including, for example, fashion, music, lifestyle, travel, art, and cooking.

# The connection between fringe Russian propaganda and mainstream pages

There are only 192 public Russian foreign policy and soft power-oriented pages, representing 2 percent of all pages, on Bulgarian Facebook. They are confined to one corner of the map (the upper left section of the map, marked in dark and light blue colours, in Figure 4). While these pages do not actively engage with more mainstream groups of pages, they are in the general vicinity of the Western Foreign Policy, EU and International Organizations group. The central thematic focus of the Bulgaria Foreign Policy, Embassies, Bulgarian Pro-Russian Groups, etc. pages is centred around speeches of and interviews with high-level Russian politicians (e.g. Vladimir Putin, 10 Sergey Lavrov, 11 etc.), the dissemination of

official documents on Russian foreign policy, and similar topics. These pages, moreover, are very closely linked to the neighbouring *Russia-linked conspiracies & Pro-Russian Interpretation of History group* that functions as a vehicle for extending the reach of these ideas.

The propaganda narratives of the Russia-linked conspiracies & Pro-Russian Interpretation of History group are represented by a significantly larger number of pages (822 pages comprising 6 percent of the map and shaded in purple in Figure 6). These pages indeed extend into the central sections of the Bulgarian public Facebook space. There are, for example, considerable links between the Bulgaria Patriotic Ideas. Bulgarian History. Russophile Historic Interpretation cluster (254 pages), which is part of the Russia-linked conspiracies group, the Travel Blogs, Tourism, Exploration, Adventure Lifestyle cluster (225 pages), part of the Travel and Tourism group, and two Bulgarian Entertainment - Inspirational Quotes clusters that are situated in an even more central position on the map. Some of the Facebook pages that serve as bridge accounts between mainstream clusters and the Bulgarian "pseudo-patriotic" pages include news sources like Zemya (Earth<sup>12</sup>) that have spread pro-Russian

<sup>9</sup> The density score represents the degree of interconnectedness between individual Facebook nodes within a cluster. Visually, this is represented in terms of the degree of physical proximity between the nodes on the map.

<sup>10 &</sup>lt;u>https://www.facebook.com/watch/?v=341242063888808</u>

<sup>11</sup> https://www.facebook.com/watch/?v=325684432042644; https://www.facebook.com/watch/?v=371592693979726

P. Newspaper Zemya's Facebook page, <a href="https://www.facebook.com/vestnikzemia">https://www.facebook.com/vestnikzemia</a>

A typical example of a pro-Russian message disseminated in the newspaper Zemya was an <u>interview</u> with Svetlana Sharenkova, the publisher of the newspaper as well as the Bulgarian subsidiaries of Russia Today and China Today, who is promoting the notion that the alliance with Russia should be a national cause. In the interview, she also claims that Russia and China will also determine the new international order.

12) Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook
Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook



Figure 5: Facebook post shared on the "Bulgaria above all" page with outright xenophobic nationalistic content demonising liberalism and sexual minorities."

narratives in Bulgaria<sup>13</sup> and the more mainstream and popular *168Chasa* (168 Hours<sup>14</sup>) outlet.

Although disinformation and problematic channels are located on the periphery, far from the largest clusters on the map, they could still be influencing the mainstream groups through an important bridge cluster<sup>15</sup>, Bulgaria Patriotic Ideas - Bulgarian History - Russophile Historical Interpretation (see Figure 6 below). This cluster is made up of a diverse set of nodes whose pages have demonstrated a propensity for diffusing pseudo-patriotic and nationalistic narratives that often spill over into racist, xenophobic, and other discriminatory rhetoric<sup>16</sup>.

An examination of the cluster reveals pages glorifying Soviet leaders<sup>18</sup>, the Russian role in the Bulgarian history, and the Communist regime. It also includes several influential pro-Russian media outlets and radical far-right and far-left pages<sup>19</sup>.

This cluster, moreover, shares a significant (above 1) heterophily score<sup>20</sup> with mainstream entertainment clusters tailored to inspirational messages. The robust connection between Facebook pages in the Bulgarian pseudo-patriotic and mainstream clusters signals that the former could be used to penetrate the general online discussion with problematic and/ or disinformation content. In this vein, the mainstream pages could, in fact, (inadvertently) serve to amplify these narratives.

The relative proximity between the 'pseudo-patriotic' and the 'Russia-linked' conspiracy clusters provides support to the claim that some disinformation narratives are finding their way into the reporting of mainstream outlets. This happens through nationalistic narratives based on a skewed, often pro-Russian, interpretation of history and through the negation of minority groups and the affirmation of ultra-conservative, traditional values in society<sup>21</sup>.

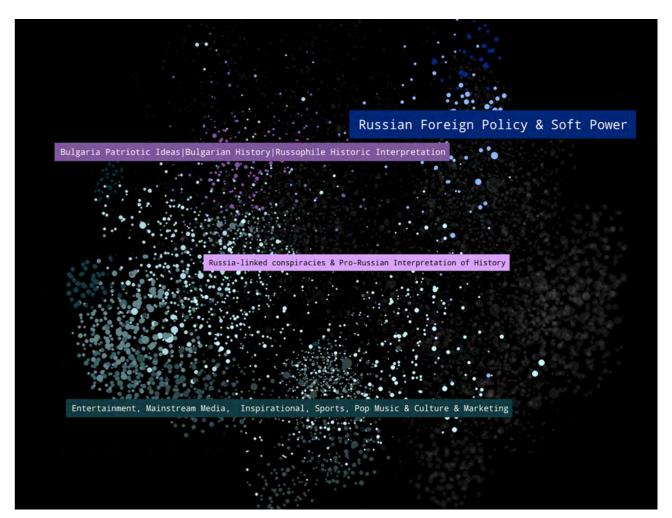


Figure 6: The 'Bridge' between Mainstream Groups, Disinformation Clusters, and Russian Propaganda Channels

The latter has been an important theme of Russian propaganda spread by Russian state-owned media outlets such as Sputnik and RT in Southeast Europe, in general, and in Bulgaria, in particular<sup>22</sup>.

#### Russian influence and links to conspiracy theories

In addition to representing a small section of the map, the Russian government nodes are not particularly dense, revealing a smaller-than-expected level of interaction between them. Among the most influential nodes in the group are the Russian foreign ministry<sup>23</sup> and the *Rossotrudnichestvo*<sup>24</sup> (Russian education, culture, and science external support program) pages. Although some of the most important Russian state foreign propaganda channels are present in the group, including RT<sup>25</sup> and Russia Beyond<sup>26</sup>,

a notable Facebook page not present is Sputnik. Unlike in the Western Balkans where it has secured a strong following with local language broadcasting, Sputnik is not popular in Bulgaria. One of the reasons for its limited reach is that in Bulgaria is the lack of local language coverage.

The different Russian embassy pages, not unexpectedly, interact actively with Russian institutional pages attentive to soft power issues including cultural and educational ties. Both Russian foreign policy and foreign non-profit entities, furthermore, are situated near the Bulgarian Socialist Party (BSP) cluster, a party that has been a staunch supporter of Russian economic and political interests in the country<sup>27</sup>. In general, the Russian influence group is located relatively close to the *Left-Wing Politics & Organizations group* (See Figure 7).

<sup>13</sup> Rumena Filipova and Todor Galev, "Bulgaria," in Russian Influence in the Media Sectors of the Black Sea Countries. Tools, Narratives and Policy Options for Building Resilience (Center for the Study of Democracy, 2018)

<sup>14 168</sup> Hours (168 часа) newspaper's Facebook page: https://www.facebook.com/вестник-168-часа-360841515749

<sup>168</sup> Hours among many other mainstream media outlets have been actively promoting conspiracy theories regarding the origins of the Coronavirus spreading a popular Russian disinformation narrative claiming that the virus was engineered in a <u>research lab</u>.

<sup>15</sup> Bridge cluster refers to a cluster from one group, which displays a significant level of proximity to clusters from other groups.

<sup>16</sup> A typical example is the Facebook page, Lyubomir Talev's conservative Blog, <a href="https://www.facebook.com/Kohcepвативният-блог-на-Любомир-ТалевLyubomir-Talevs-conservative-Blog-1631251033814317/">https://www.facebook.com/Kohcepвативният-блог-на-Любомир-ТалевLyubomir-Talevs-conservative-Blog-1631251033814317/</a>; Bulgaria above all ("България над всичко"), <a href="https://www.facebook.com/Kohcepвативният-блог-на-Любомир-ТалевLyubomir-Talevs-conservative-Blog-1631251033814317/">https://www.facebook.com/Kohcepвативният-блог-на-Любомир-ТалевLyubomir-Talevs-conservative-Blog-1631251033814317/</a>; Bolgari.net, <a href="https://www.facebook.com/Bolgari.net">https://www.facebook.com/Bolgari.net</a>; I am a Bulgarian and I a proud of it ("Аз съм българин и се гордея с това"), <a href="https://www.facebook.com/velika.bulgaria">https://www.facebook.com/velika.bulgaria</a>; Bulgaria Facebook Page, <a href="https://www.facebook.com/velika.bulgaria">https://www.facebook.com/velika.bulgaria</a>; Bulgaria Facebook Page, <a href="https://www.facebook.com/patriotic.news.sofia">https://www.facebook.com/patriotic.news.sofia</a>

<sup>17</sup> Translation of Angel Dzhambazki's Facebook post (MEP from the Bulgarian nationalist political party, VMRO): 'This disgusting anti-Bulgarian, pro-Serbian, Comintern-like stupidity has already been brought to the attention to the European Commission through some urgent questions I posed. My questions are not complicated: 1. Can these "things" be part of the European Union? 2. What will the European Commission do to protect the life, health, property and honour of the Macedonian citizens with a Bulgarian national identity from such barbaric atrocities? P.S. Many greetings from "comrade" Tito to the "posh Sofia" liberals and national traitors from the LGBT movements, and to the pro-Macedonian Sofian grant-corrupted "professors". #ThisMacedoniaShouldNotBeInTheEU'

<sup>18</sup> A typical example is the Facebook page, Stalin, <a href="https://www.facebook.com/Putin.Stalin.Nikolai">https://www.facebook.com/Putin.Stalin.Nikolai</a> or To Return to Socialism ("Да се върнем към социализма").

<sup>19</sup> Information Portal, <a href="https://www.facebook.com/informacionen.portal">https://www.facebook.com/informacionen.portal</a>; WikileaksBulgaria, <a href="https://www.facebook.com/wikileaks.bulgaria">https://www.facebook.com/informacionen.portal</a>; WikileaksBulgaria, <a href="https://www.facebook.com/wikileaks.bulgaria">https://www.facebook.com/informacionen.portal</a>; WikileaksBulgaria, <a href="https://www.facebook.com/wikileaks.bulgaria">https://www.facebook.com/wikileaks.bulgaria</a>; For the land of the Bulgaria, <a href="https://www.facebook.com/thisisbulgaria">https://www.facebook.com/wikileaks.bulgaria</a>; For the land of the Bulgaria, <a href="https://www.facebook.com/thisisbulgaria">https://www.facebook.com/thisisbulgaria</a>; For the land of the Bulgaria, <a href="https://www.facebook.com/thisisbulgaria">https://www.facebook.com/thisisbulgaria</a>; This is a href-this is a href-this i

<sup>20</sup> A heterophily score is a precise measure of connections between groups or between clusters in a map, i.e. a higher score indicates closer connections between members of a specific network. Specifically, the score is a measure of the connections between groups in a network, where a ratio is calculated by the actual ties between two groups compared with the expected number of ties between them if all the ties in the network were distributed evenly. The calculation for groups on Twitter is based on follower accounts and accounts followed, and Facebook ties on page likes. See the Methodology section below for all the important analytical indicators.

<sup>21</sup> Rumena Filipova and Todor Galev, "Bulgaria," in Russian Influence in the Media Sectors of the Black Sea Countries. Tools, Narratives and Policy Options for Building Resilience (Center for the Study of Democracy, 2018)

<sup>22</sup> Stefanov, Ruslan and Vladimirov. 2020. The Kremlin Playbook in Southeast Europe: Economic Influence and Sharp Power. Center for the Study of Democracy, Sofia

<sup>23</sup> Russia's Foreign Ministry Facebook page, <a href="https://www.facebook.com/MIDRussia">https://www.facebook.com/MIDRussia</a>

<sup>24</sup> Rossotrudnichestvo Facebook page, <a href="https://www.facebook.com/rsgov">https://www.facebook.com/rsgov</a>

<sup>25</sup> RT's Facebook page, <a href="https://www.facebook.com/RTRussian">https://www.facebook.com/RTRussian</a>

<sup>26</sup> Russia Beyond's Facebook page, <a href="https://www.facebook.com/russiabeyond">https://www.facebook.com/russiabeyond</a>

<sup>27</sup> Ibi

14) Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook (15)

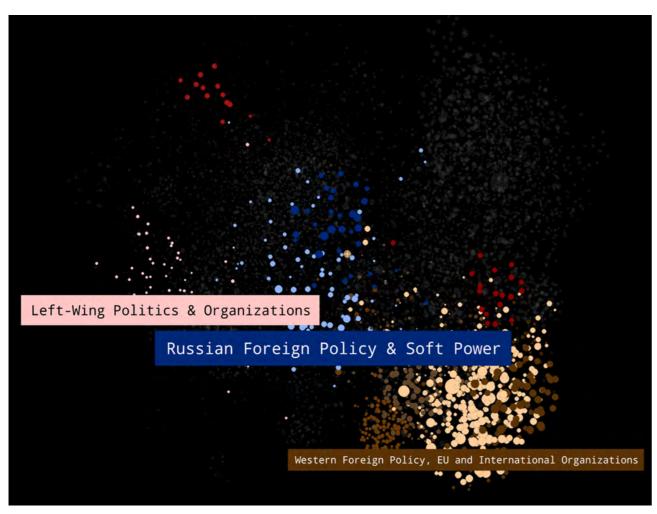


Figure 7: The Reach of the Russian Influence Group into the Facebook Map

Despite the fact that the heterophily score<sup>28</sup> is low between the two groups, closer scrutiny of the Left-Wing group reveals that there are key bridge nodes that assist Russian narratives seep into left-wing political conversations. Rusofili<sup>29</sup>, a Bulgarian NGO that advocates closer ties with Russia, is a prominent example of one such bridge account. The leader of Rusofili, Nikolai Malinov, former parliamentary MP from the Bulgarian Socialist Party (BSP), was recently caught up in an espionage scandal and arrested in September 2019 on charges of having worked for the Russian oligarch, Konstantin Malofeev, and the former KGB General, Leonid Reshetnikov, with the aim of undermining the Bulgarian Euro-Atlantic foreign policy<sup>30 31</sup>. Another important bridge node is the Facebook page of Ivo Hristov <sup>32</sup>, a pro-Russian BSP politician and a former member of parliament<sup>33</sup>. It is noteworthy that left-leaning public Facebook pages that represent mainstream parliamentary

political parties in an EU member-state share more affinity with Russia in the public discourses and content they ascribe to than with Euro-Atlantic institutions.

Another notable pattern apparent in the map concerns the fact that official Russian foreign policy channels neighbour the Western Foreign Policy, EU, and International Organizations group (See Figure 7 above), one of the largest and densest groups on the Bulgarian Facebook map. The latter grouping comprises 8 percent of the entire map, encompassing more than 1,000 nodes including all major EU and UN agencies and the embassies and diplomatic representations of major Western countries. The close relations between organizations and intergovernmental institutions with seemingly divergent political agendas could underline the echo chambers that operate in the Western multilateral

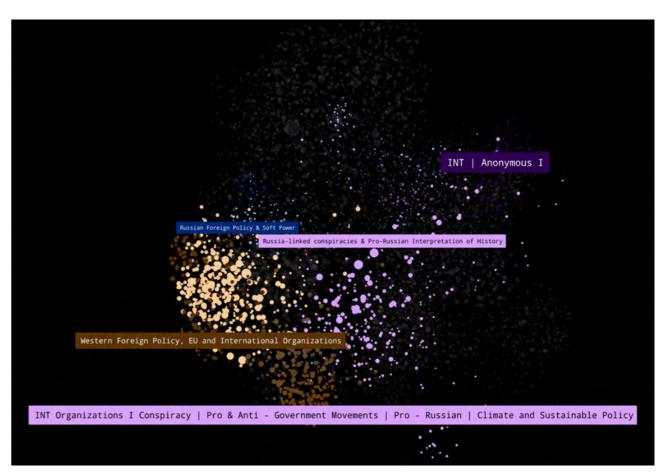


Figure 8: Western Foreign Policy Links to International Media and Conspiracies

public sphere. This phenomenon witnesses shared narratives on global cooperation on joint threats and objectives. This trend is captured by the higher focus scores within the group<sup>34</sup>. These shared narratives include common Western policy positions on battling the COVID-19 pandemic, on sanctions against Russia or the provision of humanitarian aid to conflict regions. The prevalence of these narratives within Russian foreign policy circles, consequently, can likely be explained by the prominence of this global issue agenda including in the framework of UN meetings. While the narratives might be the same, their spin in the Russian foreign policy circles tends to be very different from how events are seen in Western institutions. For example, Russia clearly states its opposition to Western involvement in the resolution of the conflict in Eastern Ukraine or in the development of Gazprom-led pipelines in Europe. In addition, Russia drums up its role in global fora and seeks to actively engage in political discussions on global issues, part of the Kremlin's strategy to present itself as a global superpower.

Another large cluster, International Organizations / Conspiracy / Pro & Anti-Government Movements / Pro - Russian / Climate and Sustainable Policy, is also connected to influential nodes within the international organizations and Western diplomatic institutions grouping. This cluster encompasses a diverse array of pages including global media outlets, influential international NGOs focused on sustainability issues, and anti-globalization and anarchist organizations. And its narratives are largely driven by the political discussions of the day within international bodies, with the pages serving a role in either backing or opposing government decisions. The fringe cluster of *Anonymous* accounts, attuned to the anarchist group's global anti-capitalist and anti-elitist movement, lies on the periphery of this broader international cloud. These nodes exert direct influence on similar far-right and far-left pages in Bulgaria and are engaged in only limited interaction with Russian civil society and cultural institutions.

<sup>28</sup> A heterophily score is a precise measure of connections between groups or between clusters in a map, i.e. a higher score indicates closer connection between members of a specific network. See Methodology section for further information. 29 Rusofili Facebook page, https://www.facebook.com/groups/257614811404423

<sup>30</sup> Nickodimov, Ivo. "A judge is being investigated for discharging Nickolay Malinov, accused of spying on behalf of Russia (Проверяват съдия заради обвинения в шпионаж Николай Малинов)", Bulgarian National Television, 4 November 2019

<sup>31</sup> DW. "The first Bulgarian in the black list of the United States: who is Andon Mialov?" (Първият българин в черния списък на CALЦ: кой е Андон Миталов?). 5 February. 2020. 32 There are two main public Facebook pages for Ivo Hristov with a combined following of more than 40,000 accounts: https://www.facebook.com/

ProfessorIvoHristov; https://www.facebook.com/profesorivohristov

<sup>33</sup> Humanitarian and Sociological Studies Foundation. Second Part: Online Media in 2017 - Frequency Measurement and Analysis of the Content. 2017

<sup>34</sup> Focus score measures how much attention a cluster or group is paying to a particular object - that entity could be a particular page, URL, keyword, or hashtag. "Attention", meanwhile, can be defined as the intensity of interactions of users of the nodes in a group including in the form of likes, reads, shared

16) Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook

Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook

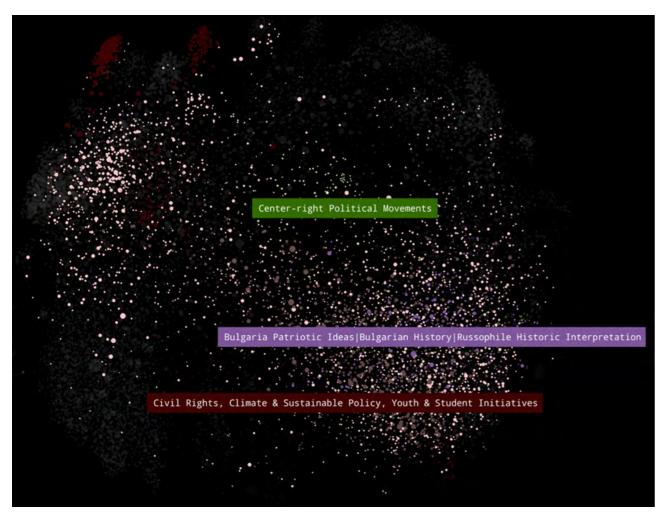


Figure 9: The Central Part of the Map is Dominated by Divergent Clusters from the Civil Society, Activist, and Artistic Spectrum

# Problematic Clusters Within the Broader Civil Society Community

The central section of the Bulgarian map is predominantly filled by clusters consisting of civil society organizations, environmental advocacy groups, and artistic and urban lifestyle communities. The most important clusters here include International Bulgaria Civic Activism and Bulgaria Art/Culture, which combine to make up more than 20 percent of the entire Facebook map (See Figure 9 below). It is important to note that the pages within these two clusters interact closely with numerous nodes that host mainstream media outlets and Bulgarian government pages, evidenced, for example, by their proximity to the Center-Right Political Group. This one is home to the ruling Citizens for European Development of Bulgaria (GERB)<sup>35</sup> party and the opposition Democrats for Strong Bulgaria (DSB)<sup>36</sup> party, with both, alongside numerous civil society organizations in the country, sharing similar links and content.

What is more noteworthy, however, is that the problematic cluster of Bulgaria Patriotic Ideas and Russophile Historical Interpretations, discussed above as a possible bridge for Russian propaganda, finds itself enmeshed within the civil society Facebook page community. The proximity between this cluster and the Civil Rights/Civil Society group could be the result of the pseudo-patriotic cluster's partial focus on Bulgarian folklore, traditions, art, and history, topics that could link with mainstream discussion pages on art and lifestyle. This proximity, nonetheless, underscores a possible route for problematic content to seep into mainstream pages and gain an audience from a broader range of participants. A heterophily score greater than two is indeed indicative of a large number of connections between these clusters.

#### **ROMANIA**

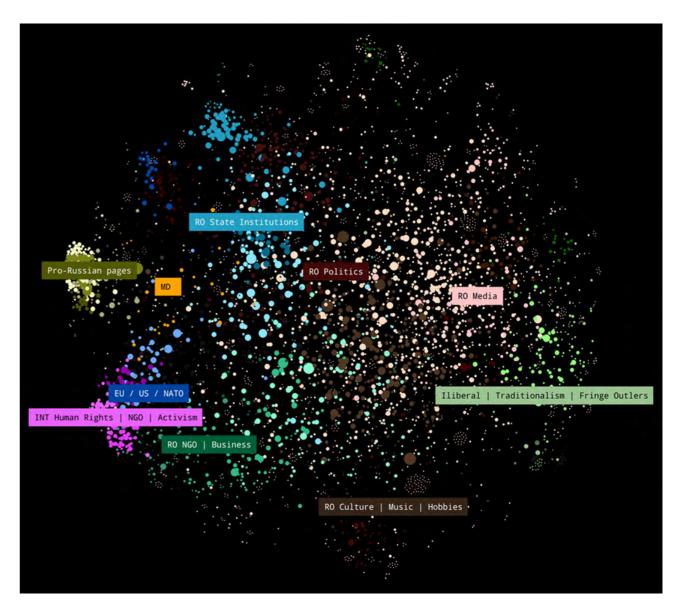


Figure 10: Mainstream Political Clusters and Media Outlets, State Institutions, and Civil Society pages at the centre of Romanian political conversations on Facebook

The Romanian map is comprised of 4,741 nodes (public Facebook accounts). The pages that were deemed to be thematically and/or ideologically related to Graphika's machine-learning algorithm were aggregated into 46 clusters. These clusters were, in turn, assorted by GlobalFocus analysts into 12 broader groups associated with different categories relevant for the analysis of public political conversation on Romanian Facebook.

The two largest groups are both dispersed throughout the centre of the map and together comprise the majority of the map's nodes. The largest group, *Romanian Culture/Music/Hobbies*, alone accounts for 32 percent of the map (coloured in variations of brown and beige depending on the density of

its component clusters). Although most accounts within this group are primarily concerned with topics related to entertainment, leisure, and/or culture, its largest cluster (titled *Romanian heterogenous public communication* and covering 23 percent of the map) is far more diverse, consisting of a large number of pertinent accounts from political, civil society, business, and media circles.

Meanwhile, the clusters of the second largest group, Romanian Politics, are largely constituted by pages of political figures and political party branches (coloured in variations of red and extending over 29 percent of the map). All other groups are significantly smaller in size.

<sup>35</sup> GERB's Facebook page, <a href="https://www.facebook.com/PPGERB">https://www.facebook.com/PPGERB</a>

<sup>36</sup> DSB's Facebook page, https://www.facebook.com/dsb.bg

18) Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook
Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook

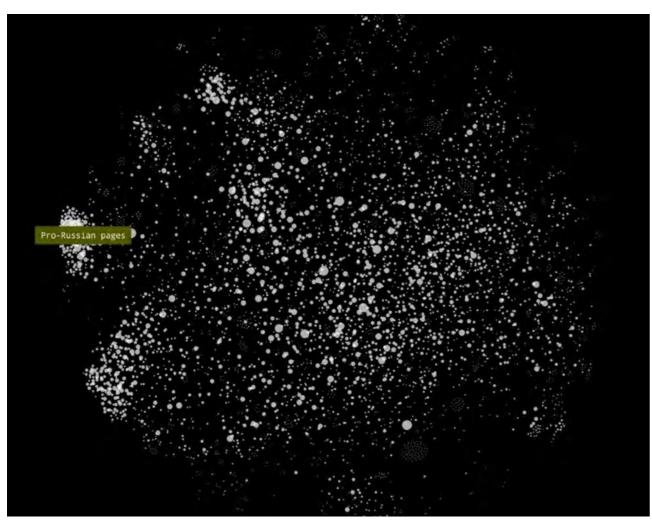


Figure 11: Density map of Romania's politically focused Facebook landscape. The Pro-Russian clusters represent the most isolated and dense group on the map.

The centre of the map is largely occupied by accounts that take part in public debates on current affairs. It is indeed encouraging that a stretch of NGO and business clusters are situated towards the middle (coloured seafoam green on the map and making up 8 percent of all nodes), bridging the few gaps between political clusters. The group of State Institutions nodes (coloured light blue and occupying 6 percent of the map) also takes up a fairly central position, overlapping with clusters that host a majority of political party accounts.

All foreign and international pages are situated at the leftmost periphery of the map. The pro-Russian group, comprised of clusters of Russian political figures, institutions, media outlets, and cultural and patriotic accounts is shaded yellow and accounts for 6 percent of the entire map. The cluster of Moldovan pages, similarly diverse, covers only 1 percent of the map (orange-coloured). The group containing pages of institutions and political figures from the European Union, NATO, and the United States is coloured

dark blue, amounting for 1 percent of all nodes. International pages on human rights and activism, finally, are shaded light purple.

### Overtly pro-Russian pages lack influence on Romanian Facebook

The "Pro-Russian" group is made up of six tightly interconnected clusters examining different topics, ranging from media and politics to culture and diplomatic institutions. The Russian pages, shaded in green, particularly stand out for two reasons. Firstly, the group ranks as the most concentrated section of the map based on colour-blind density<sup>37</sup>. Secondly, it appears to be the most isolated of all groups, with minimal bridge accounts linking it to mainstream discourses.

The group's compact and isolated attributes buttress the argument that overtly pro-Russian speech falls

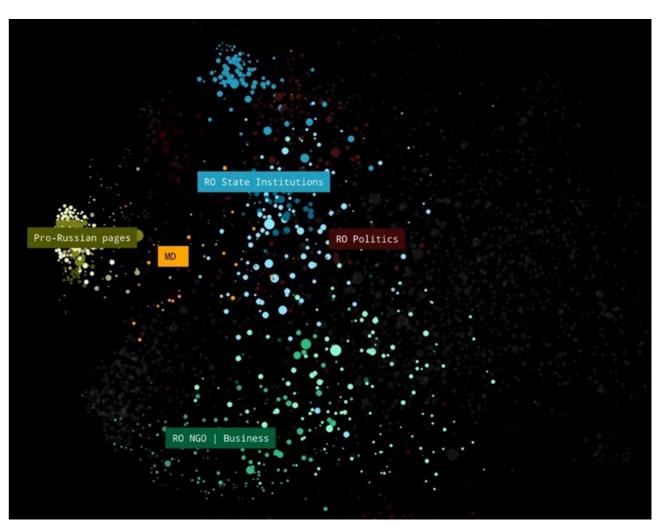


Figure 12: The cluster of Moldovan accounts (MD) appears to bridge the isolated pro-Russian accounts with the mainstream political and social conversation on Romanian Facebook.

on deaf ears in Romania. The country indeed shares few economic, social, and cultural ties that can be instrumentalised through pro-Kremlin propaganda<sup>38</sup>. On the contrary, Romania's long-standing historical grievances with Moscow have put up formidable obstacles that make it nearly impossible for stridently pro-Kremlin narratives to cut through. To the extent that radical speech exists in Romania, in fact, it tends to take on an anti-Russian<sup>39</sup> dimension. Russia's strategy in Romania, consequently, has turned to promoting disruptive narratives aimed at undermining trust in Romanian democracy and Bucharest's Euro-Atlantic partners.

The Moldovan cluster, nevertheless, stands out as an exception, representing a unique bridge between isolated Russian clusters and civil society, news media, institutional, and political accounts at the

centre of the map. This relationship is predicated on the strong ties (cultural, linguistic, economic) between the Republic of Moldova and both Russia and Romania. Scrutinizing specific nodes, however, reveals that this cluster is predominantly constituted by accounts of Moldovan state institutions<sup>40</sup>, Westernfunded NGOs<sup>41</sup>, and pro-European media outlets<sup>42</sup>. These organizations tend to be either neutral or staunchly pro-democracy and pro-Western in their orientation. Even this cluster, therefore, provides only limited opportunity for pro-Kremlin narratives to seep in. There is little evidence, in other words, that Moldovan accounts present a backdoor option for Russian disinformation content to reach audiences in Romania, notwithstanding the success of Sputnik. md<sup>43</sup> - the primary pro-Russian outlet in Romania, this website is a Moldovan-based entity but operates

<sup>37</sup> In this context, the density depicts how concentrated a cluster is, which, in turn, suggests how closely interconnected its component nodes are.

 $<sup>38 \</sup>quad \underline{\text{https://www.global-focus.eu/wp-content/uploads/2018/03/Propaganda-Made-to-Measure-How-Our-Vulnerabilities-Facilitate-Russian-Influence.pdf}$ 

<sup>39</sup> https://romania.europalibera.org/a/interviu-george-simion-despre-cine-e-%C3%AEn-spatele-aur-legionari-rusia-%C8%99i-politicieni/30990612.html

<sup>40 &</sup>lt;a href="https://www.facebook.com/minister.agricultura.dezvoltare.regionala.mediu">https://www.facebook.com/minister.agricultura.dezvoltare.regionala.mediu</a>

<sup>41 &</sup>lt;a href="https://www.facebook.com/fsorosmoldova">https://www.facebook.com/europalibera.org</a>

<sup>43</sup> https://sputnik.md/

20) Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook (21)

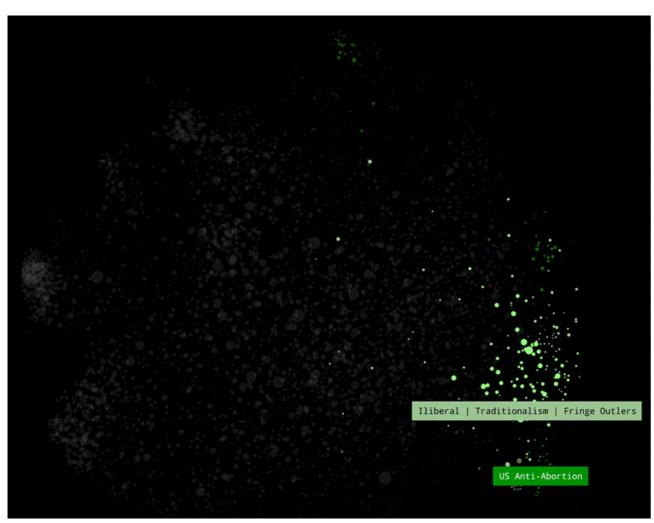


Figure 13: The far-right, illiberal clusters appear to be relatively isolated at the rightmost edges of the map.

in Romania and covers stories of interest in the country<sup>44</sup>.

#### **Bridge accounts fostering** divisive narratives

The Illiberal - Traditionalism - Fringe Outlets community gains the moniker of being the only Romanian based group to be labelled "problematic" in its entirety. Its component clusters are coloured light green and occupy 5 percent of the Romanian map. The US Anti-Abortion cluster, situated within the International Illiberal - Conspiracy group, shaded dark green, notably appears to be connected to problematic Romanian clusters. Intermixed with conservative Facebook pages from the United States, including "LifeSiteNews" 45 and "Students for Life of America"46, it is also closely intertwined with Romanian anti-abortion pages. Numerous Romanian

conservative pages are, furthermore, linked to "marches for life" 47 events in different Romanian cities organised by various conservative groups that belong to the "Coalition for Family" 48. The umbrella organisation (made of many conservative NGOs known to have strong ties with US-based neo-protestant entities) gained notoriety in 2018 following its campaign in favour of a referendum seeking to ban same-sex marriages in Romania. The initiative was ultimately ruled invalid<sup>49</sup> on account of historically low turnout. One of the most prominent organisations in "Coalition for family" is the Alliance for Families in Romania.

Two conclusions can be drawn from analysing the position of illiberal clusters that distribute ultraconservative, far right, and Orthodox content. On the one hand, their relatively compact nature indicates the existence of loyal audiences or echo chambers. These pages function to contest

#### Dreptul la liberă exprimare, în pericol în SUA? Un profesor de jurnalism trage semnalul de alarmă



Autor: Alecsandru Ion 14 ianuarie 2021

Figure 14: An example of problematic articles disseminated on Romanian Facebook. The title claims 'The freedom of expression, endangered in the US? A journalism professor is giving a warning.' (Published on the 14th of January 2021, on the website Capital.ro)

mainstream narratives promulgated by NGOs, media outlets, and political actors. These clusters, on the other hand, appear to be all isolated towards the rightmost edges of the map with the exception of a few nodes (these include accounts that engage with causes with a slightly broader appeal like the reunification of the Republic of Moldova and Romania<sup>50</sup> and the "protection of local peasant farms"51). In this vein, divisive speech rooted in conservative and Orthodox values can be said to have gained little traction in mainstream circles. There are two notable reasons, however, to be wary of such a conclusion.

Firstly, a considerable number of problematic articles<sup>52</sup> are propagated on Facebook by outlets seeking to project an air of objectivity and professionalism even as they occasionally promote meticulously crafted articles that effectively launch fringe ideas into mainstream discussions. Through

examining individual nodes in less granular clusters on the map, it can be noted that the presence of such bridge nodes are indeed often concealed by the broader noise of the Romanian heterogenous public communication cluster. Despite this cover, they, in fact, occupy a rather central position on the map, overlapping with core sections of the Political and Media clusters. Examples include the "Nasul TV"53 channel and the misleading anti-liberal and anti-EU "Capital.ro" newspaper<sup>54</sup>.

Secondly, as data collection for the map transpired over the summer, it did not capture the meteoric rise in reach of public accounts connected to the Alliance for the Union of Romanians (AUR), the first far-right party to enter the Romanian Parliament in over a decade following the country's December 2020 Parliamentary Elections. Recently published research carried out by the GlobalFocus Centre, nevertheless, has analysed the rising influence of

<sup>44</sup> A little over 17 percent of Sputnik.md's traffic is from Romania: https://www.similarweb.com/website/sputnik.md/#overview

<sup>45</sup> https://www.facebook.com/LifeSiteNews https://www.facebook.com/studentsforlife

<sup>47 &</sup>lt;a href="https://www.facebook.com/marsulpentruviatabucuresti">https://www.facebook.com/marsulpentruviatabucuresti</a>

<sup>48</sup> https://www.facebook.com/coalitiapentrufamilie

<sup>49</sup> https://www.digi24.ro/referendum-familie-2018/referendum-schimbare-constitutie-redefinire-casatorie-familie-1008821

<sup>50</sup> https://www.facebook.com/miscareaunionista

<sup>51</sup> https://www.facebook.com/%C8%9A%C4%83ranul-rom%C3%A2n-Salva%C8%9Bi-gospod%C4%83riile-%C8%9B%C4%83re%C4%83ne%C8%99ti-din-Rom%C3%A2nia-Save-peasant-farms-148851148501205

<sup>52</sup> https://www.capital.ro/dreptul-la-libera-exprimare-in-pericol-in-sua-un-profesor-de-jurnalism-trage-semnalul-de-alarma.html

<sup>53</sup> https://www.facebook.com/Nasul.tv

<sup>54</sup> https://www.facebook.com/capital.ro

Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook

Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook

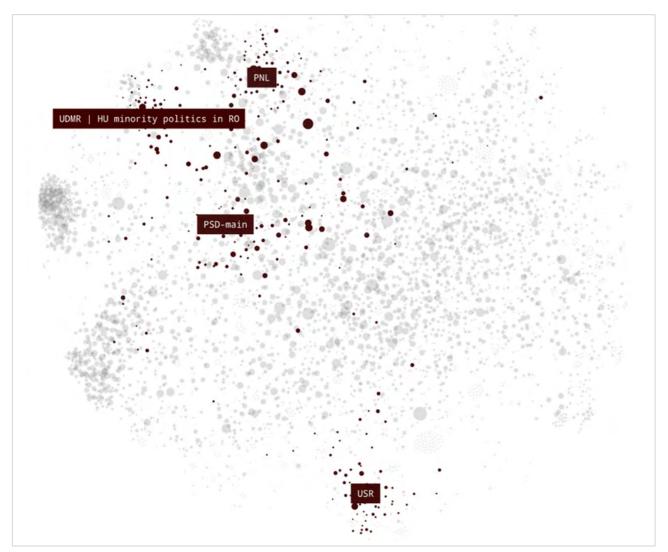


Figure 15: Establishment parties' nodes are located in close vicinity while the newer, anti-establishment USR party cluster is positioned at the opposite edge of the map.

AUR-linked political figures. In this research, the page of party co-leader George Simion, for example, came to dwarf the audience<sup>55</sup> of all rival political competitors in the run-up to the elections. AUR's rhetoric has particularly been directed towards the narratives of preserving the nation's identity and Orthodox values and resisting nefarious influences from the West. These topics had rarely been broached in election debates prior to the party's success in the elections. It is, therefore, possible that even some of the more isolated ultraconservative nodes may have moved closer to the centre of the map in recent months.

This chapter would, finally, not be complete without mention of the peculiar nature of far-right and divisive speech in Romania and Russia's approach towards it. Due to a complicated shared history, Romanians tend to perceive Russia as the greatest threat to the country. Even the very traditionalist and identity-oriented discourse that is utilised by Russia in other

countries to promote its agenda and regional vision tends to be blemished by anti-Russian connotations in Romania. The distant spatial separation between clusters representing the illiberal and far-right nodes and those comprising the overtly Pro-Russian group further confirms this distinct situation. This does not mean, however, that pro-Russian entities are completely unable to find ways to exploit divisive speech to support their interests. Instead of promoting Russia as a partner or even sister-nation, narratives<sup>56</sup> diffused by pro-Russian pages rather demonstrate a propensity to focus on promoting Euroscepticism and illiberal thought through disinformation. The largest component of this informational manipulation effort is indeed directed towards undermining the population's trust of Western partners without explicit mention of Russia. Disinformation is instead targeted to inflame deeply ingrained beliefs like the notion that Romanians are disrespected by arrogant Western countries and treated as if they were second-class EU citizens.

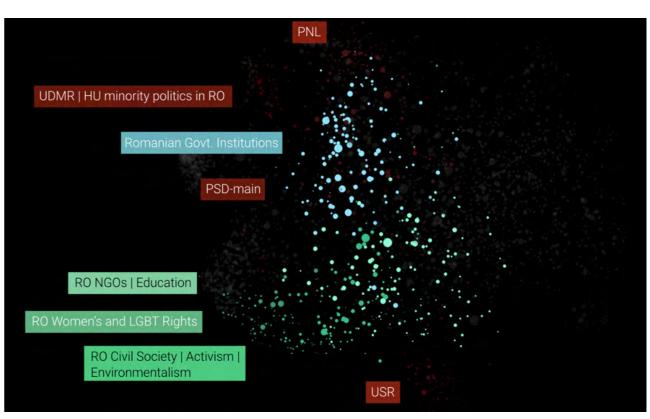


Figure 16: The clusters of establishment party accounts are closely intertwined with the state institutions group while newer USR is positioned closer to NGO clusters.

#### 'Fluid' political ideologies leads to an overlap of politically affiliated accounts

All Romanian political party and political leader clusters congregate together in the *Romanian Politics* grouping. Compared to other countries in the region, ideological differences between parties are indeed less clear-cut and consistent.

The absence of ideological consistency among political parties (particularly establishment parties), in part, underpins and is itself underpinned by the sizeable contingent of swing voters in the country. The National Liberal Party (PNL)57 and Social-Democratic Party (PSD)<sup>58</sup> clusters, representing two of the largest parties and pages associated with central figures in each movement, are consequently located in close proximity, reflecting their ideological overlap on certain issues. This comes despite the fact that two parties, clash with and oppose one another. Though there is an overall low-level polarisation in discussing certain subjects, there is also a considerable amount of divisive social media interaction between the two parties, with each seeking to lambast the other's proposals, policies, and moral conduct. Meanwhile, the Democratic

Alliance of Hungarians in Romania (UDMR)<sup>59</sup>, the central political organ of the Hungarian minority in Romania, is closely connected to both the PSD and PNL clusters. The party, in fact, has demonstrated a repeated willingness to collaborate with both major parties to form government coalitions over time.

A notable outlier from this pattern, nonetheless, is the cluster of USR-PLUS politicians and party branches. The cluster is located in the lower-left portion of the map and placed at a sizeable distance all other political clusters. It is, however, positioned more closely to nodes representing Romanian and international NGOs, consistent with the party's<sup>60</sup> socially liberal, anti establishment, pro-liberal identity and civil society origins.

Unsurprisingly, long-established parties like PNL, PSD, and UDMR, which have participated in the governance of the country over the past three decades, are also closely intertwined with the Governmental Institutions cluster.

 $<sup>\</sup>label{eq:local_problem} \begin{array}{ll} \text{55} & \underline{\text{https://www.iribeaconproject.org/our-work-research-and-data/2020-12-07/romanian-election-re-election-flash-report?fbclid=lwAR0dfS-0E8C2WUv8\_7kP} \\ & \underline{\text{G8dpDiV1YtkYpOa9i28JYNHV5FSKAiOmkxhoLtQ}} \end{array}$ 

<sup>56</sup> https://ro.sputnik.md/International/20200512/30223733/Uluitor-Pn-i-George-Soros-prevede-sfritul-UE.html

<sup>57</sup> https://www.facebook.com/pnl.ro

<sup>58 &</sup>lt;u>https://www.facebook.com/PartidulSocialDemocrat</u>

<sup>59</sup> https://www.facebook.com/RMDSZ

<sup>60</sup> https://www.facebook.com/USRNationa

24) Pro-Kremlin Disinformation Networks on Bulgarian and Romanian Facebook

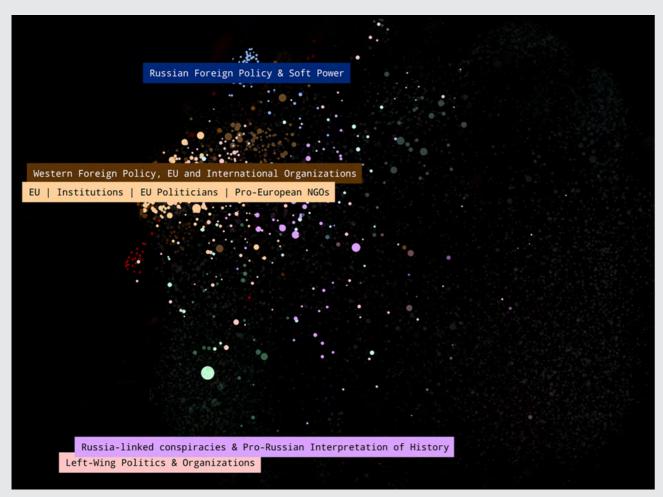


Figure 17: Overlapping clusters between Bulgarian and Romanian Facebook communities.

#### Overlaps between Romanian and Bulgarian communities on Facebook

There are minimal overlaps between the Bulgarian and Romanian maps (only 309 nodes altogether), confined mostly to the international pages of NGOs and Russian diplomatic accounts. Only a little over 2 percent of the 13,179 nodes on the Bulgarian map also appear on the Romanian map. These findings are not unexpected given the lack of a shared language and particularly pertinent cultural and historical experiences between the two countries.

# Overlaps between Bulgarian and North Macedonian communities on Facebook

The Bulgarian and North Macedonian maps both include many of the same Western Foreign Policy groups (the EU institutions cluster is especially relevant) and civil society related clusters. More notably, certain elements of the "pro-Russian"

narratives" bridge, namely the Russia-linked conspiracies & pro-Russian interpretation of History group, are shared between the two countries. Indicating a common Kremlin approach to disinformation. This commonality also underscores possible openings for Russia to steer dialogues between the two societies given that history and language have been a point of friction in their relations most recently. OVERLAPS

# Overlaps between Bulgarian and Montenegrin communities on Facebook

A broad swath of the Western Foreign Policy, EU and International Organization clusters are shared by the Bulgarian and Montenegrin maps. Montenegro is also one of the few Balkan countries to share nodes from the Russian Foreign Policy & Soft Power group. Given the small size of this group, finding it on both the Bulgarian and Montenegrin maps was rather unexpected and is indicative of potential similarities in the Kremlin approach to disinformation in the two countries.

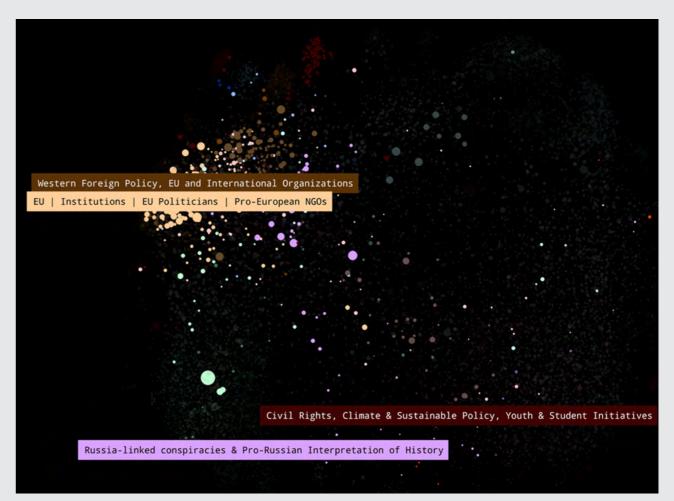


Figure 18: Overlapping communities on Bulgarian and North Macedonian Facebook

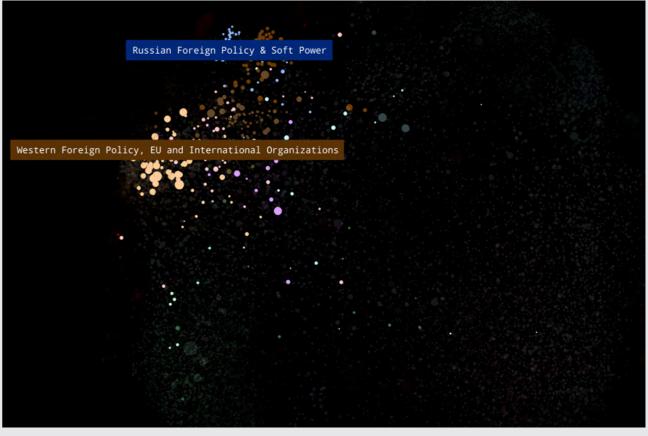


Figure 19: Overlapping communities on Bulgarian and Montenegrin n Facebook.

#### **METHODOLOGY**

Most analyses of online conversation data are content based and view social media as a single data stream of actions and content in time. The Graphika approach is to map the networks within which these messages flow, in order to understand patterns of influence in the context of specific online communities.

Graphika maps out network terrains using a combination of network analytic and machine learning algorithms that discover the overall topology of a network and identify granular communities of interest within it by clustering based on patterns of connections from the mapped accounts (subgraph) to accounts across the entire platform. This patented technique, more precise than traditional network community detection, typically reveals 30-70 specific micro-segments within the network. This segmentation is then leveraged to identify who (influencers) and what (content) is most interesting and impactful for each segment of the network.

#### **COLLECTION & NETWORK** REDUCTION

This process is initialized with a data collection query to discover nodes that match the intended scope of the map (in this case, the list of pages outlined in the section 'Development of this report'). A node is a social media account, in this case, a Facebook Public Page. We use a combination of public APIs and data commercial data providers to identify every node in scope for a map, as well as network connections between these nodes.

Typically, tens to hundreds of thousands, or even millions, of nodes make it into an initial mapping. However, the vast majority of these nodes are inactive or poorly connected. Graphika combines simple activity filters with a sophisticated iterative process based on "k-core" network reduction to identify the "influence core" - the most active, bestconnected nodes in a network terrain. Typically, ten to fifteen thousand nodes make it past Graphika's filters and into the influence core.

#### **CLUSTERING & LABELLING**

Our network clustering algorithm (called "Attentive Clustering") works for any type of online conversation or social media network, though the network features used to cluster will differ based on the nature of relationships within the specific platform. For any platform, a "recipe" of which features produce the strongest results has been determined through experience.

Graphika's Attentive Clustering approach uses a recipe to construct a network of relationships between nodes in the terrain and the wider social media space in which these nodes are embedded. Facebook is clustered based on "like" relationships among Public Pages. This technique allows extremely granular, high-dimensional comparison of nodes (as opposed to modularity or minimumcut clustering techniques, which are limited to the internal connections in a network subgraph). This process typically reveals 30-70 micro segments within a map. Graphika aggregates these segments into 4-8 groups so that it is easy to understand the communities in the map at a high level, before drilling down to the full segment list. Graphika's process for generating cluster labels is automated, with human quality assurance.

Graphika's learning algorithm searches a library of several thousand maps with human-validated cluster labels and generates new labels based on the similarity between these clusters and clusters in a new map. At the end of the automated process, an analyst knowledgeable in the topic and/or geographical area covered by the map performs a quality assurance check on the cluster labels.

#### **METRICS**

#### **Density**

Graphika's physics-model layout algorithm functions as a type of locally-optimized multi-dimensional scaling, in which discovered communities with a high degree of coherence form visually dense groupings. The platform displays a proprietary density metric calculated as: 1 / (average Euclidean distance between all pairs in the segment). A higher number indicates segments with tightly grouped members. In the case of Facebook maps on average, a density of around 5 is considered low and around 25 is considered high.

#### Heterophily score

A heterophily score is a precise measure of connections between groups in a network; a score above 1 indicates a statistically significant number of connections between/within groups. Specifically, the score is a measure of the connections between groups in a network, where a ratio is calculated of the actual ties between two groups, compared with the expected number of ties between them, if all the ties in the network were distributed evenly. The calculation for groups on Twitter is based on follower accounts and accounts followed, and Facebook ties on page likes.

#### Focus score

Focus score measures how much attention a cluster or group is paying to a particular object - that entity could be a particular page, URL, keyword, or hashtag. Focus score is calculated as the differential between an expected attention baseline and the observed attention paid to the entity in question; using a statistical method called a standardized residual it can be determined how unique it is that a cluster is paying attention to a given phenomenon. A focus score greater than 2 is considered statistically significant - this score indicates high confidence that a cluster or group is paying a non-random amount of attention to a phenomenon.

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#### **DISCLAIMER**

The information provided in this report has been generated through Graphika's bespoke computing system whose outputs have been interpreted by the authors based on their professional expertise and knowledge.

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