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VISUALISING INFLUENCE

Information bubbles and ideological proximities on Czech, Hungarian & Slovak Facebook

AUTHORS

- **Miroslava Sawiris**
  Research Fellow
  GLOBSEC
- **Patrik Szicherle**
  Analyst
  Political Capital
- **Jonáš Syrovátka**
  Programme Manager
  Prague Security Studies Institute
- **Csaba Molnár**
  Quantitative Analyst
  Political Capital

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Prague Security Studies Institute

POLITICAL CAPITAL
POLICY RESEARCH & CONSULTING INSTITUTE

Dislaimer: 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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DEVELOPMENT OF THIS REPORT

This report has been produced in cooperation with Graphika, a company that uses artificial intelligence (AI) to discover and map networks and communities on social media[1]. Equipped with lists encompassing the names of the most influential public Facebook pages in Czechia, Hungary and Slovakia, Graphika's machine-learning algorithm and specific computing method[2] were utilised to order and refine this information and identify online communities in the three countries. This analysis scrutinized the most pertinent actors in the information ecosystem including, among others, mainstream media outlets, prominent political figures and political parties, alternative and problematic media sources, sites devoted to political and social causes, local and international institutions and accounts linked to entertainment and marketing.

RELATIONSHIPS BETWEEN PAGES VISUALISED IN NETWORK ANALYSIS

Based on the data generated, Graphika created maps visualising Facebook communities of interest for each of the three countries. The maps illustrate not only the most influential public Facebook pages in the three countries but also the relations between them, indicated by "like" relationships between public pages[3]. In this regard, the maps shed light on the different communities that produce media in each country and the ways in which they interact with and influence one other.

MAPS REVEAL INTERNATIONAL IDEOLOGICAL OVERLAP BETWEEN COMMUNITIES EXAMINED

There are numerous foreign media pages included in the maps on account of the fact that local sites often have strong connections and ideological affinities, as evidenced by mutual likes, with those from abroad[4]. Some pages, consequently, are present in the information sphere in two or even all three countries analysed. This, in turn, indicates ideological, political, and social links between these countries, perhaps not perplexing given their historical, cultural, and geographical connections.

PAGES FORM CLUSTERS AND CLUSTERS FORM GROUPS

Each small circle on a map represents both a Facebook public page[5] and a node[6]. These pages were clustered together by Graphika's mapping software[7] and then further categorized into broader groups, initially based on mutual likes and then further assorted based on common interests by employing a combination of AI and human analysis[8].

PROXIMITY ON THE MAP IS A VISUAL REPRESENTATION OF INTERCONNECTIONS

The size of each circle on the map represents the number of likes or follows that page received from other pages on the map. And the closer a page or community is to a different page, community or group on the map, the more interconnections, in the form of mutual likes and follows, that exist between them. The thematic and ideological proximity of clusters and groups, furthermore, is visually colour coded.

BRIDGE ACCOUNTS

Bridge accounts denote pages that belong to a particular thematic/ideological cluster and group but are also positioned relatively close to pages in different communities. They, therefore, can function as a 'bridge' that connects different societal groups. The positioning of these accounts, like others, is calculated based on the presence of mutual likes between different pages. Bridge accounts often amplify content from other pages and their identification can be instrumental in uncovering influential accounts that aid in the spread of content from disinformation websites to other communities. In some of the maps below, bridge accounts are accentuated with a different colour coding.

VISUALISATION AND LABELLING OF NETWORKS & LIMITATIONS TO THE PROCESS

Clusters were labelled by the Graphika tool and these labels were, in turn, adjusted by human analysts based on an examination of the common characteristics between pages included in each of them. The clusters were subsequently aggregated into groups, again, based on topical similarities. Although generally precise, the labels assigned to each cluster and group are solely indicatory owing to the inherent limitations of the process. Some large clusters, consequently, may include any number of pages that could be deemed as outliers thematically. Cluster and group descriptions rather reflect content that the majority of pages within those clusters/groups share in common.

INTRODUCTION

This report aims to provide in-depth contextual information regarding the complexities of the Czech, Hungarian and Slovak information spaces on Facebook with a concentration on pro-Kremlin information networks and pages that disseminate disinformation. Employing data on influential pages provided to and subsequently analysed by Graphika, intricate maps of the Czech, Hungarian and Slovak information spheres on Facebook were created. The visual product is representative of the period between March and April 2020 when data collection was carried out.

The maps are now the primary subject of analysis by the authors of this report with the purpose of providing insight into different communities and their interactions on Facebook. The contribution is a visual and contextual overview of the Facebook information landscape enabling the identification of network affiliations and potential ideological overlaps that may have been previously overlooked.

When using data and conclusions from this report, it is important to take into account the limitations of the study. While using AI technology to discern between tens of thousands of Facebook sources and their respective relevance is undoubtedly advantageous given that an undertaking of this scale would be essentially unfeasible if relying solely on human analysis, it also represents a 'black box', with users of Graphika's tool needing to take the calculated relations and proximities for granted. The authors, nevertheless, sought to address these limitations by referencing only those network relationships (or lack-thereof) which they were able to verify to their best expert ability and knowledge.

KEY FINDINGS

CZECH FACEBOOK MAP

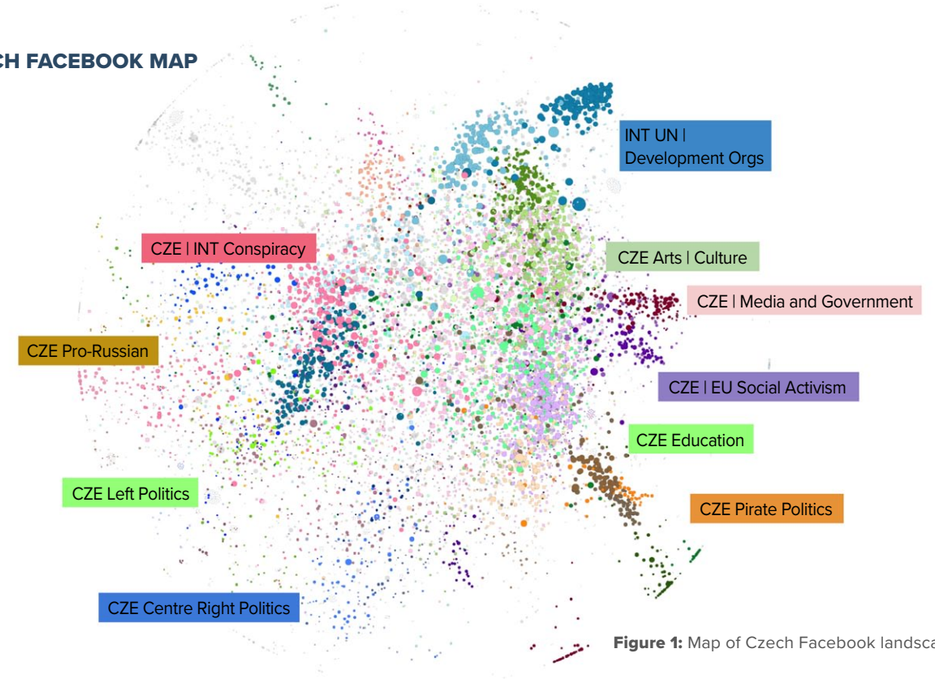


Figure 1: Map of Czech Facebook landscape

- **INT UN Development Orgs** *(blue and light blue)* primarily includes international accounts of major international organisations focused on development (e.g. UNICEF, UNDP, WHO, World Bank, etc.).
- **CZE Arts Culture** *(khaki greens)* includes Czech pages of cultural institutes, bookstores, libraries, theatres, etc.
- **CZE Media and Government** *(light pink, dispersed)* includes all major Czech mainstream media and standard government accounts, including Czech TV and radio and Czech Government Office, as well as some think tanks in the country.
- **CZE EU Social Activism** *(purple and light purple)* includes Czech and international NGOs and foundations, including Amnesty International and pro-LGBTI rights activists.
- **CZE Education** *(neon green, dispersed in the middle)* includes Czech-based NGOs, universities, EU-focused accounts, German education foundations, etc.
- **CZE Pirate Politics** *(orange)* includes both Czech and international accounts of the Czech and other pirate parties. It is closely interconnected with the dark brown cluster, which focuses on Ecology and Environmentalism and includes pages such as Greenpeace.
- **CZE Centre Right Politics** *(blue on the bottom left)* includes accounts and politicians from the centre-right, especially the KDU-ČSL party.
- **CZE Left Politics** *(green on the left)* includes the accounts of the ČSSD party and politicians and supporters of the social democrats.
- **CZE Pro-Russian** *(light orange, dispersed on the left)* primarily includes Czech pro-Russian and anti-Ukrainian pages (e.g. anti-Maidan and pro-Donbass pages).
- **CZE INT Conspiracy** *(pink)* includes a range of international and Czech accounts notorious for spreading conspiracy theories or anti-system narratives (e.g. New World Order, Opposition Organization and Chemtrails).

The Czech Facebook sphere is centred around mainstream media outlets, which are themselves closely linked to NGOs focused on education and social activities, indicating relatively frequent levels of interaction between these groups.

Czech political parties, however, are relatively distant from the centre of the map, suggesting they do not play a dominant role in influencing the public discourse on Facebook in the country. The political parties are, moreover, diffused across the map from one another, signifying a degree of political polarisation and weak bonds between parties and society.

Pro-Russian Facebook sites, closely linked with conspiracy pages, are on the periphery of the Czech map, implying a confined reach to and interactions with other groups in the overarching societal network. Their messages resonate primarily among specific subsets of the population including, among others, exponents of Pan-Slavic ideas, paganistic groups and left-wing radicals. For this reason, it is important to especially scrutinize actors who may bring anti-system narratives from the margins into the mainstream.

HUNGARIAN FACEBOOK MAP

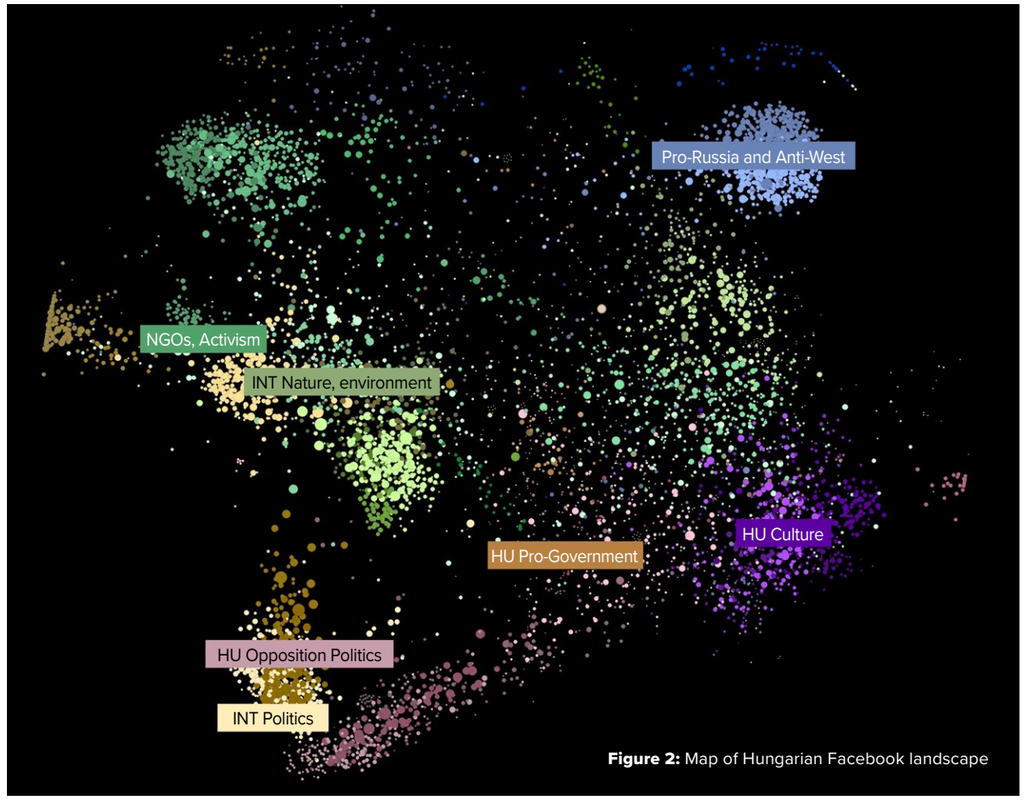


Figure 2: Map of Hungarian Facebook landscape

- **Pro-Russia and Anti-West** *(blue and light blue)* includes Hungarian, Polish and international pages dedicated to pro-Kremlin messaging and anti-Western and anti-Ukrainian attitudes. It also includes far-right pages and pro-Russian media outlets.
- **NGOSs, Activism** *(green)* contains pages devoted to different forms of social activism (e.g. feminism, Hungarian civil society and LGBTQIA+ community).
- **INT Nature, environment** *(khaki)* includes pages focused on raising awareness on climate change and ecological issues.
- **HU Pro-Government** *(brown, dispersed)* includes pages of supporters of Fidesz and official public accounts.
- **HU Culture** *(violet)* contains pages dedicated to art, theatre, literature, cinema and education.
- **HU Opposition Politics** *(salmon)* includes pages of Budapest public officials, liberal and green politicians.
- **INT Politics** *(yellow)* primarily contains pages of international and European institutions and embassies.

The Hungarian Facebook public sphere is more decidedly segregated compared to those in Slovakia and the Czech Republic, with pages organised into relatively distinct groups. This fact underscores the vast ideological divisions apparent within Hungarian society. There are indeed sparse connections between pro-government pages, on the one side, and groups encompassing independent media, NGOs, and opposition actors, on the other.

Pro-Russian and anti-West disinformation sites, some of which are connected to official Russian media outlets, are on the extreme fringe[9] of the map in Hungary. A central issue in terms of pro-Russian influence in Hungary concerns pro-government groups of pages that routinely publish content that conform to pro-Kremlin narratives and provide favourable coverage on Russia, China and other authoritarian regimes[10]. As the map illustrates, pro-government pages, represented in brown, are dispersed across the map and interact with other groups as well.

SLOVAK FACEBOOK MAP

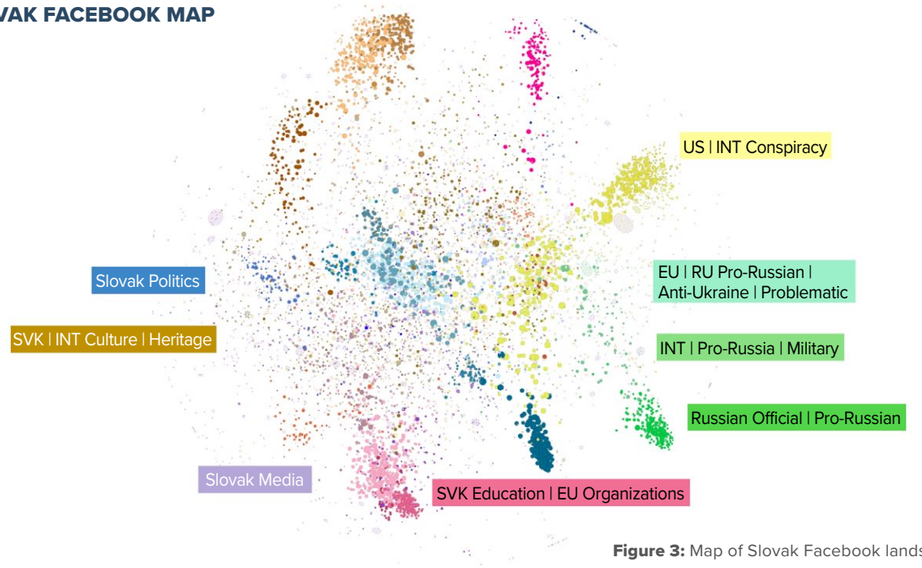


Figure 3: Map of Slovak Facebook landscape

- **Slovak Politics** *(blue and light blue)* contains pages of several Slovak political parties such as the former ruling SMER-SD, Sme Rodina and the Slovak extreme far-right ĽSNS party.
- **SVK INT Culture and Heritage** *(brown)* includes pages dedicated to religion, anti-abortion politics, cultural causes and tourism.
- **Slovak Media** *(light violet)* comprises pages of independent and regional media outlets in addition to some disinformation outlets.
- **SVK Education and EU Organizations** *(pink)* contains pages of European institutions, Slovak universities and some charities.
- **Russian Official and Pro-Russian** *(all shades of green)* includes official accounts of the Russian administration, pro-Russian militaristic pages *(INT Pro-Russia and Military)* and European and Russian pages promoting anti-Ukrainian messaging *(EU RU Pro-Russian and Anti-Ukraine Problematic)*.

The Slovak network is occupied by a wide spectrum of the Slovak political scene represented by the former SMER-SD ruling party, the Slovak National Party and the far-right Kotleba ĽSNS party. The central location of these pages indicates that their content plays an important role in the Slovak Facebook public sphere. It is important to note that data collection for this map was conducted between March and April 2020, shortly after the new government came to power in the country. This may explain the less prominent appearance of parties that make up the current government coalition.

Pertinently, there is notable overlap between the Slovak Politics category, at the centre, and Slovak and Czech disinformation sites, demonstrating mutual interactions (likes and follows) between the communities and confirming the widely held presumption that once fringe narratives are now managing to seep into the mainstream political discourse in Slovakia.

Resembling a wave, Kremlin disinformation and propaganda meanders from high-density official Kremlin Facebook pages (which themselves exhibit significant overlap with pro-Kremlin militaristic communities) to anti-Ukrainian and pro-Kremlin communities. These latter sites are, in turn, in close proximity[11] to Slovak and Czech disinformation outlets at the core of the Slovak Facebook map.

REGIONAL PERSPECTIVE

There is a close historical, linguistic and cultural affinity between Czech and Slovak communities, exploited successfully by pro-Kremlin actors. Sputnik, for example, lacks a Slovak page, with its Slovak audience instead turning to the Czech website for news. According to SimilarWeb, 36% of visitors to the Czech version of Sputnik International indeed hail from Slovakia[12]. Similar findings are illustrated in the Facebook networks, with 16% of pages on the Slovak map also included in the Czech map, suggesting strong interconnections between these two information spaces. Not needing linguistic translation, content is able to travel seamlessly between the two countries with relatively few hitches.

Due to historical and regional relations between Slovakia and Hungary (the Hungarian minority amounts for 8.5% of the population in Slovakia according to the latest census[13]), Hungarian heritage and political clusters leave a sizeable footprint on the Slovak Facebook map, with 10% of pages present in the Slovak map also found on the Hungarian map.

There is minimal overlap between the Czech and Hungarian maps, meanwhile, with the shared public sphere between the two countries confined largely to international pages that promote anarchic and anti-establishment views. These international pages, nevertheless, provide an important entry point from which conspiratorial narratives enter into the information space of the three analysed countries[14].

CZECH REPUBLIC

PRO-RUSSIAN AND DISINFORMATION FACEBOOK SITES STRUGGLE TO GET INTO MAINSTREAM DISCUSSIONS

The central core of the Czech Republic's Facebook public sphere is dominated by Czech public media, like Czech Television[15] and ČT24[16] (its branch focused on daily news) and Czech Radio Broadcast[17]. It also includes official state institution accounts. This central position means that mainstream media pages, compared to others, tend to interact more with a range of pages from different groups and clusters close to them. It also reflects the substantial influence these popular sources of information have on public debate[18]. The centrality of public television and radio broadcast in the Czech Facebook space is relevant since they are able to provide objective information to the general population and curtail the impact of any disinformation that is disseminated. Mainstream media outlets, according to the map, maintain their closest ties with NGOs focused on education and social activities.

Platforms notorious for spreading conspiracy theories and/or pro-Russian narratives in the Czech environment, meanwhile, lack the extensive reach of public media, exemplified by their location on the fringes of the map.

Within the Czech Facebook environment, there are close interconnections between Czech language and international pages that characterize themselves as alternatives to the mainstream media (e.g. Russia Today[19] or WikiLeaks[20]). These international sources can be found in the relative centre of the Czech Facebook map and therefore can be perhaps presumed to have some impact on Czech public debates.

Facebook pages promoting conspiracy theories and pro-Russian narratives, conversely, are located on the margins of the map and lack intricate connections with other clusters. It can, therefore, be concluded that the reach of messaging from these groups is likely confined to a bubble of dedicated readers. This insight is indeed consistent with opinion polls showing that only a small percentage of the population reads or even is aware of these sources[21]. A corollary is that the Czech public sphere provides these groups with perhaps slightly more attention than warranted.

The cluster of pro-Russian pages can be divided into two groups. The first is primarily focused on promoting Pan-Slavic ideology and advocating for cooperation between Slavic nations including Russia. These Facebook pages also tend to express anti-German sentiment, warning, for example, that the German population that was resettled after World War II could seek to return to the Czech borderlands to claim property that was confiscated at that time. Even though this might seem like a distant memory to many, the narrative is still employed by radical left movements in the country to galvanize the public and played an outsized role in the 2013 presidential election.[22]

A second group of pages, meanwhile, is tailored largely to topics of international politics with an emphasis on promoting pro-Kremlin narratives on global events (the official Facebook site of Russian Ministry of Foreign Affairs, in fact, interacts with this group). The most commonly referenced issue within this group is the situation in Ukraine, the central topic for pages like *"Česi a Slováci podporujú Ruský Krym"* ('Czechs and Slovaks supporting Russian Crimea')[23] or *"Save Donbass People Czech Republic"*.[24]

It is important, however, to take into account that Czech sites promoting conspiracy theories are closely interlinked with pro-Russian pages. These two clusters often amplify one another's content and consequently are able to reach wider audiences. Reporting on the COVID-19 pandemic in spring 2020, for example, the infamous website AC24 republished around 40% of its content form Sputnik CZ[25]. With strong interactions between these clusters, as evidenced by mutual likes and follows, it is plausible that Czechs seeking out alternative views on topics ranging from politics to healthcare are sooner or later likely to also be exposed to Russian propaganda.

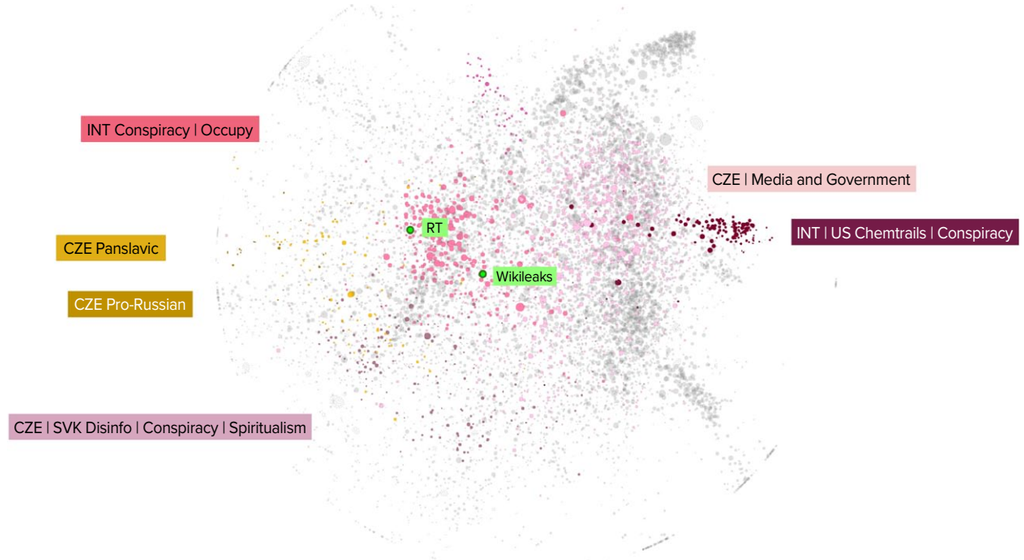


Figure 4: Pages disseminating conspiracy theories and their proximity to pro-Kremlin outlets; RT and Wikileaks marked green; Czech pages promoting conspiracy theories are in light violet, international in pink and burgundy.

POLITICAL LANDSCAPE

Mainstream political parties – regardless of their ideological affiliations – are slightly segregated not only from groups at the centre of the map but also from each other. This finding underlines growing polarisation in Czech politics and the formation of ideological camps with limited inter-group communication.

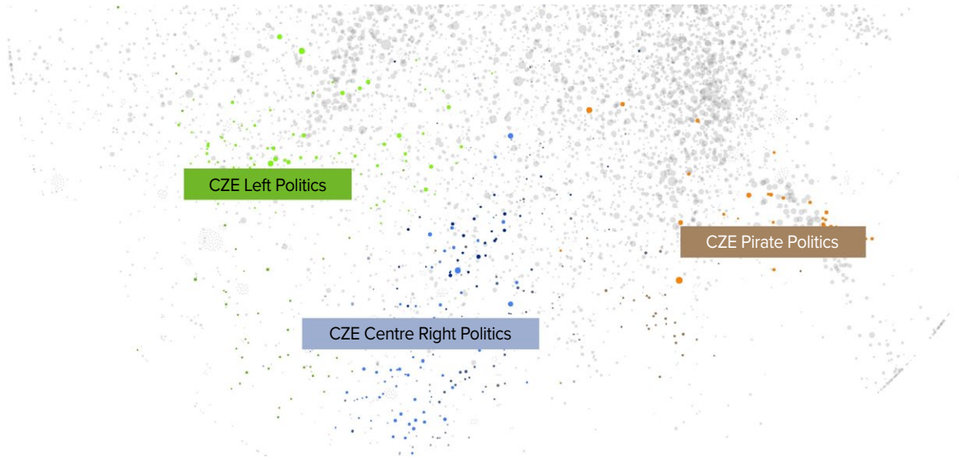


Figure 5: Dispersed clusters of Czech political parties[26]: Pirate, Left and Centre Right.

Radical right-wing parties and political movements that cater to promoting anti-Islamic views[27] remain on the periphery of the map, indicating minimal interactions with other groups. This finding is especially pertinent with respect to the SPD party (see Figure 6), represented with seats in the Czech Parliament. Even though party leader Tomio Okamura has made ample use of his Facebook page as a tool for communication[28] with an emphasis on, for example, sharing virulent anti-immigration narratives[29], he has apparently not been able to venture out beyond the chorus of his supporters.

The fragmentation of the Czech radical-right political groups is perhaps not too surprising given that their leaders have demonstrated an aversion to cooperation. Ideological and personal quarrels have regularly come to the surface, exemplified in the several secessions of MPs that have emerged from the SPD party.[30] The notable exception to this rule is the Facebook page of supporters of Czech President Miloš Zeman[31] (marked red in Figure 6), which is positioned more towards the centre of the map, indicating closer interactions with a broader audience. This page indeed brings right-wing oriented rhetoric into the mainstream political discourse[32].

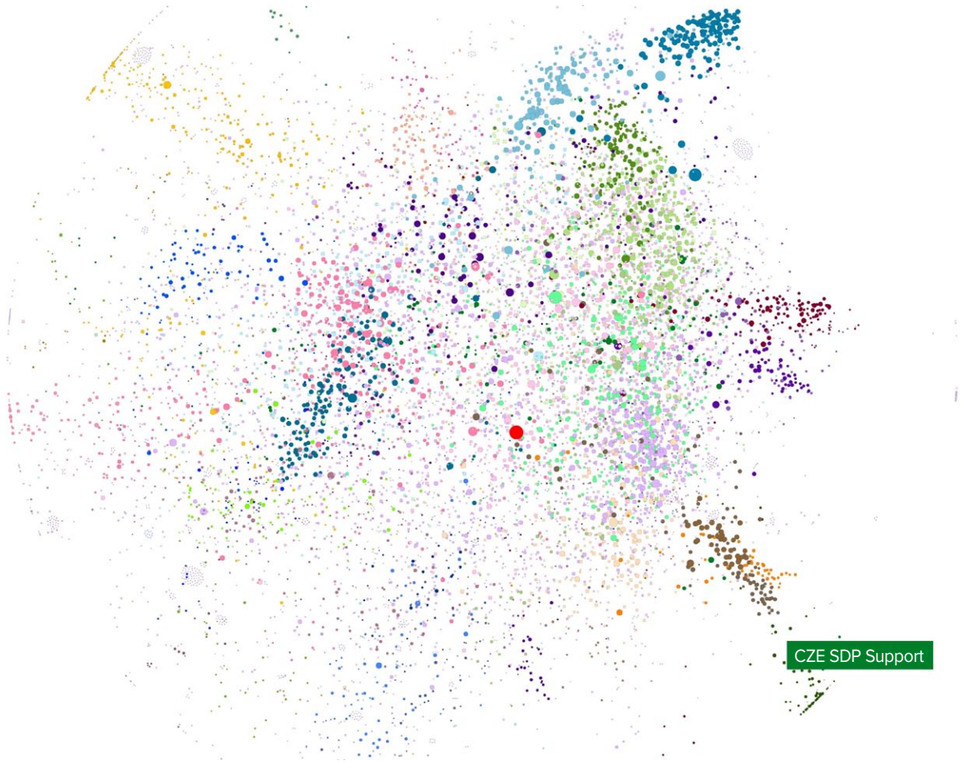


Figure 6: Central position of the Facebook page supporting Czech President Miloš Zeman (red dot marked in the map); SPD party remains on the fringes of the map.

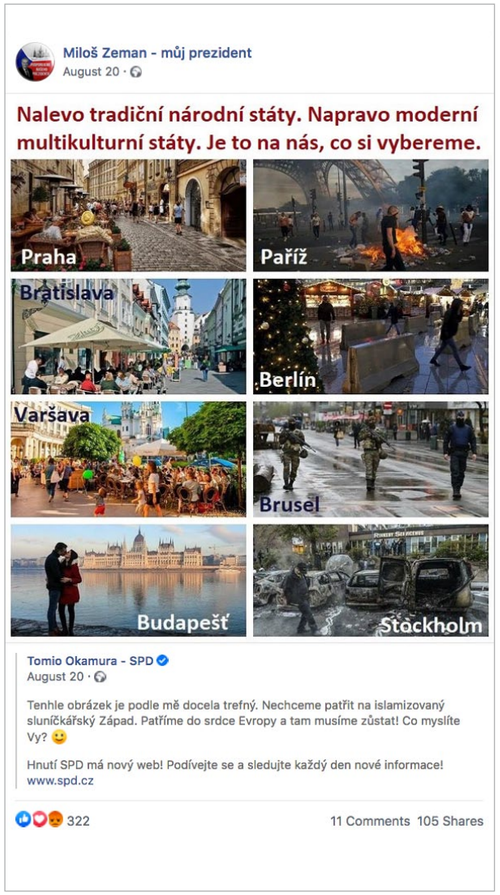


Figure 7: Example of content promoted on the Miloš Zeman Facebook fan page: 'On the left are traditional nation states. On the right modern multicultural states. It is up to us to choose'.

As indicated by the map, there is a considerable level of interaction between radical left movements and centre-left political parties. The most influential voices within the anarchist/far-left cluster are not Czech sources but rather international movements promoting anti-establishment views. The Facebook page *Europeans against the political system*[33], present in the maps of all three countries, is especially noteworthy. Czech Facebook pages promoting anarchist views (such as *Alarm*[34] or *Anarchistická federace [Anarchist Federation]*[35]) are closer to the center of the map than most within this group. For this reason, they might serve as a bridge account, linking mainstream groups and radical-left-wing movements. This position poses both a risk (since they might promote radical views to a broader audience) and an opportunity (since it is possible to use this group as a vehicle to reach out to more secluded communities).

Left-wing radicals are also positioned closer to pro-Kremlin Facebook pages than any other cluster in the Czech Facebook ecosystem. This is particularly the case for the more radical elements of the Czech Communist Party[36] (marked by a red circle) which are especially close to the Facebook pages promoting Pan-Slavic ideas. For an example of a post from the Czech Communist Party[37], see Figure 8.

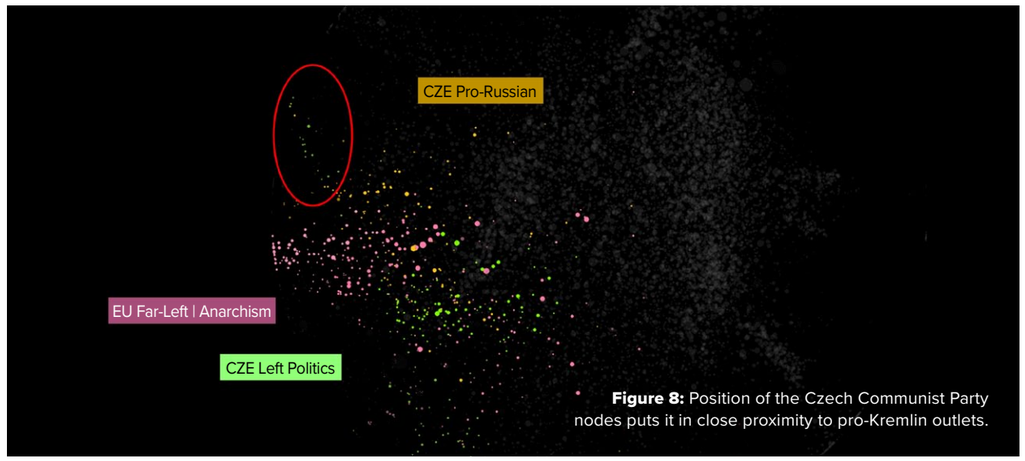


Figure 8: Position of the Czech Communist Party nodes puts it in close proximity to pro-Kremlin outlets.

Other Czech left-wing movement actors (placed at the bottom of the map), meanwhile, find themselves in the vicinity of Czech Facebook pages promoting conspiracy theories. Therefore, it is possible to conclude that left-wing radicals (primarily associated with the Communist Party) function as an important entry point for pro-Kremlin propaganda, conspiracy theories and anti-system rhetoric in the Czech public sphere.

Figure 9: Example of content published by the Czech Communist party of Czechia and Moravia: 'Zdeněk Ondráček: Problem of Belarus has been definitely sorted out, but the Czech media sewage headed by Czech TV and Seznam with a great support of Petříček [Czech Minister of Foreign Affairs] claim how tens of thousands of Belarussians protest. Half of those are Poles and Ukrainians. Go on and lie to us more. Only a fool would believe you today.'

HUNGARY

‘HOMEGROWN’ RUSSIAN INFLUENCE ON HUNGARIAN FACEBOOK

The Graphika map of the Hungarian media space shows Hungarian-language Facebook pages to be organized in relatively distinct groups that mostly do not interact with one another[38].

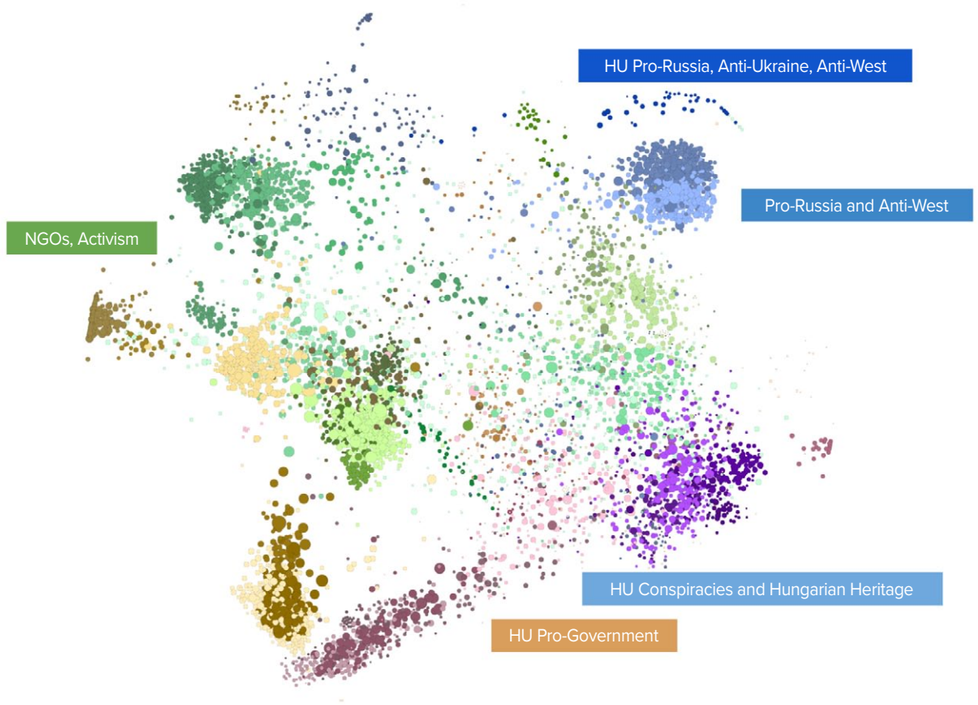


Figure 10: The position of NGOs, Hungarian heritage and conspiracy pages, pro-governmental pages and Hungarian pro-Russian pages on Facebook information space.

The primary divide in the Hungarian map is between opposition politics, independent NGOs and media on the one side and the ruling party and organizations close to it on the other. Pages focused on Hungarian heritage and conspiracy theories are also more centrally located, indicating higher levels of interaction with more from other groups and clusters, compared to Hungarian pro-Kremlin, anti-West and anti-Ukrainian pages located on the periphery of the country’s media landscape.

Problematic Hungarian-language pages – those that regularly spread disinformation content – are diffused all across the map, though largely in clusters encompassing pages that generally produce pro-Fidesz (e.g. *888*,[39] *Origo*,[40] *Pesti Srácok*[41]), conspiratorial (e.g. *Leleplező Friss Hírek*[42]) and pro-Russian content (e.g. *MIKSZ*,[43] *Orosz Hírek*[44]).

A preponderance of the Hungarian Facebook public sphere is, in fact, populated by pro-government pages that already disseminate narratives that cohere with Kremlin interests (e.g. anti-EU, anti-migration or anti-civil society campaigns) and this consequently relegates fringe sites to secondary importance[45]. *Pesti Srácok*, for example, published an interview with Russian Ambassador to Hungary Vladimir Sergeyev that uncritically accepted his answers concerning the Maidan revolution in Ukraine. In their corresponding Facebook post, the Hungarian pro-government site highlighted that *“The ambassador emphasised that contrary to rumours, Russia does not want to be a ‘superpower’ and does not want to attack anyone. The ambassador called the events in Kyiv in 2014 a violent coup supported by the West.”*[46]

Fringe outlets that regularly spread disinformation claims, meanwhile, lack the financial resources, outreach and professionalized structures of mainstream media outlets and are, therefore, less influential on Hungarian Facebook in comparison to the pro-government pages. Hungarian investigative portal Átlátszó uncovered that the income of pro-government media outlets[47] was over HUF 101 billion (EUR 278 million) in 2018, with the companies receiving HUF 73 billion (EUR 201 million) that year from government advertisements[48]. The major pro-government outlets (e.g. *Origo*, *hirado.hu*, *Pesti Srácok*, *Hír TV*, *TV2*, etc.) are followed by well over 100,000 people on Facebook, while even the most popular fringe sites that thrive on spreading geopolitical-related disinformation[49] are well below that number.

THE DOMESTIC ENVIRONMENT: MIRRORING THE POLITICAL DIVIDE

The clusters in the map unmistakably separate the ruling party, government and pro-government pages on the one side and left-wing opposition parties, independent NGOs and media on the other.

With separate groups each creating their own information bubbles, there is minimal interaction between different communities. This segregation of society avails few opportunities for international pro-Kremlin media to push talking points into the Hungarian mainstream media space. This communication, however, finds its way into Hungary, in any case, through the channels of government-controlled media and the government itself, which routinely disseminates[50] messaging favourable to Russia[51]. The unique situation of Hungary’s media ecosystem, in fact, means that pro-government media outlets are affiliated with the Orbán government and partly managed centrally by the cabinet[52]. Since the government itself directs also pro-Russian and pro-East narratives to its domestic audience, this is merely mirrored in pro-government media. The Kremlin, consequently, does not need to take immeasurable actions to ensure its point of view is heard in the country.

Interestingly, while *Jobbik*, a formerly extremist right-wing Hungarian political party that has been moving to the political centre for years, seems willing to cooperate with the Hungarian opposition, its position on the map still reflects the party’s radical past. The Jobbik Facebook page serves as a bridge account between international and Polish far-right clusters and it is especially influential in the international far-right scene. The Jobbik page is followed by over 100 international far-right pages and shows signs of possible information exchange and coordination between such political movements.

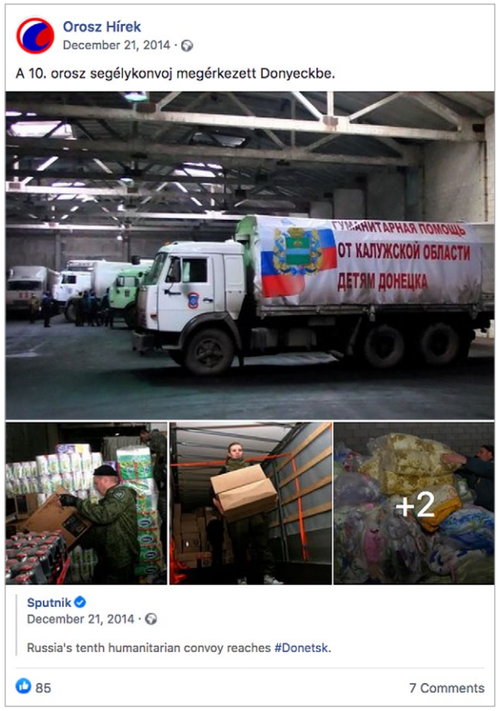


Figure 11: Orosz Hírek (Russian News) sharing a post by Sputnik that promotes the arrival of a "humanitarian convoy" to Donetsk[54].

AN ALL TOO EASY JOB FOR THE KREMLIN IN HUNGARY

Facebook pages notorious for spreading disinformation are divided mainly in two groups, “Pro-Government” and “Pro-Russia and Anti-West”. The latter encompasses fringe pages that publish content dealing specifically with Russia and its allies from a geopolitical perspective and conspiratorial sites that integrate a range of different types of articles. Some Hungarian-language sites are included in the “INT Pro-Russian Media” cluster, indicative of the fact that they share a more intense Facebook connection (mutual likes and follows) with foreign pro-Russian media than with Hungarian outlets. Official Kremlin-backed sites, mainly Sputnik, serve as bridge[53] accounts between international and pro-Moscow media in Hungarian language.

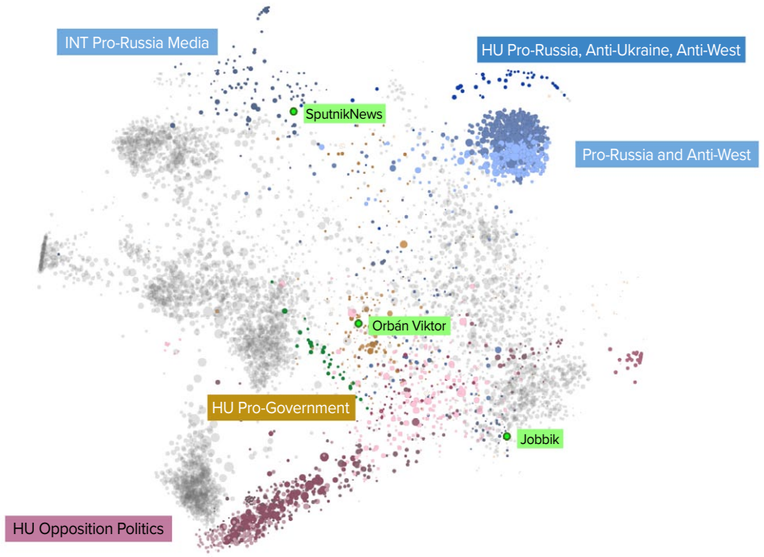


Figure 12: Prime Minister Orbán's public page in the centre of the map (it acts as a bridge account linking the pro-government, pro-Kremlin and Anti-West groups); the Sputnik account is highlighted in the international pro-Russia community and Jobbik's account is pinpointed at its place on the periphery of the Hungarian map.

Information has the potential to flow relatively freely from Russian media, like RT, to Hungarian pro-Russian and conspiratorial pages through a narrow pass within the Hungarian Facebook ecosystem. Though information exchange is possible, as the Graphika map shows, most manipulative narratives reach the Hungarian public directly via pro-government pages (e.g. state television and outlets belonging to the KESMA foundation) and the government’s pro-Russian rhetoric, both of which benefit from considerably higher outreach[55]. The higher level of clout is underscored by the more central position the pages occupy on the map and their degree of interconnectedness with other clusters. The pages of Prime Minister Orbán and other high-ranking Fidesz politicians and state institutions, for example, are closely interlinked with other groups, suggesting extensive influence compared to pro-Russian and conspiratorial sites[56].

Based on Prime Minister Orbán’s official Facebook page position, it can be assumed that it also serves as a bridge account connecting the Hungarian right-wing community and the international far-right. Several pages from the German (e.g. a local AfD branch[57], pro Putin Partei Deutschland[58]) and Italian nationalist (Nazionalisti Italiani[59], Vladimir Putin é il mio presidente[60]) scene follow this account and ultimately are placed within the Hungarian cluster rather than the international one. The vast majority of disinformation narratives, primarily concerning the EU, migration and the so-called Soros network, in the country indeed originate from the ruling party and affiliated media according to Political Capital’s research[61]. Authoritarian regimes, particularly Russia and China, are the recipients of highly favourable coverage from these outlets, with government narratives regularly emphasizing the importance of bilateral cooperation without “scolding” the countries for their political systems[62]. In this vein, there is not necessarily a need for the authoritarian regimes to expend considerable effort to penetrate the Hungarian public sphere.

These conclusions cohere with Political Capital’s prior research[63] on Russian information influence in Europe during the 2019 European Parliamentary election campaign. For Moscow’s disinformation campaigns to work effectively, the Kremlin needs local allies who often spread the same narratives propagated by Russia.

SLOVAKIA

SLOVAK POLITICS AND DISINFORMATION AT THE CENTRE OF SLOVAK FACEBOOK

Slovak political institutions and members of the former ruling SMER-SD (Direction Social Democracy) party, SNS (Slovak National Party) and the extreme far right ĽSNS party (Kotleba People's Party Our Slovakia) take prominent positions at the centre of the map[64]. Their extensive overlap with Czech and Slovak disinformation outlets reflects the fact that some representatives of these parties act as multipliers and promoters of harmful narratives and conspiracy theories[65]. These are typically imported to the centre of the Facebook public sphere from the periphery, especially from Kremlin-affiliated pages.

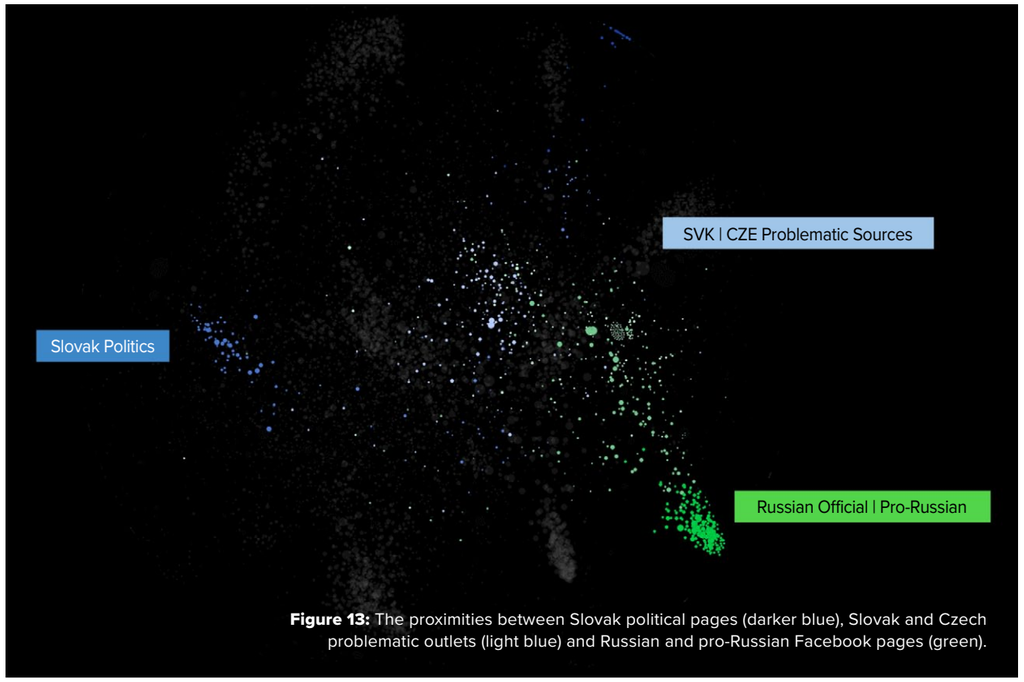
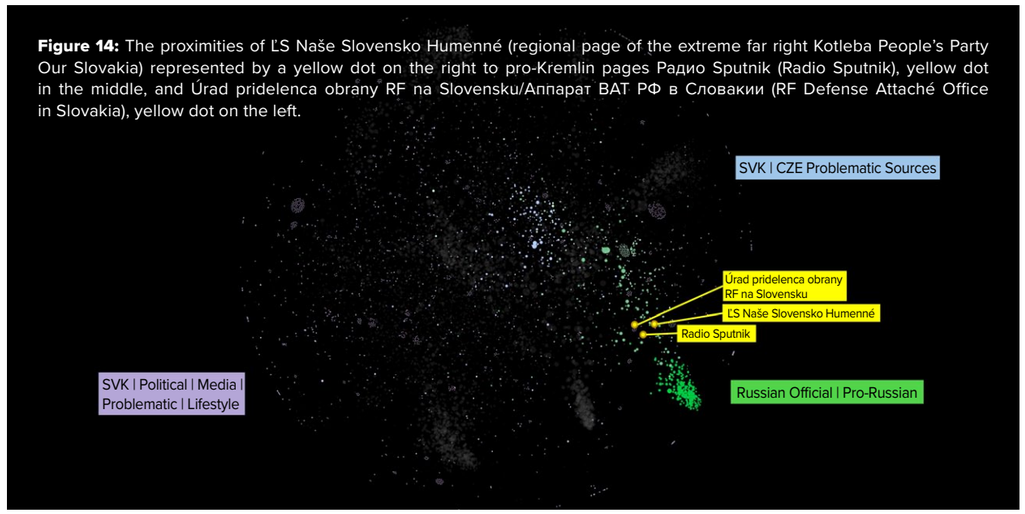


Figure 13: The proximities between Slovak political pages (darker blue), Slovak and Czech problematic outlets (light blue) and Russian and pro-Russian Facebook pages (green).

In this regard, the map buttresses the argument that disinformation is brought into the mainstream discourse in Slovakia by problematic outlets whose voices are, wittingly or not, subsequently magnified by more renowned voices on the Slovak political stage. The fact that conspiratorial and malign narratives feature centre stage in the Slovak information environment is further evidenced by the recent *Voices of Central and Eastern Europe* report published by GLOBSEC[66], according to which 53% of Slovaks perceive the United States as a threat to their values and identity (despite the US being Slovakia's ally in NATO) and 60% of Slovaks believe that world affairs are decided by secret groups aiming to establish a totalitarian world order.

One of the ways in which peripheral pages exercise influence is through 'bridge accounts' accounts which display a significant level of proximity to pages from other communities[67] like *Радио Sputnik* (Radio Sputnik)[68]. This account links the Russian Official pages cluster, positioned slightly farther away, with pages in its closer vicinity such as *Úrad pridelenca obrany RF na Slovensku/Аппарат ВАТ РФ в Словакии* (RF Defense Attaché Office in Slovakia)[69] or to *ĽS Naše Slovensko Humenné* (regional page of the extreme far right Kotleba People's Party Our Slovakia)[70].

Figure 14: The proximities of ĽS Naše Slovensko Humenné (regional page of the extreme far right Kotleba People's Party Our Slovakia) represented by a yellow dot on the right to pro-Kremlin pages Радио Sputnik (Radio Sputnik), yellow dot in the middle, and Úrad pridelenca obrany RF na Slovensku/Аппарат ВАТ РФ в Словакии (RF Defense Attaché Office in Slovakia), yellow dot on the left.



The page *Úrad pridelenca obrany RF na Slovensku/Аппарат ВАТ РФ в Словакии* is an official page of the Russian Federation that has been criticized by Slovak diplomats for sharing disinformation from the *Hlavné správy* (Main News) outlet in the past[71]. The Facebook page likes several pages in Slovakia such as *Policajt vo výslužbe* (Retired policeman)[72] notorious for sharing conspiracy theories about Covid-19, extremist content from Slovak far-right pages and disinformation from several Czech outlets such as *aeronet.cz*[73].

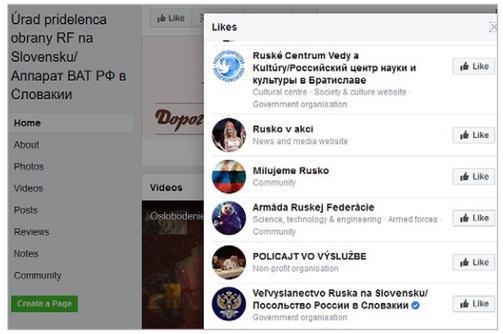


Figure 15: Pages liked by the official page of the Russian administration – Úrad pridelenca obrany RF na Slovensku/Аппарат ВАТ РФ в Словакии. Among these are a number of pro-Russian pages and Policaj vo výslužbe, a page that shares Covid conspiracies, racist tropes and disinformation content from Slovak and Czech outlets[74].

PROBLEMATIC CLUSTERS & PAGES ON THE SLOVAK FACEBOOK MAP

The cluster of problematic pages in Slovakia may appear, at first sight, relatively uninfluential, accounting for only 1.8% of the Slovak Facebook map. These pages, though, are featured at the core of the Slovak Facebook public sphere and are widely dispersed, suggesting a wide reach and important connections with additional online communities like pro-Kremlin and anti-Ukrainian pages[75] and pro-Kremlin pages with militaristic content[76].

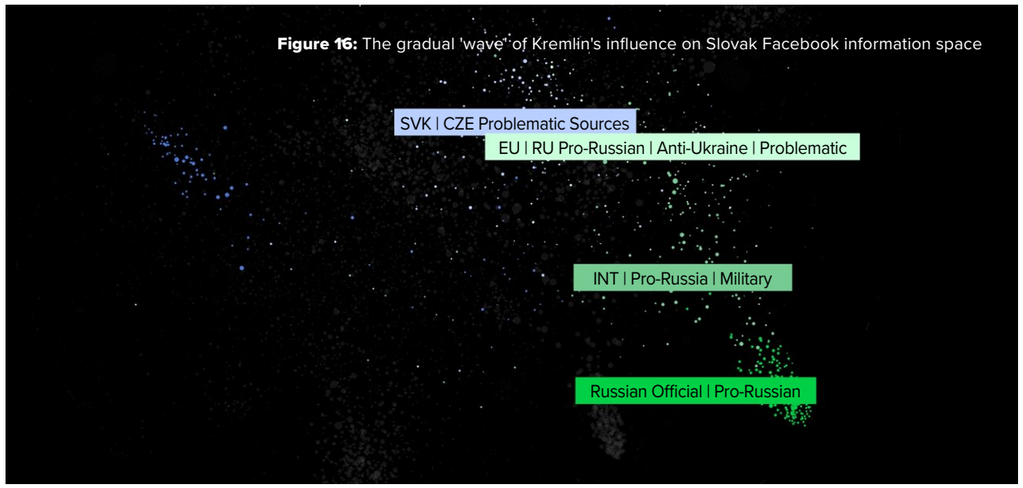


Figure 16: The gradual 'wave' of Kremlin's influence on Slovak Facebook information space

Among the top-ranked pages within the Slovak & Czech problematic cluster is the Russian state-controlled *Sputnik Česká republika* (Sputnik Czech Republic)[77], a page with over 80,000 followers. And within this cluster, one of the most influential domains is the infamous *ac24.cz*[78] outlet, described by experts as *'one of the most important sources of disinformation in the Czech Republic'*[79]. Another outlet in this cluster claims, for example, that 'Donald Trump is planning to become President of the Czech Republic'[80]. The above-mentioned findings confirm the fact that Czech disinformation outlets exert profound influence within the Slovak information sphere.

KREMLIN INFLUENCE

The majority of problematic pages on Facebook from Slovakia and Czechia appear not to be directly influenced by official accounts of the Russian administration. This comes despite the fact that some official accounts like *Úrad pridelenca obrany RF na Slovensku/Аппарат ВАТ РФ в Словакии* (RF Defence Attaché Office in Slovakia) like problematic Slovak outlets on Facebook.

There is, nevertheless, extensive Russian influence on the Slovak Facebook public sphere that meanders across an affiliated pro-Kremlin military cluster and eventually reaches pro-Russian pages operating in different European languages. These pages function to often spread anti-Ukrainian frames and foster anti-Ukrainian sentiment. The pages operate in close proximity and tightly overlap with the most influential Slovak outlets that frequently publish problematic content such as *Zem a Vek* (Earth and Age)[81], *Slobodný vysielač* (Free Broadcaster)[82] and *Spravodajská Alternatíva* (News Alternative)[83]. The latter page regularly shares content from rt.com[84] and anti-US[85] and anti-EU[86] narratives.

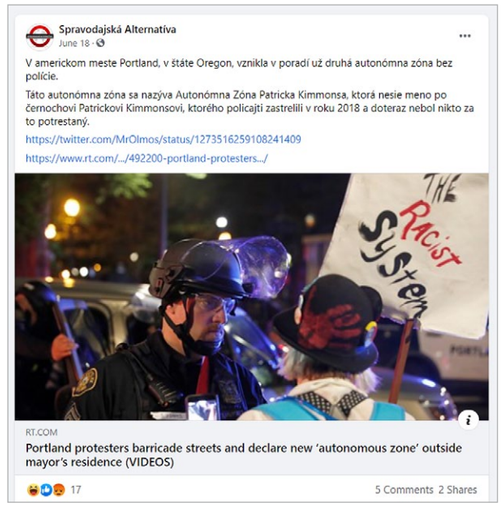


Figure 17: Spravodajská Alternatíva (Alternative News) Facebook page shares RT content.

The Slovak Facebook map shows a significant proportion of pages to have links to both domestic and foreign-based pages that disseminate disinformation and harmful narratives. This is by no means restricted solely to Russian disinformation sources, with overlaps also existing with the US chemtrails community (supporters of the chemtrails conspiracy theory[87]) and notorious Czech disinformation outlets. This all contributes to a complex mosaic composing a varied and interlinked ecosystem of problematic Facebook pages that continue to exert undue influence in Slovakia.

REGIONAL ANALYSIS

OVERLAPS BETWEEN CZECH AND SLOVAK COMMUNITIES ON FACEBOOK

The Czech and Slovak Facebook landscapes are to a great extent closely entangled on account of linguistic affinity. Areas of convergence were identified in almost every cluster. Altogether, 16% of pages found on the Slovak Facebook map also appear in the Czech network. This connectivity holds even in the case of sources known for disseminating pro-Kremlin narratives and disinformation.

The outlet *Sputnik CZ*, for example, lacks a Slovak-based equivalent, with the Czech version instead covering the Slovak political beat in the Czech language and distributing it across the Slovak public sphere. Its domain, *cz.sputniknews.com*, attracted 2.4 million views in June 2020, of which 29% hailed from Slovakia[88].

Additional connectivity between Slovakia and Czechia is exemplified in the pro-Russian Facebook pages *Mierom na Ukrajine proti fašizmu-Миром на Украине против фашизма* (Peace in Ukraine against fascism; original name in Slovak and Russian)[89] and *Južný front* (Southern Front; original name in Slovak)[90] that are present on the maps of both countries. These affinities are, furthermore, manifested in the popularity of particular conspiracy theories and destructive narratives in both countries. According to a recent GLOBSEC study, 29% of the Czech population is susceptible to conspiracies and 56% in Slovakia[91].

HUNGARIAN RIGHT-WING PAGES ARE POPULAR IN THE REGION

With Slovakia encompassing a sizeable Hungarian-speaking minority (8.5% of the population according to the latest census[92]), it comes as no surprise that there are also some overlaps between the Slovak and Hungarian maps. In this regard, Hungarian-language sites are accessible to a notable subset of the Slovak population.

A total of 10% of nodes on the Slovak map can also be found on the Hungarian one, less than the 16% of the Slovak information space shared by Czechia. The pages of Prime Minister Orbán, Fidesz and Jobbik are, importantly, depicted as influential on both maps. Foreign-based pro-Russian sites are also shared within both countries.

With no common linguistic community, the Czech Republic and Hungary reveal little overlap with the exception of fringe pages in Hungary like *Hunxit*[93], a page advocating for Hungary to leave the EU.

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. Graphika uses a combination of public APIs and 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, best-connected nodes in a network terrain. Typically, ten to fifteen thousand nodes make it past Graphika's filters and into the influence core.

CLUSTERING & LABELLING

Graphika's 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 minimum-cut 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 divided by 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. The 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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2 The so-called network-reduction computing method; https://graphika.com/how-it-works
3 For more information on Graphika's page clustering process, see the Clustering & Labelling section in Methodology
4 For more information on Graphika's deployment of algorithms to determine meaningful connections between social media accounts and communities see the Methodology section.
5 To avoid word repetition, we might refer to "Facebook pages" as pages, accounts, or sites. All of them are used as synonyms for "Facebook pages".
6 More information on node identification by Graphika can be found in Collection & Network Reduction in the Methodology section.
7 More information on methodology at the end of this report.
8 More information on Graphika's algorithms used to determine ideological affinities between Facebook public pages can be found in Clustering & Labelling in the Methodology section.
9 Fringe of the map indicates that an account/ community is not of central importance within the map. However, that does not necessarily mean such pages are not influential, only that the influence they exert on the analysed information space is not immediate.
10 For instance, a pro-government portal published an article on the poisoning of Alexey Navalny, stating that "Novichok poisoning is an old topic for the anti-Putin Western press," and concluding that Russian secret services would have killed Navalny if they had wanted to. Aristo (2020) Hülye oroszok, orosz hülyék. Aristo.pestisracok.hu, accessed 22 September 2020. https://aristo.pestisracok.hu/hulye-oroszok-orosz-hulyek/?utm_source=mandiner&utm_medium=link&utm_campaign=mandiner_202009
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74 https://www.facebook.com/permalink.php?story_fbid=3190438267679598&id=219950191395102
75 The Slovak and Czech problematic pages cluster shares a heterophily score of 6.97 with the pro-Kremlin and anti-Ukrainian cluster. A heterophily score higher than 1 represents a significant value. Heterophily is a metric representing the extent to which two groups are paying attention to each other.
76 Based on their high heterophily score. The heterophily score of 2.98 suggests a strong connection and influence between pages of these two clusters. To find out more about heterophily, see the section Metrics.
77 https://www.facebook.com/cz.sputnik/
78 https://sk-sk.facebook.com/AC24.cz
79 https://euractiv.cz/section/politika/news/pavel-havlicek-evropa-by-pro-boj-s-ruskymi-dezinformacemi-mela-delat-vice/
80 https://www.ctidoma.cz/politika/trump-mohl-byt-prezident-ceske-republiky-jeho-kampan-v-usa-ho-nuti-improvizovat-60952
81 https://www.facebook.com/ZEMAVEK/
82 https://www.facebook.com/SlobodnyVysielac/
83 https://sk-sk.facebook.com/spravodajska.alternativa
84 https://www.facebook.com/spravodajska.alternativa/posts/4028908427147922?__tn__=-R
85 https://www.facebook.com/spravodajska.alternativa/posts/4056508471054584?__tn__=-R
86 https://www.facebook.com/spravodajska.alternativa/posts/4036872883018143?__tn__=-R
87 https://www.bbc.com/news/blogs-trending-42195511
88 https://www.similarweb.com/website/cz.sputniknews.com/
89 https://www.facebook.com/Mierom-na-Ukrajine-proti-fa%C5%A1izmu-M%D0%B8%D1%80%D0%BE%D0%BC-%D0%BD%D0%B0-%D0%A3%D0%BA%D1%80%D0%B0%D0%B8%D0%BD%D0%B5-%D0%BF%D1%80%D0%BE%D1%82%D0%B8%D0%B2-%D1%84%D0%B0%D1%88%D0%B8%D0%B7%D0%BC%D0%B0-1550792801812536/
90 https://www.facebook.com/southfrontsk/timeline; the page is no longer active as of 10th of July, 2020.
91 https://www.globsec.org/publications/voices-of-central-and-eastern-europe/
92 https://slovak.statistics.sk/wps/wcm/connect/1f62189f-cc70-454d-9eab-17bdf5e1dc4a/Tab_10_Obyvatelstvo_SR_podla_narodnosti_scit-anie_2011_2001_1991.pdf?MOD=AJPERES&CVID=knLHmhe&CVID=knLHmhe&CVID=knLHmhe
93 https://cs-cz.facebook.com/Hunxit/

GLOBSEC
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Polus Tower II
Vajnorská 100/B
831 04 Bratislava
Slovak Republic

+421 2 3213 7800
info@globsec.org
www.globsec.org