

COVID-19: A Moon-Landing Moment for Science?

By Avi Loeb and Dario Gil

April 22, 2020

The COVID-19 pandemic has taken scientists to the forefront of press conferences, temporarily thrusting them into the spotlight. We hope that this race to find a cure will be a wake-up call, as dramatic as the race to the Moon half a century ago – inspiring our society and political system to better recognize the value of science as a shield against global catastrophes.

We have to find a better way to harness the power of science to keep our world safe. Not only will science help us defeat the deadly coronavirus, but it will also be instrumental in tackling other major threats like climate change and antibiotic resistance. Science is vital for our future prosperity and health; it always has been and always will be.

No matter how hard we try, ‘known unknowns’ like pandemics will continue to befall our world. To outwit them, we must boost our scientific efforts before we face yet another new virus, or a wide-scale drought, or an especially devastating earthquake – or even an asteroid impact. If a meteor similar to the one that hit the unpopulated regions near Chelyabinsk in 2013 or Tunguska in 1908 hit New York City, it could cause a larger death toll and economic damage than COVID-19. Or consider [the impact of a blob of hot gas](#) from the Sun, the so-called coronal mass ejection, of the type that missed the Earth in 2012. Such an event could shut off communication systems, disable satellites and damage power grids.

Are we prepared for these rare but real risks? The global response to COVID-19 has clearly been a learning experience. The pandemic is a once-in-a-century event that has not been experienced during the lifetime of even our oldest politicians and scientists. By now it is abundantly clear that a proper scientific readiness to such natural catastrophes is key for saving millions of lives and trillions of dollars in the global economy. We should be ready to adequately deal with ‘known unknowns’ – so that they are better understood before they harm us.

In exploring what scientific readiness ought to look like, we could look for inspiration in how the military plans for ‘known unknowns’. Approaches include enacting different scenarios to plan ahead for futures we do not wish for, but for which we must prepare. Reservists have specialized training, access to common resources, and institutional support. It is a construct that is used the world over to ensure a country is prepared for the unexpected, has a protective infrastructure, a contingency plan for a proper response, and can flexibly meet spikes in demand.

We believe that now is the time to create a new scientific body, the National (and International) Science Reserves – composed of scientists and organizations that voluntarily choose to take part. They would bring together the best from the public and the private sectors, recognizing that the scientific capacity of any member nation is distributed across government, academia, foundations, and industry. The COVID-19 crisis has led to [inspirational examples](#) of coalitions across the research & development community, but they were created without the benefit of advance planning. Crises and emergencies demand alternative leadership, funding, and

coordination mechanisms across institutions. By planning during moments of tranquility, the Science Reserves would be ready and able to mobilize the proper resources when the emergencies arrive. The international dimension is also crucial, as researchers from a variety of disciplines and nations would be able to spot, prepare and respond to threats – sharing information in real time and providing a global coordination mechanism to quickly get together scientific expertise and resources.

That, and better investment in fundamental research, will inevitably pay off in the long term. There is no better avenue for international cooperation than science, [which is an infinite-sum game rather than a zero-sum game](#). Our major risks are global and so should be our cooperative response. Let the COVID-19 pandemic serve as our Moon-landing moment. If humanity ever needed a wake-up call to recognize the value of scientific readiness and collaboration, surely this pandemic is it.

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