



Computational Propaganda Research Project



The Global Disinformation Order

2019 Global Inventory of Organised Social Media Manipulation

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Executive Summary

Computational propaganda – the use of algorithms, automation, and big data to shape public life – is becoming a pervasive and ubiquitous part of everyday life.

Over the past three years, we have monitored the global organization of social media manipulation by governments and political parties. Our 2019 report analyses the trends of computational propaganda and the evolving tools, capacities, strategies, and resources.

- 1.** Evidence of organized social media manipulation campaigns which have taken place in 70 countries, up from 48 countries in 2018 and 28 countries in 2017. In each country, there is at least one political party or government agency using social media to shape public attitudes domestically (Figure 1).
- 2.** Social media has become co-opted by many authoritarian regimes. In 26 countries, computational propaganda is being used as a tool of information control in three distinct ways: to suppress fundamental human rights, discredit political opponents, and drown out dissenting opinions (Figure 2).
- 3.** A handful of sophisticated state actors use computational propaganda for foreign influence operations. Facebook and Twitter attributed foreign influence operations to seven countries (China, India, Iran, Pakistan, Russia, Saudi Arabia, and Venezuela) who have used these platforms to influence global audiences (Figure 3).
- 4.** China has become a major player in the global disinformation order. Until the 2019 protests in Hong Kong, most evidence of Chinese computational propaganda occurred on domestic platforms such as Weibo, WeChat, and QQ. But China's new-found interest in aggressively using Facebook, Twitter, and YouTube should raise concerns for democracies
- 5.** Despite there being more social networking platforms than ever, Facebook remains the platform of choice for social media manipulation. In 56 countries, we found evidence of formally organized computational propaganda campaigns on Facebook. (Figure 4).

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Introduction

Around the world, government actors are using social media to manufacture consensus, automate suppression, and undermine trust in the liberal international order.

Although propaganda has always been a part of political discourse, the deep and wide-ranging scope of these campaigns raise critical public interest concerns.

Cyber troops' are defined as government or political party actors tasked with manipulating public opinion online (Bradshaw and Howard 2017a). We comparatively examine the formal organization of cyber troops around the world, and how these actors use computational propaganda for political purposes. This involves building an inventory of the evolving strategies, tools, and techniques of computational propaganda, including the use of 'political bots' to amplify hate speech or other forms of manipulated content, the illegal harvesting of data or micro-targeting, or deploying an army of 'trolls' to bully or harass political dissidents or journalists online. We also track the capacity and resources invested into developing these techniques to build a picture of cyber troop capabilities around the world.

The use of computational propaganda to shape public attitudes via social media has become mainstream, extending far beyond the actions of a few bad actors. In an information environment characterized by high volumes of information and limited levels of user attention and trust, the tools and techniques of computational propaganda are becoming a common – and arguably essential – part of digital campaigning and public diplomacy. In addition to building a globally comparative picture of cyber troop activity, we also hope to drive public and scholarly debate about how we define and understand the changing nature of politics online, and how technologies can and should be used to enhance democracy and the expression of human rights online.

In this year's report, we examine cyber troop activity in 70 countries: Angola, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahrain, Bosnia & Herzegovina, Brazil, Cambodia, China, Colombia, Croatia, Cuba, Czech Republic, Ecuador, Egypt, Eritrea, Ethiopia, Georgia, Germany, Greece, Honduras, Guatemala, Hungary, India, Indonesia, Iran, Israel, Italy, Kazakhstan, Kenya, Kyrgyzstan, Macedonia, Malaysia, Malta, Mexico, Moldova, Myanmar, Netherlands, Nigeria, North Korea, Pakistan, Philippines, Poland, Qatar, Russia, Rwanda, Saudi Arabia, Serbia, South Africa, South Korea, Spain, Sri Lanka,

Sweden, Syria, Taiwan, Tajikistan, Thailand, Tunisia, Turkey, Ukraine, United Arab Emirates, United Kingdom, United States, Uzbekistan, Venezuela, Vietnam, and Zimbabwe.

Growing Evidence of Computational Propaganda Around the World

We found evidence of organised social media manipulation campaigns in 70 countries, up from 48 countries in 2018 and 28 countries in 2017. Some of this growth comes from new entrants who are experimenting with the tools and techniques of computational propaganda during elections or as a new tool of information control. However, journalists, academics, and activists are also better equipped with digital tools and a more precise vocabulary to identify, report, and uncover instances of formally organized social media manipulation. Over the past three years we have been able to refine our language and search terms for identifying instances of computational propaganda, and we found that many countries have displayed elements of formally organized social media manipulation for the past decade. As a result, we suggest that computational propaganda has become a ubiquitous and pervasive part of the digital information ecosystem.

The Co-Option of Social Media in Authoritarian Regimes

In many authoritarian regimes, computational propaganda has become a tool of information control that is strategically used in combination with surveillance, censorship, and threats of violence. We have catalogued the kinds of campaigns authoritarian countries have used against journalists, political dissidents, and the broader society, and found three distinct ways in which computational propaganda is used:

- (1) to suppress fundamental human rights;
- (2) to discredit political opposition; and
- (3) to drown out political dissent.

The co-option of social media technologies provides authoritarian regimes with a powerful tool to shape public discussions and spread propaganda online, while simultaneously surveilling, censoring, and restricting digital public spaces.

A Limited Number of Foreign Influence Operations by Highly Sophisticated Actors

Foreign influence operations are an important area of concern but attributing computational propaganda to foreign state actors remains a challenge. Facebook and Twitter – who



have begun publishing limited information about influence operations on their platforms – have taken action against cyber troops engaged in foreign influence operations in seven countries: China, India, Iran, Pakistan, Russia, Saudi Arabia, and Venezuela. Although this measure does not capture the extent to which foreign influence operations are taking place, we can confidently begin to build a picture of this highly secretive phenomenon.

China Flexes its Misinformation Muscle

Until recently, we found that China rarely used social media to manipulate public opinion in other countries. The audience for computational propaganda has mainly focused on domestic platforms, such as Weibo, WeChat, and QQ. However, in 2019 the Chinese government began to employ global social media platforms to paint Hong Kong's democracy advocates as violent radicals with no popular appeal (Lee Myers and Mozur 2019). Beyond domestically bound platforms, the growing sophistication and use of global social networking technologies demonstrates how China is also turning to these technologies as a tool of geopolitical power and influence.

Facebook is Still Number One

Despite there being more platforms than ever, Facebook remains the dominant platform for cyber troop activity. Part of the reason for this could be explained by its market size – as one of the world's largest social networking platforms – as well as the specific affordances of the platform, such as close family and friend communication, a source of political news and information, or the ability to form groups and pages. Since 2018, we have collected evidence of more cyber troop activity on image- and video-sharing platforms such as Instagram and YouTube. We have also collected evidence of cyber troops running campaigns on WhatsApp. We think these platforms will grow in importance over the next few years as more people use these social networking technologies for political communication.

FIGURE 1 - THE GLOBAL DISINFORMATION ORDER COUNTRIES TAKING PART IN SOCIAL MEDIA MANIPULATION



FIGURE 2 - COMPUTATIONAL PROPAGANDA AS A TOOL OF INFORMATION CONTROL
AUTHORITARIAN COUNTRIES DEPLOYING COMPUTATIONAL PROPAGANDA



FIGURE 3 - FOREIGN INFLUENCE OPERATIONS ON SOCIAL MEDIA
COUNTRIES ATTRIBUTED BY FACEBOOK AND TWITTER FOR ENGAGING IN FOREIGN INFLUENCE OPERATIONS



Source: Authors' evaluations based on data collected. **Note:** Facebook has also taken down accounts engaged in 'coordinated inauthentic behaviour' that are not explicitly linked to a government or political party. These takedowns include accounts originating from: Egypt, Macedonia, Kosovo, Thailand, and the United Arab Emirates. Additionally, some cyber troop activity identified by Facebook and Twitter is domestically focused, such as in the case of Bangladesh and Honduras, and is therefore not included in this figure on foreign operations.

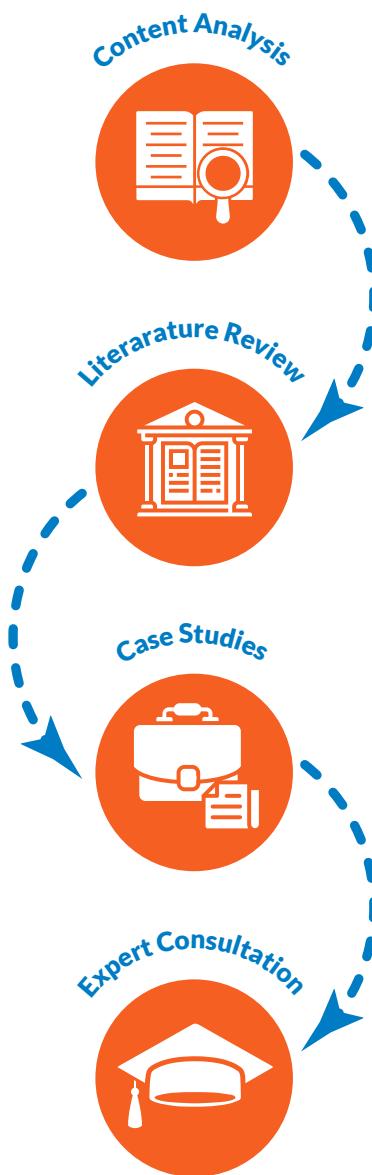
FIGURE 4 - PROMINENT PLATFORMS FOR SOCIAL MEDIA MANIPULATION
SOCIAL MEDIA PLATFORMS USED FOR CYBER TROOP ACTIVITY



Report Methodology

The methodology for this report consists of four stages:

1. a systematic content analysis of news articles reporting on cyber troop activity;
2. a secondary literature review of public archives and scientific reports;
3. drafting country case studies; and
4. expert consultations.



For the past three years, our three-stage methodology has allowed us to successfully capture a wide range of public documents that shed light on the organized manipulation campaigns globally. There are almost certainly cyber troop operations that have not been publicly documented, and we have already seen these cases grow over time. While this report in no way is intended to provide a complete picture of how state actors are operating in this space, we can begin to build a bigger picture by piecing together public information. The country-specific profiles and a full list of news items and secondary literature sources can be found on the 2019 report homepage.

Content analysis is an established research method in communication and media studies (Herring 2009). It has been used to help understand how the Internet and social media interact with political action, regime transformation, and digital control (Bradshaw and Howard 2018a, 2017b; Edwards, Howard, and Joyce 2013; Joyce, Antonio, and Howard 2013; Strange et al. 2013). This qualitative content analysis was conducted to understand the range of state actors who actively use social media to manipulate public opinion, as well as their capacity, strategies, and resources. We modelled our content analysis after last year's report, using purposive sampling to build a coded spreadsheet of specific variables that appear in news articles. The following keywords were selected and used in combination for our search: bot; Cambridge Analytica; disinformation; Facebook; fake account; information warfare; Instagram; military; misinformation; propaganda; psychological operations; psyops; social media; sock puppet; troll; Twitter; WhatsApp; YouTube.

There are two major limitations to conducting our qualitative content analyses: media bias and language. To help mitigate bias, we used LexisNexis and the top three search engine providers – Google, Yahoo! and Bing – which provided hits to a variety of professional, local, and amateur news sources. To ensure that only high-quality news sources were being used to build our dataset, each article was given a credibility score using a three-point scale. Articles ranked at one came from major, professionally branded news organizations. Articles ranked at two came from smaller professional news organizations, local news organizations, or expert commentary and professional blogs. Articles ranked at three came from content farms, or personal or hyper-partisan blogs. These articles were removed from the sample.

Language was a second limitation to conducting our qualitative content analysis. For this year's global inventory, we were able to draw upon news articles and secondary resources written in Arabic, English, French, German, Greek, Hungarian, Italian,

Persian, Polish, Portuguese, Russian, and Spanish. We also worked with BBC monitoring¹ who provided an additional portal for collecting and aggregating high-quality news and information on cyber troop activity, as well as translation services for news articles for Bosnia, Croatia, Georgia, Kazakhstan, Kyrgyzstan, Malaysia, North Macedonia, Taiwan, Tajikistan, Turkmenistan, Uzbekistan. We relied on English-language-only reporting for: Armenia, Azerbaijan, Cambodia, China, Czech Republic, Eritrea, Ethiopia, Hungary, Israel, Moldova, Myanmar, Netherlands, North Korea, Pakistan, Philippines, Serbia, South Korea, Sri Lanka, Thailand, Turkey, and Vietnam.

After conducting a content analysis, a team of research assistants completed a **secondary literature review** to provide an in-depth profile of cyber troop activity in a specific country context. These case studies drew from the data collected in the content analysis, as well as an in-depth secondary literature review, where case study authors searched for other high-quality open source information about cyber troop activity. This involved looking for government reports, think tank papers, academic and scholarly studies, and research conducted by civil society organizations. A complete archive of the news sources and secondary literature used in this report can be found in an online Zotero database. We hope this public library will help inform future research.

After completing a qualitative content analysis and secondary literature review, research assistants synthesized the findings into short **country case studies**. The case studies provide more information about instances of computational propaganda we identified in the content analysis, as well as detailed information about the specific country context and media environment in which social media manipulations are taking place. In addition to the content analysis and secondary literature review, we completed a case study for 84% of the countries, which can be online in a data supplement alongside the report.

Finally, the last step of our research methodology – **consultations with experts** – allowed us to peer review the case studies, as well as get feedback on the quality of English and local-language news reporting and secondary literature we found and discuss additional resources and citations in alternative languages with native speakers. Experts were asked to review the case studies drafted by research assistants, and (1) fact-check the information and data for accuracy; (2) provide additional citations to open source material; and (3) provide general feedback on the reliability of the data. In the cases of Poland, Sri Lanka, Taiwan, Tunisia, and Ukraine, we consulted experts on the data collected from the content analysis and literature review.

¹ <https://monitoring.bbc.co.uk/>

Organisational Form

Cyber troop activity takes on many organizational forms and diverse actors are leveraging social media to shape public opinion, set political agendas, and propagate ideas.

While many countries have seen an increase in computational propaganda on social media, attribution back to a particular actor remains difficult.

In this report, we focus specifically on cyber troops – or government or political party use of social media to manipulate public opinion. In 44 countries, we found evidence of a government agency using computational propaganda to shape public attitudes. This category of actors includes communication or digital ministries or military-led campaigns. In countries considered ‘not free’ according to Freedom House, we found evidence of a government ministry or ruling party using computational propaganda to shape attitudes domestically. In a small number of democracies, we found evidence of government or military-led initiatives. For this report, we counted the activities of the Joint Threat Research Intelligence Group (JTRIG) in the United Kingdom, who set up Facebook groups and created YouTube videos containing persuasive communications designed to “discredit, promote distrust, dissuade, deter, delay [and] disrupt” (Greenwald 2015). We also counted activities in the United States, such as the United States Agency for International Development (USAID) programme that created a fake social network in Cuba (Greenwald 2014). As computational propaganda becomes an increasingly ubiquitous tool for politics, national security, and intelligence operations, we hope these examples drive further

conversations around what are appropriate, democratic and acceptable uses of these tools by state actors.

In addition to government or military-led initiatives, we also looked at political parties. In 45 out of the 70 countries we analysed, we found evidence of political parties or politicians running for office who have used the tools and techniques of computational propaganda during elections. Here, we counted instances of politicians amassing fake followers, such as Mitt Romney in the United States (Carroll 2012), Tony Abbott in Australia (Rolfe 2013), or Geert Wilders in the Netherlands (Blood 2017). We also counted instances of parties using advertising to target voters with manipulated media, such as in India (Gleicher 2019), or instances of illegal micro-targeting such as the use of the firm Cambridge Analytica in the UK Brexit referendum by Vote Leave (Cadwalladr 2017). Finally, we further counted instances of political parties purposively spreading or amplifying disinformation on social networks, such as the WhatsApp campaigns in Brazil (Rio 2018), India (Dwoskin and Gowen 2018), and Nigeria (Hitchen et al. 2019).

One important feature of the organization of manipulation campaigns is that cyber troops often work in conjunction with private industry, civil society organizations, Internet subcultures, youth groups, hacker collectives, fringe movements, social media influencers, and volunteers who ideologically support their cause. The distinction between these groups can often be difficult to draw, especially since activities can be implicitly and explicitly sanctioned by the state. In this report, we look for evidence of formal coordination or activities that are officially sanctioned by the state, rather than campaigns that might be implicitly sanctioned because of factors such as overlapping ideologies or goals. In 25 out of the 70 countries we found evidence of state actors working with private companies or strategic communication firms who offer computational propaganda as a service. In 30 out of the 70 countries, we found evidence of formal coordination between governments and citizens or civil society organizations. In some cases, like in Azerbaijan, Israel, Russia, Tajikistan, Uzbekistan, student or youth groups are hired by government agencies to use computational propaganda.

TABLE 1 - ORGANIZATIONAL FORM AND PREVALENCE OF SOCIAL MEDIA MANIPULATION

Country	Government Agencies	Politicians and Parties	Private Contractors	Civil Society Organisations	Citizens and Influencers	Country	Government Agencies	Politicians and Parties	Private Contractors	Civil Society Organisations	Citizens and Influencers
Angola	■	■				Malta	■	■			
Argentina	■	■	■	■		Mexico		■	■	■	■
Armenia	■					Moldova	■	■			
Australia	■	■				Myanmar	■				
Austria	■	■	■	■		Netherlands		■			
Azerbaijan	■			■	■	Nigeria	■	■	■	■	
Bahrain	■	■	■	■	■	North Korea	■	■			
Bosnia & Herzegovina	■					Pakistan	■	■	■		
Brazil		■	■	■	■	Philippines	■	■	■	■	■
Cambodia	■	■	■			Poland		■	■	■	
China	■	■	■	■	■	Qatar	■				
Colombia		■	■	■		Russia	■			■	■
Croatia	■	■				Rwanda	■	■			
Cuba	■			■	■	Saudi Arabia			■	■	■
Czech Republic		■				Serbia	■	■	■	■	
Ecuador		■	■			South Africa		■	■	■	
Egypt	■	■			■	South Korea		■	■		
Eritrea						Spain		■		■	
Ethiopia						Sri Lanka	■	■	■		
Georgia	■		■	■	■	Sudan	■			■	
Germany		■	■	■	■	Sweden		■	■		
Greece						Syria	■		■	■	
Guatemala	■	■	■	■	■	Taiwan		■	■	■	
Honduras	■					Tajikistan	■				■
Hungary	■					Thailand	■				
India		■	■	■	■	Tunisia		■			
Indonesia		■	■	■	■	Turkey	■				■
Iran	■				■	Ukraine	■				
Israel	■	■		■	■	United Arab Emirates	■			■	■
Italy		■	■		■	United Kingdom	■	■	■		
Kazakhstan	■	■		■	■	United States	■	■	■		
Kenya		■	■	■	■	Uzbekistan	■	■		■	■
Kyrgyzstan		■	■	■	■	Venezuela	■	■	■		
Macedonia		■				Vietnam	■				■
Malaysia	■	■	■	■	■	Zimbabwe		■			

Source: Authors' evaluations based on data collected. **Note:** This table reports on the types of political actors using social media influence operations, and the number of examples of those organizations found. For government agencies, political parties, civil society groups, and private contractors, ■ = one organization found, ■■ = two organizations found, ■■■ = three or more organizations found. Since it is difficult to assess the number of individual citizens using these tools, evidence of citizen use is indicated by ■■■.

Strategies, Tools, and Techniques

Although there is nothing necessarily new about propaganda, the affordances of social networking technologies – algorithms, automation, and big data – change the scale, scope, and precision of how information is transmitted in the digital age.



87%
of countries used
Human accounts



80%
of countries used
Bot accounts



11%
of countries used
Cyborg accounts



7%
of countries used
Hacked or Stolen accounts

Account Types

Fake accounts are used by cyber troops to spread computational propaganda. Over the past three years we have tracked the prevalence of three types of fake accounts: bot, human, and cyborg. Bots are highly automated accounts designed to mimic human behaviour online. They are often used to amplify narratives or drown out political dissent. We found evidence of bot accounts being used in 50 of the 70 countries. However, even more common than bots are human-run accounts, which do not make use of automation. Instead they engage in conversations by posting comments or tweets, or by private messaging individuals via social media platforms. Human-operated accounts were found in 60 out of the 70 countries in this year's report. Cyborg accounts, which blend automation with human curation, are another account type we identified.

This year, we have added hacked or stolen accounts to our typology of fake accounts. Although these accounts are not 'fake' per se, high profile accounts are strategically used by cyber troops in order to spread pro-government propaganda or to censor freedom of speech by revoking access to the account by its rightful owner. A small number of state actors have begun using stolen or hacked accounts as part of their campaigns, highlighting the interconnectivity of computational propaganda with more traditional forms of cyber-attacks.

Finally, it is important to note that not all accounts used in cyber troop activities are fake. In some countries, like Vietnam or Tajikistan, state actors encourage cyber troops to use their real accounts to spread pro-government propaganda, troll political dissidents, or mass-report content. As social media companies become more aggressive in taking down accounts associated with cyber troop activity, the co-option of real accounts could become a more prominent strategy.

TABLE 2 - FAKE ACCOUNT TYPES

Country	Bots	Human	Cyborg	Hacked or Stolen
Angola	🤖	👤	👤⚙️	👤
Argentina	🤖	👤	👤⚙️	👤
Armenia	🤖	👤	👤⚙️	👤
Australia	🤖	👤	👤⚙️	👤
Austria	🤖	👤	👤⚙️	👤
Azerbaijan	🤖	👤	👤⚙️	👤
Bahrain	🤖	👤	👤⚙️	👤
Bosnia & Herzegovina	🤖	👤	👤⚙️	👤
Brazil	🤖	👤	👤⚙️	👤
Cambodia	🤖	👤	👤⚙️	👤
China	🤖	👤	👤⚙️	👤
Colombia	🤖	👤	👤⚙️	👤
Croatia	🤖	👤	👤⚙️	👤
Cuba	🤖	👤	👤⚙️	👤
Czech Republic	🤖	👤	👤⚙️	👤
Ecuador	🤖	👤	👤⚙️	👤
Egypt	🤖	👤	👤⚙️	👤
Eritrea	🤖	👤	👤⚙️	👤
Ethiopia	🤖	👤	👤⚙️	👤
Georgia	🤖	👤	👤⚙️	👤
Germany	🤖	👤	👤⚙️	👤
Greece	🤖	👤	👤⚙️	👤
Guatemala	🤖	👤	👤⚙️	👤
Honduras	🤖	👤	👤⚙️	👤
Hungary	🤖	👤	👤⚙️	👤
India	🤖	👤	👤⚙️	👤
Indonesia	🤖	👤	👤⚙️	👤
Iran	🤖	👤	👤⚙️	👤
Israel	🤖	👤	👤⚙️	👤
Italy	🤖	👤	👤⚙️	👤
Kazakhstan	🤖	👤	👤⚙️	👤
Kenya	🤖	👤	👤⚙️	👤
Kyrgyzstan	🤖	👤	👤⚙️	👤
Macedonia	🤖	👤	👤⚙️	👤
Malaysia	🤖	👤	👤⚙️	👤

Country	Bots	Human	Cyborg	Hacked or Stolen
Malta	🤖	👤	👤	👤
Mexico	🤖	👤	👤	👤
Moldova	🤖	👤	👤	👤
Myanmar	🤖	👤	👤	👤
Netherlands	🤖	👤	👤	👤
Nigeria	🤖	👤	👤	👤
North Korea	🤖	👤	👤	👤
Pakistan	🤖	👤	👤	👤
Philippines	🤖	👤	👤	👤
Poland	🤖	👤	👤	👤
Qatar	🤖	👤	👤	👤
Russia	🤖	👤	👤⚙️	👤
Rwanda	🤖	👤	👤	👤
Saudi Arabia	🤖	👤	👤	👤
Serbia	🤖	👤	👤	👤
South Africa	🤖	👤	👤	👤
South Korea	🤖	👤	👤	👤
Spain	🤖	👤	👤	👤
Sri Lanka	🤖	👤	👤⚙️	👤
Sudan	🤖	👤	👤	👤
Sweden	🤖	👤	👤	👤
Syria	🤖	👤	👤	👤
Taiwan	🤖	👤	👤	👤
Tajikistan	🤖	👤	👤	👤
Thailand	🤖	👤	👤	👤
Tunisia	🤖	👤	👤	👤
Turkey	🤖	👤	👤	👤
Ukraine	🤖	👤	👤	👤
United Arab Emirates	🤖	👤	👤	👤
United Kingdom	🤖	👤	👤⚙️	👤
United States	🤖	👤	👤	👤
Uzbekistan	🤖	👤	👤	👤
Venezuela	🤖	👤	👤	👤
Vietnam	🤖	👤	👤	👤
Zimbabwe	🤖	👤	👤	👤

Source: Authors' evaluations based on data collected. **Note:** This table reports on the types of fake accounts identified between 2010-2019. For fake social media account types: 🤖 = automated accounts, 🧑 = human accounts, 🧑⚙️ = cyborg accounts, 💣 = Hacked or Stolen accounts, 🚫👤⚙️ = no evidence found.



71%
spread pro-government or pro-party propaganda



89%
use computational propaganda to attack political opposition



34%
spread polarising messages designed to drive divisions within society

Messaging and Valence

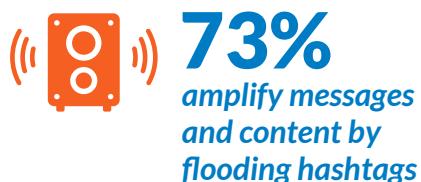
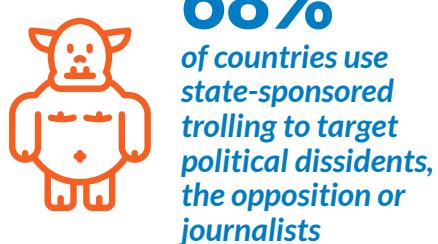
Cyber troops use a variety of messaging and valence strategies when communicating with users online. Valence describes how attractive or unattractive a message, event, or thing is. For the 2019 report, we have expanded our typology of messaging and valence strategies that cyber troops use when engaging in conversations with users online:

- (1) spreading pro-government or pro-party propaganda;
- (2) attacking the opposition or mounting smear campaigns;
- (3) distracting or diverting conversations or criticism away from important issues;
- (4) driving division and polarization; and
- (5) suppressing participation through personal attacks or harassment.

TABLE 3 - MESSAGING AND VALENCE

Country	Support	Attack Opposition	Distracting	Driving Divisions	Suppressing	Country	Support	Attack Opposition	Distracting	Driving Divisions	Suppressing
Angola	👍	✖️	⚠️	⚠️	✖️	Malta	👍	✖️	⚠️	⚠️	✖️
Argentina	👍	✖️	⚠️	⚠️	✖️	Mexico	👍	✖️	⚠️	⚠️	✖️
Armenia	👍	✖️	⚠️	⚠️	✖️	Moldova	👍	✖️	⚠️	⚠️	✖️
Australia	👍	✖️	⚠️	⚠️	✖️	Myanmar	👍	✖️	⚠️	⚠️	✖️
Austria	👍	✖️	⚠️	⚠️	✖️	Netherlands	👍	✖️	⚠️	⚠️	✖️
Azerbaijan	👍	✖️	⚠️	⚠️	✖️	Nigeria	👍	✖️	⚠️	⚠️	✖️
Bahrain	👍	✖️	⚠️	⚠️	✖️	North Korea	👍	✖️	⚠️	⚠️	✖️
Bosnia & Herzegovina	👍	✖️	⚠️	⚠️	✖️	Pakistan	👍	✖️	⚠️	⚠️	✖️
Brazil	👍	✖️	⚠️	⚠️	✖️	Philippines	👍	✖️	⚠️	⚠️	✖️
Cambodia	👍	✖️	⚠️	⚠️	✖️	Poland	👍	✖️	⚠️	⚠️	✖️
China	👍	✖️	⚠️	⚠️	✖️	Qatar	👍	✖️	⚠️	⚠️	✖️
Colombia	👍	✖️	⚠️	⚠️	✖️	Russia	👍	✖️	⚠️	⚠️	✖️
Croatia	👍	✖️	⚠️	⚠️	✖️	Rwanda	👍	✖️	⚠️	⚠️	✖️
Cuba	👍	✖️	⚠️	⚠️	✖️	Saudi Arabia	👍	✖️	⚠️	⚠️	✖️
Czech Republic	👍	✖️	⚠️	⚠️	✖️	Serbia	👍	✖️	⚠️	⚠️	✖️
Ecuador	👍	✖️	⚠️	⚠️	✖️	South Africa	👍	✖️	⚠️	⚠️	✖️
Egypt	👍	✖️	⚠️	⚠️	✖️	South Korea	👍	✖️	⚠️	⚠️	✖️
Eritrea	👍	✖️	⚠️	⚠️	✖️	Spain	👍	✖️	⚠️	⚠️	✖️
Ethiopia	👍	✖️	⚠️	⚠️	✖️	Sri Lanka	👍	✖️	⚠️	⚠️	✖️
Georgia	👍	✖️	⚠️	⚠️	✖️	Sudan	👍	✖️	⚠️	⚠️	✖️
Germany	👍	✖️	⚠️	⚠️	✖️	Sweden	👍	✖️	⚠️	⚠️	✖️
Greece	👍	✖️	⚠️	⚠️	✖️	Syria	👍	✖️	⚠️	⚠️	✖️
Guatemala	👍	✖️	⚠️	⚠️	✖️	Taiwan	👍	✖️	⚠️	⚠️	✖️
Honduras	👍	✖️	⚠️	⚠️	✖️	Tajikistan	👍	✖️	⚠️	⚠️	✖️
Hungary	👍	✖️	⚠️	⚠️	✖️	Thailand	👍	✖️	⚠️	⚠️	✖️
India	👍	✖️	⚠️	⚠️	✖️	Tunisia	👍	✖️	⚠️	⚠️	✖️
Indonesia	👍	✖️	⚠️	⚠️	✖️	Turkey	👍	✖️	⚠️	⚠️	✖️
Iran	👍	✖️	⚠️	⚠️	✖️	Ukraine	👍	✖️	⚠️	⚠️	✖️
Israel	👍	✖️	⚠️	⚠️	✖️	United Arab Emirates	👍	✖️	⚠️	⚠️	✖️
Italy	👍	✖️	⚠️	⚠️	✖️	United Kingdom	👍	✖️	⚠️	⚠️	✖️
Kazakhstan	👍	✖️	⚠️	⚠️	✖️	United States	👍	✖️	⚠️	⚠️	✖️
Kenya	👍	✖️	⚠️	⚠️	✖️	Uzbekistan	👍	✖️	⚠️	⚠️	✖️
Kyrgyzstan	👍	✖️	⚠️	⚠️	✖️	Venezuela	👍	✖️	⚠️	⚠️	✖️
Macedonia	👍	✖️	⚠️	⚠️	✖️	Vietnam	👍	✖️	⚠️	⚠️	✖️
Malaysia	👍	✖️	⚠️	⚠️	✖️	Zimbabwe	👍	✖️	⚠️	⚠️	✖️

Source: Authors' evaluations based on data collected. **Note:** This table reports on the types of messaging and valence strategies of cyber troop activity between 2010-2019. For social media comments: = supporting, = attack opposition, = distracting, = driving division, = suppressing. = no evidence found.



Communication Strategies

Cyber troops use a variety of communication strategies. We have categorized these activities into four categories:

- (1) the creation of disinformation or manipulated media;
- (2) mass-reporting of content or accounts;
- (3) data-driven strategies;
- (4) trolling, doxing or harassment;
- (5) amplifying content and media online.

The creation of disinformation or manipulated media is the most common communication strategy. In 52 out of the 70 countries we examined, cyber troops actively created content such as memes, videos, fake news websites or manipulated media in order to mislead users. Sometimes, the content created by cyber troops is targeted at specific communities or segments of users. By using online and offline sources of data about users, and paying for advertisements on popular social media platforms, some cyber troops target specific communities with disinformation or manipulated media.

The use of trolling, doxing or harassment is a growing global challenge and threat to fundamental human rights. In 2018, we identified 27 countries that used state-sponsored trolls to attack political opponents or activists via social media. This year, 47 countries have used trolling as part of their digital arsenal. Cyber troops also censor speech and expression through the mass-reporting of content or accounts. Posts by activists, political dissidents or journalists often get reported by a coordinated network of cyber troop accounts in order to game the automated systems social media companies use to take down inappropriate content. Trolling and the takedown of accounts or posts can happen alongside real-world violence, which can have a deep and chilling effect on the expression of fundamental human rights.

TABLE 4 - COMMUNICATION STRATEGIES

Country	Disinfo*	Mass Reporting	Data-Driven Strategies	Trolls	Amplifying Content	Country	Disinfo*	Mass Reporting	Data-Driven Strategies	Trolls	Amplifying Content
Angola	🟡	🟡	🟡	🟡	🟡	Malta	🟡	🟡	🟡	🟡	🟡
Argentina	🟡	🟡	🟡	🟡	🟡	Mexico	🟡	🟡	🟡	🟡	🟡
Armenia	🟡	🟡	🟡	🟡	🟡	Moldova	🟡	🟡	🟡	🟡	🟡
Australia	🟡	🟡	🟡	🟡	🟡	Myanmar	🟡	🟡	🟡	🟡	🟡
Austria	🟡	🟡	🟡	🟡	🟡	Netherlands	🟡	🟡	🟡	🟡	🟡
Azerbaijan	🟡	🟡	🟡	🟡	🟡	Nigeria	🟡	🟡	🟡	🟡	🟡
Bahrain	🟡	🟡	🟡	🟡	🟡	North Korea	🟡	🟡	🟡	🟡	🟡
Bosnia & Herzegovina	🟡	🟡	🟡	🟡	🟡	Pakistan	🟡	🟡	🟡	🟡	🟡
Brazil	🟡	🟡	🟡	🟡	🟡	Philippines	🟡	🟡	🟡	🟡	🟡
Cambodia	🟡	🟡	🟡	🟡	🟡	Poland	🟡	🟡	🟡	🟡	🟡
China	🟡	🟡	🟡	🟡	🟡	Qatar	🟡	🟡	🟡	🟡	🟡
Colombia	🟡	🟡	🟡	🟡	🟡	Russia	🟡	🟡	🟡	🟡	🟡
Croatia	🟡	🟡	🟡	🟡	🟡	Rwanda	🟡	🟡	🟡	🟡	🟡
Cuba	🟡	🟡	🟡	🟡	🟡	Saudi Arabia	🟡	🟡	🟡	🟡	🟡
Czech Republic	🟡	🟡	🟡	🟡	🟡	Serbia	🟡	🟡	🟡	🟡	🟡
Ecuador	🟡	🟡	🟡	🟡	🟡	South Africa	🟡	🟡	🟡	🟡	🟡
Egypt	🟡	🟡	🟡	🟡	🟡	South Korea	🟡	🟡	🟡	🟡	🟡
Eritrea	🟡	🟡	🟡	🟡	🟡	Spain	🟡	🟡	🟡	🟡	🟡
Ethiopia	🟡	🟡	🟡	🟡	🟡	Sri Lanka	🟡	🟡	🟡	🟡	🟡
Georgia	🟡	🟡	🟡	🟡	🟡	Sudan	🟡	🟡	🟡	🟡	🟡
Germany	🟡	🟡	🟡	🟡	🟡	Sweden	🟡	🟡	🟡	🟡	🟡
Greece	🟡	🟡	🟡	🟡	🟡	Syria	🟡	🟡	🟡	🟡	🟡
Guatemala	🟡	🟡	🟡	🟡	🟡	Taiwan	🟡	🟡	🟡	🟡	🟡
Honduras	🟡	🟡	🟡	🟡	🟡	Tajikistan	🟡	🟡	🟡	🟡	🟡
Hungary	🟡	🟡	🟡	🟡	🟡	Thailand	🟡	🟡	🟡	🟡	🟡
India	🟡	🟡	🟡	🟡	🟡	Tunisia	🟡	🟡	🟡	🟡	🟡
Indonesia	🟡	🟡	🟡	🟡	🟡	Turkey	🟡	🟡	🟡	🟡	🟡
Iran	🟡	🟡	🟡	🟡	🟡	Ukraine	🟡	🟡	🟡	🟡	🟡
Israel	🟡	🟡	🟡	🟡	🟡	United Arab Emirates	🟡	🟡	🟡	🟡	🟡
Italy	🟡	🟡	🟡	🟡	🟡	United Kingdom	🟡	🟡	🟡	🟡	🟡
Kazakhstan	🟡	🟡	🟡	🟡	🟡	United States	🟡	🟡	🟡	🟡	🟡
Kenya	🟡	🟡	🟡	🟡	🟡	Uzbekistan	🟡	🟡	🟡	🟡	🟡
Kyrgyzstan	🟡	🟡	🟡	🟡	🟡	Venezuela	🟡	🟡	🟡	🟡	🟡
Macedonia	🟡	🟡	🟡	🟡	🟡	Vietnam	🟡	🟡	🟡	🟡	🟡
Malaysia	🟡	🟡	🟡	🟡	🟡	Zimbabwe	🟡	🟡	🟡	🟡	🟡

Source: Authors' evaluations based on data collected. **Note:** This table reports on the communication strategies used by cyber troops. For communication strategies: 🟡 = Disinformation and Manipulated Media, 🟢 = Mass Reporting of Content/Accounts, 🟤 = Data-Driven Strategies, 🟧 = Trolling, 🟪 = Amplifying Content, 🟦 = no evidence found.

Organisational Budgets, Behaviours, and Capacity

Although there is limited public information about the size and operations of cyber troop teams, we can begin to assemble a picture of how much money they budget, how they cooperate, and the kinds of organizational capacities and behaviours they assume.

Team Size and Permanency

The size and permanency of teams vary from country to country. In some countries, teams appear temporarily around elections or to shape public attitudes around other important political events. In others, cyber troops are integrated into the media and communication landscape with full-time staff working to control, censor, and shape conversations and information online. Some teams are comprised of a handful of people who manage hundreds of fake accounts. In other countries – like China, Vietnam or Venezuela – large teams of people are hired by the state to actively shape public opinions and police speech through online channels

Budgets and Expenditures

Computational propaganda remains big business. We found large amounts of money being spent on ‘PR’ or strategic communication firms to work on campaigns in countries such as the Philippines (Mahtani and Cabato 2019), Guatemala (Currier and Mackey 2018), and Syria (York 2011). These contracts can range in size from smaller spends with boutique national or regional firms, to multi-million-dollar contracts with global companies like Cambridge Analytica (see, for example, Kazeem 2018). The rise of the troll industry is a growing area of public and academic interest, and an area to watch for future research and journalistic inquiry.

Skills and Knowledge Diffusion

There is also evidence of formal and informal knowledge diffusion happening across geographic lines. For example, during the investigations into cyber troop activity in Myanmar, evidence emerged that military officials were trained by Russian operatives on how to use social media (Mozur 2018). Similarly, cyber troops in Sri Lanka received formal training in India (Expert consultation 2019). Leaked emails also showed evidence of the Information Network Agency in Ethiopia sending staff members to receive formal training in China (Nunu 2018). While there are many gaps in how knowledge and skills in computational propaganda are diffusing globally, this is also an important area to watch for future research and journalistic inquiry..

Cyber Troop Capacity

By looking comparatively across the behaviours, expenditures, tools, and resources cyber troop employ, we can begin to build a larger comparative picture of the global organization of social media manipulation. National contexts are always important to consider. However, we suggest it is also worth generalizing about the experience of organized disinformation campaigns across regime types to develop a broad and comparative understanding of this phenomenon. We have begun to develop a simplistic measure to comparatively assess the capacity of cyber troop teams in relation to one another, taking into consideration the number of government actors involved, the sophistication of tools, the number of campaigns, the size and permanency of teams, and budgets or expenditures made. We describe cyber troop capacity on a four-point scale:

(1) Minimal cyber troop teams are newly formed or teams that were previously active but whose present activities are uncertain. Newly formed teams have minimal resources and only apply a few tools of computational propaganda to a small number of platforms. Minimal cyber troop activity also includes states where we have seen only one or two politicians who experiment with computational propaganda tools. These teams operate domestically, with no operations abroad. Minimal teams include: Angola, Argentina, Armenia, Australia, Croatia, Ecuador, Greece, Netherlands, South Korea, Sweden, Taiwan and Tunisia.

(2) Low cyber troop capacity involves small teams that may be active during elections or referenda but stop activity until the next

election cycle. Low capacity teams tend to experiment with only a few strategies, such as using bots to amplify disinformation. These teams operate domestically, with no operations abroad. Low capacity teams include: Austria, Colombia, Czech Republic, Eritrea, Germany, Honduras, Hungary, Indonesia, Italy, Kenya, Macedonia, Moldova, Nigeria, North Korea, Poland, Rwanda, Serbia, South Africa, Spain, Zimbabwe.

(3) Medium cyber troop capacity involves teams that have a much more consistent form and strategy, involving full-time staff members who are employed year-round to control the information space. These medium-capacity teams often coordinate with multiple actor types, and experiment with a wide variety of tools and strategies for social media manipulation. Some medium-capacity teams conduct influence operations abroad. Medium-capacity teams include: Azerbaijan, Bahrain, Bosnia & Herzegovina, Brazil, Cambodia, Cuba, Ethiopia, Georgia, Guatemala, India, Kazakhstan, Kyrgyzstan, Malaysia, Malta, Mexico, Pakistan, Philippines, Qatar, Sri Lanka, Sudan, Tajikistan, Thailand, Turkey, Ukraine, United Kingdom, and Uzbekistan.

(4) High cyber troop capacity involves large numbers of staff, and large budgetary expenditure on psychological operations or information warfare. There might also be significant funds spent on research and development, as well as evidence of a multitude of techniques being used. These teams do not only operate during elections but involve full-time staff dedicated to shaping the information space. High-capacity cyber troop teams focus on foreign and domestic operations. High-capacity teams include: China, Egypt, Iran, Israel, Myanmar, Russia, Saudi Arabia, Syria, United Arab Emirates, Venezuela, Vietnam, and the United States.

TABLE 5 - CYBER TROOP CAPACITY

HIGH CAPACITY		
Country	Status	Notes on Team Size, Training and Spending
China	Permanent	Team size estimates of 300,000-2,000,000 people working in local and regional offices
Egypt	Permanent	-
Iran	Permanent	6,000 USD spent on FB advertisements
Israel	Permanent	Team size estimates of 400 people. Evidence of Formal Training. Multiple contracts valued at 778K USD and 100M USD.
Myanmar	Permanent	Evidence of Formal Training in Russia
Russia	Permanent	-
Saudi Arabia	Permanent	Estimated costs of 150 Pounds for Twitter Hashtag Trends
Syria	Permanent	Multiple Contracts valued at 4,000 USD
United Arab Emirates	Permanent	Multiple Expenditures valued at over 10M USD
United States	Permanent & Temporary	-
Venezuela	Permanent	Team size estimates of multiple brigades of 500 people. Evidence of Formal Training
Vietnam	Permanent & Temporary	Team size estimates of 10,000 people

TABLE 5 - CYBER TROOP CAPACITY continued

MEDIUM CAPACITY		
Country	Status	Notes on Team Size, Training and Spending
Azerbaijan	Permanent	–
Bahrain	Permanent	Multiple contracts with estimates valued at 32M USD
Bosnia & Herzegovina	Temporary	–
Brazil	Temporary	Multiple contracts valued at 10M R, 130K R, 24K R, 12M R
Cambodia	Permanent & Temporary	–
Cuba	Permanent	–
Ethiopia	Permanent	Evidence of Training in China. Estimated salaries of 300 USD/month
Georgia	Temporary	–
Guatemala	Permanent	Multiple contracts valued at 100,000 USD
India	Temporary	Multiple teams ranging in size from 50-300 people. Multiple contracts and advertising expenditures valued at over 1.4M USD
Kazakhstan	Temporary	–
Kyrgyzstan	Permanent & Temporary	Team size estimates of 50 people. Multiple contracts valued at 2000 USD. Salaries are estimated to be 3-4 USD/day
Malaysia	Permanent	Staff estimates between 50-2000 people. Evidence of formal training found
Malta	Permanent	–
Mexico	Temporary	–
Pakistan	Permanent	–
Philippines	Permanent	300-500
Qatar	Temporary	–
Sri Lanka	Permanent & Temporary	Evidence of Formal Training in India
Sudan	Permanent	–
Tajikistan	Permanent	Team size estimates of 400 people
Thailand	Permanent	Evidence of Formal Training
Turkey	Permanent	Team size estimates of 500 people
Ukraine	Permanent	Team size estimates of 20,000 people
United Kingdom	Temporary	3.5M GBP spent on Cambridge Analytica by Leave Campaigns
Uzbekistan	Permanent	–

TABLE 5 - CYBER TROOP CAPACITY continued

LOW CAPACITY		
Country	Status	Notes on Team Size, Training and Spending
Austria	Temporary	-
Colombia	Temporary	-
Czech Republic	Temporary	-
Eritrea	Permanent	-
Germany	Temporary	-
Honduras	Temporary	-
Hungary	Temporary	-
Indonesia	Temporary	Multiple contracts valued between 1M-50M Rupias
Italy	Temporary	-
Kenya	Temporary	One contract with Cambridge Analytica valued at 6M USD
Macedonia	Temporary	-
Moldova	Temporary	20,000USD spent on Facebook and Instagram Ads
Nigeria	Temporary	One contract with Cambridge Analytica Valued at 2.8M USD
North Korea	Permanent	Team size estimates of 200 people
Poland	Temporary	-
Rwanda	Temporary	-
Serbia	Permanent	Salary Estimates valued at 370 EURO/month
South Africa	Temporary	Multiple contracts valued at 2M USD
Spain	Temporary	-
Zimbabwe	Temporary	-

MINIMAL CAPACITY		
Country	Status	Notes on Team Size, Training and Spending
Angola	Temporary	-
Argentina	Temporary	30-40 Staff. Multiple Contracts valued at 14M Pesos, 11M Pesos in 2015. 200M Pesos in 2017
Armenia	Temporary	-
Australia	Temporary	-
Croatia	Temporary	-
Ecuador	No Longer Active	Multiple contracts valued at 200,000 USD
Greece	Temporary	-
Netherlands	Temporary	-
South Korea	No Longer Active	Previously active team of less than 20 people
Sweden	Temporary	-
Taiwan	No Longer Active	-
Tunisia	Temporary	-

Source: Authors' evaluations based on data collected. **Note:** These tables reports on the capacity of cyber troop actors.

Conclusion

Social media, which was once heralded as a force for freedom and democracy, has come under increasing scrutiny for its role in amplifying disinformation, inciting violence, and lowering levels of trust in media and democratic institutions.

This report has highlighted the ways in which government agencies and political parties have used social media to spread political propaganda, pollute the digital information ecosystem, and suppress freedom of speech and freedom of the press. While the affordances of social media can serve to enhance the scale, scope, and precision of disinformation (Bradshaw and Howard 2018b), it is important to recognize that many of the issues at the heart of computational propaganda – polarization, distrust or the decline of democracy – have existed long before social media and even the Internet itself. The co-option of social media technologies should cause concern for democracies around the world – but so should many of the long-standing challenges facing democratic societies.

Computational propaganda has become a normal part of the digital public sphere. These techniques will also continue to evolve as new technologies – including Artificial Intelligence, Virtual Reality, or the Internet of Things – are poised to fundamentally reshape society and politics. But since computational propaganda is a symptom of long-standing challenges to democracy, it is important that solutions take into consideration these systemic challenges. However, it must also consider the role social media platforms have played in shaping the current information environment. A strong democracy requires access to high-quality information and an ability for citizens to come together to debate, discuss, deliberate, empathize, and make concessions. Are social media platforms really creating a space for public deliberation and democracy? Or are they amplifying content that keeps citizens addicted, disinforming, and angry?

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The image is a word cloud map of the world. The size of each country name indicates its population. The color of the text represents the continent: North America (red), South America (blue), Europe (dark blue), Africa (purple), Asia (orange), and Oceania/Australia (green). Major cities like Mexico City, New York, London, Paris, Berlin, Rome, Cairo, and Tokyo are also present as smaller text elements.