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Telling Facts from Fakes

The Israeli Science Communication Community and its Role in Supporting a Fact-Based Public Discourse in Israel during the COVID-19 Infodemic and Beyond

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Facing up to the Infodemic: Promoting a Fact-Based Public Discourse in Times of Crisis

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About this Paper

This policy paper is part of the paper series "Facing up to the Infodemic: Promoting a Fact-Based Public Discourse in Times of Crisis."

Against the backdrop of the COVID-19 crisis, this paper series explores some of the key challenges facing democratic societies as a result of misinformation in the digital public sphere. It features a unique mosaic of perspectives and insights by experts from Israel and Germany that shed light on different facets of the phenomenon of online misinformation, with the aim of invigorating a societal debate on the issue as well as offering concrete ideas about how to address it.

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About the Project

This paper series is part of the broader project "Fostering Democratic Resilience in the Digital Age," conceptualized and executed by the Israel Public Policy Institute (IPPI) in collaboration with the Heinrich Böll Foundation, Tel Aviv.

The objective of the project is to promote dialogue, exchange of knowledge and collaboration between researchers and practitioners from Israel and abroad to enhance democratic resilience in the context of the changing media and information landscape in the digital age.

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Executive Summary

Communicating science is challenging at the best of times. It is not easy to take scientific studies and communicate them within the right framework, keeping them accurate and reliable yet appealing and relevant to readers. Normally, Science also makes up only a tiny portion of the content covered by media and consumed by the public. The COVID-19 crisis has created new challenges: on one hand, an enormous demand for information about this new and frightening disease; on the other, scanty reliable data on which to base decisions, as well as contradictory findings and a tsunami of misinformation in social media and political messaging. In Israel, these challenges arose in the midst of an ongoing political crisis and were aggravated by poor communication by the Ministry of Health, resulting in a vacuum that attracted opportunists, some of whom do more harm than good. COVID-19 has generated not only a health crisis but also a potential confidence crisis between the public and the scientific community.

Israel's fledgling science communication community lacks the long tradition of its counterparts in countries like England or Germany. However, it is growing fast and offering creative solutions to the need for reliable, understandable science.

This policy paper offers an overview of the Israeli digital science communication and journalism scene, lists the challenges to science communication that emerged during the COVID-19 crisis, describes the ongoing efforts to counter the resulting distrust among public, and proposes how things could have been done differently. The paper concludes with suggestions on how to bolster public trust in science and effectively battle the infodemic, namely by creating a center that would disseminate accurate information and publicly debunk false claims for the benefit of decision-makers, the media and the general public.

Based on the needs analysis presented in this paper, some of the key roles and responsibilities of the center would be as follows:

→ **Offer a "Misinformation Hotline" for the public** to allow citizens to report suspicious messages they receive and see if they were confirmed or refuted, and read reviews about hot topics (such as corona testing or herd immunity). Content will be adapted to specific populations, such as orthodox Jews or Arabs, and distributed accordingly;

→ **Serve as a hub for journalists, science communicators and opinion leaders,** where they could inform themselves about the latest scientific developments, professional data analysis, lists of professional interviews to interview or quote on every subject, and critiques of irresponsible reporting;

→ **Provide decision-makers with short professional reviews** on various topics and insights into what is troubling the public (through viewing data and reported fake news). The center will also criticize disinformation or false representations of data by politicians, as has occurred too often in the corona cabinet.

1. Introduction

Israel is famous for scientific research and technological innovation, which earned it the moniker of "Startup Nation."[1] In 2018, Israel boasted more than 12,235 scientific publications[2] and more than 6.47 billion dollars raised by startups.[3] However, when it comes to science communications, Israel is behind other countries, with very few science journalists and organizations specializing in this field.

In the last two decades, the Israeli science communication scene has undergone dramatic changes. Previously, most science communication used to be done by newspapers, museums, books and a handful of TV and radio shows – mostly educational. The internet revolution brought big changes to science communication, both globally and locally.[4] This started with Israel's first science news website, "Hayad'an" ("The Erudite," in Hebrew),[5] founded in 1997 by journalist Avi Blizovski, and continued with many blogs that were later transformed into communities of scientists and science enthusiasts, first in internet forums and later on social media (mostly Facebook). These science blogs and communities were, and still are, operated independently by scientists, often graduate students, and science enthusiasts who write about their passion. One example is "Sharp Thinking,"[6] a critical blog run by a researcher in a startup company who focuses on debunking pseudoscience. The writer eventually published two books, established an active skeptics' community on Facebook and went on several TV shows to expose charlatans.[7] Another example is Dr. Keren Landsman, an epidemiologist and science fiction writer who authored a successful blog about diseases called "Reality Bugs Me,"[8] and later co-founded the science communication NGO Midaat – For Informed Health, discussed below. Her husband, Yoav

Landsman, is a space engineer who gave popular lectures in astrophysics. This hobby led him to found a successful blog called "Critical Mass"[9] and the couple later started a popular space podcast.[10]

These are just few examples out of many. What these writers had in common is that they were neither journalists nor professors, but simply science enthusiasts with a scientific education in a relevant field. This was the first generation of science communicators on new media. As social networks developed, science made its way there in the form of posts promoting and later replacing the blogs, as well as debates, discussions and more. The information started accumulating and reached journalists, who recognized the growing public interest and started publishing scientific articles. Israel has about 10 news websites, three main TV channels and several radio stations – more news outlets than science journalists, absurdly. Science is often covered by journalists who specialize in other fields such as current affairs, culture and even sports. This has led to unprofessional reporting and devalued science coverage. Nevertheless, the wealth of scientific content available in blogs and on social media has led to interesting collaborations between science communicators and science journalists, who interview them and publish their content on traditional media.[11]

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Since 2010, four Israeli NGOs have been actively generating online content and marketing it to the media in order to promote science literacy, critical thinking and evidence-based science. The Davidson Institute of Science Education, which now leads Israel's science communication media, established a popular science website[12] written by graduate students from the Weizmann Institute of Science and edited by professional journalists. Texts by the most updated and informed people, writing about science in layperson terms, started reaching millions of unique views every year. In 2014, the Davidson Institute began collaborating with several news websites, in order to reach audiences that do not actively seek scientific content. These articles led to TV and radio interviews and even a unique TV production encouraging girls to choose science studies.[13] A 2018 study conducted by the Technion in collaboration with the Davidson Institute of Science Education showed that people will consume scientific content if it is available where they consume their news.[14] The Davidson Institute was not the only organization to choose this tactic. The Israel Society for Ecology and Environmental Science established scientific media outreach in 2014,[15] gathering scientists and environmental studies graduate students to write scientific articles for the media and give interviews. The goal was to raise awareness of environmental issues in an evidence-based manner, and the project significantly improved the quality and extent of scientific coverage of environmental issues in Israel.

Another major organization doing digital outreach is "Mada Gadol, Baktana" ("Little Big Science").[16] This NGO started out as a Facebook page that initially published fun facts about science, and later on posted longer explanations of scientific studies and phenomena and debunked myths and disinformation. This content, and especially the battle against disinformation, gained popularity and drew more than 140,000 followers on Facebook and many followers on Twitter and Instagram.

Last but not least is Midaat,[17] an NGO established after the polio outbreak in 2013.[18] Many science communicators joined forces then to fill the void left by the Health Ministry concerning the outbreak, explaining the importance of vaccinations and battling false information. Following the success of the vaccination project, this group of science communicators established an NGO centered on communicating medical information, with special emphasis on vaccinations. The organizations' activities include discussions on social networks, media appearances and public outreach such as lectures and Q&A sessions for parents on WhatsApp (a service called "WhatsApp Doc"). As Israel is a small country with a limited science communication community, many people work with more than one organization (myself included), which yields interesting collaborative efforts.

The community marked a major milestone in June 2018, after the Israeli TV channel Reshet aired a short video of an engineer describing why she doesn't vaccinate her children. This video went viral within a day, exposing hundreds of thousands of viewers to dangerous misinformation. Reshet was criticized for their lack of judgement[19] and in response, sought a doctor or scientist to represent "the opposing view." Doctors and science communicators (including myself) refused to cooperate and did not give them the opportunity to "balance the picture." The reason was simple: when you present both opinions, and give an engineer and an immunologist equal screen-time on an important health issue, you create the wrong impression that both positions and inputs are equally valid. About 24 hours after the video was uploaded, it was removed from Reshet's website,[20] yet it is still available on anti-vaxxer websites. The incident had two important outcomes: First, it showed that scientists and science communicators can influence media content. More importantly, it drove many scientists and doctors to activism

in communicating science and battling misinformation[21] – efforts that were intensified in response to the COVID-19-related infodemic.

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Israeli science communication also saw a boost as a result of the work of the Israeli Public Broadcasting Corporation (IPBC), established in May 2017.[22] This state agency vowed to provide quality content to every household – in essence, to become the Israeli BBC.[23] Special emphasis was given to science and technology; suddenly, after a long media drought, radio shows appeared that were dedicated to science,[24] more scientific content was shown on TV shows, science videos became popular on social networks[25] and scientific podcasts were produced.[26] From the outset, the IPBC forged close ties with scientists and major science communication organizations. Scientists were consulted, gave interviews and even proposed content.[27] To the best of my knowledge, no other media channel in Israel collaborates with scientists to such an extent. Science journalism, on the other hand, has not changed much in recent decades. Apart from a handful of science journalists (almost none of them with a scientific background), science is treated as part of health, environment or news coverage. A more thorough review of the development of Israeli science communication can be found in the book *Communicating Science – A Global Perspective*.[28]

In summary: In February 2020, when the COVID-19 crisis began, there were four NGOs promoting science communication in Israel, each in a particular niche (environment, health, etc.). These organizations operate largely via digital platforms, and some work closely with the media to inform the general public on scientific issues. When something special or interesting occurs, scientists are invited to give interviews, sometimes as part of the public relations efforts of their academic institution. These interviews are usually published on late night shows or as side stories in news programs.

2. The Challenges of Science Communication during the COVID-19 Pandemic

The arrival of COVID-19 changed everything. At first, the media framed it as a mysterious disease that had come from China. News panels filled with scientists, doctors and all kinds of experts (not necessarily in relevant fields). The lack of information, coupled with videos and pictures leaked from the East, contributed to rumors that were initially met with skepticism. Yet as the disease spread to more countries and media coverage increased while scientific data remained scarce, speculations and opinions that were not always evidence-based began to proliferate.

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Scientists, who in normal times are absent from primetime, became sought-after interviewees. COVID-19 was the leading story, discussed over and over from many angles with little new input. The Israeli media is used to covering crises, from terrorist attacks to wars, and initially responded in the same way, filling airtime with repetitive content. News outlets started looking for interesting angles, ideally people and provocations. This led to irresponsible reports on almost anything that sounded interesting, even if it was untrue.

Another example of the problematic media coverage occurred in late February 2020, shortly before the first infected person appeared in Israel. A group of Korean pilgrims visited almost every major tourist attraction in Israel, and a few days later one was found to be COVID-19 positive.[29] The media covered every place they had visited and speculated about the odds of infection. From that point on, COVID-19 coverage became increasingly reckless, as will be discussed in the next section.

2.1. Main Actors Informing the Public on COVID-19

If we examine the beginning of the COVID-19 crisis in Israel, we can identify three actors discussing the pandemic in the media:

The Ministry of Health

The main actor in charge of managing the COVID-19 crisis, including communicating health information to the public. The key speakers were the CEO, the Minister of Health and sometimes the Prime Minister himself. The spokesperson was in charge of sharing information on social media and the Telegram messaging application. In the mainstream media, their key messages – at least in the beginning – focused on imposing and easing restrictions. These decisions were sometimes explained, but often presented as is. Later on, they became increasingly chaotic and changed overnight in response to political pressure. For instance, the decision on opening the schools changed a few times, along with decisions on reopening shops, shopping centers and wedding halls. Decisions were made and communicated in the middle of the night, and then changed the next day. Miscommunication and insufficient transparency were some of the reasons for growing mistrust and lack of collaboration by the public, leading to the second wave in early summer, long before it occurred in other countries. Some of the justifications used scientific

terms such as "flattening the curve," "exponential increase" or "breaking the chain of infection." The terms were explained simply and concisely, which is good, but the data guiding the decisions was largely absent, as were clarifications regarding future steps. Even when goals were introduced, they shifted due to political pressure. The feeling was that petty politics were managing the crisis, at the expense of human lives. Later, the ministry started publishing a data dashboard[30] with daily updates on the number of people infected, seriously ill, on respirators and deceased. This was an important move in terms of transparency, yet not enough.

> **The lack of continuity and transparency in decision-making and the scant evidence provided created public mistrust and helped disinformation and misinformation flourish.**

The lack of continuity and transparency in decision-making and the scant evidence provided created public mistrust and helped disinformation and misinformation flourish. In addition, the Ministry of Health did not do enough to battle disinformation and did not have enough of a media presence in these aspects. The ministry launched an anti-disinformation campaign only in December 2020,[31] shortly before the vaccination campaign started, which was slow to produce results. That left the stage to others – not necessarily experts, yet usually very eloquent. When organizations such as the Davidson Institute or Midaat approached the ministry and offered direct or indirect help, they were ignored.

The Media

As in many countries, the Israeli media focused on two main things: interesting stories (that were not always true) and criticism of government actions, for example, for the rise in infections when restrictions were removed. The media is expected to be the watchdog of democracy, to bring important information to light and present it as objectively as possible. Its role was to communicate the pandemic – not only cover the negligent government conduct, but also convey what was happening in Israel and around the world, bring in specialists to interpret the evidence, and share the latest studies approved by scientific consensus. They did that, but also invited scientists with opposing opinions to argue before the public. There were several grotesque instances of staged fights between an expert and a scientist who was not an expert in that field. In one famous example, the head of the unit for infectious diseases in a major hospital – the foremost expert on COVID-19 in Israel – was confronted with a former CEO of the Ministry of Health, who is also a professor but whose opinions did not correlate with recent data. He dominated the loud discussion,[32] although he was clearly wrong and abusing data to make a case against fearing COVID-19. The media felt the need to give voice to any person with a hypothesis and "initials before their name," as long as the story was good and controversy was maintained. The result was a confused public not knowing whom to believe. Given the poor management of the crisis, certain groups decided they were being misled and chose not to comply with the restrictions.

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One of the challenges in communicating science is clarifying the scientific method and its limits. Since most news anchors, journalists and editors do not have a proper scientific background, many knowledge gaps and inaccuracies appeared in their reporting. Esoteric studies received wide coverage and formed the basis for various public opinions, such as a study on how long the virus remains on surfaces.[33] The study was very basic and technical and was not enough to conclude whether the virus can spread in such a way (and at the time had not even published in a peer-reviewed journal).

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Furthermore, the study had no effect on the official guidelines published by the Ministry of Health. Yet the media presented it as a practical way to calculate how long the virus survives on surfaces and whether groceries, for example, should be wiped down with alcohol when brought home. An infographic illustrating this was also aired by the media[34] and turned into a meme[35] that was shared on WhatsApp and social networks as a guideline for hygiene, which was taken very seriously by the public. Although no direct harm was done, it contributed to a general atmosphere of public panic, which subsequently fueled mistrust and portrayed journalists and scientists as alarmists. Moreover, there was sloppy journalistic coverage of scientific topics such as COVID-19 testing,[36] epidemiological analysis with basic errors, and so on. These mistakes could have been prevented, had the journalists consulted the relevant scientists before publicizing misleading information in the interests of higher ratings. To summarize: the media contributed to the chaotic atmosphere and general mistrust by focusing on (not always justified) criticism, interviewing scientists with unfounded opinions, failing to fact-check, and framing stories in a way that contributed to the spread of misinformation.

Scientists

Many scientists watched the poor coverage and mismanagement of the crisis with growing frustration, and started sharing their opinions and analysis via Twitter, Facebook, and op-eds published in newspapers and news websites. They were later invited to give interviews on radio and TV. That is where the real confusion began. These were world-renowned scientists – one of them a Nobel laureate (in chemistry) – all very intelligent, very opinionated and experts in their fields, but not necessarily in public health, infectious diseases or virology. Some of their interpretations of the data did not correlate with reality, and carried potentially catastrophic consequences. For instance, in early March, a world-famous and respected scientist said that he would be "very surprised" if COVID-19 will end up claiming the lives of more than 10 people in Israel.[37] When the number of deaths crossed that mark mere weeks later, he continued making similar statements, insisting that everyone was overreacting. A few months later, a medical doctor was quoted as saying, "It is over… stop it,"[38] when infection rates dropped. When the numbers rose again about a month later due to the rapid reopening of the economy, she joined the national corona task force without taking back her quote (the head of the task force made similar statements). Given the mass of contradicting opinions and suggestions, it is no wonder that the public was confused, and people felt free to choose whose instructions to follow, which created major difficulty in enforcing the restrictions. Following criticism by scientists and medical personnel, some media understood the potential damage and some stopped inviting these scientists, yet others embraced them. An example is the former Ministry of Health CEO mentioned above, who was banned from TV stations yet was given his own weekly radio show, in which he continued to share his opinions.[39]

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There seemed to be two schools of scientists – a mainstream majority who supported restrictions on some level, and rogue scientists who cherry-picked studies to support their claims. Particularly problematic was that when their claims are disproved within weeks, they merely shifted the goalpost and continued preaching against the restrictions. Unlike most public health issues, which usually evoke a consensus in the scientific community, COVID-19 triggered a plurality of opinions by scientists that made it hard to dismiss certain views as simply wrong. Throw in lack of scientific knowledge and additional aspects such as the economic crisis and political instability, and you get even more confusion. It is simply not enough to say, "Trust me, I'm a scientist," especially when the Ministry of Health cites unprofessional sources, for instance graphs posted on Twitter by a restaurant owner who happens to love graphs.[40] Such behavior made the ministry appear unprofessional and contributed to the decline in public trust and cooperation.

In this chaotic environment, two major science communication organizations stepped up – the Davidson Institute of Science Education and Midaat (both described above). They publicized recent scientific advances, relayed medical policies of the WHO and the Ministry of Health and explained their rationale. They also debunked misinformation on social and traditional media, provided interviewees, held online public events and collaborated with critical journalism, such as

The Whistle (the fact-checking unit of the Hebrew-language daily evening financial newspaper "Globes"),[41] the independent news website "Haayin Hashevi'it" ("The Seventh Eye")[42] and the IPBC TV show "Mehatsad Hasheni" ("From the Other Side").[43] Both NGOs worked closely with the media, helping when asked and criticizing when needed. Midaat focused on medical issues, while Davidson addressed more scientific topics, but there was some overlap and collaboration between the two. Although they managed to cover many hot button public topics (not necessarily scientific), the main problem was exposure. Both organizations focused on connecting with the national media, but the flood of misinformation was too powerful to stem with limited staff and volunteers.

Another entity formed at the beginning of the crisis was the Center for Science and Knowledge.[44] The center was founded by the Israeli military intelligence to collect information from various sources and provide the Ministry of Health with data and advanced analysis. It publishes daily reports about the status of the pandemic in Israel, along with occasional summaries about potential technologies, treatments and vaccinations under development, to assist decision-making. Their reports are professional and well-written, and despite initial skepticism from the public and media, their predictions have proven right in many cases. Although their main goal was to aid decision-makers, they quickly started reaching out also to the media, potentially in order to put pressure on the decision-makers to accept their recommendations.

2.2. Limitations of the Scientific Method and Their Impact on the Infodemic

The scientific method works slowly. Research has its own pace, especially in biology, and particularly when one is in uncharted territory such as a novel virus. During the COVID-19 crisis, scientific archives – used for publishing pre-prints – flourished,[45] as many more studies were being published before being properly peer-reviewed, so scientists and decision-makers could see the results as soon as possible. The downside of publishing non-peer-reviewed data is that it results in many low-quality studies, which non-professionals might find difficult to distinguish from high-quality studies. In a way, peer review has been replaced by talkbacks and tweets,[46] where scientists criticize these studies. This creates a problem, since archived studies are open to everyone, with no quality control, while criticism of those studies may be posted elsewhere. Moreover, the PR departments of academic institutions are promoting the studies ahead of them being peer reviewed. Journalists could not always tell the difference between high- and low-quality studies and published the findings without proper framing. Also certain scientists used these studies to promote certain agendas, such as achieving herd immunity or easing restrictions. In normal times, a large portion of these studies would not pass peer review and thereby would not reach the public.

A major result of this lack of information was the spreading of wrong information, or misinformation. During the first corona wave in March, Israel experienced an enormous wave of misinformation, especially on social media (YouTube, Facebook and Twitter) and in messaging applications (WhatsApp and Telegram). The messages can be roughly divided into two categories. One is practical messages about how

to detect, avoid or treat the disease, and caution against various behaviors (such as leaving the sanitizer in the car).**47**

During the first corona wave in March, Israel experienced an enormous wave of misinformation, especially on social media (YouTube, Facebook and Twitter) and in messaging applications (WhatsApp and Telegram).

The second is general alarmism concerning the disease or actions being taken – such as conspiracy theories. In both categories, many messages originated from other countries and were "Google translated" into Hebrew. Others were based on media publications (whether real or fake), and some were opinions originally posted on social media and then altered and shared. Some messages kept reappearing in different versions, just like a virus – spreading fast, mutating, adapting and spreading again. Studies have shown that fake news spread much faster than actual news,**48** and naturally much faster than the time it takes to correct them. Most rumors can easily be refuted by googling in Hebrew or English. The problem is that people did not always read beyond the headline and forwarded the message without giving it any thought. Here several actors battled fake news with various strategies. The Davidson Institute started a Facebook group to debunk these messages by employing biology graduate students from the Weizmann Institute as fact-checkers. It also encouraged journalists to join the group, so the information could find its way to the media and from there to the public. In addition, Davidson Institute's PR department actively promoted these debunks on the media. Was it enough? Not even close. The main challenge was personnel. Fact-checking and writing brief, readable texts takes a

lot of time and was just one small portion of the students' work. They had to pick their battles and much misleading information slipped by. Midaat conducted similar activities in social media groups, including a series of short posts about popular misconceptions – again, too little and too slowly. The Whistle (mentioned above) also covered COVID-19 misinformation with the help of Midaat and the Davidson Institute, and as official Facebook fact-checkers, also managed to flag viral posts. Again, speed was crucial. Another website called "Irrelevant"**49** was faster but less thorough as it was a one-man operation. Also, many scientists and science communicators were active on social media – mostly Facebook and Twitter.

In summary, several organizations and many science communicators gave their best, but were not able to gain sufficient exposure on mainstream media and online. Given the limited resources and the relatively small number of organizations working on the issue, what was missing, and what could have made a difference within the given framework of action, was coordination and standardization. The partial collaboration between organizations was local and relied on personal contacts. An attempt by the Institute for National Security Studies (INSS) to create a center together with the National Security Council failed as some organizations feared politicization of their work. In late November, coinciding with the publication of results from two COVID-19 vaccine trials, another wave of false rumors and misinformation emerged, spreading doubts regarding the new vaccines. The appearance of these rumors suggests that it is not a simple misunderstanding or misinterpretation of the studies, but deliberate disinformation meant to deter people from vaccinating.

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These messages spread not only on social media, but also through new low-tech channels such as targeted phone calls, flyers put in mailboxes and street ads – especially in religious cities. This prompted the Ministry of Health to launch a campaign to counter the disinformation, but it was too little and too late. Fortunately, media outlets also began to debunk these messages, successfully reaching the general public. To influence the ultra-religious communities, the ministry managed to convince religious leaders to call their followers to get vaccinated – efforts that appear to be fruitful.

3. A Science-Media Center as a Possible Solution

In seeking a possible solution to the challenge of maintaining a fact-based public discourse in the age of social media, I am inspired by two kinds of initiatives: Science Media Centers (SMCs) operating in several countries, such as Germany,[50] and fact-checking websites such as Snopes.[51] SMCs are a group of journalists who locate studies that have the potential to be miscommunicated, find scientific experts in that field and get their response to the studies. Their specialty is not reporting, but rather identifying a story when it is still developing and reframing it with an expert response for journalists to use. This is a good solution for journalists who are trying to get a quote or confirm a story, and in some cases can prevent a journalist from publishing a report based on an unreliable study. Fact-checking websites monitor social networks and publish quick, clear answers whether something is true or false. There

are several small initiatives of this kind in Israel, but they are not as big, quick and thorough.

A major challenge, which is amplified by factors such as changing patterns of information consumption and dissemination on social media, is that uncertainty drives people to seek information in various places and feed on rumors that stoke fears. Unfortunately, the data will never be complete, so the science communication community can only make every effort to successfully and responsibly communicate proper information, and to flag false information quickly and thoroughly. People need to know that there is a place they can count on to answer their questions, and that if the answers are not there today, they will be as soon as they are available. As mentioned above, there are several reliable scientific content creators in Israel, but that is not enough as they are scattered and focus on different issues. This means that some areas fall between the chairs and others overlap. A lot of brainpower is not being put into proper use to meet this challenge.

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This paper thus proposes that a new center that will centralize these efforts is established in Israel. This center will, among other things, classify knowledge and concentrate it in one place. The center will appeal to three main audiences:

→ **The Public:** Citizens of all ages who consume and share information on social media and messaging apps. The center will inform them on what is known and unknown, why the

government is acting in certain ways and what it is trying to achieve. A "fake news" hotline will allow people to report suspicious messages they receive and see if they were confirmed or refuted, and read reviews about hot topics (such as corona testing or herd immunity). Content will be adapted to specific populations, such as orthodox Jews or Arabs, and distributed accordingly.

→ **The Media:** Journalists, editors, science communicators and opinion leaders – people and organizations who inform the public. For them, the center will serve as a hub for the latest scientific developments, professional data analysis, lists of professional interviews to interview or quote on every subject, and critiques of irresponsible reporting.

→ **Decision-Makers:** Politicians and government officials. For them, the center will provide short professional reviews on various topics and insights into what is troubling the public (through viewing data and reported fake news). The center will also criticize disinformation or false representations of data by politicians, as has occurred too often in the corona cabinet.

Presumably, creating and distributing the required amount of content for such an endeavor would constitute a financial challenge for the new center. However, with so many people already active in the field, most of the information is out there and just has to be collected, sorted and polished up. The center's main job will be to coordinate efforts, frame the information and publish it. It can be a hub for bidirectional information. It will collect, publish and distribute publications from reliable sources in Israel and around the world (including translations, when needed), and will also track knowledge gaps and offer organizations or individuals help in filling them. When needed, it will produce content

through its pool of expert contacts. Operations will be transparent, so that if one organization is working on a topic, others can avoid overlap. Importantly, the collaboration will be voluntary and under no circumstances will freedom of press or natural competition between organizations be restricted. The goal is a consensual, limited synergy in order to fight a common enemy.

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Naturally, the more resources are invested, the more effective the center will be, the more quality content it can produce and the more efficient the distribution. Obviously, in this crisis resources are limited. The necessary minimum will be to create a basic digital platform and invest in gathering and sharing information. The first stage will be to form a list of experts in specific fields who interview well – preferably but not necessarily Israeli. The list will be used to offer experts to the media for interviews and quotes, or opinions on published studies. A list of content-producers – organizations and individuals – will also be compiled, and they will be invited to join the initiative. Their content will be republished in a way that does not damage their internet traffic (for instance, embedding an iframe for their article), and they will enjoy coordination with other organizations on specific issues to close knowledge gaps. The center will monitor

the main journalist embargo lists (list of studies which are to be published soon) and fact-checking websites abroad, publish reviews of studies, locate potential problems (e.g., studies that could be badly reported) and obtain expert opinions and quotes in advance. The big advantage of a Hebrew-speaking country is that news and fake news travel slightly more slowly because of the language gap, which in some cases gives us time to prepare a response. All this may reduce media incentives to cover science provocatively.

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The center will also publish updated reviews on matters of public interest such as the importance of face masks (a topic that was in public debate in Israel), a vaccine tracker and so on. If original content is needed, the model of the Davidson Institute can be applied by recruiting PhD students with relevant expertise to write the review (not a heavy expense). The center will maintain an active presence on all key social media and collaborate with all media to publish content and critical-thinking campaigns.

I believe that if, and when, people have reliable, accessible sources that provide clear answers for their fears, public traffic will increase and journalists will quote from these sources, in turn increasing their perceived reliability. In an ideal world, this should be a governmental, state-funded initiative; in Israeli reality, such an

initiative, if led by the government, runs the risk of being underfunded, politicized and paralyzed by red tape. That is why the center's content and funding must be independent and transparent from day one. The SMC model is financed by at least 20 players, each providing no more than 5%, so that no one can control the center.[52] State funds or philanthropy can finance the establishment of the initiative, but from that point and on it must stand alone or at least separately from the interests of the funders.

4. Concluding Remarks

The challenge of communicating science and fighting misinformation is enormous and complex, especially with the ongoing political and economic crisis and the general sense of public mistrust. Even if reliable information is available, there will always be those who will try to abuse it. The solution this paper propose will not leave a void for spreading disinformation, and will advance science literacy and evidence-based decision-making for everyone – as part of efforts around the world to fight the global infodemic. The Israeli science communication community has the basic capacity to form such an initiative; all we need is coordination and collaboration between the various players. While this will not eliminate the problem, it may provide the critical-thinking vaccine we need to stop the infodemic.

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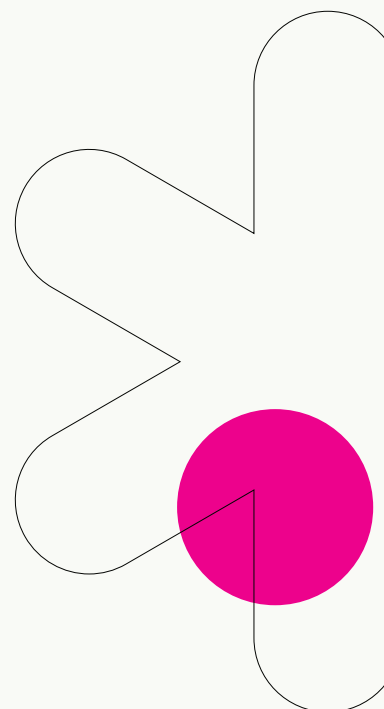
About the Author

Dr. Erez S. Garty gained his undergraduate degree in life sciences from the Ben Gurion University, and both his graduate degree in biochemistry and his PhD in immunology from the Weizmann Institute of Science. Over the course of his career, he has specialized in communicating science via digital platforms and the media. In 2013, he received a Ministry of Health award for assisting outreach during the polio outbreak and contributing to the success of the vaccination operation. He became editor in-chief at the Davidson Institute of Science Education in 2014, and later founded the department for science communications, where he centered on raising science visibility in national media. Under his leadership, the Davidson Institute's popular science website reached more than 10 million unique views a year, becoming the largest official science news outlet in Israel.

Dr. Garty has contributed to hundreds of TV and radio science items, as well as original TV productions. He has led the translation of popular science content into several languages, including English, Arabic, German and Spanish. During the COVID-19 pandemic, he has led several campaigns against fake news, especially focusing on ultra-Orthodox and Arab-language media, and has established a fact-checking Facebook group that debunks myths and misinformation. He is also a founding member of the Schwartz/Reisman Science Center and teaches gifted children science.
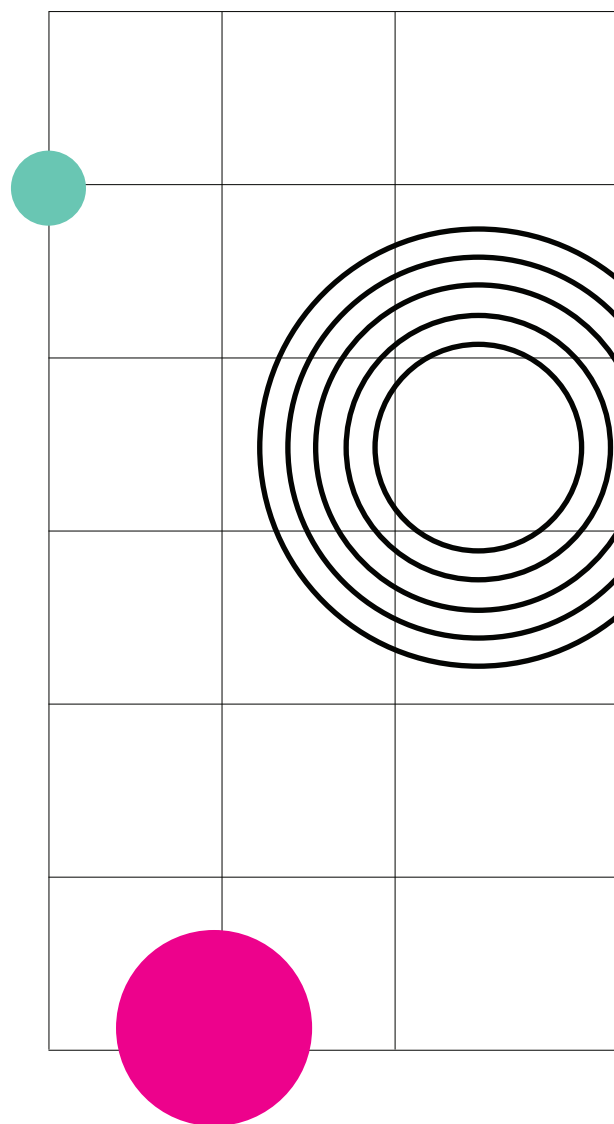
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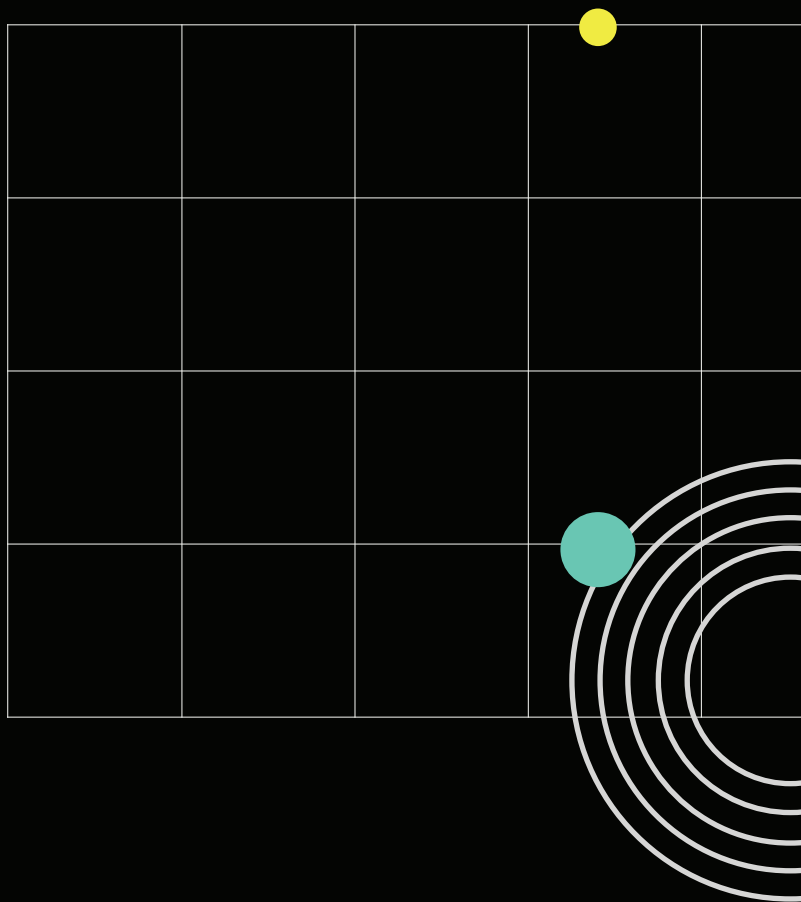## Heinrich Böll Foundation
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