# 1AC

### 1

#### Interpretation: The aff may not defend a subset of “the member nations of the WTO” reducing intellectual property protections for medicines.

#### “The” denotes totality

Sharvy 80 Richard Sharvy (1980). A More General Theory of Definite Descriptions. The Philosophical Review, 89(4), 607–624. doi:10.2307/2184738 SM

Definite Plural Descriptions. Phrases like 'the sheep in New Zealand' and 'the people in Auckland' are also ordinary and common definite descriptions, and they do denote. But because their contained predicates are plural predicates like 'are people in Auckland', which apply to more than one object, such expressions are not subject to a Russellian analysis. There is no such thing as (ax \* x are people in Auckland), since a number of distinct items satisfy the predicate-the men in Auckland are people in Auckland, and so are the women in Auckland and the children in Auckland. The definite plural description 'the people in Auckland' designates the sum or totality of all the people in Auckland. This is the sum of all that to which the predicate 'are people in Auckland' applies: the sum of all the items such as the women in Auckland, the children in Auckland, etc., that satisfy the plural predicate 'are people in Auckland'.

#### **Violation – they only defend EU member states**

#### Vote neg:

#### 1] Limits – you can pick any one of 160+ countries ranging from India to the US to Israel to France and there’s no universal disad since each one has different intellectual property laws and political or public health situations – explodes neg prep and leads to random nation of the week affs which makes cutting stable neg links impossible. PICs don’t solve – it’s absurd to say neg potential abuse justifies the aff being flat out not T, which leads to a race towards abuse. Limits key to reciprocal engagement since they create a caselist for neg prep.

#### 2] TVA – read the aff as an advantage to a whole rez aff.

#### Voters:

#### Precision o/w – anything else justifies the aff arbitrarily jettisoning words in the resolution at their whim which decks negative ground and preparation because the aff is no longer bounded by the resolution.

#### Drop the debater – a) they have a 7-6 rebuttal advantage and the 2ar to make args I can’t respond to, b) no arg to drop it’s T

#### Use competing interps – a) reasonability invites arbitrary judge intervention since we don’t know your bs meter, b) collapses to competing interps – we justify 2 brightlines under an offense defense paradigm just like 2 interps.

#### No RVIs – a) illogical – you shouldn’t win for being fair – it’s a litmus test for engaging in substance, b) norming – I can’t concede the counterinterp if I realize I’m wrong which forces me to argue for bad norms,

#### Evaluate T before 1AR theory – norms – we only have a couple months to set T norms but can set 1AR theory norms anytime,

### 2

#### Interp – the aff must only defend that the member nations of the World Trade Organization ought to reduce intellectual property protections for medicines.

#### Violation – they’re extra topical – the aff changes the process by which whistleblowing happens and shifts a legal burden of proof – their response to inherency will prove the violation here

#### Vote neg for limits and ground: extra-topicality allows them to tack on infinite planks to artificially improve aff solvency and spike out of DAs, like fiating enforcement or other reforms. Also key to education and advocacy – they never have to test their aff against well-researched objections which o/w since it’s the only portable skill in debate. The counter-interp sets a precedent that the scope of aff fiat doesn’t have to be bounded by the resolution, which outweighs on magnitude. No drop the arg – we shouldn’t have to always read T just to get back to what we should’ve been debating to begin with – it incentivizes adding random extra-t planks because there’s no punishment.

### 3

#### CP: The member states of the European Union ought to increase trade secret protections for medicines, including standardization.

ICC 14 “TRADE SECRETS: TOOLS FOR INNOVATION AND COLLABORATION” 2014 International Chamber of Commerce (ICC) <https://iccwbo.org/content/uploads/sites/3/2017/02/ICC-Research-Trade-Secrets-english.pdf> SM

Trade secrets include any protected business information – whether technical, financial, or strategic – that is not generally known and that provides a competitive advantage to the owner. Innovative businesses use trade secrets throughout their operations, and they value them as a way to manage their proprietary knowledge. Trade secrets and patent protection are complementary, and businesses tend to use these tools in combination in order to most effectively manage their intellectual assets.

Today’s approaches to collaborative innovation require broad sharing of confidential business information. Trade secret protection can facilitate sharing among partners by enabling recovery should a third party misappropriate valuable information. Absent protection, 40 per cent of companies in the European Union (EU) report they would likely retain business information strictly internally, to avoid losing control over it (EU 2013).

From a practical point of view, existing trade secret regimes are ineffective due to low levels of legal protection, legal fragmentation across and within countries and regions, and inadequate enforcement. The resulting legal uncertainty is particularly problematic in light of today’s business environment, which is characterized by globally dispersed research and development (R&D), employee mobility, and reliance on information and communication technology (ICT). A case in point is the storing and processing of digital information on external servers, which allows trade secret theft to be initiated from anywhere in the world. This, in turn, obliges companies to recover where the misappropriation occurs – often in jurisdictions that offer little or no effective protection.

#### Biotech industry strong now – new innovation and R&D coming

Cancherini et al. 4/30 [Laura, Engagement Manager @ McKinsey & Company, Joseph Lydon, Associate Partner @ McKinsey & Company, Jorge Santos Da Silva, Senior Partner at McKinsey & Company, and Alexandra Zemp, Partner at McKinsey & Company] “What’s ahead for biotech: Another wave or low tide?“, McKinsey & Company, 4-30-2021, <https://www.mckinsey.com/industries/pharmaceuticals-and-medical-products/our-insights/whats-ahead-for-biotech-another-wave-or-low-tide> //ajs

As the pandemic spread across the globe in early 2020, biotech leaders were initially pessimistic, reassessing their cash position and financing constraints. When McKinsey and BioCentury interviewed representatives from 106 biotech companies in May 2020,4 half of those interviewed were expecting delays in financing, and about 80 percent were tight on cash for the next two years and considering trade-offs such as deferring IPOs and acquisitions. Executives feared that valuations would decline because of lower revenue projections and concerns about clinical-trial delays, salesforce-effectiveness gaps, and other operational issues.

Belying this downbeat mood, biotech has in fact had one of its best years so far. By January 2021, venture capitalists had invested some 60 percent more than they had in January 2020, with more than $3 billion invested worldwide in January 2021 alone.5 IPO activity grew strongly: there were 19 more closures than in the same period in 2020, with an average of $150 million per raise, 17 percent more than in 2020. Other deals have also had a bumper start to 2021, with the average deal size reaching more than $500 million, up by more than 66 percent on the 2020 average (Exhibit 3).6

What about SPACs?

The analysis above does not include special-purpose acquisition companies (SPACs), which have recently become significant in IPOs in several industries. Some biotech investors we interviewed believe that SPACs represent a route to an IPO. How SPACs will evolve remains to be seen, but biotechs may be part of their story.

Fundamentals continue strong

When we asked executives and investors why the biotech sector had stayed so resilient during the worst economic crisis in decades, they cited innovation as the main reason. The number of assets transitioning to clinical phases is still rising, and further waves of innovation are on the horizon, driven by the convergence of biological and technological advances.

In the present day, many biotechs, along with the wider pharmaceutical industry, are taking steps to address the COVID-19 pandemic. Together, biotechs and pharma companies have [more than 250 vaccine candidates in their pipelines](https://www.mckinsey.com/industries/pharmaceuticals-and-medical-products/our-insights/on-pins-and-needles-will-covid-19-vaccines-save-the-world), along with a similar number of therapeutics. What’s more, the crisis has shone a spotlight on pharma as the public seeks to understand the roadblocks involved in delivering a vaccine at speed and the measures needed to maintain safety and efficacy standards. To that extent, the world has been living through a time of mass education in science research and development.

Biotech has also benefited from its innate financial resilience. Healthcare as a whole is less dependent on economic cycles than most other industries. Biotech is an innovator, actively identifying and addressing patients’ unmet needs. In addition, biotechs’ top-line revenues have been less affected by lockdowns than is the case in most other industries.

Another factor acting in the sector’s favor is that larger pharmaceutical companies still rely on biotechs as a source of innovation. With the [top dozen pharma companies](https://www.mckinsey.com/business-functions/m-and-a/our-insights/a-new-prescription-for-m-and-a-in-pharma) having more than $170 billion in excess reserves that could be available for spending on M&A, the prospects for further financing and deal making look promising.

For these and other reasons, many investors regard biotech as a safe haven. One interviewee felt it had benefited from a halo effect during the pandemic.

More innovation on the horizon

The investors and executives we interviewed agreed that biotech innovation continues to increase in quality and quantity despite the macroeconomic environment. Evidence can be seen in the accelerating pace of assets transitioning across the development lifecycle. When we tracked the number of assets transitioning to Phase I, Phase II, and Phase III clinical trials, we found that Phase I and Phase II assets have transitioned 50 percent faster since 2018 than between 2013 and 2018, whereas Phase III assets have maintained much the same pace. There could be many reasons for this, but it is worth noting that biotechs with Phase I and Phase II assets as their lead assets have accounted for more than half of biotech IPOs. Having an early IPO gives a biotech earlier access to capital and leaves it with more scope to concentrate on science.

Looking forward, the combination of advances in biological science and accelerating developments in technology and artificial intelligence has the potential to take innovation to a new level. A [recent report](https://www.mckinsey.com/industries/pharmaceuticals-and-medical-products/our-insights/the-bio-revolution-innovations-transforming-economies-societies-and-our-lives) from the McKinsey Global Institute analyzed the profound economic and social impact of biological innovation and found that biomolecules, biosystems, biomachines, and biocomputing could collectively produce up to 60 percent of the physical inputs to the global economy. The applications of this “Bio Revolution” range from agriculture (such as the production of nonanimal meat) to energy and materials, and from consumer goods (such as multi-omics tailored diets) to a multitude of health applications.

#### Strong IPR is key to innovation – empirics and FDI

Ezell and Cory 19 [Stephen Ezell, BS from School of Foreign Service at Georgetown, VP of global innovation policy at Information Technology and Innovation Foundation. Nigel Cory, MA in public policy from Georgetown, BA in international business from Griffith University, Associate Director of trade policy at Information Technology and Innovation Foundation, former researcher in the Southeast Asia Program at the Center for Strategic and International Studies.] “The Way Forward for Intellectual Property Internationally,” Information Technology and Innovation Foundation, April 25, 2019, <https://itif.org/publications/2019/04/25/way-forward-intellectual-property-internationally> TG

* FDI – foreign direct investment

IPRs Strengthen Innovation

Intellectual property rights power innovation. For instance, analyzing the level of intellectual property protections (via the World Economic Forum’s Global Competitiveness reports) and creative outputs (via the Global Innovation Index) shows that countries with stronger IP protection have more creative outputs (in terms of intangible assets and creative goods and services in a nation’s media, printing and publishing, and entertainment industries, including online), even at varying levels of development.46

IPR reforms also introduce strong incentives for domestic innovation. Sherwood, using case studies from 18 developing countries, concluded that poor provision of intellectual property rights deters local innovation and risk-taking.47 In contrast, IPR reform has been associated with increased innovative activity, as measured by domestic patent filings, albeit with some variation across countries and sectors.48 For example, Ryan, in a study of biomedical innovations and patent reform in Brazil, found that patents provided incentives for innovation investments and facilitated the functioning of technology markets.49 Park and Lippoldt also observed that the provision of adequate protection for IPRs can help to stimulate local innovation, in some cases building on the transfer of technologies that provide inputs and spillovers.50 In other words, local innovators are introduced to technologies first through the technology transfer that takes place in an environment wherein protection of IPRs is assured; then, they may build on those ideas to create an evolved product or develop alternate approaches (i.e., to innovate). Related research finds that trade in technology—through channels including imports, foreign direct investment, and technology licensing—improves the quality of developing-country innovation by increasing the pool of ideas and efficiency of innovation by encouraging the division of innovative labor and specialization.51 However, Maskus notes that without protection from potential abuse of their newly developed technologies, foreign enterprises may be less willing to reveal technical information associated with their innovations.52 The protection of patents and trade secrets provides necessary legal assurances for firms wishing to reveal proprietary characteristics of technologies to subsidiaries and licensees via contracts.

The relationship between IPR rights and innovation can also be seen in studies of how the introduction of stronger IPR laws, with regard to patents, copyrights, and trademarks, affect R&D activity in an economy. Studies by Varsakelis and by Kanwar and Evenson found that R&D to GDP ratios are positively related to the strength of patent rights, and are conditional on other factors.53 Cavazos Cepeda et al. found a positive influence of IPRs on the level of R&D in an economy, with each 1 percent increase in the level of protection of IPRs in an economy (as measured by improvements to a country’s score in the Patent Rights Index) equating to, on average, a 0.7 percent increase in the domestic level of R&D.54 Likewise, a 1 percent increase in copyright protection was associated with a 3.3 percent increase in domestic R&D. Similarly, when trademark protection increased by 1 percent, there was an associated R&D increase of 1.4 percent. As the authors concluded, “Increases in the protection of the IPRs carried economic benefits in the form of higher inflows of FDI, and increases in the levels of both domestically conducted R&D and service imports as measured by licensing fees.”55 As Jackson summarized, regarding the relationship between IPR reform and both innovation and R&D, and FDI, “In addition to spurring domestic innovation, strong intellectual property rights can increase incentives for foreign direct investment which in turn also leads to economic growth.”56

#### EU key

EPM Scientific 19 (202, [], 4-1-2019, “Why US Biotech Companies Should Consider Launching in Europe Directly“, No Publication, accessed: 9-18-2021, https://www.epmscientific.com/blog/2019/04/why-us-biotech-companies-should-consider-launching-in-europe-directly) ajs

​In the past, biotech startups have sought to partner with big pharmaceutical companies.  However, the market is changing — in 2019 it may be better to license directly in Europe.

For a US-based pharmaceutical company, the prospect of taking a new drug to market in Europe can be daunting.  Many young biotech companies decide to [out-license for royalty](https://www.researchgate.net/publication/327407817_Factors_Affecting_Pricing_in_Patent_Licensing_Contracts_in_the_Biopharmaceutical_Industry) or milestone payments instead of navigating the tricky path to commercializing their own product. However, this strategy may be a mistake. Let’s examine why...

Drug licensing in Europe vs. the US

Europe and the US dominate the [global biotech market](https://www.thebalance.com/ranking-the-top-biotech-countries-3973287) (although China and Japan are important growth markets of their own). This trend is not likely to change, a [2019 iQvia report](https://www.iqvia.com/institute/reports/the-global-use-of-medicine-in-2019-and-outlook-to-2023) predicted that global pharmaceutical spending will exceed $1.5 trillion by 2023 with market leaders in the US ($625-665 billion,  up 4-7%) and Europe ($195-225 billion, up 1-4%).   
  
However, the US and Europe have very [different requirements](https://www.fool.com/investing/2018/05/19/how-drug-approvals-in-europe-are-different-than-in.aspx) for clinical trials and new drug applications.  Historically, the [US Food and Drug Administration (FDA)](https://www.fda.gov/drugs/developmentapprovalprocess/druginnovation/default.htm) has been seen as a [centralized consumer protection agency](https://www.sciencedirect.com/science/article/pii/S2452302X16300638) — with the critique that it slows approval with safety considerations.  In contrast, the [EU European Medicines Agency (EMA)](https://www.ema.europa.eu/en/human-regulatory/marketing-authorisation/pre-authorisation-guidance) was designed to [standardize commercial rules](https://www.sciencedirect.com/science/article/pii/S2452302X16300638) — with the critique that it primarily preserves commercial interests.  There is a debate as to which system approves drugs quicker, a [2015 analysis](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6091770/) indicates that the US is likely the faster of the two approval processes (304 days as compared to 478 in Europe).   
  
Small companies may not want to invest in two very-different approval processes.  Traditionally, licensing has been regarded as a good exit strategy for biotech and small pharmaceutical companies to help [manage risk](https://www.researchgate.net/publication/327407817_Factors_Affecting_Pricing_in_Patent_Licensing_Contracts_in_the_Biopharmaceutical_Industry), which is why licensing, royalties, mergers and acquisitions are such major drivers of the biotech and pharma industries.   
  
But is European licensing really the best exit strategy for US companies in 2019?

Data Supporting European Launch over License

A [2013 analysis](http://bionest.com/wp-content/uploads/2015/10/In_Vivo_Article_Bionest_web_final_IV1312.pdf) published in the Business and Medicine Report examined companies facing the launch-vs-license dilemma.    
  
Using public data from the [EMA database](http://www.ema.europa.eu/ema/index.jsp?curl=pages/regulation/general/eudra_gmp_database.jsp&mid=WC0b01ac058006e06e)the study examined US-based companies who had chosen to market their primary drug in the US, but were then facing the European launch-or-license decision.  From 2003-2013 the study identified 25 companies fitting this criterion, 9 of whom chose to launch directly in Europe and 16 of whom chose to license for royalty and/or milestone payments. The study found that the “launch companies significantly outperformed their licensing peers” and that “launching a drug alone may lead to significant financial reward and success”.  To put numbers behind this claim, in a two-year window (one year prior to EMA approval to one year post-approval) the median share price of the launch companies increased by 46%, as compared to 2% for the out-licensing companies.    
  
Now this study had small numbers and a wide range of variation in the companies performances.  But it gives an important insight into the benefits of navigating European regulatory structures.  
  
While there are likely many factors contributing to this data, it's possible that we’re simply seeing a direct result of the EU's new centralization. Before 1995 there were [15 different national bodies](https://www.fda.gov/ForConsumers/ConsumerUpdates/ucm246776.htm) regulating drugs in the European Union. Since the formation of the EU, what used to be a country-specific launch in Europe has become a centralized review leading to efficient access to Europe’s population of [741 million people](https://www.google.com/search?q=europe+population&rlz=1C5CHFA_enCA730CA732&oq=europe+population&aqs=chrome..69i57j0l5.2374j0j4&sourceid=chrome&ie=UTF-8).   
  
Regardless, the data suggests that the conventional wisdom is no longer true. Biotech companies should strongly consider launching directly in Europe.

In conclusion

Traditionally biotech companies have sought to be acquired by, or partner with large pharmaceutical companies.  However, this model is changing. Now companies may have more success going straight to market in Europe.

#### Trade secrets create incentive for collaboration and drive innovation through profit motives – that turns the aff because companies will increase secrecy.

ICC 14 “TRADE SECRETS: TOOLS FOR INNOVATION AND COLLABORATION” 2014 International Chamber of Commerce (ICC) <https://iccwbo.org/content/uploads/sites/3/2017/02/ICC-Research-Trade-Secrets-english.pdf> SM

Trade secrets are often the “crown jewels” of a firm’s intellectual capital, developed over many years through myriad interactions and projects (Jorda 2007). According to recent estimates, trade secrets encompass some 70 per cent of the value of companies’ intellectual assets (Bird & Jain 2008; Forrester 2010; Schwarts & Weil 2010). In one survey, respondents rated proprietary technology highly as a key source of competitive advantage, and a large majority of respondents (88 per cent) cited skills and knowledge as the most important intellectual assets (IPOA 2003).

The economic rationale for trade secret protection is two-fold: first, it enables firms to avoid overinvesting in secrecy and thus to use their resources more cost-effectively, and, second, it facilitates the diffusion of knowledge by creating a safe environment for firms to share information that, for whatever reason, they have not patented (Friedman et al 1991; Arrasvuori et al. 2014). In relation to this last point, trade secret protection is particularly well suited to current approaches to innovation, which emphasize incremental change and collaboration.

As empirical evidence shows, over-investment in secrecy implies not only wasted resources, but also lost opportunities for collaboration when information cannot be safely shared externally. Over-investment in secrecy may be specific, in the form of over-protection of a particular idea, or it can be general, in the sense that a company may impose too many restrictions on employees and business partners, or may over-spend on physical infrastructure to protect confidential information.

The legal protections provided under trade secret laws serve as a substitute for physical and also contractual secrecy (Chally 2008; Lemley 2008). For instance, when hiring and assigning employees, an employer can focus on candidates’ skills and appropriateness for particular roles, rather than choosing people exclusively from within a trusted inner circle (Risch 2007). On the other hand, companies’ actions to prevent leakage of trade secrets sometimes appear to be at odds with employee mobility and the use by an employee of learned skills in subsequent employment (Rowe 2005). Trade secret protection laws that provide appropriate disincentives for misappropriation help to strike a balance between employee mobility and personal development, on the one hand, and the legitimate interests of companies in securing confidentiality of their proprietary information, on the other hand.

Trade secret laws also facilitate flows of knowledge by making it less risky for firms to share knowledge. Like patents, trade secrets provide a partial solution to Arrow’s Information Paradox (Lemley 2008). This paradox relates to the difficulties an inventor faces if he or she needs to share a potentially valuable but secret idea in order to exploit it commercially. Without appropriate safeguards, once knowledge is exchanged between parties, there are few disincentives against using that knowledge for commercial benefit. Thus, potential partners may withhold information because they fear creating a new competitor. However, external cooperation is an increasingly important feature of firms’ innovation strategies, enabling them to combine expertise and resources, and thus to accelerate technology development as well as commercialization. By providing additional security, trade secret protection enables the sharing of knowledge between parties (Arrasvuori et al. 2014).

The protection afforded by trade secrets matches the needs of contemporary modes of innovation. Today, innovation is increasingly characterized by a high degree of collaboration and also by emphasis on incremental progress. Adaptation of existing solutions to local environments, one form of incremental innovation, is especially relevant in developing countries. Trade secrets help to establish secure channels for exchanges of know-how, helping to build absorptive capacity, which is defined as the ability to identify, assimilate, and apply new knowledge. They also provide an alternative tool for protecting gradual advancements for which patents may not be available or financially practical (Maskus 2012). Finally, given their relative affordability, trade secrets can provide a resource-effective line of defence to SMEs in countries at all levels of development.

To summarize, trade secrets are directly implicated in the dissemination of proprietary skills and knowledge, stimulating broader disclosure and use of information. As patent protection encourages the sharing of proprietary technology, trade secret protection facilitates the sharing of proprietary know-how and expertise (Box 3). The combined deployment of trade secrets and patents provides exclusivity to the innovator, while furthering technology transfer through licensing and other transactions (Jorda 2007). Licensing agreements that include conveyances for both forms of protection are credited with stimulating the most value creation (Cummings 2008).

#### Biopharmaceutical innovation is key to prevent future pandemics and bioterror – turns case

Marjanovic and Feijao 20 [(Sonja Marjanovic, Ph.D., Judge Business School, University of Cambridge. Carolina Feijao, Ph.D. in biochemistry, University of Cambridge; M.Sc. in quantitative biology, Imperial College London; B.Sc. in biology, University of Lisbon.) "How to Best Enable Pharma Innovation Beyond the COVID-19 Crisis," RAND Corporation, 05-2020, https://www.rand.org/pubs/perspectives/PEA407-1.html] TDI

As key actors in the healthcare innovation landscape, pharmaceutical and life sciences companies have been called on to develop medicines, vaccines and diagnostics for pressing public health challenges. The COVID-19 crisis is one such challenge, but there are many others. For example, MERS, SARS, Ebola, Zika and avian and swine flu are also infectious diseases that represent public health threats. Infectious agents such as anthrax, smallpox and tularemia could present threats in a bioterrorism context.1 The general threat to public health that is posed by antimicrobial resistance is also well-recognised as an area in need of pharmaceutical innovation. Innovating in response to these challenges does not always align well with pharmaceutical industry commercial models, shareholder expectations and competition within the industry. However, the expertise, networks and infrastructure that industry has within its reach, as well as public expectations and the moral imperative, make pharmaceutical companies and the wider life sciences sector an indispensable partner in the search for solutions that save lives. This perspective argues for the need to establish more sustainable and scalable ways of incentivising pharmaceutical innovation in response to infectious disease threats to public health. It considers both past and current examples of efforts to mobilise pharmaceutical innovation in high commercial risk areas, including in the context of current efforts to respond to the COVID-19 pandemic. In global pandemic crises like COVID-19, the urgency and scale of the crisis – as well as the spotlight placed on pharmaceutical companies – mean that contributing to the search for effective medicines, vaccines or diagnostics is essential for socially responsible companies in the sector. 2 It is therefore unsurprising that we are seeing industry-wide efforts unfold at unprecedented scale and pace. Whereas there is always scope for more activity, industry is currently contributing in a variety of ways. Examples include pharmaceutical companies donating existing compounds to assess their utility in the fight against COVID19; screening existing compound libraries in-house or with partners to see if they can be repurposed; accelerating trials for potentially effective medicine or vaccine candidates; and in some cases rapidly accelerating in-house research and development to discover new treatments or vaccine agents and develop diagnostics tests.3,4 Pharmaceutical companies are collaborating with each other in some of these efforts and participating in global R&D partnerships (such as the Innovative Medicines Initiative effort to accelerate the development of potential therapies for COVID-19) and supporting national efforts to expand diagnosis and testing capacity and ensure affordable and ready access to potential solutions.3,5,6 The primary purpose of such innovation is to benefit patients and wider population health. Although there are also reputational benefits from involvement that can be realised across the industry, there are likely to be relatively few companies that are ‘commercial’ winners. Those who might gain substantial revenues will be under pressure not to be seen as profiting from the pandemic. In the United Kingdom for example, GSK has stated that it does not expect to profit from its COVID-19 related activities and that any gains will be invested in supporting research and long-term pandemic preparedness, as well as in developing products that would be affordable in the world’s poorest countries.7 Similarly, in the United States AbbVie has waived intellectual property rights for an existing combination product that is being tested for therapeutic potential against COVID-19, which would support affordability and allow for a supply of generics.8,9 Johnson & Johnson has stated that its potential vaccine – which is expected to begin trials – will be available on a not-for-profit basis during the pandemic.10 Pharma is mobilising substantial efforts to rise to the COVID-19 challenge at hand. However, we need to consider how pharmaceutical innovation for responding to emerging infectious diseases can best be enabled beyond the current crisis. Many public health threats (including those associated with other infectious diseases, bioterrorism agents and antimicrobial resistance) are urgently in need of pharmaceutical innovation, even if their impacts are not as visible to society as COVID-19 is in the immediate term. The pharmaceutical industry has responded to previous public health emergencies associated with infectious disease in recent times – for example those associated with Ebola and Zika outbreaks.11 However, it has done so to a lesser scale than for COVID-19 and with contributions from fewer companies. Similarly, levels of activity in response to the threat of antimicrobial resistance are still low.12 There are important policy questions as to whether – and how – industry could engage with such public health threats to an even greater extent under improved innovation conditions.

#### COVID incentivizes engineered bioterror- extinction

Walsh, 20 -- Axios Future correspondent [Bryan Walsh, "The coronavirus pandemic reawakens bioweapon fears," Axios, 5-14-2020, https://www.axios.com/coronavirus-pandemic-pathogen-bioweapon-45417c86-52aa-41b1-8a99-44a6e597d3a8.html, accessed 9-7-2020]

The coronavirus pandemic reawakens bioweapon fears

The immense human and economic toll of the COVID-19 pandemic only underscores the threat posed by pathogens that could be deliberately engineered and released.

Why it matters: New technology like gene editing and DNA synthesis has made the creation of more virulent pathogens easier. Yet security and regulation efforts haven't kept pace with the science.

What's happening: Despite some claims by the White House, overwhelming scientific evidence indicates that the novel coronavirus was not accidentally released from a lab or deliberately engineered, but naturally spilled over from an animal source.

That doesn't mean the threat from bioweapons isn't dire. Along with AI, engineered pandemics are widely considered the biggest existential risk facing humanity.

That's in part because a pathogen could be engineered in a lab for maximum contagiousness and virulence, well beyond what would arise through natural selection.

Case in point: a 2018 pandemic simulation put on by the Johns Hopkins Center for Health Security featured a fictional engineered virus called Clade X that combined the contagiousness of the common cold with the virulence of the real-life Nipah virus, which has a mortality rate of 40-75%. The resulting simulated global outbreak killed 150 million people.

COVID-19 isn't anywhere near that fatal, but the pandemic has shown the vulnerability of the U.S. and the world to biological threats both natural and manmade.

"Potential adversaries are of course seeing the same things we’re seeing," says Richard Pilch of the Middlebury Institute of International Studies. "Anyone looking for a radical leveling approach — whether a state actor like North Korea or a motivated terrorist organization — may be influenced by COVID-19 to consider pursuing a biological weapons capability."

Background: Bioweapons were officially banned by the Biological Weapons Convention in 1975, though North Korea is suspected of maintaining an offensive bioweapons program.

A particular concern about biowarfare and bioterror, though, is that many of the tools and methods that could be used to create a weaponized virus are largely indistinguishable from those used in the course of legitimate scientific research. This makes biotechnology "dual-use" — and that much more difficult to safely regulate without cutting off research that could be vitally important.

While earlier bioweapons fears focused on the possibility that a state or terror group could try to weaponize a known dangerous agent like smallpox — which would require somehow obtaining restricted pathogens — new technology means that someone could obtain the genetic sequence of a germ online and synthesize it in the lab.

"If you've been trained in a relevant technical discipline, that means you can make almost any potentially harmful agent that you're aware of," says Kevin Esvelt, a biologist at the MIT Media Lab and a member of the CDC's Biological Agent Containment Working Group. That would include the novel coronavirus that causes COVID-19, which was recently synthesized from its genetic sequence in a study published in Nature.

How it works: Currently, synthetic DNA is ordered through commercial suppliers. But while most suppliers screen DNA orders for the sequences of dangerous pathogens, they're not required to — and not all do, which means safety efforts are "incomplete, inaccurate, and insecure," says Esvelt.

Screening efforts that look for the genetic sequences of known pathogens also wouldn't necessarily be able to detect when synthetic DNA was being used to make something entirely novel and dangerous.

In the near future, desktop DNA synthesizers may be able to generate synthetic DNA in the lab, cutting out the need for commercial suppliers — and potential security screenings.

The democratization of biotechnology could unleash a wave of creativity and innovation, just as the democratization of personal computing did. But it also increases the number of people who could potentially make a dangerous engineered virus, whether deliberately or by accident.

### 4

#### EU vaccine mandates strong and growing now

**Bendix 9/10/21** (Aria, reporter for Business Insider “Vaccine mandates are proving successful in European countries. That may bode well for the US.” [https://www.businessinsider.com/vaccine-mandates-working-europe-boost-vaccination-rates-us-2021-9 September 10](https://www.businessinsider.com/vaccine-mandates-working-europe-boost-vaccination-rates-us-2021-9%20September%2010), 2021)DR 21

But there's evidence that vaccine mandates indeed work: Several European countries — including France, Greece, and Italy — saw vaccination rates rise shortly after instating new vaccine requirements. People who were initially wary of the shots seemed to change their minds once vaccines become a prerequisite for returning to work or entering bars, restaurants, gyms, and concert venues.

Many US workers could find a similar motivation to get vaccinated soon.

"For people who opt out of these mandates or refuse, it's probably going to become so challenging with all the restrictions and testing that life will get very hard if you're unimmunized," Chris Beyrer, an epidemiologist at the Johns Hopkins Bloomberg School of Public Health, told Insider.

**Mandates have boosted vaccine uptake in Europe**

Though European countries generally have [lower rates of vaccine hesitancy](https://morningconsult.com/global-vaccine-tracking/) compared to the US, many have resorted to mandates as a way to boost vaccine uptake.

On July 12, French President Emmanuel Macron announced that people would need a "health pass" — proof of vaccination, recent recovery from COVID-19, or a negative coronavirus test — to enter bars, restaurants, movie theaters, and hospitals, or take long-distance trips on train and planes. Businesses who didn't screen for health passes, he said, would be subject to fines, which now amount to 1,500 Euros ($1,772) for first-time offenders.

Healthcare workers also have to be vaccinated by September 15, France's health ministry said, or they won't be able to return to work or be compensated for their time off.

Shortly after the announcement, tens of thousands of people rushed to book their shots through Doctolib, a popular vaccine appointment system, [Reuters reported](https://www.reuters.com/world/europe/france-make-covid-19-shot-mandatory-health-workers-bfm-tv-2021-07-12/). Within a week, more than 3.7 million people in France had scheduled an appointment for their first dose. And within two weeks, France's daily vaccination rate had risen 18%.

Greece also instated new vaccine requirement on July 12: Prime Minister Kyriakos Mitsotakis told nursing home staff to get vaccinated immediately, and gave healthcare workers until September before a similar mandate kicked in. Mitsotakis also announced that only vaccinated people would be allowed inside bars, movie theaters, and other closed spaces.

Then on August 24, Greece's health minister, Vassilis Kikilias, announced that all private and public sector workers would have to take one rapid test per week, unless they showed proof of vaccination or recent recovery from COVID-19. Greece's daily vaccination rates rose 15% over the following week.

The approach was similarly successful in Italy: Italian Prime Minister Mario Draghi announced in late July that residents and tourists would need a health pass to enter museums, gyms, theaters, indoor pools, and the indoor sections of bars and restaurants. In the 24 hours that followed, the country recorded at least half a million new vaccination appointments and online booking sites were overloaded with demand, [Agence France-Presse reported](https://www.thelocal.it/20210725/draghi-effect-protests-in-italy-but-also-surge-in-vaccine-bookings-after-pms-health-pass-announcement/).

After the new rules went into effect in early August, Italy's daily vaccination rate rose 40% from August 20 to September 4.

#### Anti-vaxxers can use strong whistleblower protections from the plan to dodge vaccine mandates

**Rolfsen 2020** (Bruce, writer for Bloomberg law. “Covid-19 Employer Vaccination Programs Could Be Sought by OSHA” <https://news.bloomberglaw.com/daily-labor-report/covid-19-employer-vaccination-programs-could-be-sought-by-osha> Sept. 18, 2020)DR 21

An employee with a medical condition who refuses a vaccination because of the “reasonable belief” that the shot could lead to a serious illness or death may be protected from retaliation by OSHA whistleblower laws, the letter said.

#### High, but not herd-immunity level, of vaccinations creates a breeding ground for monster strains of COVID—EU is the key test

* Turns econ

**Jee 2021** (Charlotte, Before joining MIT Technology Review I was editor of Techworld. Prior to that I was a reporter covering the intersection of politics, the public sector and technology. In my spare time I run a venture called Jeneo aimed at making tech events more inclusive. I regularly do public speaking and crop up on the BBC from time to time “Why England’s sudden lifting of covid restrictions is a massive gamble,” <https://www.technologyreview.com/2021/07/18/1029638/why-englands-sudden-lifting-of-covid-restrictions-is-a-massive-gamble/> July 18, 2021)DR 21

But not everyone agrees. NHS bosses are already [sounding the alarm](https://www.theguardian.com/world/2021/jul/12/rise-in-covid-cases-will-put-intense-pressure-on-nhs-bosses-warn) over capacity, and more than 1,200 scientists have signed a letter in [The Lancet](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)01589-0/fulltext) arguing that Britain should care about the huge rise in infections, regardless of the rates of deaths and hospitalizations.

Gurdasani, the epidemiologist, is one of them.

“Cases matter,” she says, pointing to **two main dangers**: the increased chance that large numbers of people will develop long covid, and the risk of new, vaccine-dodging variants.

What we know: more people will get long covid

The UK already has a significant problem with long covid. More than two million adults may already have—or have had—complications that persist for 12 weeks or more, according to a major [study](https://www.imperial.ac.uk/news/224853/over-million-adults-england-have-long/) from Imperial College London. But long covid is poorly understood, with over 200 symptoms ranging from fatigue to shortness of breath to memory issues, according to the largest study of it yet, recently published in [The Lancet](https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(21)00299-6/fulltext).

About one in 10 of those who catch covid-19 go on to develop long covid, according to the [WHO](https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/news/news/2021/2/new-policy-brief-calls-on-decision-makers-to-support-patients-as-1-in-10-report-symptoms-of-long-covid). That means if another million people in the UK get sick during this wave—a plausible scenario by most estimates—there could be another 100,000 people with long-term issues.

Whitty is worried. “I think we will get a significant amount more long covid, particularly in the younger ages where the vaccination rates are currently much lower,” he [said](https://www.theguardian.com/politics/live/2021/jul/06/uk-covid-latest-updates-sajid-javid-new-cases-100000-per-day-summer-boris-johnson) on July 6.

That could place huge pressure on the NHS, businesses, and society in general, not to mention causing untold misery for vast numbers of individuals.

“Some symptoms may persist for years, and there’s a chance **we're exposing a whole generation to very bad health** for the rest of their lives,” says Skirmuntt.

What we don’t know: whether this could all spawn another dangerous variant

The big fear for many experts is that the government’s approach is creating an ideal breeding ground for the emergence of a vaccine-resistant variant.

On July 5, Steve Paterson, co-director of the Centre for Genomic Research at the University of Liverpool, summed up the concerns in a tweet: “Letting a virus rip through a partially vaccinated population is exactly the experiment I’d do to evolve a virus able to evade immunity.”

The fear is that more infections give the virus more chances to mutate, which increases the risk of a new variant. Given that people’s protection largely comes from vaccines, this could result in strains that are even better at evading our existing immune response. And for the UK— a country that has largely depended on vaccines to save it from covid-19—such an outcome would be disastrous.

Some evolutionary biologists [say](https://www.technologyreview.com/2021/05/13/1024850/dont-panic-coronavirus-variants/) we should take some comfort from the fact we are starting to see the same mutations pop up repeatedly, a phenomenon called convergent evolution. That may suggest that the virus is running out of ways to adapt.

But Skirmuntt, who studies how viruses evolve, says vaccine escape is a scenario we should fear, whatever the chances. She likens it to running around in a field of land mines.

“The chance that somebody will step on a mine is much higher when there are several thousand people running around it instead of a couple,” she says.

What we know: the rest of the world is watching

Plenty of countries, including the Netherlands, Spain, Australia, and Sweden, have dropped restrictions only to have to reimpose them all over again. Even in the US, where restrictions have varied from state to state, some places are walking back their decisions: the Los Angeles County, for example, just reintroduced a mask mandate after a surge in cases.

On July 12, just two weeks after lifting some public safety measures such as the closure of nightclubs, the Dutch prime minister, Mark Rutte, had to [apologize](https://www.reuters.com/world/europe/dutch-pm-apologises-easing-covid-19-curbs-cases-soar-2021-07-12/) as he reinstated some restrictions.

The Netherlands has a lower vaccination rate, so comparisons are not perfect—but perhaps there would be a lesson in there for England, if it chose to heed it.

The government’s “irreversible” stance may already be softening. At a press conference last week, prime minister Boris Johnson seemingly downgraded it from a firm promise to a “hope,” adding: “Obviously we must rule nothing out.”

Whatever happens, a lot of countries are closely watching where things go next for the English.

“Everybody is looking at the UK to work out what’s happening,” says Obregon, the former WHO epidemiologist. “We’re observing something for the first time, and everybody else will be learning from our behavior.”

#### Runaway variants bypass system responses- escalates to extinction

**Bar-Yam 2021** (literally the most qualified COVID specialist there is. American scientist born in Boston, Massachusetts who received his Bachelor of Science and PhD in physics from the Massachusetts Institute of Technology. He is the founding president of New England Complex Systems Institute. His research has focused on formalizing complex systems and attempting to relate these to everyday social issues. He is an expert in the quantitative analysis of pandemics and was an advisor to policy makers on the West Africa Ebola virus epidemic. In February 2020, he founded EndCoronavirus.org, a global network of thousands of volunteers to guide and provide policy on fighting the COVID-19 pandemic. TRANSCRIPT OF THE CONVERSATION WITH YANEER BAR-YAM ON COMPLEXITY AND WICKED POLICY PROBLEMS <https://www.staatslabor.ch/en/transcript-of-conversation-yaneer-bar-yam-on-complexity-and-wicked-policy-problems> February 5th, 2021)DR 21

Danny Buerkli (00:30):  
The purpose of this session here today is, we hope, to enrich [inaudible 00:00:36] debate in Switzerland, with new and potential unconventional ideas. And Yaneer, we're really delighted and grateful that you've agreed to spend this hour with us and speak to the question of how complexity science can help us, can help governments understand pandemics and other wicked policy problems.

Yaneer, you're a physicist and a complex systems scientist. You're also the founding president of the New England Complex Systems Institute, which is an independent research institution based on the east coast in the US. You've also been an advisor to numerous government entities, including the Pentagon, the National Security Council, the CDC, the Centers for Disease Control and Prevention, and many more.

And maybe most importantly for our conversation here, or two things. First, you've worked on the Ebola outbreak quite intensely, and you've worked on pandemics before. And you've also first warned publicly of the dangers of COVID-19 on January 26, 2020, which now feels like an eternity ago, and which was well before most of us, and well before most governments, frankly, had fully realized what was coming our way.

And since then, you've been one of the most consistently prescient observers and commentators and **almost anything that you say now has become accepted as common sense**. And almost all of these things were controversial at the time. I'm thinking of things like mask-wearing, travel bans, the role of aerosols, and so on and so forth. You, for the most part, got there first.

So we kind of got to ask, how is it that Yaneer has been so consistently right in this pandemic? How is it that you've been so consistently on the money, so to speak? I'd be keen to hear what your answer is, but the answer lies, I believe, in large part in your background in complex systems science, which is a rather uniquely powerful way of thinking about pandemics and other complex public policy problems.

So we'll hear an introduction from you, Yaneer, for about 15, 20 minutes. Alenka and I then have a couple of questions prepared. And then we'll open it up for questions from the floor. Now, with all of that out of the way, we're delighted that you all are here. A warm welcome again. Thank you for so much, Yaneer, for being here. And the floor is yours.

Yaneer Bar-Yam (03:18):  
Thank you. And thank you for inviting me. I want to start by imagining that you go out to your car... And nowadays that may take some time if there are restrictions on travel. But let's say you go out to your car and somehow you have amnesia. And your brain is fine, but you don't remember what driving is about. The question is: what would you do in order to figure out what to do? And the answer is: it's kind of hard, right? Maybe you would look around and you would see things, you might try to pull on the hood or pull on the doors. Maybe you'd get a door open. But you probably might end up in the backseat just like you might end up in the front seat.

The purpose of complexity science, as I understand it, is to figure out what are the control variables in a problem. So if you knew that the steering wheel and the brakes and the gas and the gearshift were the things that you need to control in order to control the car, you would know how to drive a car. Roughly. You would have to maybe experiment a little bit. You would have to think about it. Maybe do some modeling. But basically you could figure it out. But if you didn't know that those were the things you had to control, it would be very hard to figure out what it meant to drive a car.

And so complex systems is the science that takes us beyond the mathematics of calculus and statistics. And so the point of the fundamentals of the sciences that physicists figured out, that calculus and statistics didn't describe the real world because they got the wrong answers. When they talked about a system and they did a calculation, they just got the wrong answer and so they had to invent the new math. And if you want to look at some of this history, there was a paper called Why Complexity Is Different that you can read that I wrote a number of years ago, it introduces these ideas.

But the basic challenge in dealing with complex systems is that there are all of these variables that the system depends on. And if you don't know which one or ones to think about, there then are two choices. Either you pick one, like the average height or the average wealth or something like that, and you use that as your variables. Or, you try to map out all of the variables in a system. And there are parametrized problems with 50,000 or 100,000 variables, and therein lies madness, of course, because you can never write down all the variables.

So the trick, or the fundamental methodology, that I use in complexity science is a methodology called renormalization group, that dates back to 1970 in studying phase transitions like boiling water, which enables you to figure out which variables are actually the important variables. They are then the control variables in a problem. Okay?

Yaneer Bar-Yam (06:52):  
I'm happy to take questions. And it might be good if someone has a quick question that this was not understood, you can ask. But I'm going to move in directly to pandemics in a moment, so if you have a question about this, either write it down so I can answer it later, or you can chime in.

In any case, I have been studying many different problems using this method. And the reason is that, well, if statistics doesn't describe the world because it doesn't describe dependencies that exist in the world, then there are a lot of problems that you can make progress on by thinking about the mathematics that will help us understand those problems.

And one of those problems started when I was studying the evolution of pathogens and their interactions with hosts. And what we did is we studied how long-range transportation, like adding flights from Zurich to Bogota or something, or to Tokyo, to think about what the effect of such long-range transportation is on the dynamics of pathogens. And there is an obvious statement that you can make, which is that pathogens will travel faster. But it turns out that **there's** something fundamentally different that you can say, which is that there is a phase transition from a condition of local outbreaks and extinctions to global extinction at a fairly small amount of transportation.

Now, this is a paper... I wrote this in a paper in 2006, and **in that paper we warned specifically about** Ebola and SARS-like diseases. And the reason, of course, is that if these diseases escaped local conditions, **they would become global threats.** And it's scary because we think about things as changing gradually, right? **If we add long-range transportation**, then **it's going to go a little bit faster**. A little bit more long-range **transportation**, it's going to go a little bit faster. But what the theory says is no. You can be in a stable circumstance and add a little bit of long-range transportation and all of a sudden you're in an unstable regime to global extinction. That's scary.

Now, I made a presentation on this many... Because I was trying to get people to take this seriously, and honestly, it wasn't easy, but I made a presentation on this in Geneva in January 2014 at the headquarters of the World Health Organization. And when I made the presentation, it was about a five-minute presentation, people's jaws dropped. You could see it. And of course, the reason is that people think about the future in terms of the past. That's what statistics is, right? The past information tells you what the future's going to be because you know what happened, you know what's going to happen. Right? Makes sense? Well, sometimes it makes sense. But what I was saying is that that wasn't true.

Yaneer Bar-Yam (10:29):  
Well, they took my research seriously but they didn't do anything new really. And March of that year, Ebola broke out in West Africa and became out of control by spring/summer. And I got involved. I was advising because of other work that I'd done on global hunger and ethnic violence, and we might talk about that some time. But I was advising the National Security Council, the CDC, the UN, the head of the UN response on the outbreak. And the basic explanation that I gave, which comes from the math, is that if you cannot control it at an individual level, you have to go up to the community level. You have to treat communities as being infected in order to stop the outbreak. You can imagine, as you might, that governments are not always rapid to respond.

And so it turns out that I was put in touch by a friend with a small NGO in Liberia, they put me in touch with the people who were working on the outbreak response. Second week in October, I spoke with them and I said, "How are you doing?" and so on. And I said, "Well, what about trying this?" and they said, "Oh, yeah. We started doing that three weeks ago." So what happened was members of the community went door to door in teams identifying early fever. Instead of waiting for people to show up in the hospital bleeding and doing contact tracing, going back into the community and trying to figure out who they were in touch with, people went in the neighborhood around, found out who had early fever, isolated them. The outbreak went up exponentially, went down exponentially, went extinct.

Now I have to tell you that my colleagues that I was talking with who were the people who had been studying outbreaks for a while, what they told me was that it was going to go to burnout. That term was for what we call now herd immunity. But it meant basically 50% or 10 million people would have died in West Africa. And that's if it would have stayed there. It turns out that we stopped it at 11,310 deaths in the three countries that it affected in West Africa. Maybe a couple in other places. And the reason that it happened is because people changed behavior. And that was the thing that everyone was telling me was impossible. And that's been one of the things that we've been hearing during this outbreak.

So I worked in West... Worked in? I worked on the effort in West Africa. They did it. I didn't. I just basically explained to everybody else what they did. And then I worked on outbreaks in the Congo, leading up to starting working on this on January 26, as Danny mentioned.

So where are? Let's talk about the relevant variables, the things that control outbreaks. There are two things that people don't think about that are super important, right? These are the steering wheel and the gearshift. The brakes and the gas, we know that's R. R is greater than one, it goes up exponentially. R is less than one... That's the control variable everyone knows. But the other control variable that we need to know is travel. Limiting travel is an essential variable. If you don't have travel, you don't have a pandemic. If you do have travel, you control of travel is a control parameter. It enables you to regulate the intercommunity transmission. And if you can control intercommunity transmission, you have a tremendous ability to control an outbreak.

Yaneer Bar-Yam (14:39):  
The second thing, and I want to show you... Maybe I'll show you a picture of this. The second this is zero. The way to say it mathematically is the discreteness of the number of cases. If you're at zero it's a very different number because R doesn't matter. Right? Because if you have zero then no matter what R is it's still zero. But if you have anything other than zero, it will always follow R, ie. increase exponentially if it's greater than one.

And that's the most important two things that we need to know. And if you know that, then what you end up with is a very clear strategy. And there is only this strategy. We call it the Green Zone Strategy. The Green Zone Strategy says: you limit travel as much as possible, you suppress the outbreak locally, and you open up zones at zero. That way you can rapidly open up zones and rapidly expand, and we have experienced with this disease that it works.

In fact, the only real condition to use this is that you can get exponential decline. As soon as you can get exponential decline by controlling R, you can get to zero locally, you can expand local regions, and expand them progressively. So you can start with a household and a neighborhood. You can do a city block. You can do a neighborhood. You can do a city. You can do a county. You can do a country. You can do a continent. As long as you keep the ratchet going so that you're only going in the direction of improving the situation.

And we have papers about this I can give you to read, but let me show you a couple of pictures. Because we know this has worked, and worked well, in multiple countries, including originally in China but, of course, in Australia, New Zealand, in Singapore, in Thailand, in Taiwan. It's all about regulating travel, whether it's within the country or between countries.

And let me just say in advance of talking about Switzerland, that Switzerland is ideal for this. You couldn't have a country that's better suited that's a land-based country, because the geography and the culture and the society is all oriented around mountain divisions, lakes, and cantons. And there's all of this history about the differences. I mean, I've studied this in Switzerland quite a bit because of other work on the subdivisions and the natural behavior of Switzerland.

Yaneer Bar-Yam (17:22):  
Let me just show you a couple of pictures for right now. So can you see this? Yep. So this is China's outbreak. And remember they had no information when they started, but they still did an incredible job. Here are county provinces in this case, right? Provinces across the right. And I can make this bigger, but you get the picture, right? And this was the epicenter in Wuhan, this is Hubei province. And the colors are showing number ranges which you can figure out visually. If you want to look at details, I can show you this. This is a long time picture, it goes from January to the middle of March.

So what we see is that there was the outbreak here. It went up to a few thousand, like three thousand in the center, and then their other provinces, and it expanded outward. Then there's the lockdown that happened here. The continued dynamics up is the fact that you don't see all the cases, right? The cases are not known because people have been infected. But then once you've stopped it, then you end up with it going up and going down, and then going away. And here it's at zero in almost all of China, with the exception of this. So this is a five-week period, and this is the classic amount of time it takes. It takes five to seven weeks.

And the reason it takes five to seven weeks is because of the incubation period. Basically, it takes two and a half incubation periods in order to stop an outbreak, if you do it well. And if there's a lot of cases, it takes a little bit longer. There's a logarithm, a weak dependence on number of cases, but it's not that strong. And after seven weeks, and even before, even in Wuhan, things are safe.

And the reason that they're safe is that almost all the cases after six weeks are already isolated, right? They're in quarantine because you've identified cases, you've taken close contacts, you've put them into quarantine, so the new cases that show up are actually people that are already quarantined.

We can now look at other countries. Here I can go down here. This is Switzerland. And in Switzerland you see, again... This is what people call the first wave, but it's really the first allowing the disease to come in. The disease didn't have to come in altogether if we'd done travel restrictions at the beginning. That's why I wrote my paper in January to try to get everyone to do that. But given that people didn't, right, it grew.

Yaneer Bar-Yam (20:07):  
That there was a lockdown. The lockdown was successful. There's this geographic contraction. There's this residual cases which could be, for a number of reasons, either travel or not quarantining away from home, or other kinds of things. So that is something that's a detail that should be understood. And then of course, the restrictions were relaxed, people were then allowed to go back. Again, it's not zero. If it's not zero, it will grow. If you don't have travel restrictions protecting green zones, then it grows back. And that's what we've seen all over the world.

I just want to show you... So this is Italy. Italy, of course, had this outbreak. They had a really, really slow decline. And the reasons that R was so close to 1, it was like 0.98 and they had four months of decline before they opened up. That's a huge amount of time. Probably has to do with insufficient travel restrictions and insufficient quarantine away from home, right? Because if you allow people to infect each other at home, it really causes a lot of problems.

But I want to show you this. This is Russia. Russia is the longest country in the world. Look at this. The whole Siberian railroad length gets infected because they never effectively applied travel restrictions. Absolutely astounding. And totally, totally different from what happened in China, right? So you could call this fail. All right?

So now let's go back and talk about sort of the basic strategy and where we are. I few more comments that may be helpful. So recently we had a presentation, I really recommend you listen to it, anybody who can find that. Oh the graphs, I think they're on our website. If you ask me, I will tell you. We have a couple of websites. There's necsi.edu is my home website. That's NECSI. A month after my original paper at the end of February, we started the organization endcoronavirus.org, which is a volunteer organization to stop the outbreak, and now we have other... I'm participating in other groups.

Recently, there's particularly a lot of action in Germany. There's a group of scientists in Germany that have put out a strategy that's gotten in all the newspapers. If you haven't read it, just look at almost any newspaper, I guess, in the last week, the last couple of weeks, or week and a half or something. And there is interaction with the government there, and hopefully the Green Zone Strategy will be adopted. There's also been progress in Ireland, in terms of adoption and a lot of discussion there, hopefully that will happen too.

Yaneer Bar-Yam (23:06):  
And of course, more generally in other countries **there's movement**, particularly **in** view of the new variants, right? The new variants basically make it so unreasonable not to control the outbreak. I mean, the first one, as far as I'm concerned, was unreasonable, but, of course, now it's a lot worse. And not only that, of course, the variants are getting worse and will get worse.

It's the very counter, by the way...The fact that they get worse is counter to thinking in the regime where you have local outbreaks, the outbreaks are self-regulating so that pathogens get less bad. And that's what people learn in school.

But if you have long-range transportation, it goes the other way. You end up with having the worst possible diseases rather than the quote best possible diseases. So that's what we're experiencing. So **the variants are getting more transmissible**, they're getting more lethal, they're also evading the vaccine. At least, beginning to. And, surely. if there is one that is already evading the vaccine a little bit, then there are many others that are evading it even more.

#### Other countries don’t thump-- The ideal scenario is high vaccination rates (>60%) without herd immunity (>90%) and rampant spread. Only the EU has that high of a vaccination rate with no restrictions

**Lanese 08/06/21** (Nicoletta, reporter for Live Science, reporting on a new model published in *Scientific Reports.* staff writer for Live Science covering health and medicine, along with an assortment of biology, animal, environment and climate stories. She holds degrees in neuroscience and dance from the University of Florida and a graduate certificate in science communication from the University of California, Santa Cruz. Her work has appeared in The Scientist Magazine, Science News, The San Jose Mercury News and Mongabay, among other outlets. “Vaccine-resistant coronavirus 'mutants' are more likely when transmission is high, new model finds” <https://www.livescience.com/coronavirus-vaccine-resistance-mutation-model.html> August 06, 2021)DR 21

The mathematical model, published July 30 in the journal [Scientific Reports](https://go.redirectingat.com/?id=92X1590019&xcust=livescience_us_7100609061555542000&xs=1&url=https%3A%2F%2Fwww.nature.com%2Farticles%2Fs41598-021-95025-3%3Futm_medium%3Daffiliate%26utm_source%3Dcommission_junction%26utm_campaign%3D3_nsn6445_deeplink_PID100024933%26utm_content%3Ddeeplink&sref=https%3A%2F%2Fwww.livescience.com%2Fcoronavirus-vaccine-resistance-mutation-model.html), simulates how the rate of vaccination and rate of viral transmission in a given population influence which [SARS-CoV-2 variants](https://www.livescience.com/coronavirus-variants.html) come to dominate the viral landscape. **The best way to snuff out vaccine-resistant mutants** before they spread **is to get shots in arms as quickly as possible**, while also keeping viral transmission low, the authors found; in their model, they assume low transmission rates reflect the adoption of behavioral measures like masking and social distancing.

That last point is crucial: If viral transmission is low, any vaccine-resistant mutants that do emerge get fewer chances to spread, and thus, they're more likely to die out, said senior author Fyodor Kondrashov, who runs an evolutionary genomics lab at the Institute of Science and Technology Austria.

If viral transmission is high, vaccine-resistant mutants get the chance to infect many unvaccinated and vaccinated people. That means these variants could easily outcompete other versions of the [virus](https://www.livescience.com/53272-what-is-a-virus.html) and would soon emerge as the dominant strains in circulation.

This worst-case scenario occurs when many, but not all, people in the population are vaccinated, transmission rates are high and the virus is spreading unchecked, the authors found. In this scenario, **vaccine-resistant mutants are most likely to emerge when** about 60% of the population is vaccinated; at that point, a large proportion of the population is protected against the original virus, so infections from that virus strain begin to wane and vaccine-resistant mutants gain a competitive edge. And if viral transmission remains high, those mutants will soon reign supreme, the model suggests.

These results are "not counterintuitive, nor surprising," said Michael Levy, an associate professor of epidemiology in the departments of biostatistics and epidemiology at the University of Pennsylvania's Perelman School of Medicine, who was not involved in the study.

"Evolution needs pressure, and as more people are vaccinated, there is more selective pressure on the virus" to change in order to evade vaccine-induced immune responses, Levy told Live Science in an email. Though not necessarily surprising, the new study calls attention to the "very real possibility" that emerging mutants may challenge the effectiveness of existing vaccines.

Dr. Anthony Fauci, head of the National Institute of Allergy and Infectious Diseases, expressed similar concerns when discussing the widespread [delta variant](https://www.livescience.com/coronavirus-variants.html#section-delta-variant-b-1-617-2) with the news agency [McClatchy](https://www.mcclatchydc.com/news/coronavirus/article253248688.html) this week. Early data suggest that vaccines still protect against the delta variant, although they work better against the original virus, [Live Science previously reported](https://www.livescience.com/coronavirus-variants.html#section-delta-variant-b-1-617-2). But Fauci said that he fears that, given current infection rates, the virus now has "ample chance" to generate an even more formidable mutant than delta.

"There could be a variant that's lingering out there that can push aside delta," Fauci said. Reducing viral transmission would help stamp out such a variant before it takes over, or prevent it from ever existing.

The new model underscores the risk of letting SARS-CoV-2 spread unabated, particularly when a large fraction of people — but not everyone — is vaccinated. That said, the model doesn't perfectly match reality, and we're still contending with big unknowns, Kondrashov said.

For instance, in the simplified model, the original and mutant strains are all equally transmissible, but different strains often vary in transmissibility. For instance, the delta variant, thought to be the most transmissible version of the virus to date, has so far outcompeted all the known coronavirus variants with some vaccine-evading traits.

Being able to dodge vaccines helps a mutant take over only once a population nears herd immunity for other versions of the virus; before that point, vaccine-resistant variants must compete with vaccine-vulnerable variants for bodies to infect, Kondrashov said. Because delta spreads so easily, delta holds a competitive advantage over vaccine-resistant variants of lower transmissibility — for now.

It's also not clear how many mutations a variant would need to pick up to be both highly transmissible and able to evade vaccines, or if that is likely with SARS-CoV-2; a mutant like that would be concerning, if it could start spreading while delta is surging.

Highly transmissible strains may increase the rate at which new vaccine-resistant mutants emerge, since the high rate of spread gives the virus more chances to mutate, the authors wrote in their report. But overall, higher transmission rates don't change the overall pattern described in the model, mostly just how frequently mutants crop up and when they become established in the populace, they wrote.

That said, the exact probability of whether an infected person will start churning out vaccine-resistant mutants is a "really big unknown," Kondrashov said. "This is probably the biggest unknown variable that we have in our model." Different individuals likely have slightly different chances of becoming hosts for troublesome mutants; for instance, immunocompromised people can sometimes shed the virus for months, during which time the virus gets many, many chances to mutate, [studies](https://virological.org/t/emergence-of-y453f-and-69-70hv-mutations-in-a-lymphoma-patient-with-long-term-covid-19/580?fbclid=IwAR0fMWUrXHqEhpU0j0LI_-cWuF4G-PbC_qAZWtqkZce943OffhdkLyNoFzw) [suggest](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7640888/).

Although the model doesn't precisely mimic reality, "I don't see any assumption [the authors made] that would change the main point, which again isn't surprising," Levy said. At a fundamental level, when a large proportion of people are vaccinated but transmission rates are high, that sets the stage for vaccine-resistant variants to emerge, he said. "The fact that we don't have a variant that is fully able to evade the mRNA vaccines yet does not mean that one won't come."

So what can we do to avoid this worst-case scenario?

For Kondrashov, the main takeaway is that "it's very much necessary to maintain non-pharmaceutical interventions," such as masking, "throughout the entire vaccine campaign, up to the very, very end." However, in the idealized model, every imaginary person in the population has an equal probability of getting vaccinated, it's just a matter of when, he noted. This doesn't capture a reality where children cannot yet be vaccinated and not all eligible adults are willing to be vaccinated.

Since we don't live in a model, the authors instead recommend that people maintain measures like masking and distancing "for a reasonable period of time," even once the proportion of people vaccinated nears the herd immunity threshold, they wrote in their report. This would help drive resistant strains to extinction before they spread too far.

## Case

### Solvency

#### Your solvency author’s proposal was *already* legislated in 2019 and will be implemented by December—oopsie!

* Solved Uniformity- authors call it the “golden standard” of whistleblower law implementation for being extremely clear as it relates to Trade Secrets Directive
* Solved Whistleblowing- does the plan and more—compensation for damages, no liability, legal support, flips burden of proof to plaintiff. Plan only flips the burden of proof.

**Van Waeyenberge and Davies 2021** (Arnaud Van Waeyenberge, Associate Professor of Law at HEC Paris where he teaches EU Law, Global Law and Legal Reasoning. Prior to joining the HEC faculty, he was an attorney-at-law at the Brussels Bar (Clifford Chance LLP) and a legal clerk at the Court of Justice of the European Union (General Court). He is currently the Chairman of the "Law and Tax Department". Holds a Master Degree in Law (UCL) in Legal Philosophy (European Academy of Legal Theory) in European Law (College of Europe) and a PhD in Law. and Zachariah Davies, a trainee with Judge Anthony Collins, 8th Chamber of the General Court. He previously was a Trainee at Ashurst in Brussels. He holds an LLM in EU Law from the Free University of Brussels. "The Whistleblower Protection Directive (2019/1937): A Satisfactory but Incomplete System." *European Journal of Risk Regulation* 12, no. 1 (2021): 236-244. footnote 41 inserted in brackets [])DR 21

On 23 October 2019, against the backdrop of numerous scandals involving whistleblowers, the EU enacted a directive protecting whistleblowers across the EU.8 The Whistleblower Protection Directive (the “Directive“) aims to establish common minimum standards of whistleblower protection in an effort to pull together the “fragmented” policies applied in different Member States and across different EU policy areas.9 The Directive sets ambitious legislative targets for EU Member States, who will have until 17 December 2021 to implement its provisions into national law.10

The following sections will focus on the text of the Directive itself, providing contextual elements, details and a brief critical analysis on its scope, its reporting procedures and the protective tools it introduces. The final section will then explore some of the practical considerations raised by the Directive regarding its relationship with national legislation and pre-existing EU legal instruments.

II. THE BROAD SCOPE OF APPLICATION OF THE WHISTLEBLOWER DIRECTIVE The main objective of the Directive is to ensure **improve**d application of EU law by providing adequate **protection for whistleblowers**. Worker protection is therefore not the primary objective. The scope of the Directive is in fact much broader, as discussed below, and increased protection is essentially a desirable means of improving the effectiveness of EU law.

The Directive was drafted following extensive evaluation, including numerous consultations,11 an external study assessing its repercussions as well as its quantitative and qualitative benefits, in addition to an impact analysis. These studies found that not only will this legislative project bringing about economic, societal and environmental benefits, but it will also have a wider positive effect on the fundamental rights of European citizens.12 In quantitative terms, the Commission estimates that revenue loss stemming from fraud and corruption affecting the EU budget is estimated at between €179 and €256 billion per year.13 The Directive was designed to help reduce that leakage.

Having established the context, this section will provide a brief overview of the main features of the scope of application of the Directive: its ratione materiae and ratione personae.

1. Ratione materiae In accordance with the principle of the attribution of competences, and according to Article 2 of the Directive, only “breaches of Union law” are covered by the Directive, specifically **breaches that fall within the** scope of the legislative acts set out in the Directive: pubic procurement; financial services, products and markets; the prevention of money laundering and terrorist financing; product safety; transport safety; environmental protection; radiation and nuclear safety; food and nutritional safety; animal health and welfare; public health; consumer protection; the protection of privacy and personal data; and the security of networks and information systems.14 Equally covered are breaches affecting the financial interests of the Union and those relating to internal market violations.15 In addition, **the extensive list of matters** encompassed by the Directive is non-exhaustive insofar as it provides for the **possibility for Member** **States to “extend protection** under national law as regards areas or acts not covered (by the list supra)”. 16

The notion of a breach is also defined broadly to include both acts and omissions that are either: (1) unlawful and fall within the areas listed in the previous paragraph; or (2) merely “defeat the object or the purpose” of the rules applicable to those areas.17

2. Ratione personae According to Article 4 of the Directive, protection is granted (only) to natural persons who have obtained information in a professional context, either in the private or public sector. Moreover, information obtained in the context of an employment-based relationship that has either ceased/concluded or has yet to begin, as well as during the recruitment process or in pre-contractual negotiations, is equally covered.18 The scope of the protection is therefore vast, covering workers, former employees or candidates; officials; the self-employed; volunteers; paid or unpaid trainees; shareholders; members of company managerial bodies, including non-executive members; and contractors, subcontractors and suppliers. The Directive goes further than most existing national legislation by extending the protective measures, if necessary, to natural persons connected to the reporting person. As such, Article 4(4) allows “facilitators” and third parties who are connected with the reporting person and who could suffer retaliation in a work-related context, such as colleagues or relatives, to benefit from protection.19

Legal entities can also indirectly benefit from the protections offered by the Directive if the reporting person owns, works for or is otherwise professionally connected with that legal person.20 The reasons explaining why protections were not extended to legal entities in their own right are unclear, as are the potential justifications for this approach. As a consequence, a non-governmental organisation (NGO) that is active in environmental protection and that discovers violations of EU environmental law would therefore not benefit from the protection offered by the Directive.

III. REPORTING PROCEDURES21 The protection granted by the Directive is subject to two cumulative conditions.22 On the one hand, the reporting person must demonstrate a reasonable belief that the information provided was not only true at the time of the reporting, but that it also fell within the scope of the Directive. On the other hand, the person must comply with the reporting procedures provided in the Directive. Additionally, it appears that anonymous reporting is only partially protected under Article 6(2). It is up to the Member States to decide whether private or public entities and competent authorities are required to accept and follow up on anonymous reports. However, as stated in Recital 34 of the Directive, “[P]ersons who anonymously reported or who made anonymous public disclosures falling within the scope of this Directive and meet its conditions should enjoy protection under this Directive if they are subsequently identified and suffer retaliation”.

The design of the reporting procedure was one of the main sticking points in the negotiations between the Council and Parliament. The former, supported by countries including France, Germany and Italy, wanted to adopt a strict three-tiered reporting procedure; first, to the organisation’s internal channels; then to designated authorities; and finally – should all else fail – to the public generally. The Parliament, supported by the MEP Virginie Rozière – the Directive’s rapporteur – advocated for a more flexible approach, allowing whistleblowers to make reports through any of these three channels from the outset.23

An intermediate position, in line with that of Transparency International France,24 was ultimately adopted. The text of the Directive opts for a reporting procedure that allows the whistleblower to make reports either through internal channels or to external agencies in the first instance. Accordingly, the Directive imposes obligations on all public and private legal entities to establish internal channels for employee reporting.25 Member States are also required to establish external reporting channels and to follow up on reports.26 Public disclosures are generally only permitted if a first report, whether internal or through an external agency, failed to elicit an appropriate response within three months.27 However, direct public disclosure is permitted in case of imminent and evident danger to the public interest, where there is a risk of retaliation or a low likelihood of effective handling of the report through the internal or external agency reporting **procedure**.28

IV. TOOLS OF PROTECTION At the heart of the Directive’s mechanism are a series of tools to **protect the whistleblower** and punish those who do not respect these protections.

1. Protective measures The toolbox offered by the new Directive includes the prohibition of retaliation, a system of compensation for damages, legal support and confidentiality.

Among the protections granted to whistleblowers, the adopted text prohibits any form of retaliation, including threats and attempts at retaliation, whether **direct** or **indirect**. A long and non-exhaustive list of examples is presented in Article 19.29 On reading this list, the European legislators’ intention to provide a definition of a “whistleblower” that covers all of its professional dimensions – in such a way as to protect them from all direct and indirect discrimination – is clearly evident. The European legislators have also reversed the burden of proof in retaliation proceedings, as the employer must now prove that the action taken against the whistleblower was not the consequence of their whistleblowing activities.30

In complement to the prohibition against retaliation, the Directive obliges Member States to protect reporting persons against reprisals. Whistleblowers are protected from civil and criminal liability so long as they had reasonable grounds to believe that their disclosure was necessary to reveal a relevant infringement.31

Moreover, the Directive requires full compensation **for damages suffered** by the **whistleblower**, as determined by and in accordance with national law.32

According to Article 20, Member **States are** also required to implement measures in support of whistleblowers, providing access to **free and independent** information and **advice**, effective assistance from the authorities and legal assistance in criminal or civil proceedings. In addition, Member States have the possibility to provide financial assistance and psychological support.

The adopted text also guarantees the confidentiality of any person subject to proceedings as long as the investigation is ongoing, as well as the right to an effective remedy.33

Evidence from the US experience in designing whistleblower laws suggests that measures strengthening whistleblower protections have a lesser influence on rates of disclosure than measures that increase the likelihood of a financial award for disclosures leading to successful prosecution.34 Intuitively, one might be concerned that financial incentives could raise the risk and costs associated with false reports. However, the evidential support for this position appears to be quite limited.35 The silence of the text of the Directive on this issue therefore seems to be a missed opportunity.

2. Sanctions The Directive requires Member States to implement effective, proportionate and dissuasive penalties applicable to natural and legal persons in the event of: obstruction or the attempted obstruction of reporting; retaliation and vexatious proceedings against whistleblowers; as well as breaches of the duty to maintain the confidentiality of the identity of reporting persons.36

The Directive also provides for effective, proportionate and dissuasive sanctions against persons knowingly making false reports or false public disclosures, as well as compensation measures in accordance with national law.37

It should be noted that the original text proposed by the Commission included a specific penalty for malicious or abusive reports. Nevertheless, in line with the Rapporteur’s position, this particular sanction was removed from the final draft of the Directive without being replaced. As a result, in case of abusive reporting, existing national laws on slander and defamation may apply.

The approach to sanctions under the Directive can be criticised in at least two ways. Foremost, not all obligations under the Directive are in fact subject to sanctions. For instance, certain NGOs criticise the Directive for the lack of sanctions against failures to implement internal reporting procedures, failures to follow up on reports and failures to inform whistleblowers of the steps taken following a report.38

Moreover, for those breaches that are covered by the provisions of the Directive, the text of the instrument provides no detail on the nature of the sanctions Member States should apply. It is open to legislators implementing the Directive to choose between sanctions of a civil, criminal or disciplinary nature.

It is particularly regrettable that the Commission has not been able to build in a more complete definition of the types of sanctions Member States should impose against breaches of key provisions of the Directive. The considerable margin of appreciation left to Member States in determining the nature of sanctions is likely to lead to a highly fragmented approach across the EU. This is particularly so given the very different conceptions of whistleblowing in the legal cultures of different Member States. Whilst Member States are bound by the requirement to implement “effective and proportionate“ sanctions, uncertainty as to the precise requirements of this obligation and the corresponding risk of weak sanctions may undermine the objectives of the Directive, leading to or maintaining a chilling effect in certain Member States.

V. RECONCILIATION WITH OTHER EU LEGAL TEXTS AND MEMBER STATES’ LAWS The Directive prescribes a two-year implementation period, within which Member States will be required to give effect to its provisions in their respective national legal systems. On account of the EU rules on competence, the provisions of the Directive apply exclusively to disclosures relating to breaches of EU law. However, the Directive quite clearly invites Member States to implement similar measures in relation to breaches of national law.39

The “harmonious” application of the provisions, in such a way as it would encompass breaches of both EU and national law, as well as other forms of harm, is clearly the “gold standard” in terms of implementation. A single comprehensive system would provide a number of benefits, not least in terms of clarity of the rules applicable to whistleblowers and the protections they may hope to benefit from. In practice, fine distinctions between areas of EU and national competence may not be obvious to the layperson, or indeed to untrained advisors. This uncertainty may also have a chilling effect on disclosures, leading to the possibility of undermining the goals of the Directive.

For those Member States that do not currently have a standalone whistleblower protection regime in place, the Directive offers a solid framework around which a single comprehensive regime could be built. Arguably, this process may be less onerous than one that attempts to amend existing legislation in a manner that conforms to the provisions of the Directive.

In Member States that currently operate whistleblower regimes, the reconciliation between the national and European systems is not straightforward. National legislation will have to be amended to avoid a double standard between national and European systems.

The Directive must also be considered in the context of other relevant EU legislation. The Trade Secrets Directive is particularly relevant in this regard, as it aims to protect businesses against the theft or disclosure of their information by requiring Member States **to impose sanctions on persons unlawfully disclosing trade secrets**.40 Whilst **the** Trade Secrets Directive includes certain exceptions, these have previously been criticised for their lack of clarity, **which could potentially be harmful to**, or at the very least discourage, a whistleblower.41 [41 Cobbaut, supra, note 5, 74. **For an analysis of the issue** of tensions between whistleblower protection and trade secrets prior to the existence of the Directive, see V Abazi, “Trade Secrets and Whistleblower Protection in the European Union” (2016) 3 European Papers 1061.] The Directive thereby seeks to address this issue by clarifying that **a report that meets the** requirements contained in the **Directive** can benefit from the exclusion contained in Article 3(2) of the Trade Secrets Directive, which permits disclosure if “required or allowed by Union or national law”. Therefore, defendants will need to establish that their disclosure fell within the scope of the Directive and complied with the reporting procedure prescribed therein, in order to avail themselves of this defence. In other words, the Directive allows for “a rebalancing between secrecy, security and freedom of information” in favour of the reporting person.42

#### The only AC card after 2019 says that directive solves public health

1AC Dreyfus and Galizzi 20 — (Suelette Dreyfus, PhD, Researcher at the University of Melbourne, and Bruno Galizzi, part of the Blueprint for Free Speech Spain, “Protect whistleblowers, protect everyone's health”, 5-19-20, Blueprint for Free Speech, Available Online at <https://www.blueprintforfreespeech.net/en/news/protect-whistleblowers-protect-everyones-health>, accessed 9-8-21, HKR-AM)

In a bitter irony, Spain is one of the countries hardest hit by the coronavirus and, at the same time, one of the few countries in the European Union that does not have a national law to protect whistleblowers.

Now is the time to change that. The transposition of the European Directive 2019/1937 is an opportunity to incorporate legal provisions at the national level, and promote a cultural change to provide citizens with mechanisms for active participation in the protection of the public interest.

Last February, when the world was yet another, Blueprint for Free Speech, together with the National Commission of Markets and Competition, organized a public event bringing together spokespersons and representatives of political parties precisely to discuss this matter. That event was the first time that a wide and diverse party table (Ciudadanos, Esquerra Republicana, Partido Popular, Unidas Podemos, Vox) sat publicly in Madrid to discuss protection of whistleblowers.

Different positions were heard, some of them distant from what was established by the aforementioned European Directive, but all recognized the complete need to protect alerters in an integral way. Civil society was once again ahead of the interests of legislators proposing various alternatives that were waiting to be debated, one of them currently on the Table of Congress.

In this period of de-escalation and transition to the "new normal" one cannot look the other way. The iron and urgent commitment must be doubled to protect the whistleblowers, who have demonstrated to promote a more just and democratic operation of the institutions, in defense of our fundamental and human rights.

### Adv 1 – Whistleblowing/Disease

#### 1] Whistleblowing fails- Dreyfus is about Chinese whistleblowers like Dr. Li Wenliang – they didn’t stop COVID from spreading in the West. Governments fail to act even if they have good information—Delta wave currently proves

#### 2] EU whistleblowers are ignored 90% of the time

**Albon 20** (Victoria, writer for Dentons-- the world's largest law firm, delivering quality and value to clients around the globe. Dentons is a leader on the Acritas Global Elite Brand Index, a BTI Client Service 30 Award winner and recognized by prominent business and legal publications for its innovations in client service, including founding Nextlaw Labs and the Nextlaw Global Referral Network. Dentons' polycentric approach and world-class talent challenge the status quo to advance client interests in the communities in which we live and work. “Report reveals 20% of COVID-19 whistleblowers dismissed” <https://www.lexology.com/library/detail.aspx?g=f3a952a0-c7a6-4bb7-b769-b505c9f53f77> November 12, 2020)DR 21

On 2 November the whistleblowing charity, Protect, published a report on the treatment of COVID-19 whistleblowers. The report is based on 638 COVID-19-related cases about which the charity’s advice line was contacted. It revealed that, of those 638 cases, 20% of employees who raised concerns about either COVID-19 safety measures in their workplace or fraud in relation to the furlough scheme were dismissed.

The report also stated that 41% of the employees who raised such concerns were simply ignored by their employers. Where concerns were raised by key workers in the health and care sectors, just 10% of those whistleblowing concerns were investigated.

#### 3] 197 other countries thump - EU preparedness isn’t key to stop a global pandemic- they imported vaccines

#### 4] Only internal is about increased funding— EU just dumped 5.3 billion Euros into disease preparedness

**European Commission ND** (The people who run Europe. “EU4Health 2021-2027 – a vision for a healthier European Union” <https://ec.europa.eu/health/funding/eu4health_en> no date but it’s about a 2021-2027 program)DR 21

\*\*\*NOTE: €5.3 billion = $6.26 billion\*\*\*

EU4Health 2021-2027 – a vision for a healthier European Union

EU4Health is the EU’s ambitious response to COVID-19. The pandemic has a major impact on patients, medical and healthcare staff, and health systems in Europe. **The new EU4Health programme will go beyond crisis response to address healthcare systems’ resilience.**

EU4Health, established by [Regulation (EU) 2021/522](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2021.107.01.0001.01.ENG), will provide funding to eligible entities, health organisations and NGOs from EU countries, or non-EU countries associated to the programme.

Areas of action

With EU4Health, **the EU will invest** €5.3 billion in current prices in actions with an EU added value, complementing EU countries’ policies and pursuing one or several of EU4Health´s objectives:

**The 10 specific objectives** under the 4 general goals are:

To improve and foster health in the Union

disease prevention & health promotion

international health initiatives & cooperation

**To tackle cross-border health threats**

prevention, preparedness & response to cross-border health threats

complementing national stockpiling of essential crisis-relevant products

establishing a reserve of medical, healthcare & support staff

To improve medicinal products, medical devices and crisis-relevant products

making medicinal products, medical devices and crisis-relevant products available and affordable

**To strengthen health systems, their resilience and resource efficiency**

strengthening health data, digital tools & services, digital transformation of healthcare

**improving access to healthcare**

developing and implementing EU health legislation and evidence-based decision making

integrated work among national health systems

EU4Health will pave the way to a [European Health Union](https://ec.europa.eu/info/strategy/priorities-2019-2024/promoting-our-european-way-life/european-health-union_en) by investing in urgent health priorities:

the [response to the COVID-19 crisis](https://ec.europa.eu/info/live-work-travel-eu/coronavirus-response/public-health_en) and reinforcing the EU’s resilience for [cross-border health threats](https://ec.europa.eu/health/security/overview_en)

[Europe’s Beating Cancer Plan](https://ec.europa.eu/health/non_communicable_diseases/cancer_en), and

the [Pharmaceutical Strategy](https://ec.europa.eu/health/human-use/strategy_en) for Europe

Other areas, such as health systems’ [digitalisation](https://ec.europa.eu/health/ehealth/home_en), reducing **the number** of [antimicrobial-resistant infections](https://ec.europa.eu/health/antimicrobial-resistance/eu-action-on-antimicrobial-resistance_en)**and** improving [vaccination](https://ec.europa.eu/health/vaccination/overview_en) rates **will also be boosted.**

### Adv 2 – Uniformity/Econ

#### 1] Junge is about overall trade descrepancies – whistleblowers aren’t key—border laws and foreign litigation cause disharmony

1AC Junge 16 — (Fabian Junge, Law @ Maastricht University, “THE NECESSITY OF EUROPEAN HARMONIZATION IN THE AREA OF TRADE SECRETS”, MAASTRICHT EUROPEAN PRIVATE LAW INSTITUTE WORKING PAPER No. 2016/04, Available Online at <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2839693,)DR> 21

If the misappropriator is solely residing in a third country, the issue of the applicable law will be dealt with on the basis of national law, because it falls outside the scope of the Brussels I Regulation95. Therefore, trade secret holders only have access to judicial protection or can enforce foreign judgments, if domestic law allows it. **The conditions for** access as well as for recognition and enforcement of third country judgments differ greatly between the **Member States**.96 In principle, goods produced by the misappropriator in a Member State or third country not providing trade secret protection for the legitimate trade secret holder could be freely sold on the internal market.

Difficulties with both cross-border litigation and domestic litigation on trade secrets are supported by the fact that, while only a limited number of domestic cases have been reported, cross-border case law appears to be completely absent. Reminiscing the number of companies being the target of misappropriation, or attempts to misappropriate, their reluctance to bring an action is **certainly** worrisome **with respect to the EU’s and its Member States’ capacity for an effective enforcement mechanism**.97

#### 2] Econ impact is a joke- global economic collapse and EU economy tanked to zero in in 2021--- didn’t cause a single war.

#### 3] EU isn’t key to the global economy- China and the US grew during Eurozone crisis

#### 4] Decline inevitable- Delta is crushing the European economy

**Matsuo et al. 08/24/2021** (YOHEI MATSUO, TATSUYA GOTO and RINTARO HOSOKAWA, Nikkei staff writers. “COVID-19 casts shadow over US and European economic optimism” <https://asia.nikkei.com/Spotlight/Datawatch/COVID-19-casts-shadow-over-US-and-European-economic-optimism> August 24, 2021)DR 21

Even in Europe, however, the **delta** variant is casting shadows over its economic outlook. The economic sentiment indicator, compiled by Germany's Center for European Economic Research (ZEW), came to 40.4 in August, down 22.9 points in the third consecutive month-to-month **fall**.

Christine **Lagarde**, president of the European Central Bank, warned that the delta variant "could slow down" the recovery in services, "especially in tourism and hospitality."

The delta variant is also on a rampage in Asia, throwing factories and ports into turmoil. Toyota Motor will slash global production for September by 40

% from its previous plan as the spread of infections in Southeast Asia adds to supply troubles for the biggest Japanese carmaker. China has shut down a key terminal for container ships.

If the chaotic situation drags on, **price rises resulting from supply-side troubles may add to concern** about the outlook for consumption in the U.S. and Europe.

The workability of U.S. and European strategies to achieve economic recovery and contain coronavirus infections at the same time is being tested.

### Group Both Advantages

#### Whistleblowing is bad:

#### Malicious reporting- hurts companies

**FCA and PRA 2014** (the Financial Conduct Authority and the Prudential Regulation Authority for the Treasury Select Committee, Parliamentary bodies in the UK. “Financial Incentives for Whistleblowers Note by the Financial Conduct Authority and the Prudential Regulation Authority for the Treasury Select Committee” <https://www.fca.org.uk/publication/financial-incentives-for-whistleblowers.pdf> July 2014)DR 21

a. Malicious reporting: Financial incentives might lead to more approaches from opportunists and uninformed parties passing on **speculative rumours** or public information. The reputation of innocent parties could be unfairly damaged as a result.

#### Entrapment- encourages corruption so they can blow the whistle