ghastly manifestations of Covid-19 – illness, death, personal grief, and social ruin that now loom on the nation's horizon. In effect, American citizens would rather exercise their beloved 'freedoms' – expressed as familiar gatherings in churches, bars, restaurants, sports arenas, etc. – than join together (at a distance) to avoid lethal infection. Faced with the most horrible consequences, many Americans nonetheless refuse to recognize the need for personal actions that would protect the wellbeing of their fellow citizens. As the bodies pile higher and higher each day, an emphasis upon "What's in it for me?" prevails in much of the national response to the Covid-19 crisis, a deranged mania strongly endorsed within Donald Trump's White House.

Analyses and comparisons of other social systems around the globe would no doubt reveal a wide variety of responses to the coronavirus along with highly dissimilar consequences. My comments here offer a brief exploration, one that literally 'unmasks' the plight of a nation that believed itself to be the world's most powerful and resourceful, but which failed utterly as it struggled with arrival of a tiny micro-organism. A reasonable diagnosis would locate the ultimate source of the pandemic within the condition of American civic culture itself.

Rene von Schomberg

Global Public Goods

China, a country with a political system at a considerable remove from the ideal of deliberative democracy and which operates against the background of a constant fear of any form of social or political instability, chose to maximize the lives of its inhabitants and took draconian measures without too many economic considerations. This is in stark contrast to the idea which circulated in the Western world, that we all accept some level of 'flexible' lock-down with a view to save primarily the lives of ageing people. While the Chinese extended their hospital capacities in record-breaking time and brought back Chinese citizens living abroad, this was hardly a consideration for most western countries.

In a sense, some western countries considered the opposite extreme: We must create herd-immunity and simply isolate the most vulnerable. The UK, Sweden and the Netherlands were betting on this option in the beginning of the pandemic, hoping that thereby they can avoid great economic loss. Most western countries, though, settled with some hesitation on the *modus operandi* of instituting precautionary measures based on the capacities of national health systems – without considering investing in, or extend these health systems. They followed a predominantly economic ra-

tionale which set boundaries for the measures that local governments or communities could consider. This *modus operandi* relativised the importance of the measures taken, at the same time it rendered them permanently contestable.

However, the longer western societies needed to endure the varying degrees of precautionary measures. the more they had to face the challenge of providing democratic deliberation on the choice of objectives and measures. These national deliberations are necessary while at the same time, we should not loose sight of the global dimension, which includes the important dimension of international justice.

Although most would see the development of a vaccine as a scientific-technical challenge, we have the realize that both the access to a vaccine and the distribution of the vaccine raises a major social challenge. Below I will address both aspects.

Free or affordable access to vaccines

The access to a vaccine requires a rethinking of the private-public dimension of the innovation process. The research and development process of a vaccine will not get off the ground under the current labor divisions among the public and private sphere. The few globally operating pharmaceutic companies would not invest in research and development at their own initiative. There is no economic rationale that would incentivize them to do so. Sadly, this is actually the case for most of the top global public health threats: Malaria, the disease affecting the largest group of people on earth is primarily funded through philanthropic support (Bill Gates Foundation) and the combat of infectious diseases with new generation antibiotics is virtually fully neglected, and big pharma has left the field to start-ups.[15] In the pre-Covid period there were only 16 research projects on SARS and MERS with a commercial partner, all of them exclusively small companies and dependent on public means. The current promising potential vaccines for COVID-19 are all arising from publicly funded start-ups or public institutions. (AstraZeneca works with Oxford University, Pfizer with BioNtech, and Johnson &Johnson with Janssen).

The exceptional case of Covid-19 has led public authorities to massively invest in research on Covid and subsidize multinationals for its productions. Public authorities have required research and innovation to give up their usual closed and competition-based way of operation and incentivized them to shift to an *open science mode*: Open, global scientific collaboration, early data sharing and knowledge sharing prior to publishing, open access to scientific resources and unprecedented cooperation among companies, public authorities and researchers.

15 See Matthew Hutchings, Andrew W Truman and Barrie Wilkinson: "Antibiotics: past, present and future," *Current Opinion in Microbiology* 51 (2019), pp. 72–80. https://doi.org/10.1016/j.mib.2019.10.008.

Although some companies have stated to market at production costs, intellectual property rights on scientific findings and data remain with the industry. Reasonable free access to vaccines can only be guaranteed if public authorities will insist that vaccines produced with public means cannot become subject of profit-based marketing, e.g. that citizens have to pay twice: first for the research and development of the vaccine, and subsequently for acquiring the vaccine. However, with the backing of national governments the vaccine will most likely turn in national public goods through financing the free access to it. However, the case of the promising BioNtech vaccine demonstrates that it was for Europe a narrow escape, as the scenario of public funding of BioNtech with European funds and the subsequent exclusive marketing of the vaccine by Pfizer in the United States was looming. A last-minute deal among the European Commission that had to insist on liability of Pfizer for its product on the European market had prevented that doom-scenario.

Global distribution of the vaccine; the vaccine as a first planetary public good.

The deployment of the vaccine poses a further social challenge. Vaccines are only effective, in terms of public health, when a large proportion of the population will make use of an effective vaccine. Most western countries assume that the individual self-interest of their citizens will drive a sufficient proportion of the population to acquire the vaccine in order to serve a general public interest, so that legal requirements to do so are not necessary. Yet, under circumstances of global mobility only sufficient vaccination at a planetary scale will prove to be effective on the long term. The WHO rightly insists on affordable access to the vaccine at a planetary scale. If we follow the WHO, we will constitute with a COVID-19 a first *planetary global good*. However, on 29 March 2021, 10 countries posessed 76 % of the globally available amount of vaccines. [16]

This requires intensified global governance, which is currently under threat from severe nationalistic tendencies. Let COVID-19 not be an exceptional case, and set an example for the production or save-guarding of equally important other planetary public goods, such as access to clean water and other resources underlying major sustainable development goals.[17] This will require both a lasting shift from a too competitive closed science towards a more collaborative and open science as well as

16 *WHO Director-General's opening remarks at the press conference with Dr Gerd Müller, Federal Minister of Economic Cooperation and Development (BMZ), Germany - 29 March 2021*. https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-press-conference-with-dr-gerd-m%C3%BCller-federal-minister-of-economic-cooperation-and-development-(bmz)-germany---29-march-2021

17 Rene Von Schomberg and Vural Özdemir: "*Full Throttle: COVID-19 Open Science to Build Planetary Public Goods*," *OMICS: A Journal of Integrative Biology* 24/9 (2020), pp. 509–511. https://doi.org/10.1089/omi.2020.0118.

fundamental rethinking of the labour divisions between the public and private sphere to address the market-failures to innovate.[18]

René Umlauf

Zur technischen Krisenhaftigkeit der Corona Krise

In ihrer Fernsehansprache vom 2. November 2020 bezeichnete die deutsche Bundeskanzlerin Angela Merkel im Versuch, bei der Bevölkerung um Verständnis für die erneuten Schutzmaßnahmen zu werben, den Ausbruch und die Ausbreitung von Covid-19 als »so etwas wie eine Naturkatastrophe«. Der darin angelegte Vergleich zwischen Corona und einem Erdbeben oder Vulkanausbruch kann wohl einerseits als spontaner und doch ungelenker Versuch der Naturalisierung bzw. Entpolitisierung gedeutet werden, mit dem Ziel die Legitimität eines zweiten landesweiten Lockdowns zu erhöhen. Andererseits muss man Merkels Aussage wohl auch als ein Teileingeständnis verstehen, worin sich andeutet, dass der bis dato geltende Fokus auf manuelle und digitale Kontaktverfolgung ab einem exponentiellen Anstieg der Corona Fallzahlen einfach nicht ausreicht, die Infektionsketten zu unterbrechen. Diese teils krisenhaften Dynamiken dienen hier als Einstieg, um zu fragen, welche Technologien die beste Passung zwischen einem pandemischen Ausnahmezustand und dem Versuch der Aufrechterhaltung gesellschaftlicher Normalität versprechen? Handelt es sich dabei tatsächlich um die besten Technologien? Oder erzwinget die Krise überhaupt ein anderes Verständnis von Technologie? In den gegenwärtigen Maßnahmen deutet sich jedenfalls an, dass klassische technische Parameter (funktioniert/funktioniert-nicht) als auch moralische Registraturen (gute/richtige vs. schlechte/falsche Technologien) nur unzureichend die gesellschaftlichen Komplexitäten abbilden. Um nun bestimmte gesellschaftliche Problemlagen trotzdem beobachtbar zu halten, wird in diesem Essay eine Unterteilung in harte (feste) und weiche (flüssige) Technologien vorgeschlagen. Mit dieser neuen Unterscheidung soll gezeigt werden, dass der Einsatz vorrangig harter Technologien den Ausbruch oder das Eintreten bestimmter Krisendynamiken unterbindet, suspendiert und teilweise unterminiert. Dieser Fokus auf ein anderes Technologienverständnis greift die von Yongmou, Mitcham und Nordmann adressierte Frage auf, warum seit Beginn der Pandemie weltweit ein Erstarken teilweise autoritärer und vermachteter Expertengremien zu beobachten ist. Im Folgenden wird eine knappe konzeptuelle Kontextualisierung in den

18 Rene Von Schomberg: “Why Responsible Innovation,” in: R. Von Schomberg and J. Hankins (eds.): *International Handbook on Responsible Innovation. A Global Resource*, Cheltenham 2019, pp. 12–34.