

Comprehensive report on pandemic response solutions developed by 180 leading experts

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The recently released Pandemic Response Supermind Report outlines proposed solutions to combat Covid-19 and prepare for future global health crises. Credit: Massachusetts Institute of Technology

When the World Health Organization declared the COVID-19 outbreak

a pandemic, the health crisis catalyzed a global effort to accelerate innovation and stop the novel virus's spread. To help streamline that effort, the MIT Center for Collective Intelligence, MIT Media Lab's Community Biotechnology Initiative, and MilliporeSigma, the life science business of Merck KGaA, Darmstadt, Germany, together convened more than 180 thought leaders from around the globe to collaborate asynchronously and rapidly identify solutions. A comprehensive report that synthesizes data-driven insights from this expert group, known as the "Pandemic Response Supermind," has now been published, outlining the most promising solutions for pandemic response.

"We engaged with hundreds of creative minds and leaders of scientific research, public health, industry and beyond in a [collective intelligence](#) exercise to generate numerous innovative solutions to the extraordinary challenges posed by the global [pandemic](#)," says David Sun Kong, director of the Community Biotechnology Initiative and primary author of the report. "It was inspiring to see the generative nature of the collective creativity that emerged. I believe both the insights and the methodology we developed can help guide not only our society's emergence from the pandemic, but also prepare us for future challenges."

The Pandemic Response Supermind Report is the result of a six-month global collaboration and expert synthesis that applied an accelerated approach to identify solutions in the midst of the pandemic. During the initial invitation-only exercise that ran for three weeks in May 2020, the Supermind convened using the Center for Collective Intelligence's software platform and methodology to address a central challenge question: How can we develop pandemic resilience—the ability for society to recover quickly from global disease outbreaks—both in resolving the current COVID-19 pandemic and in building the public health and other infrastructure to prepare for future pandemics?

During this sprint, the Supermind identified gaps and innovative solutions across five key technical areas of pandemic response, including: transmission control; diagnostics and monitoring; access to therapies and vaccines; sharing and communicating scientific insights; and pandemic preparedness. Synthesizing the results of this exercise, the Supermind Report was published in thematic installments from June to November 2020 and is now available in full.

"It is exciting to see how the collective intelligence of this group of experts and our teams could be mobilized so quickly and effectively to come up with innovative suggestions for pandemic response," says Kathleen Kennedy, executive director of the Center for Collective Intelligence, who oversaw the Supermind platform.

The Supermind provided an early signal on key solutions to combat COVID-19, identifying innovative ideas such as using sewage monitoring to detect and prevent the spread of SARS-CoV-2 and other infectious diseases within communities. This wastewater epidemiology strategy has since been leveraged more broadly in the fight against COVID-19 by universities, cities, and various communal settings around the world. The Supermind Report also details key findings on novel designs for face masks, accelerating [clinical trials](#) by implementing real-world trials and Bayesian statistics, rapid reproduction of critical research, and building equity into pandemic funding and implementation, among other innovative strategies identified throughout the exercise.

The initiative's unique methodology applied natural language processing to cluster and synthesize contributions from the 180 participants. Participants contributed to the online platform asynchronously with daily facilitation. In total, 243 individual ideas were put forward during the exercise, garnering more than 1,200 votes cast for the top solutions during an evaluation phase.

The Pandemic Response Supermind demonstrates the power of collective intelligence in identifying the most feasible, impactful solutions to fight COVID-19 and better prepare [public health](#) infrastructure for future pandemics. This body of work also informs a public, crowdsourcing effort on the Pandemic Response CoLab, an open platform from the Center for Collective Intelligence and Community Biotechnology Initiative.

"This exercise proves that global conversations and artificial intelligence algorithms can play a vital role in finding approaches that address complex challenges," says Patrick Schneider, head of strategy, business development, and innovation for the Research Solutions business unit at MilliporeSigma and chair of the company's Innovation Board. "Looking to a post-pandemic world, these learnings and accelerated pathways to solutions have the potential to usher in a paradigm shift across scientific industries."

The three collaborating organizations will expand upon their work in 2021, convening a second "Supermind." By broadening their approach to include new synchronous and asynchronous methodologies, the Supermind will seek to identify and apply the lessons learned from COVID-19 to develop actionable solutions that will usher in the future of life science in a post-pandemic world.

More information: The report is available online:
[www.pandemicresponsedata.org/i ... -response-supermind/](http://www.pandemicresponsedata.org/i...-response-supermind/)

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