

Title: Materials appendix for “Structured expert elicitation on disinformation, misinformation, and malign influence: Barriers, strategies, and opportunities”

Authors: Ariel Kruger (1), Morgan Saletta (1), Atif Ahmad (2), Piers Howe (3)

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Note: The material contained herein is supplementary to the article named in the title and published in the Harvard Kennedy School (HKS) Misinformation Review.

Appendix B: Materials

Our Phase 1 survey solicited responses (up to 5,350 characters) to the following targeted questions:

1. What are the most effective strategies or practices for combatting and/or building resilience to DMMI?
2. What are the important factors, challenges, or opportunities that impact combatting and building resilience to DMMI?
3. What are the most important areas/topics for future actionable research on DMMI?

Our Phase 3 survey was divided into four sections corresponding to the three Phase 1 questions and an additional section on definitions.

Section 1: Definitions review

In this section, we presented prospective definitions and asked participants to rate their agreement with each on a 5-point Likert scale. The definitions were:

1. Disinformation is deliberately false or misleading information. The intent may be to harm, coerce, exploit, deceive, etc.
2. Misinformation is false, misleading, or manipulated information but is shared with no intent to harm, deceive, exploit, coerce, etc.

Section 2: Effective strategies and barriers

Here experts were asked to complete two kinds of activities: 1) rate their agreement with the synthesis statements extracted from the Phase 1 survey using a 5-point Likert scale (*strongly disagree* to *strongly agree*) and 2) pick five synthesis statements and rank them according to some criteria.

We first asked experts to rate their agreement with the following synthesis statements describing effective strategies for combatting and/or building resilience to DMMI. After rating the statements, we asked participants to pick five which should be prioritized over the next five years and then rank those they selected in terms of priority.

1. Educating and raising awareness about the dangers of DMMI (especially in schools) is an effective strategy for combatting and/or building resilience to DMMI.
2. Establishing a robust regulatory framework for social media companies, overseen and enforced by a dedicated standards body that ensures transparency and accountability is an effective strategy for combatting and/or building resilience to DMMI.
3. Improving support and outreach to communities most affected by DMMI is an effective strategy for combatting and/or building resilience to DMMI.
4. Developing and implementing (improved) content accuracy and other “nutrition style” warning indicators for news sources is an effective strategy for combatting and/or building resilience to DMMI.

5. Improving media and information literacy in the population (including training in critical thinking, bias recognition, emotional intelligence, etc.) is an effective strategy for combatting and/or building resilience to DMMI.
6. Investing in and implementing automated/AI approaches and enhanced cybersecurity measures is an effective strategy for combatting and/or building resilience to DMMI.
7. Introducing (and enforcing) legislation that penalizes the deliberate spread of disinformation is an effective strategy for combatting and/or building resilience to it.
8. Publicly exposing details (e.g., funding sources, affiliations, geographic origins, etc.) about the most prolific sources of DMMI is an effective strategy for combatting and/or building resilience to it.
9. Fact checking/information campaigns, so long as they're engaging and transparent, are effective strategies for combatting and/or building resilience to DMMI.
10. Interventions on social/group dynamics that foster healthier interactions are effective strategies for combatting and/or building resilience to DMMI.
11. Interventions that curtail the financial rewards for spreading DMMI are effective strategies for combatting and/or building resilience to it.
12. Interventions that use popular media (films, T.V., podcasts, etc.) to combat and build resilience to DMMI are effective strategies for combatting and/or building resilience to DMMI.
13. Investment in research that improves our understanding of DMMI and evaluates the effectiveness of interventions against it is an effective strategy for combatting and/or building resilience to DMMI.
14. Prebunking/psychological inoculation (pre-emptively debunking anticipated disinformation) is an effective strategy for combatting and/or building resilience to DMMI.
15. Ensuring journalism meets the proper standards (especially for new journalism formats- podcasts, citizen journalism, etc.) is an effective strategy for combatting and/or building resilience to DMMI.
16. Improving journalist training is an effective strategy for combatting and/or building resilience to DMMI.
17. Increasing collaboration/coordination between sectors (academic, civil society, government, and private companies) is an effective strategy for combatting and/or building resilience to DMMI.
18. Increasing collaboration between states/nations is an effective strategy for combatting and/or building resilience to DMMI.
19. The "DISARM" model is an effective strategy for combatting and/or building resilience to DMMI.
20. The "RESIST" model is an effective strategy for combatting and/or building resilience to DMMI.

We then asked experts to rate their agreement with the following synthesis statements describing barriers that impact combatting and/or building resilience to DMMI. After rating the statements, we asked participants to pick five which were most impactful and then rank those they selected in terms of highest impact over the next five years.

1. Access to timely, factual information is a significant challenge to combatting or building resilience to DMMI.
2. Reliance on the "Information Deficit" model negatively impacts our ability to build resilience to or combat DMMI.
3. The Information Deficit model, while incomplete, contributes to a useful understanding of DMMI.
4. The relative shortage of quality journalism, coupled with the prevalence of DMMI in certain information spheres, significantly hinders our ability to build resilience against or effectively combat DMMI.

5. Cognitive or emotional biases/vulnerabilities have a significant impact on our ability to combat or build resilience to DMMI.
6. The growing gap between DMMI technologies and regulation/prevention is a significant challenge to combatting or building resilience to DMMI.
7. Inadequate understanding of the causes and effects of DMMI presents a significant challenge to building resilience to or combatting DMMI.
8. The lagging scientific understanding of DMMI impacts our ability to combat or build resilience to DMMI.
9. The lack of appreciation/understanding of the scope and scale of DMMI is a significant challenge to combatting or building resilience to DMMI.
10. Distrust in institutions and media significantly impacts combatting or building resilience to DMMI.
11. The lack of enforcement and penalties for creating or spreading DMMI significantly impacts our ability to build resilience to it.
12. The lack of political will to address the issue and support prevention efforts is a significant challenge to combatting and building resilience to DMMI.
13. Insufficient technical understanding of DMMI within politics is a significant challenge to combatting or building resilience to it.
14. A significant challenge to combatting and building resilience to DMMI is that the politicians capable of addressing the issue often traffic in it for their own benefit.
15. The current incentives (financial or otherwise) for creating or sharing DMMI are a significant challenge to building resilience to or combatting DMMI.
16. The improvements in and growing use of artificial intelligence is a major challenge to combatting or building resilience to DMMI.
17. The lack of engaging, tailored support for communities is a major challenge to combatting or building resilience to disinformation.
18. The relative inattention paid to non-English language DMMI significantly impacts our ability to combat or build resilience to DMMI.
19. Lack of engaging, quality education in media literacy/critical thinking is a major challenge to combatting or building resilience to DMMI.
20. The worsening political/ideological divide in society significantly impacts our ability to build resilience to or combat DMMI.
21. The increasing use of DMMI by malicious (state) actors presents a significant challenge to combatting or building resilience to DMMI.

Section 3: Prioritizing areas for future research

In the final section, we presented experts with the list below, containing all the areas for future research extracted from the Phase 1 survey. We then asked them to mark those which they thought should be prioritized over the next five years. Next, they were asked to rank all those they marked as a “priority” in terms of highest priority.

1. We need to better integrate field research/data with theoretical models of DMMI.
2. More research is needed on the link between DMMI and international crime.
3. We need more rigorous measures, metrics, and indicators for DMMI to build better situational awareness tools and early warning systems.
4. More research is needed to better understand how global threat actors use of DMMI
5. More research (and awareness) is needed relating to the ethical, moral, and philosophical/epistemological issues related to DMMI and associated issues.

6. This body of knowledge would need to be the product of a multi-disciplinary team of academics and professionals.
7. We need to better understand the transnational dynamics of DMMI and related issues (e.g., extremism).
8. We need to explore more whole of society (including Gov/Academic/Civil Society/Private sector collaborative) approaches to DMMI.
9. More research is needed on what kinds of platform-based interventions are best at combatting DMMI.
10. Research is needed to determine how to create accountability within the advertising and social media market to combat DMMI.
11. We need to develop measures and indicators of the overall “health” of an information environment/ecosystem that is independent of specific content.
12. Research is needed into what financial/economic incentives can be created/leveraged to make traditional and new/online media sources less likely to engage in, or be permissive to DMMI.
13. We need a body of knowledge for DMMI understood as a corpus of knowledge/concepts/practices, etc. related to countering and building DMMI.
14. We need more research on the role of narratives and discourse in both the spread of DMMI and combatting and building resilience to DMMI.
15. We need to explore and test ways to encourage/promote good journalism and positive relationships between trustworthy news organizations and platforms.
16. We need more research into the wide range and intersections between psychological, socio-cultural, and behavioral aspects of DMMI.
17. We need to better understand and design legal/regulatory/business model frameworks to improve the quality of the information environment while protecting civil liberties, including free speech.
18. We need research that investigates how to redesign advertising markets and advertising business models to combat DMMI.
19. Work is needed to understand what lessons from cyber security and other domains can be applied to the areas of DMMI, cognitive security, etc.
20. We need clearer taxonomy and commonly accepted definitions of terms, especially across disciplines/fields.
21. We need better research to understand the intersections of vulnerability and bigotry/prejudice/hate.
22. We need to explore and build international cooperation in combatting and building resilience to DMMI (international treaties, norms, information sharing, funding of interventions, etc.).
23. We need more research (and practical efforts) into legal, policy, and economic/financial means to hold social media companies as well as malevolent actors spreading DMMI accountable.
24. We need to design interventions and technologies that create positive affordances for civil discourse and support an open society while minimizing DMMI.
25. We need more rigorous measures, metrics, and indicators to gather evidence on the impact/influence of DMMI on individuals and groups in both the short term and long term and across a wide range and scale of systems (socio-cultural, political, economic, etc.).
26. Interventions need to be tested at the individual level (media literacy, critical thinking, inoculation, etc.) and at the systems level (public awareness/behavior change campaigns, K-12 education, and regulation).
27. We need to design and test/measure public awareness and behavior change interventions to counter disinformation and build resilience to disinformation.

28. Research is needed on how best to make AI more trustworthy and to prevent AI from being used to spread DMMI.
29. More research is needed to “follow the money” and understand how platform business models and relationships with content producers enable DMMI.
30. Research is needed to understand how AI (and related technologies) will be used by malign actors.
31. We need to better understand DMMI across a wide range of ethno-cultural, national, and linguistic groups.
32. We need to conduct research and interventions to test ways to improve algorithms and make them less likely to spread DMMI (these may include virality suppression/dampening, anti-polarization, radicalization interventions, etc.).
33. We need to research methods to (re)build trust in democratic institutions.
34. More research is needed on the information environment/ecosystem to understand the systems’ “health,” structure, dynamics, and evolution/behavior over time, at multiple levels (individual/groups) and over different time frames.
35. Research is needed on how best to leverage AI and AI/human teaming to detect, monitor, analyze, and combat DMMI.
36. More long-term research/evaluation is needed to understand what kinds of educational interventions (media literacy/critical thinking, combinations thereof, etc.) work best to counter and build resilience to DMMI.
37. Media literacy initiatives (especially in K-12) have been trialed and/or implemented in many countries. Research is needed to compare and evaluate these efforts and to establish international best practices in media literacy education as a tool to counter DMMI.
38. There is a need to develop methods to audit algorithms and accountability regulations to permit these audits.
39. Research and development is needed to produce better tools and techniques for detecting, verifying, tracking/monitoring, and attribution of DMMI.
40. More initiatives are needed to explore how platforms can team with academics, journalists, civil society organizations, and others to combat DMMI.
41. We need more research to understand the role of social media companies’ algorithms in DMMI and in related phenomena (recommender systems, echo chambers, filter bubbles, polarization, and radicalization).
42. Research is needed to understand how and why different individuals and groups are vulnerable to DMMI and how best to build resilience in these groups.
43. More interdisciplinary research and collaboration is needed to address DMMI and understand why people believe and spread it.
44. Research is needed on emerging threats, including actors and technologies, and on the way DMMI may evolve in future.
45. Research is needed to understand how effective various media literacy and critical thinking curricula and initiatives are, and how best to teach/improve media literacy and critical thinking in schools as well as to the general public.