

ECONOMICS*Sociology*

Vorontsova, A., Plastun, A., & Mayboroda, T., Vavrečka, V., & Bilan, S. (2026). Conceptualizing propaganda in contemporary scientific activity: A systematic review and evolution of discourses. *Economics and Sociology*, 19(2), 287-305. doi:10.14254/2071-789X.2026/19-2/14

CONCEPTUALIZING PROPAGANDA IN CONTEMPORARY SCIENTIFIC ACTIVITY: A SYSTEMATIC REVIEW AND EVOLUTION OF DISCOURSES

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ABSTRACT. The rapid digitalization and development of artificial intelligence have intensified destructive information influences, threatening the integrity of scientific knowledge. This study identifies the evolutionary patterns and conceptual transformations of the academic discourse regarding the use of propaganda in contemporary research activities. Using the R-package Bibliometrix, a systematic bibliometric analysis of 7,973 publications indexed in the Scopus database from 2000 to 2026 was conducted. The results demonstrate a steady growth in publication activity and a shift in research geography from traditional Western hubs toward emerging centers in Southeast Asia. An analysis of the terminology enabled the identification of three stages in the discourse evolution: early ethical categories (2000–2015), the "digital shift" (2016–2021), and the current period (2022–2026), marked by geopolitical threats and the automation of disinformation via AI. It has been established that the discourse has evolved from studying isolated incidents to analyzing complex socio-technical ecosystems. The proposed conceptual framework systematizes the impact of disinformation across four dimensions: the instrumentalization of knowledge, the erosion of epistemological reliability, technological automation, and academic resilience. The findings underscore the strategic importance of developing international security protocols, providing a foundation for further research on the stability of higher education while reflecting the interdisciplinary nature of the discourse that integrates security, technological, and ethical dimensions.

Received: October, 2025

1st Revision: May, 2026

Accepted: June, 2026

DOI: 10.14254/2071-
789X.2026/19-2/14

JEL Classification: D83, I23, O33, D72

Keywords: propaganda, disinformation, fake news, social media, artificial intelligence, science, bibliometrics, academic resilience, epistemological security.

Introduction

The formation of an information society and the rapid development of the knowledge economy have transformed the architecture of global relations and continue to dictate the nature of their evolution amidst digitalization and technological shifts. Information and knowledge, long considered auxiliary tools, have evolved into a key strategic resource and a defining factor of competitiveness, innovative development, and global influence (Haggart, 2019).

However, this transformation is inherently ambivalent. Alongside the productive function of information, there is a growing reliance on its use as an instrument of manipulation and disinformation (Guess & Lyons, 2020). Empirical studies demonstrate that misleading information spreads far more effectively than factual content; notably, fake news on social media spreads 70% more intensely and reaches audiences 6 times faster than verified information (Vosoughi et al., 2018). This underscores the vulnerability of the modern infosphere, where emotions and virality supersede verified facts.

In the context of contemporary geopolitical conflicts, information has attained the status of a strategic tool of influence, with propaganda and disinformation becoming integral elements of hybrid strategies (Hadzhiev, 2020; Dov Bachmann et al., 2023). Strategic narratives are often employed to discredit opponents, shape a desired image of a conflict, and justify aggressive or violent actions (Locoman & Lau, 2025). The Russian invasion of Ukraine demonstrates that state structures are capable of constructing a discourse in which aggression is framed as morally justified or necessary (Sazhniev & Sułkowska, 2020; Zavershinskaia, 2024).

These processes are of particular urgency within the scientific domain. Although global studies indicate a relatively high level of trust in science (with 78% of respondents perceiving scientists as competent and 57% as honest), there is a significant demand for greater transparency and alignment between science and the public interest (Cologna et al., 2025). Paradoxically, this high level of trust makes the scientific discourse vulnerable to instrumentalization. The academic environment is increasingly acting not merely as an object of external influence, but as a potential channel for legitimizing political, ideological, or economic narratives (Reed et al., 2021).

Therefore, the paper aims to identify the conceptual transformations and structural patterns of the scientific discourse regarding the use of destructive information influence within the academic environment.

1. Literature review

The scientific discourse on destructive information influences demonstrates an evolution from the study of external political interventions to the analysis of internal systemic transformations. Early research, rooted in theories of influence mechanisms, primarily examined this phenomenon as a tool for international regulation of political influence (Downey, 1984). However, as L'Etang (1998) aptly observes, the boundaries between informing, reputation management, and political influence were blurred from the outset. Consequently, institutional models of organized trust management were established long before contemporary debates on disinformation.

In the second half of the 20th century, the role of science in governance grew significantly. Weingart (1999) emphasizes that the "scientization of politics" led to an outcome, where science, having become the primary argument in decision-making, was inevitably drawn into conflicts over problem framing and the definition of evidentiary relevance. As Strassheim and Kettunen (2014) point out, control over expertise implies not only control over findings but also control over what is deemed a problem, evidence, and rational policy.

A striking example of such strategies was the study of tobacco industry practices. Michaels and Monforton (2005) demonstrate that tobacco companies did not merely deny inconvenient facts; they institutionalized a "playbook of doubt," transforming natural scientific uncertainty into a political instrument to stifle regulation. Studies on "manufactured uncertainty" reveal that producers of lead, asbestos, and chemicals employed similar manipulative practices long before the launch of anti-tobacco campaigns (Michaels & Monforton, 2005). Yet, it was the tobacco corporations that elevated these practices to a systemic level, making them an integral element of their communication and regulatory policies.

Subsequent research transitioned from describing individual campaigns to the theorization of the organized production of ignorance. It is here that agnotology (an approach in which ignorance is treated not as a mere absence of knowledge but as a socially and institutionally produced outcome) gains prominence (Fernandez Pinto, 2017). This approach facilitated continuity in analysis across diverse domains, from climate skepticism and pharmaceuticals to financial crises, revealing that scientific practices can be systematically reoriented to disperse causal attention and maintain uncertainty.

In turn, the concept of epistemic corruption, developed by Sismondo (2021), focuses on how the scientific system gradually loses integrity through subordination to external interests. In the pharmaceutical sector, this manifests through "ghost-management," custom-designed studies, publication bias, the artificial inflation of citations for profitable results, and the recruitment of "key opinion leaders" to promote specific narratives. This line of research is further developed by the "Science for Profit" model proposed by Legg et al. (2022). It provides a typology of influence strategies across all stages of the knowledge lifecycle: from experimental design to interpretation, dissemination within the professional community, integration into regulatory decisions, and the cultivation of trust in corporate actors.

The current stage of discourse is defined by the platformization of science and the rapid adoption of generative artificial intelligence. Research by West and Bergstrom (2021) suggests that academic activity is increasingly subordinated to the logic of the "attention economy," where the hyperbole of achievements, citation manipulation, the emergence of predatory journals, and the formation of "filter bubbles" are systemic features of the contemporary information environment. As warned by Haider et al. (2024) and Krause et al. (2025), the emergence of scientific texts generated by large language models (GPT-fabricated texts), which are indexed alongside peer-reviewed works, threatens the integrity of the evidence base. Thus, while previous manipulative practices relied on the selection or distorted interpretation of existing evidence, the industrial production of plausible pseudoscience noise has now become a reality. Lyeonov et al. (2026) report that university staff exhibit high levels of skepticism toward generative AI, with a significant majority rejecting its role as a teacher replacement and expressing deep concern regarding the reliability and accuracy of AI-generated content in academic settings. This scepticism is consistent with broader findings on institutional preparedness for AI-related risks in Central and Eastern Europe: comparative panel analysis shows that countries' financial and institutional capacity to absorb technological disruption varies substantially, with weaker governance frameworks correlating with greater vulnerability to both the misuse of automated content-generation tools and delayed regulatory responses

(Kuzior et al., 2025). Therefore, researchers stress the need to develop transparency and responsibility in social media (Alsyooof et al., 2025; Cassells et al., 2024; Tuominen et al., 2025) and AI use for information sharing (Schinello, 2025).

In parallel, the information ecosystem of science itself is undergoing transformation. Kaczorowska-Spychalska et al. (2024) emphasize that these technologies are not merely auxiliary tools but active agents triggering a fundamental paradigm shift in how organizational knowledge is managed, integrated, and validated. Multimodal information consumption, algorithmic content curation, constant recontextualization, and the blurring of boundaries between the private and professional communication of scientists significantly weaken the traditional role of academic institutions as "gatekeepers" or reliable controllers of knowledge quality (Krause et al., 2025). Consequently, the history of destructive information influence is entering a phase where the object of contention is no longer merely the verification of an individual study, but the very conditions of visibility, searchability, trust, and the reusability of knowledge in the digital space.

Despite the thorough theorization of destructive information influence, the contemporary scientific literature remains fragmented. Most existing studies focus either on qualitative analysis of individual cases or on the theoretical conceptualization of new technological threats. However, despite a significant body of work, the literature lacks a holistic understanding of how the scientific discourse on destructive information influence has transformed, which conceptual nodes form this field, and which structural patterns determine its development.

2. Methodological approach

The methodological framework of this study is based on quantitative and qualitative bibliometric analysis of metadata from scientific publications retrieved from the Scopus database. The choice of this database is justified by its comprehensive coverage of peer-reviewed literature in the social sciences and humanities, as well as its rigorous journal selection criteria. The search was conducted in early June 2026, covering the period from 2000 to 2026.

The search algorithm was structured around three conceptual blocks of terms, combined using Boolean operators (AND, OR) and wildcards:

- destructive information phenomena: *propaganda, disinformation, fake, manipulation*;
- academic and higher education context: *academia, "higher education", science, research*;
- theoretical and conceptual focus: *concept, theor*, model, classif*, typolog*, "framework"*.

To ensure the reliability and relevance of the results, the following inclusion criteria were applied during the data processing stage:

- timeframe: publications from 2000 to 2026 inclusive, necessitated by the goal of analyzing the contemporary stage of discourse evolution;
- language: works published in English, Ukrainian, or Russian, aligning with the researchers' language proficiency;
- subject area: Publications classified within Social Sciences (SOC) and Arts and Humanities (ARTS), to prevent semantic shifts toward technical or medical sciences.

Data processing, normalization, and statistical analysis were performed using the R programming language with the specialized Bibliometrix package. The research procedure comprised the following analytical stages:

– quantitative analysis of publication activity: assessing publication dynamics over time, determining the geographical structure of research, institutional representation, and the level of scientific collaboration;

– keyword frequency analysis: evaluating the frequency and temporal dynamics of keywords to identify the study's terminological apparatus. Visualizations were generated using treemaps and heatmaps, enabling the ranking of concepts by their relative weight and identifying distribution irregularities over time;

– thematic evolution and strategic mapping: analyzing thematic evolution to confirm identified trends and using strategic thematic mapping to assess the significance and potential of specific topics. Thematic clusters were distributed within a two-dimensional coordinate system based on centrality (a measure of thematic relevance and interconnectedness) and density (a measure of internal conceptual development). This approach allowed for the classification of topics into motor themes, basic themes, niche themes, and emerging or declining themes.

All analytical procedures are based on author keywords, as they most accurately capture researchers' thematic priorities. To ensure high precision in cluster analysis and the validity of thematic groupings, the Louvain Algorithm was employed, representing the standard for community detection in network structures.

3. Conducting research and results

The results presented below are structured across two complementary levels: quantitative, which captures the dynamics and geography of publication activity, and qualitative, which reveals the evolution of the terminological apparatus and the transformation of scientific approaches to understanding information threats.

The bibliometric analysis of metadata from 7,973 scientific works, published in 3,899 sources, demonstrates an annual growth rate of 10.4% in publication activity, indicating a sustained increase in the relevance of this topic within the academic community (*Table 1*). The high citation rate (an average of 21.65 citations per document) underscores the significant theoretical impact of research in this field.

Table 1. Main bibliometric indicators of the generated sample (2000–2026)

Description	Results	Description	Results
MAIN INFORMATION		AUTHORS	
Sources (Journals, Books, etc)	3899	Authors	17967
Documents	7973	Authors of single-authored docs	2488
Annual Growth Rate %	10.4	AUTHORS COLLABORATION	
Average citations per doc	21.65	Single-authored docs	2603
References	678526	Co-Authors per Doc	2.6
DOCUMENT CONTENTS		International co-authorships %	16.58
Keywords Plus	15766		
Author's Keywords	20759		

Source: own compilation based on Scopus database data using the R-Bibliometrix package.

The analysis of the geographical distribution of publication activity and the authors' institutional affiliations (*Table 2*) makes it possible to identify dominant scientific hubs and the extent of different regions' involvement in addressing the problem.

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Table 2. Geographical distribution and leading institutional research centers (2000–2026)

Country	Articles	Affiliation	Articles
USA	4821	University Of California (USA)	97
China	1466	University Of Cambridge (UK)	52
UK	1357	Stanford University (USA)	50
India	959	Notreported	49
Germany	958	University Of Amsterdam (Netherlands)	49
Spain	655	Arizona State University (USA)	46
Canada	624	Universitas Negeri Padang (Indonesia)	46
Indonesia	611	University Of Toronto (Canada)	46
Australia	601	University College London (UK)	45
Italy	589	University Of Oxford (UK)	45
Netherlands	478	Ghent University (Belgium)	40
France	335	Leiden University (Netherlands)	39
Brazil	326	Michigan State University (USA)	38
Ukraine	311	Purdue University (USA)	38
Malaysia	264	Universitas Negeri Yogyakarta (Indonesia)	37
Poland	205	Nanyang Technological University (Singapore)	36
Sweden	203	National University Of Singapore (Singapore)	36
Belgium	199	University Of Florida (USA)	36
Portugal	173	Queensland University Of Technology (Australia)	34
Greece	167	Wuhan University (China)	34

Source: own compilation based on Scopus database data using the R-Bibliometrix package.

The data presented indicate that the United States, China, and the United Kingdom are the undisputed leaders in producing research on propaganda and other dimensions of destructive information influence. Alongside the dominance of Western nations, the growing activity of research centers in South and Southeast Asia (India, Indonesia, and Malaysia) is noteworthy, signaling the formation of a powerful regional hub that extends beyond the traditional influence of advanced economies. The global nature of this discourse is further confirmed by the broad geographical distribution of research, engaging scholars from Europe, Asia, and South America.

Institutionally, there is a high concentration of research activity around leading global, well-funded universities, such as the University of California (USA), Stanford University (USA), the University of Cambridge (UK), and the University of Oxford (UK). At the same time, the analysis demonstrates high productivity from institutions such as the University of Amsterdam (Netherlands) and Arizona State University (USA). Furthermore, the consistent activity of Indonesian universities (Universitas Negeri Padang, Universitas Negeri Yogyakarta) and prominent Singaporean hubs (Nanyang Technological University, National University of Singapore) points to the gradual diversification of the global academic space.

Transitioning to the qualitative stage of the study, specifically regarding the terminological apparatus, the dynamics of keyword usage were analyzed based on 20,759 author keywords. The results are visualized in a treemap of distribution by frequency (*Figure 1*). According to the data obtained, the most frequently used terms in scientific papers are "disinformation" (463 mentions), "fake news" (432), "social media" (326), "misinformation" (274), and "propaganda" (227). These terms are characteristic of descriptions of destructive influence and reflect the key epistemic threats facing contemporary society and science.

Based on the analysis of co-occurring keywords, four thematic clusters were identified, which merit further investigation:

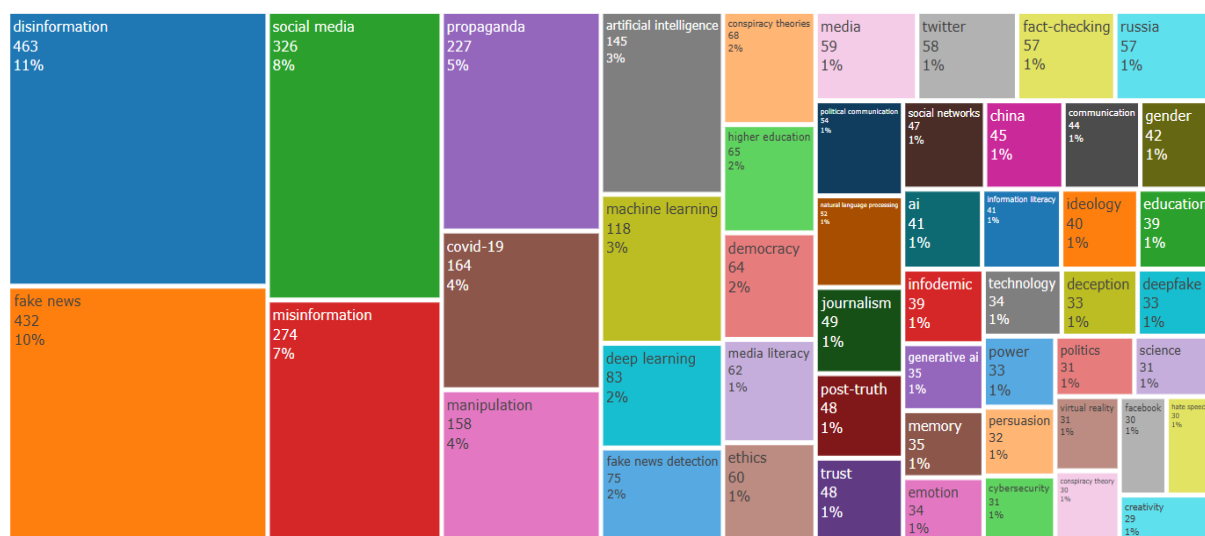
1. Technological environment: "social media," "artificial intelligence," "machine learning," "deep learning," "fake news detection," "natural language processing."

2. Institutional and educational context: "higher education," "media," "journalism," "social networks," "science."

3. Crisis perturbations in social systems: "covid-19," "conspiracy theories," "democracy," "political communication," "infodemic."

4. Psychological and ethical aspects: "ethics," "post-truth," "trust," "ideology," "emotion."

The presence of geopolitical markers among the popular keywords, specifically "Russia" (57 mentions) and "China" (45 mentions), holds separate analytical significance. This confirms that in international scientific discourse, the use of propaganda in the academic sphere is consistently associated with specific geopolitical cases.



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Table 3. Heatmap of keyword frequency dynamics, 2000–2026.

	2000- 2015	2016- 2018	2019- 2021	2022- 2024	2025- 2026		2000- 2015	2016- 2018	2019- 2021	2022- 2024	2025- 2026
Disinformation	42	22	157	590	873	Fact-checking	0	1	15	64	108
Fake news	0	16	300	837	846	ruSSia	6	10	31	94	105
Social media	9	31	200	558	631	Political communication	3	19	56	86	103
Misinformation	28	13	97	411	524	Natural language processing	5	6	29	77	101
Propaganda	144	143	268	468	442	Journalism	2	7	33	91	95
Covid-19	0	0	64	329	320	Trust	9	11	40	88	93
Manipulation	133	120	198	325	308	Post-truth	0	3	30	93	93
Artificial intelligence	28	10	44	154	267	Social networks	8	10	33	78	92
Machine learning	18	15	63	189	227	China	15	13	43	78	86
Deep learning	0	4	22	109	164	Communication	42	22	40	94	86
Fake news detection	2	7	40	128	144	Gender	50	37	51	88	82
Conspiracy theories	0	3	26	117	133	AI	0	0	9	32	73
Higher education	31	31	60	129	128	Information literacy	4	15	47	93	80
Democracy	30	20	53	108	123	Ideology	18	19	52	86	78
Media literacy	0	2	24	84	118	Education	14	23	38	65	73
Ethics	83	44	72	123	113	Infodemic	0	0	13	80	78
Media	27	22	57	111	114	Generative ai	0	0	0	16	67
Twitter	1	5	42	114	115	Memory	60	46	60	84	69

Source: own compilation based on Scopus database data using the R-Bibliometrix package.

It was during this period that foundational works were produced, establishing the theoretical framework for distinguishing between concepts of destructive information influence. Research by Fetzner (2004), Stahl (2006), and Karlova & Lee (2011) justified the conceptual connections and essential distinctions between the categories of "information," "misinformation," and "disinformation." They demonstrated that these categories are not merely varying degrees of message accuracy, but qualitatively distinct communicative processes. These studies placed particular emphasis on factors such as context, timing, and the ethical responsibility of the information source.

Rubin & Chen (2012) further explored the essence and classification criteria of information manipulation, particularly regarding the degree of intent to deceive, factual accuracy, and the level of social acceptability. This model established the mathematical and logical premises for the automated detection of various forms of manipulation using Natural Language Processing (NLP) and the development of information literacy systems.

The development of the theoretical foundations for propaganda research during this period was based on a re-evaluation of historical experience and theories of mass persuasion. Works by Collins (2014) and Scriver (2015) traced the evolution of the perception of propaganda from a political threat to democratic institutions to a tool of psychological and behavioral influence within the media landscape during global and armed conflicts.

The period from 2016 to 2021 represents both a stage of a massive "digital shift" and a time of global political crises and the pandemic. The emergence and consolidation of the categories "fake news" (increasing from 16 mentions in 2016–2018 to 300 in 2019–2021) and "disinformation" (from 22 to 157 mentions, respectively) were driven by rapid digitalization and the transformation of "social media" (totaling 231 mentions) into the primary communication environment.

Numerous studies from this period focused on conceptualizing "fake news," identifying its place within the broader structure of information manipulation, and uncovering its intrinsic

link to propaganda. Egelhofer & Lecheler (2019) proposed a two-dimensional approach, distinguishing fake news both as a specific genre of disinformation and as a label utilized by political actors to delegitimize traditional media and conduct covert propaganda. The connection between fake news, political propaganda, and news satire was also examined in detail by Dumitrache (2019) and Vamanu (2019).

Simultaneously, during this period, disinformation began to be analyzed as a vital and integral component of contemporary political communication (Freelon & Wells, 2020). The role of emerging media technologies and manipulative narratives in undermining democratic institutions in the post-truth era was comprehensively explored in a collective monograph edited by Giusti & Piras (2020).

The COVID-19 pandemic and the accompanying "infodemic" (13 mentions) became powerful triggers for the manipulation of scientific data, leading to a surge in research concerning fake news and conspiracy theories (29 mentions during this period). Messaoud (2021) emphasizes that the shift in content production toward social media users stripped media professionals of their monopoly on truth, necessitating the implementation of new protocols for fact-checking and integration. Nguyen & Catalan-Matamoros (2020) also noted a distinct crisis of trust in scientific expertise, which underscores the issue of the social responsibility of media platforms that have become primary news sources. This reflects the overall spread of disinformation and the problem of media literacy in communication and news environments (Keller et al., 2023; Mishchuk et al., 2026). Many researchers argue that the effectiveness of countering disinformation in these conditions depends directly on the combined efforts of governments and technological platforms, alongside the quality of sources and the responsibility of journalistic practice (Hartley & Vu, 2020; Popescu Ljungholm & Olah, 2020).

The period from 2022 through 2026 marks the transition of disinformation into a threat to national security and democracy ("democracy" reaches 231 mentions cumulatively during this period). This is clearly evidenced by the sharp increase in references to Russia (199 mentions) and China (164 mentions).

In this context, Bonotti & Nwokora (2024) systematize contemporary manipulations as "information pathologies" (misinformation, disinformation, fake news, rumors, and conspiracy theories), which pose an increasingly serious challenge to liberal democratic systems by attacking the very foundations of the democratic order. One of the most critical manifestations of these pathologies is the destructive impact on electoral processes. Grizenti, Barros, & Resende (2025) emphasize that the primary damage caused by fake news is the erosion of public political discourse. The authors identify two mechanisms of influence: the distortion of factual information in public debate, leading to flawed collective decision-making, and emotional mobilization, which remains effective even when citizens are aware of the content's falsehood.

Research by Oliveira, Wang, & Xu (2022) reveals an intriguing paradox: even in environments characterized by deep distrust in institutions (government, industry), "scientific authority" continues to be used as symbolic capital to legitimize conspiracy theories. In other words, science is being instrumentalized to defend pseudoscientific ideas.

Regarding geopolitical case studies on disinformation, it was found that Russia and China demonstrate differentiated, yet systematically integrated strategies. Singh (2025) notes that the Russian model focuses on creating "information warfare laboratories" to test methods of influence in the post-Soviet space, with disinformation functioning as an institutionalized form of media labor (Poliakoff & Kling, 2026). Conversely, the Chinese strategy relies on deeper technological and social integration, engaging fan cultures for performative propaganda (Lu, 2026) and manipulating institutional data ("fake equity") to conceal systemic financial risks (Liu, 2025).

From a technological perspective, the automation of destructive influence has become a defining factor. Mentions of artificial intelligence (421 mentions), machine learning (416), deep learning (273), and fake news detection (272) have reached historic highs. Furthermore, the concept of "generative AI" (83 mentions) has become established in the discourse, signaling research into the threats of the industrial production of synthetic pseudoscientific content.

Research confirms a transition from disinformation models focused solely on human behavioral reactions to complex socio-technical systems, where AI serves as a tool for content production and dissemination (Wirtz et al., 2026), with quality becoming nearly indistinguishable from authentic content (Karinshak & Jin, 2023). This necessitates a shift from strategies based purely on volume measurement to analyzing content influence and implementing new linguistic frameworks to identify markers of manipulation (Whitty & Doherty, 2026; Rubin, 2022).

Multilevel countermeasures are emerging in response to these challenges, with media literacy serving as a primary defensive tool (Rosu et al., 2024). Beyond individual literacy, the discourse increasingly focuses on the need for legislative regulation of "bot farms" (Dryzhakova, 2025) and the development of global governance frameworks for the digital space to protect democratic resilience (Sarkar, 2026).

To confirm the identified patterns in scientific discourse, a thematic evolution map was constructed based on the dynamics of keyword co-occurrence (*Figure 2*).

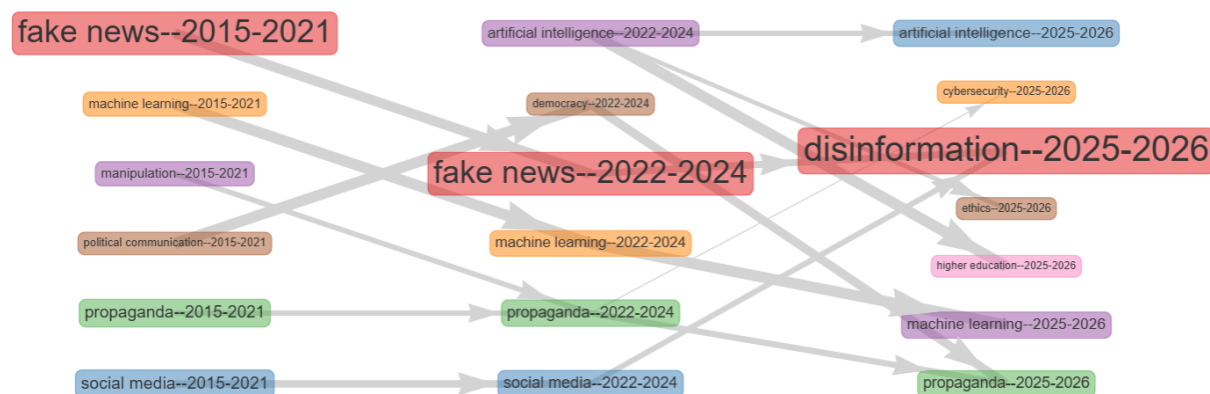


Figure 2. Thematic evolution map based on keyword co-occurrence analysis

Source: own compilation based on Scopus database data using the R-Bibliometrix package.

The "fake news" thematic node, dominant in the early stages of research, is gradually transforming into a significantly more complex and analytically rich category – "disinformation." In 2025–2026, it also absorbs the "social media" thematic node, reflecting a shift in research focus from studying isolated information incidents to a systemic analysis of disinformation ecosystems.

The "propaganda" thematic node demonstrates high consistency throughout the study period (2015–2026). Its absorption of the "manipulation" (2015–2021) and "democracy" (2022–2024) nodes indicates that classical propaganda methods not only retain their relevance but are also being integrated into new socio-political contexts. Notably, a link emerges from the "propaganda" node (2025–2026) to the "cybersecurity" category, signaling a shift in focus toward security-related threats.

The technological segment of the discourse, particularly the "machine learning" and "artificial intelligence" nodes (which emerged in 2022–2024), demonstrates a stable trajectory of development, confirming its status as a key research vector. In the 2025–2026 period, new

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directions, specifically "ethics" and "higher education", branched out from the "artificial intelligence" node. This underscores the active debate surrounding ethical challenges and academic resilience amidst the rapid implementation of AI.

The results of the analysis for the most recent period (2025–2026) are presented in *Figure 3* as a thematic map and in *Table 4* as a summary of thematic clusters.

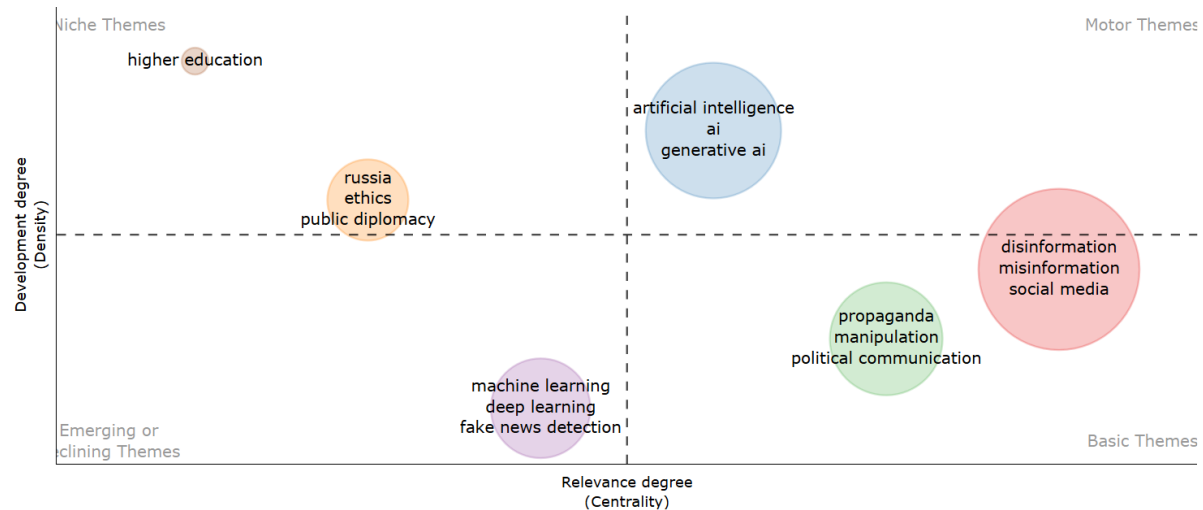


Figure 3. Thematic map based on the analysis of co-occurring author keywords (2025–2026). Source: *own compilation based on Scopus database data using the R-Bibliometrix package.*

Table 4. Summary characteristics of scientific discourse thematic clusters (2015–2026).

Cluster	Thematic Group	Key Terms	Total Mentions
1	Disinformation	disinformation, misinformation, social media, fake news, covid-19, fact-checking, media literacy, conspiracy theories, elections, twitter, digital literacy	589
2	Artificial intelligence	artificial intelligence (AI), generative AI, cybersecurity, large language models, social networks, deepfake/deepfakes, media, journalism, trust, chatgpt, education, information warfare	271
3	Propaganda	propaganda, manipulation, political communication, democracy, china, systematic review	136
4	Machine learning	machine learning, deep learning, fake news detection, natural language processing	91
5	Russia	russia, ethics, public diplomacy, gender	52
6	Higher Education	higher education	10

Note: *The total frequency is an aggregated indicator of the Occurrences for all terms within the respective cluster.*

The quadrant of motor themes, which define the vector of contemporary discourse development, includes a thematic cluster encompassing the terms "artificial intelligence," "AI," and "generative AI." The high centrality and density of this cluster indicate that the technologization of content production is the primary driver of current research. Concurrently, the integration of related nodes, such as "cybersecurity," "large language models," "social networks," "deepfake," "media," "journalism," "trust," "ChatGPT," and "information warfare",

suggests that the discourse surrounding AI has evolved into a multi-faceted platform where technologies are examined through the lenses of security, ethics, and media transformation.

The quadrant of basic themes comprises fundamental clusters characterized by high centrality but relatively lower development density. The first cluster encompasses key terms related to destructive information influence: "disinformation," "misinformation," "social media," "fake news," and related concepts such as "COVID-19," "fact-checking," "media literacy," "conspiracy theories," "elections," "Twitter," and "digital literacy." The stability of these terms confirms their status as the "core" of the discipline.

The second cluster, including "propaganda," "manipulation," "political communication," "democracy," "China," and "systematic review," delineates the institutional and political dimensions of influence. These themes form a stable discursive foundation upon which further research into information resilience is built.

The quadrant of niche themes is represented by the "higher education" cluster. The high specialization of this node, coupled with relatively low centrality, indicates its autonomous status within the scientific field. Research focused on educational aspects demonstrates high internal density; however, at the current stage, it is less integrated into broader technological discussions. This points to the emergence of a specific academic sub-discipline developing as a specialized field of knowledge focused on institutional resilience.

Also located here is a geopolitical cluster, which integrates "Russia," "ethics," "public diplomacy," and "gender," currently occupying a peripheral position in the overall discourse. This may suggest a shift in the researchers' focus: from the analysis of specific geopolitical cases toward the global study of systemic socio-technical challenges.

The quadrant of emerging or declining themes encompasses nodes with low centrality and density, indicating their transitional nature. The technological cluster, including "machine learning," "deep learning," "fake news detection," and "natural language processing," shows signs of being superseded by more modern generative AI methods.

4. Discussion

The results of provided bibliometric analysis suggest that contemporary literature increasingly transcends the view of propaganda and disinformation as merely a problem of false messages or media manipulation. Instead, the field is shifting toward an understanding of these phenomena as mechanisms that influence the regimes of production, verification, dissemination, and legitimation of knowledge (Freelon & Wells, 2020). This interpretation aligns with works describing the academic environment as vulnerable not only to external pressures but also to internal mechanisms of evidence distortion (West & Bergstrom, 2021). Therefore, the findings of this study are best interpreted through four interrelated dimensions.

The first dimension concerns the instrumentalization of science, i.e., the use of expertise, evidentiary rigor, and the symbolic authority of science to support predetermined political, state, or corporate interests (Legg et al., 2022; Saltelli et al., 2021). The presence of clusters associated with propaganda, political communication, democracy, and the institutional-educational environment suggests that the literature increasingly views science not merely as a target of information pressure, but as a resource for legitimation. This is consistent with the concept of "policy-based evidence," where findings are cherry-picked to suit existing political priorities (Strassheim & Kettunen, 2014), and with research on "regulatory capture," describing the strategic use of scientific imagery in regulatory processes (Saltelli et al., 2021). Cross-sectorally, this is supported by the "Science for Profit" model, where scientific expertise acts as a tool for promoting knowledge advantageous to specific actors (Legg et al., 2022).

Consequently, academic propaganda often operates not against science, but through its authoritative form, turning knowledge into an instrument of manipulation.

The second dimension, epistemic erosion, reflects the systemic weakening of scientific knowledge integrity. The dominance of terms such as disinformation, misinformation, fake news, trust, post-truth, conspiracy theories, fact-checking, and infodemic indicates that contemporary discourse is largely focused on the destabilization of conditions under which knowledge is recognized as reliable and socially legitimate. This aligns with the concept of "epistemic corruption," which describes situations where a knowledge system externally retains a scientific form while increasingly serving external interests (Sismondo, 2021). Literature on "manufactured doubt" adds to this by identifying mechanisms of selective criticism, the raising of evidentiary thresholds, and the strategic production of skepticism to undermine trust (Goldberg & Vandenberg, 2017). In this context, the crisis concerns not only the veracity of individual claims but the very foundation of trust in scientific expertise.

The third dimension is related to the automation of manipulative practices, directly confirmed by the rapid growth of terms like artificial intelligence, machine learning, deep learning, fake news detection, natural language processing, and generative AI. This indicates that the technological segment has ceased to be a peripheral technical block, emerging instead as one of the central drivers of the contemporary field. In the literature, this shift corresponds to a transition from studying the spread of fake news to analyzing systems capable of automatically producing plausible manipulative content (Elali & Rachid, 2023; Kendall & Teixeira da Silva, 2024). Of particular significance is the growing interest in generative AI, deepfakes, LLMs, and AI-generated texts, as this points to a new asymmetry between the speed of synthetic content production and the capabilities of traditional verification mechanisms (França & Monserrat, 2024). This asymmetry is empirically confirmed at the level of ordinary news consumption: Eurobarometer-based analysis of 26,114 EU respondents finds that while nearly two-thirds report confidence in recognising fake news, more than a third remain unconfident, and paradoxically, higher engagement with social media correlates with greater self-reported exposure to disinformation rather than improved detection capacity – suggesting that the erosion of verification capabilities documented here for the scientific domain has a direct behavioural parallel in general news environments (Mishchuk et al., 2026). Thus, the issue is no longer just disinformation as content, but the industrialization of its production.

The fourth dimension concerns academic resilience, derived from the strengthening of nodes such as higher education, media literacy, information literacy, education, ethics, and fact-checking. Although the higher education cluster is niche, its internal density points to the formation of a distinct track focused on the institutional stability of the academic environment against disinformation risks. This result is consistent with research on "infodemic management," "literacy-based responses," and scientific communication, which emphasizes that countering information threats requires not only the technical detection of distorted content but also the active development of media literacy tools, the improvement of peer review mechanisms, the implementation of rigorous fact-checking, the transparent communication of uncertainty, and ethical regulation (Osborne & Pimentel, 2022; Intemann, 2023). This resilience-building imperative extends beyond the scientific community to younger audiences more broadly: survey evidence on Generation Z and Generation Alpha shows that despite widespread exposure to unverified online content, socio-cultural factors – including peer trust, platform habits, and prior media literacy training – systematically shape these cohorts' capacity to discriminate credible from manipulative content, reinforcing that academic and public resilience against disinformation share common developmental roots (Spychalski, 2023). In this sense, academic resilience denotes not passive defense, but the capacity of science to adapt to a new information ecology without sacrificing its fundamental quality standards.

Conclusion

This study aimed to identify evolutionary patterns and conceptual transformations in the scientific discourse regarding the use of propaganda in contemporary academic activity, achieved through the integration of quantitative bibliometric analysis and qualitative systematization of theoretical approaches. The analysis of a corpus of 7,973 scientific works (2000–2026) demonstrates a sustained growth in interest in this topic, evidenced by an annual publication growth rate of 10.4% and a high citation impact (averaging 21.65 citations per document). Geographical and institutional distribution analysis identified dominant scientific hubs primarily represented by universities in the USA, China, and the UK, functioning within a global network of well-funded research institutions. Simultaneously, the emergence of a powerful regional hub in South and Southeast Asia signals the gradual diversification of the global academic space, with research activity extending beyond traditional elite centers.

The analysis of 20,759 author keywords allowed for the mapping of the semantic field, dominated by terms such as disinformation, fake news, social media, misinformation, and propaganda. The chronology of their usage reveals a clear periodization: an incipient stage (2000–2015) based on classical categories of ethics and manipulation; a "digital shift" stage (2016–2021) driven by rapid digitalization and the transformation of social media into the primary communication environment; and the contemporary stage (2022–2026), characterized by the transition of disinformation into a threat to national security and democracy. The latter period is marked by a sharp rise in interest in geopolitical markers (Russia, China) and technological automation, where metrics for artificial intelligence, machine learning, and deep learning have reached historic highs.

The thematic evolution mapping confirms these findings, capturing a discourse transformation from the study of isolated incidents (fake news) to a comprehensive analysis of disinformation ecosystems. The stability of the "propaganda" node and its proximity to the categories of cybersecurity, ethics, and higher education indicate that the academic space has definitively transitioned from technical observation to the formation of an active resilience strategy amidst algorithmically scaled threats.

Analysis of contemporary thematic clusters (2025–2026) reveals a clear hierarchical structure. The artificial intelligence and generative models cluster occupies the quadrant of Motor Themes, confirming that the technologization of content production is the primary driver of research. The fundamental "core" of the discipline remains stable, encompassing clusters of disinformation and political propaganda. Concurrently, niche directions have emerged, linked to institutional specialization in academic resilience (the Higher Education cluster) and geopolitical markers (Russia, ethics). We observe a gradual displacement of classical machine learning methods by modern generative tools, indicating a qualitative shift in research focus from analyzing individual cases and outdated technical means toward the global study of systemic socio-technical challenges that directly threaten the epistemological autonomy of higher education.

The proposed conceptual framework allows for a systemic structuring of the challenges facing modern science. The identified four dimensions—the instrumentalization of science, epistemic erosion, technological automation, and academic resilience—demonstrate that scientific discourse is facing a "technological challenge," where the speed of content generation significantly outpaces traditional verification mechanisms. Overcoming this crisis requires not merely technical solutions or increased oversight, but a comprehensive update of institutional security protocols and the cultivation of a new culture of academic resilience. In this context, future research should focus on developing global ethical standards for the interaction between

science and artificial intelligence, which will allow for the preservation of trust in scientific knowledge as a reliable compass in an era of global information instability.

Acknowledgement

This research was conducted within the framework of the Project 0126U003080 NFDU (2026-2028) Science as a tool of propaganda: identification, analysis and counteraction using the example of the Russian scientific system.

References

- Acim, B., Boukhelif, M., Ouhnni, H., Kharmoum, N., & Ziti, S. (2025). A decade of deepfake research in the generative AI era, 2014–2024: A bibliometric analysis. *Publications*, 13(4), 50. <https://doi.org/10.3390/publications13040050>
- Acut, D. P., Malabago, N. K., Malicoban, E. V., Galamiton, N. S., & Garcia, M. B. (2025). “ChatGPT 4.0 ghosted us while conducting literature search:” Modeling the chatbot’s generated non-existent references using regression analysis. *Internet Reference Services Quarterly*, 29(1), 27–54. <https://doi.org/10.1080/10875301.2024.2426793>
- AlBlooshi, S. (2026). Artificial intelligence in higher education, opportunities, and challenges: A review. *Frontiers in Education*, 10, 1683968. <https://doi.org/10.3389/educ.2025.1683968>
- Alsyoof, S. M. S., László, V., & Sneider, T. (2025). Humane oriented CSR on social media: The roles of other praising emotions and social justice values. *Journal of International Studies*, 18(3), 46–67. doi:10.14254/2071-8330.2025/18-3/3
- Beaulieu, J. O., Montgomery, A. W., & Lyon, T. P. (2025). Deny or greenwash? Exploring the interactions between science denialism and greenwashing. In E. Bruni & L. M. Lefsrud (Eds.), *Organized science denial: An action plan for solutions* (1st ed.). Oxford University Press. <https://doi.org/10.1093/9780198953067.003.0004>
- Bonotti, M., & Nwokora, Z. (2024). Introduction to the symposium: Conspiracism and democracy: New perspectives and challenges. *Political Studies Review*, 22(2), 255–259. <https://doi.org/10.1177/147892992412355>
- Cassells, R., Freyens, B.P., & Jenkins, P. (2024). Narcissistic prosociality in social media campaigns: Findings from a survey quasi-experiment. *Economics and Sociology*, 17(4), 159–175. doi:10.14254/2071-789X.2024/17-4/9
- Collins, S. (2014). Propaganda studies: The U.S. interwar years. In P. Moy (Ed.), *The international encyclopedia of media studies*. Wiley-Blackwell. <https://doi.org/10.1002/9781444361506.wbiems028>
- Cologna, V., Mede, N. G., Berger, S., et al. (2025). Trust in scientists and their role in society across 68 countries. *Nature Human Behaviour*, 9, 713–730. <https://doi.org/10.1038/s41562-024-02090-5>
- Dov Bachmann, S.-D., Putter, D., & Duczynski, G. (2023). Hybrid warfare and disinformation: A Ukraine war perspective. *Global Policy*, 14, 858–869. <https://doi.org/10.1111/1758-5899.13257>
- Downey, E. A. (1984). A historical survey of the international regulation of propaganda. *Michigan Journal of International Law*, 5, 341–360.
- Dryzhakova, D. (2025). Legal regulation of the concept of “bot farms” as a response to manipulation of Internet users. *Social and Legal Studies*, 8(2), 144–154. <https://doi.org/10.32518/sals2.2025.144>

- Dumitrache, A. C. (2019). Shades of fake news: Manifestation, effects and ways to combat false information. *Romanian Journal of Communication and Public Relations*, 21(2), 41–57. <https://doi.org/10.21018/rjcpr.2019.2.276>
- Egelhofer, J. L., & Lecheler, S. (2019). Fake news as a two-dimensional phenomenon: A framework and research agenda. *Annals of the International Communication Association*, 43(2), 97–116. <https://doi.org/10.1080/23808985.2019.1602782>
- Elali, F. R., & Rachid, L. N. (2023). AI-generated research paper fabrication and plagiarism in the scientific community. *Patterns*, 4(3), 100706. <https://doi.org/10.1016/j.patter.2023.100706>
- Fernandez Pinto, M. (2017). To know or better not to: Agnotology and the social construction of ignorance in commercially driven research. *Science & Technology Studies*, 30(2), 53–72. <https://doi.org/10.23987/sts.61030>
- Fetzer, J. H. (2004). Disinformation: The use of false information. *Minds and Machines*, 14, 231–240. <https://doi.org/10.1023/B:MIND.0000021683.28604.5b>
- França, T. F. A., & Monserrat, J. M. (2024). The artificial intelligence revolution in unethical publishing: Will AI worsen our dysfunctional publishing system? *Journal of General Physiology*, 156(11), e202413654. <https://doi.org/10.1085/jgp.202413654>
- Freelon, D., & Wells, C. (2020). Disinformation as political communication. *Political Communication*, 37(2), 145–156. <https://doi.org/10.1080/10584609.2020.1723755>
- Giusti, S., & Piras, E. (Eds.). (2020). Democracy and fake news: Information manipulation and post-truth politics (1st ed.). Routledge. <https://doi.org/10.4324/9781003037385>
- Goldberg, R. F., & Vandenberg, L. N. (2021). The science of spin: Targeted strategies to manufacture doubt with detrimental effects on environmental and public health. *Environmental Health*, 20, 33. <https://doi.org/10.1186/s12940-021-00723-0>
- Grizenti, E., Barros, S., & Resende, R. (2025). Fake news and democratic elections: A scoping review of the literature. *Revista de Sociologia e Política*, 33, e005. <https://doi.org/10.1590/1678-98732433e005>
- Guess, A. M., & Lyons, B. A. (2020). Misinformation, disinformation, and online propaganda. In N. Persily & J. A. Tucker (Eds.), *Social media and democracy* (pp. 10–33). Cambridge University Press.
- Hadzhiev, B. (2020). Enablers of hybrid warfare: The Bulgarian case. *Journal of International Studies*, 13(1), 28–43. doi:10.14254/2071-8330.2020/13-1/2
- Haggart, B. (2019). Taking knowledge seriously: Towards an international political economy theory of knowledge governance. In B. Haggart, K. Henne, & N. Tusikov (Eds.), *Information, technology and control in a changing world* (pp. 13–34). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-14540-8_2
- Haider, J., Söderström, K. R., Ekström, B., & Rödl, M. (2024). GPT-fabricated scientific papers on Google Scholar: Key features, spread, and implications for preempting evidence manipulation. *Harvard Kennedy School Misinformation Review*, 5(5). <https://doi.org/10.37016/mr-2020-156>
- Hartley, K., & Vu, M. K. (2020). Fighting fake news in the COVID-19 era: Policy insights from an equilibrium model. *Policy Sciences*, 53, 735–758. <https://doi.org/10.1007/s11077-020-09405-z>
- Hossain, S., Sudarsan, D., Zaffar, H., & Ahmad, N. (2026). Social and psychological impact of deepfakes: A comprehensive bibliometric review. *Global Knowledge, Memory and Communication*. <https://doi.org/10.1108/GKMC-11-2024-0734>
- Intemann, K. (2023). Science communication and public trust in science. *Interdisciplinary Science Reviews*, 48(2), 350–365. <https://doi.org/10.1080/03080188.2022.2152244>

- Kaczorowska-Spychalska, D., Kotula, N., Mazurek, G., & Sułkowski, Łukasz. (2024). Generative AI as source of change of knowledge management paradigm. *Human Technology*, 20(1), 131–154. <https://doi.org/10.14254/1795-6889.2024.20-1.7>
- Karinshak, E., & Jin, Y. (2023). AI-driven disinformation: A framework for organizational preparation and response. *Journal of Communication Management*, 27(4), 539–562. <https://doi.org/10.1108/JCOM-09-2022-0113>
- Karlova, N. A., & Lee, J. H. (2011). Notes from the underground city of disinformation: A conceptual investigation. *Proceedings of the ASIST Annual Meeting*, 48(1). <https://doi.org/10.1002/meet.2011.14504801133>
- Keller, V., Printz-Markó, E., & Szabó, Zs. R. (2023). Social media communication of the spa industry during the four waves of the COVID-19 pandemic. *Journal of International Studies*, 16(4), 97–116. doi:10.14254/2071- 8330.2023/16-4/7
- Kendall, G., & Teixeira da Silva, J. A. (2024). Risks of abuse of large language models, like ChatGPT, in scientific publishing: Authorship, predatory publishing, and paper mills. *Learned Publishing*, 37, 55–62. <https://doi.org/10.1002/leap.1578>
- Krause, N. M., Freiling, I., & Scheufele, D. A. (2025). Our changing information ecosystem for science and why it matters for effective science communication. *Proceedings of the National Academy of Sciences*, 122(27), e2400928121. <https://doi.org/10.1073/pnas.2400928121>
- Kuzior, A., Vysochyna, A., Kęsik-Brodacka, M., & Folvarčná, A. (2025). Analysis of trends in financial and institutional capacity within European public health systems. *Journal of International Studies*, 18(4), 153–179. <https://doi.org/10.14254/20718330.2025/18-4/8>
- L'Etang, J. (1998). State propaganda and bureaucratic intelligence: The creation of public relations in 20th century Britain. *Public Relations Review*, 24(4), 413–441. [https://doi.org/10.1016/S0363-8111\(99\)80109-X](https://doi.org/10.1016/S0363-8111(99)80109-X)
- Legg, T., Hatchard, J., & Gilmore, A. B. (2021). The science for profit model – How and why corporations influence science and the use of science in policy and practice. *PLOS ONE*, 16(6), e0253272. <https://doi.org/10.1371/journal.pone.0253272>
- Liu, A. (2025). Financialization of housing production: Unveiling the fake equity in urban China. *Economic Geography*, 101(4), 218–239. <https://doi.org/10.1080/00130095.2025.2527982>
- Locoman, E., & Lau, R. R. (2025). Narratives of conflict: Russian media's evolving treatment of Ukraine (2013–2022). *Media, War & Conflict*, 18(3), 325–347. <https://doi.org/10.1177/17506352241257053>
- Lu, Y. (2026). Performative propaganda engagement: How celebrity fans engage with state propaganda on Weibo. *Political Communication*, 43(1), 99–127. <https://doi.org/10.1080/10584609.2025.2584999>
- Lyeonov, S., Artyukhov, A., Bilan, S., & Bács, Z. (2026). How university staff evaluate generative AI: Cognitive and ethical perspectives on teaching, trust, and academic integrity. *Human Technology*, 22(1), 68–97. <https://doi.org/10.14254/1795-6889.2026.22-1.4>
- Messaoud, M. (2021). Social media and the COVID-19 pandemic: The dilemma of fake news clutter vs. social responsibility. *Journal of Arab & Muslim Media Research*, 14(1), 25–45. https://doi.org/10.1386/jammr_00023_1
- Michaels, D., & Monforton, C. (2005). Manufacturing uncertainty: Contested science and the protection of the public's health and environment. *American Journal of Public Health*, 95(S1), S39–S48. <https://doi.org/10.2105/AJPH.2004.043059>

- Mishchuk, H., Kuźmicz, K., Krol, V., Nożewski, J., & Imreh-Tóth, M. (2026). Media influence and user behaviour in the news environment: Traditional versus social media. *Human Technology*, 22(1), 219–238. <https://doi.org/10.14254/1795-6889.2026.22-1.11>
- Mishchuk, H., Kuźmicz, K., Krol, V., Nożewski, J., & Imreh-Tóth, M. (2026). Media influence and user behaviour in the news environment: Traditional versus social media. *Human Technology*, 22(1), 219–238. <https://doi.org/10.14254/1795-6889.2026.22-1.11>
- Nguyen, A., & Catalan-Matamoros, D. (2020). Digital mis/disinformation and public engagement with health and science controversies: Fresh perspectives from COVID-19. *Media and Communication*, 8(2), 323–328. <https://doi.org/10.17645/mac.v8i2.335>
- Oliveira, T., Wang, Z., & Xu, J. (2022). Scientific disinformation in times of epistemic crisis: Circulation of conspiracy theories on social media platforms. *Online Media and Global Communication*, 1(1), 1–18. <https://doi.org/10.1515/omgc-2022-0005>
- Osborne, J., & Pimentel, D. (2022). Science, misinformation, and the role of education. *Science*, 378(6617), 246–248. <https://doi.org/10.1126/science.abq8093>
- Poliakoff, S., & Kling, J. (2026). Mapping the disinformation industry in Russia. *New Media & Society*. <https://doi.org/10.1177/14614448261452207>
- Popescu Ljungholm, D., & Olah, M. L. (2020). Regulating fake news content during COVID-19 pandemic: Evidence-based reality, trustworthy sources, and responsible media reporting. *Review of Contemporary Philosophy*, 19, 43–49. <https://doi.org/10.22381/RCP1920203>
- Reed, G., Hendlin, Y., Desikan, A., MacKinney, T., Berman, E., & Goldman, G. T. (2021). The disinformation playbook: How industry manipulates the science-policy process—and how to restore scientific integrity. *Journal of Public Health Policy*, 42, 622–634. <https://doi.org/10.1057/s41271-021-00318-6>
- Roșu, M., Cosmoiu, A., Ianole-Călin, R., & Cornoiu, S. (2024). Stories worth sharing—Why do people spread news online? *Online Information Review*, 48(3), 581–600. <https://doi.org/10.1108/OIR-12-2022-0693>
- Rubin, V. L., & Chen, Y. (2012). Information manipulation classification theory for LIS and NLP. *Proceedings of the American Society for Information Science and Technology*, 49(1), 1–5. <https://doi.org/10.1002/meet.14504901353>
- Saltelli, A., Dankel, D. J., Di Fiore, M., Holland, N., & Pigeon, M. (2021). Science, the endless frontier of regulatory capture. *Futures*, 132, 102860. <https://doi.org/10.1016/j.futures.2021.102860>
- Sarkar, R. (2026). The weaponization of truth: Disinformation, propaganda, and the politics of digital platforms. In G. Thinnakkakath (Ed.), *Media literacy and the politics of digital misinformation* (pp. 57–86). IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-3373-6566-4.ch003>
- Sazhniev, M., & Sułkowska, J. (2020). Russian culture and management of meaning in introduction of political influence in Ukraine. *Journal of International Studies*, 13(1), 310–323. doi:10.14254/2071-8330.2020/13-1/20
- Schinello, S. (2025). Challenges and opportunities in the use of artificial intelligence in creative economy: Insights from expert interviews. *Economics and Sociology*, 18(1), 199–216. doi:10.14254/2071-789X.2025/18-1/10
- Scriven, S. (2015). War propaganda. In J. D. Wright (Ed.), *International encyclopedia of the social & behavioral sciences* (2nd ed.). Elsevier. <https://doi.org/10.1016/B978-0-08-097086-8.96046-X>
- Singh, K. (2025). Information warfare laboratories: Comparing Russian disinformation operations in Romania and potential expansion to Moldova and Georgia. *Connections*, 24(2). <https://doi.org/10.11610/Connections.24.2.05>

- Sismondo, S. (2021). Epistemic corruption, the pharmaceutical industry, and the body of medical science. *Frontiers in Research Metrics and Analytics*, 6, 614013. <https://doi.org/10.3389/frma.2021.614013>
- Spychalski, B. (2023). Socio-cultural factors shaping the attitude of Generation Z and Generation Alpha youth towards quality. *Journal of Sustainable Development of Transport and Logistics*, 8(2), 298-311. <https://doi.org/10.14254/jsdtl.2023.8-2.23>
- Stahl, B. C. (2006). On the difference or equality of information, misinformation, and disinformation: A critical research perspective. *Informing Science*, 9, 83–96.
- Strassheim, H., & Kettunen, P. (2014). When does evidence-based policy turn into policy-based evidence? Configurations, contexts and mechanisms. *Evidence & Policy*, 10(2), 259–277. <https://doi.org/10.1332/174426514X13990433991320>
- Tuominen, J., Rantala, E., Nyrhinen, J., Reinikainen, H., Warren, C., & Wilska, T.-A. (2025). When does parasocial interaction make influencers more influential?. *Human Technology*, 21(1), 146–160. <https://doi.org/10.14254/1795-6889.2025.21-1.7>
- Vamanu, I. (2019). Fake news and propaganda: A critical discourse research perspective. *Open Information Science*, 3(1), 197–208. <https://doi.org/10.1515/opis-2019-0014>
- Vosoughi, S., Roy, D., & Aral, S. (2018). The spread of true and false news online. *Science*, 359(6380), 1146–1151. <https://doi.org/10.1126/science.aap9559>
- Wang, C., Han, M., Pan, Y., & Kumar, N. (2026). Trust asymmetry: A systematic review and agenda for future research. *SAGE Open*, 16(1). <https://doi.org/10.1177/21582440261417032>
- Weingart, P. (1999). Scientific expertise and political accountability: Paradoxes of science in politics. *Science and Public Policy*, 26(3), 151–161. <https://doi.org/10.3152/147154399781782437>
- West, J. D., & Bergstrom, C. T. (2021). Misinformation in and about science. *Proceedings of the National Academy of Sciences*, 118(15), e1912444117. <https://doi.org/10.1073/pnas.1912444117>
- Whitty, M. T., & Doherty, S. (2026). Enhancing mis- and disinformation detection and understanding its influence: Leveraging communication accommodation theory and information manipulation theory. *Behaviour & Information Technology*, 1–20. <https://doi.org/10.1080/0144929X.2026.2635512>
- Wirtz, B. W., Weyerer, J. C., & Müller, T. F. (2026). AI-based digital disinformation: A theory-informed and integrated trilateral framework of digital disinformation for information systems research. *International Journal of Information Management*, 89, 103066. <https://doi.org/10.1016/j.ijinfomgt.2026.103066>
- Zavershinskaia, P. (2024). State's legitimisation of violence through strategic narration: How the Kremlin justified the Russian invasion of Ukraine. *The International Spectator*, 59(2), 18–36. <https://doi.org/10.1080/03932729.2024.2327492>