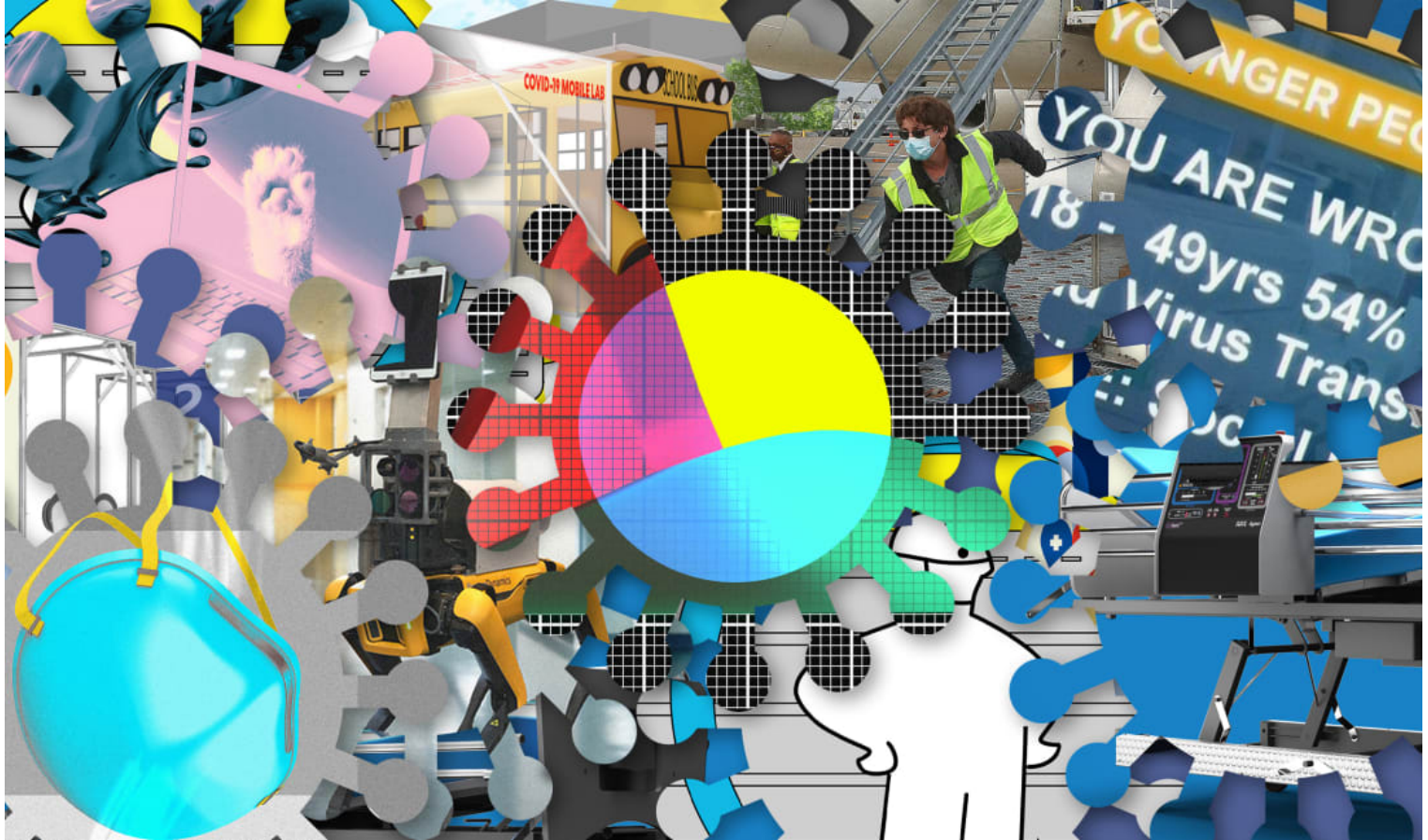




12-22-20

48 incredible ways designers responded to COVID-19

We're not nearly out of the woods yet, but the devastation of 2020 brought out the best in designers along the way.



Let's be clear, the scale of the pandemic represents a total failure by the U.S. government, which should have contained the spread and organized a proper response. But the efforts of designers, researchers, and even the private sector to come up with solutions in the face of such tragedy is a testament to human resilience and ingenuity. Here are some of the year's most incredible innovations around COVID-19.

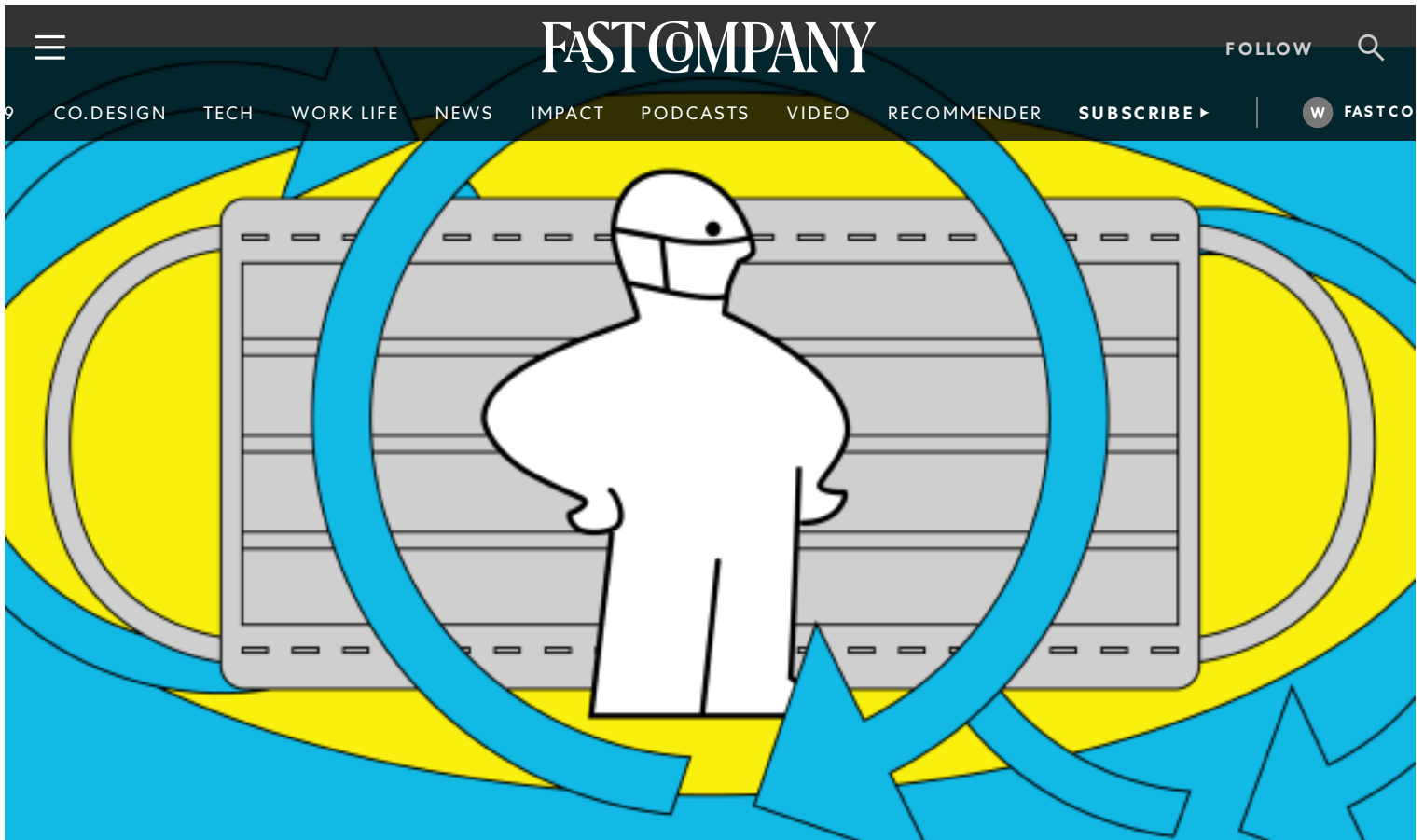
RACING TO BUILD BETTER PPE

Early in the pandemic, doctors and nurses ran out of personal protective equipment such as face shields and N95 masks. The sheer innovation that went into mask-making is too much to document. The mask was the design object of the year.



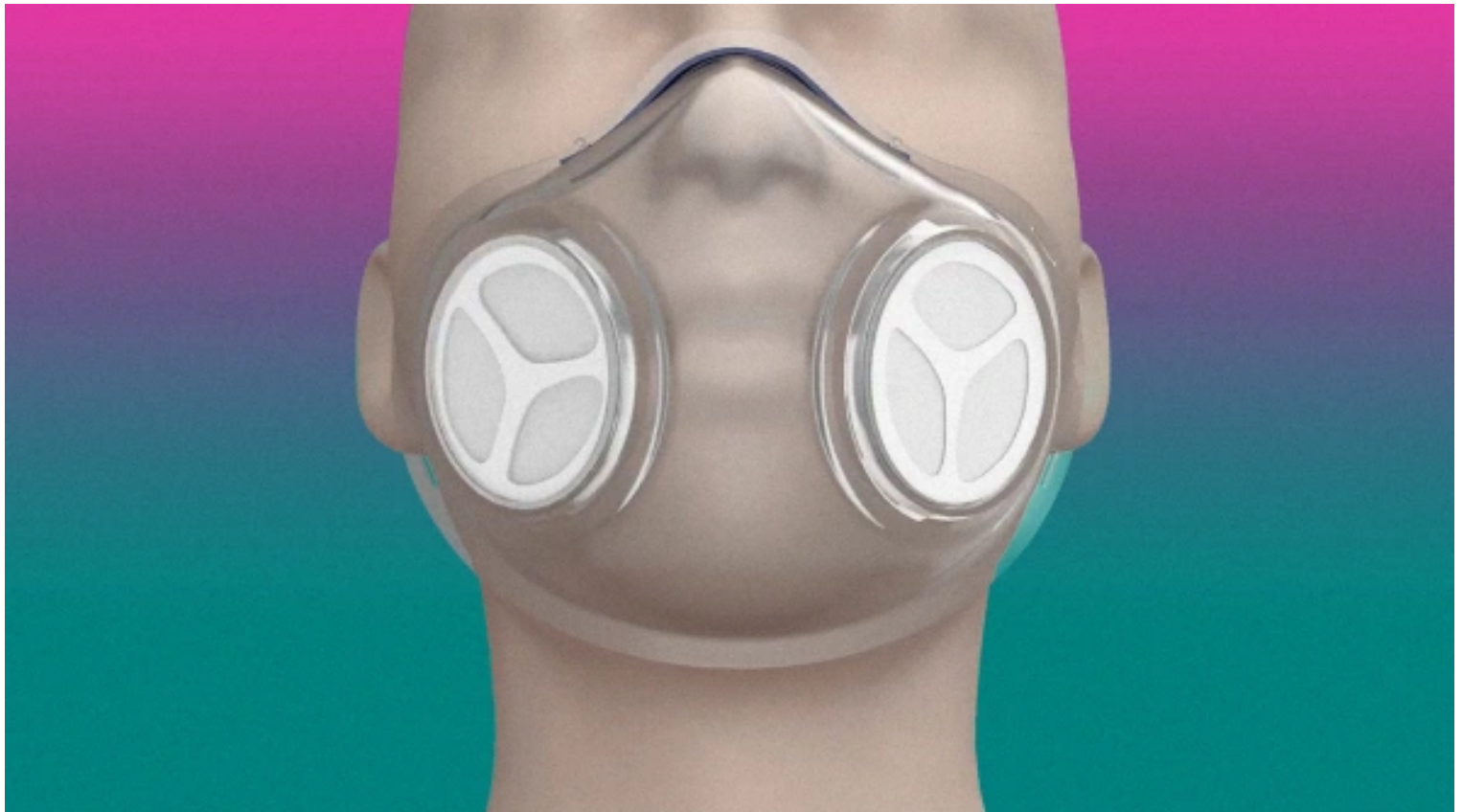
[Photo: Nike]

We saw Apple **design** a face shield, and Nike go so far as to **turn its own shoe parts** into PPE during a two-week design sprint. The world's largest furniture company, Ikea, used its assembly lines **to create masks and hand sanitizer**, donating millions of masks under this initiative.



[Source Images: Ikea, hardqor4ik/iStock]

Quickly, the problems of using PPE in our daily lives were acknowledged. We learned that **just three rubber bands** could fix the fit of a surgical mask, and a simple contraption could **relieve the pressure** on your ears. We got slotted masks for **drinking**, clear masks for **lip reading**, and even masks that were designed to **spare your glasses** from fogging up. We got masks **made to fit children**, masks that **change color** when you wear them correctly, and even a face shield **worthy of a fashion runway**.



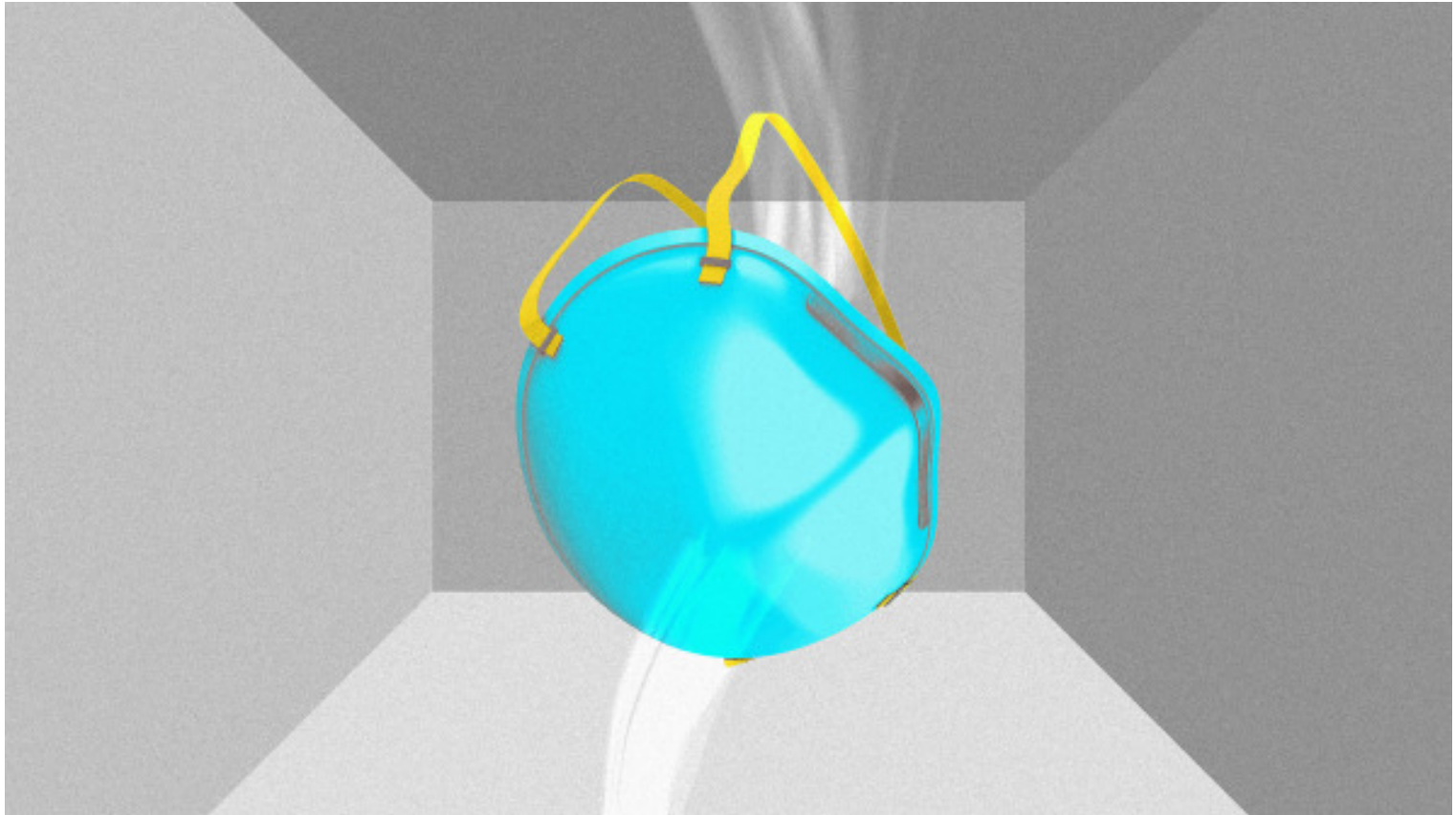
[Image: Giancarlo Traverso]

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REUSING DISPOSABLE MASKS

Manufacturing more PPE was just part of the story, though. Quickly, researchers brought disposable PPE into the lab to figure out if it was possible to reuse it instead of throwing it away. What they discovered again and again was that one-use products were actually viable for a lot longer than anyone had ever thought or tried.



[Source Image: Nerthuz/iStock]

Scientists designed methods and contraptions to sterilize N95 and surgical masks. They used **UV light**, **microwaves**, and **Instant Pots**. Designer Virgil Abloh went so far as to create a fitted cloth mask with a surgical filter that can be **washed 20 times** and still be effective, a claim tested and confirmed with the Cleveland Clinic.

BUILDING NEW VENTILATORS, FAST

As the worst cases of COVID-19 affect one's lungs and breathing, ventilators can offer a last-ditch possibility for survival and recovery. But even a major city might have only a few dozen ventilators at its disposal. So, much like PPE, governors raced to acquire ventilators early in the pandemic.



[Photo: Dyson]

With supplies strained, experts in 3D printing designed and released their own replacement parts, [used in Italian hospitals](#). Yale University undergrads figured out how to create a valve that could safely double up two patients on a single machine, and [sold it for \\$250](#). Meanwhile, others built new ventilators from scratch, often pushing costs well below the going rate of \$20,000. Dyson and the Technology Partnership teamed up to design [the CoVent ventilator](#) in a matter of weeks. Hundreds of designers entered the CoVent-19 challenge, which produced a \$2,500 ventilator [called the SmithVent](#). And Newlab, 10XBeta and Boyce Technologies built the \$5,000 [Spiro Wave ventilator](#) in a month.



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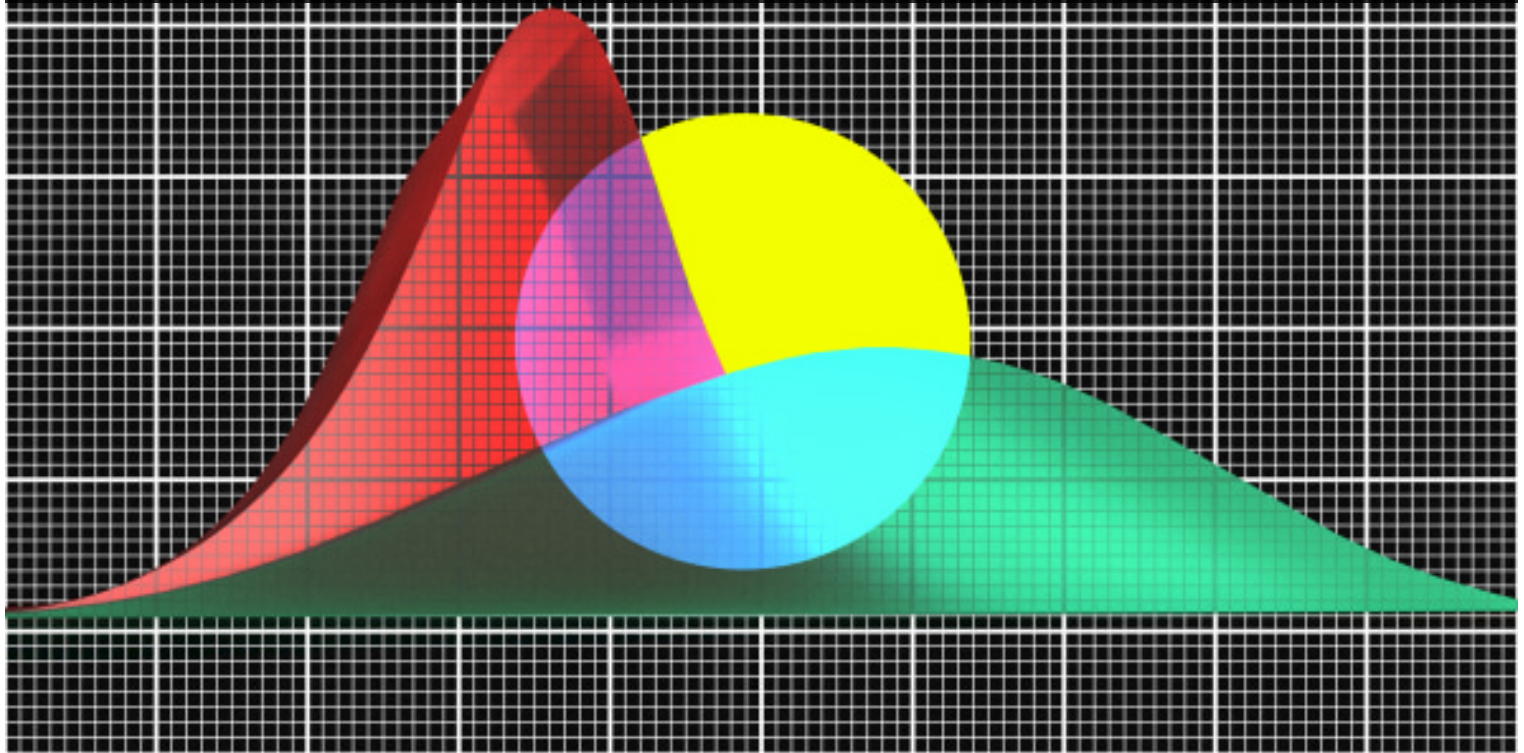
[Image: Cannon Design]



[Image: Perkins & Will]

Instead, we saw the rise of pop-up healthcare. A promising plan proposed [school buses could be turned into COVID-19 testing labs](#), while a bit of plexiglass became [a rapidly deployable testing center](#). Modular buildings suggested a way to transform blacktops [into treatment centers](#), and an open-source project imagined how shipping containers [could be converted](#) into intensive care units.

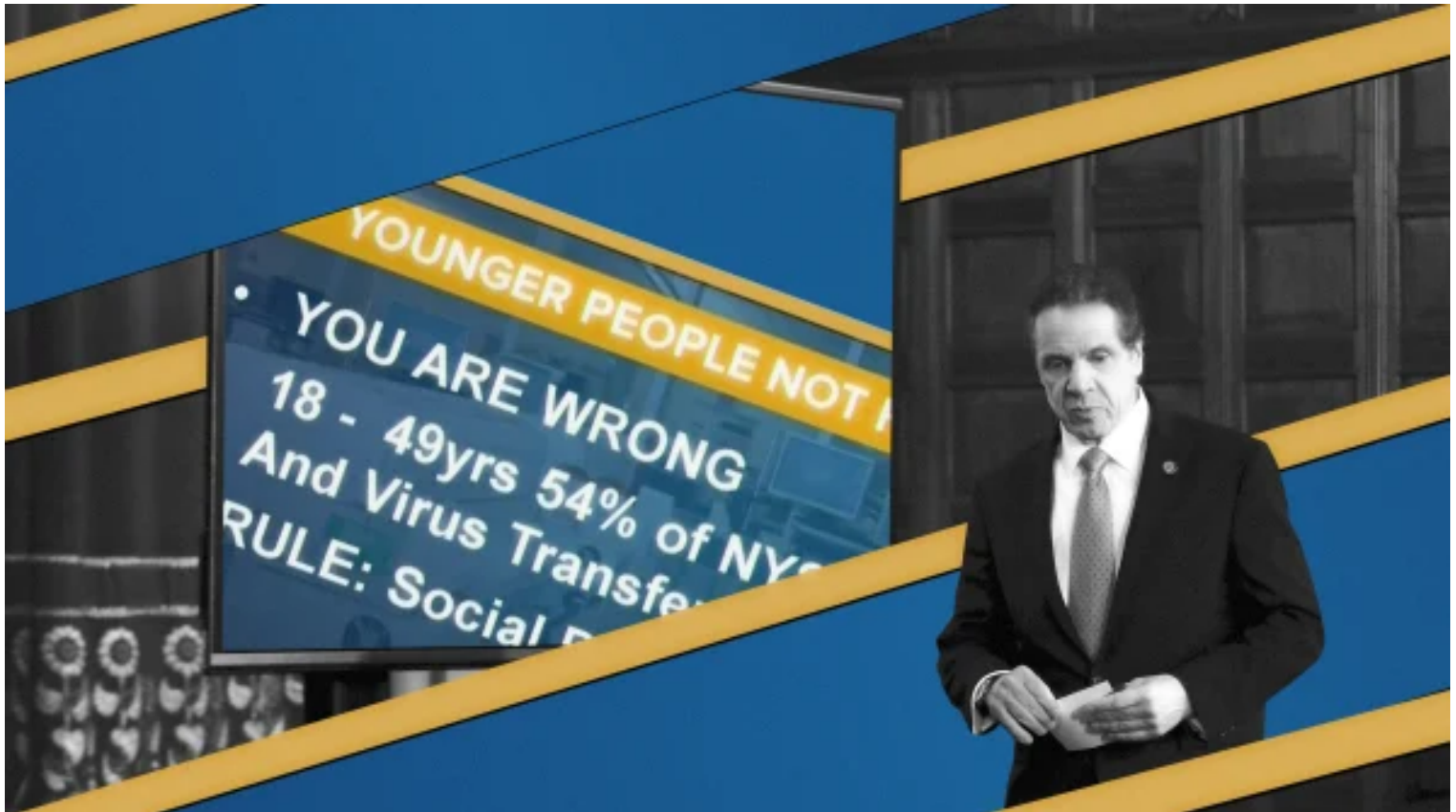
Meanwhile, hospitals had to change approaches to triage on the fly. At Mount Sinai Hospital in New York, [doctors wore GoPros](#) to give designers socially distanced walk-throughs of the space. This helped designers create safer floor plans; using simple tape and vinyl coverings, they turned white rooms into clearly delineated zones for COVID-19 care.



[Illustration: Daniel Salo/Fast Company]

USHERING IN A GOLDEN AGE OF DATA AND DATA VISUALIZATION

Big data has been an empty phrase for years. But data collection and visualization has proven essential during the pandemic, for health officials to track the virus that causes COVID-19 and for the public to understand it.



[Source Photo: Bennett Raglin/Getty Images]

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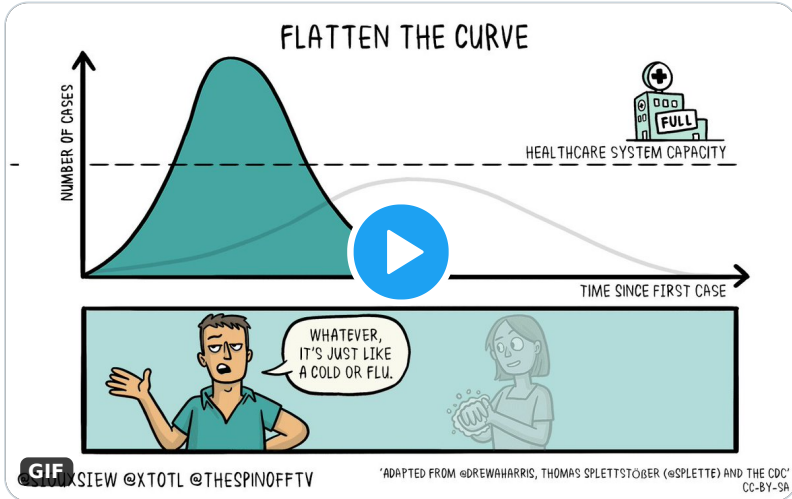
Contact tracing via our phones helped countries like South Korea quash new COVID-19 outbreaks quickly. In Israel,



Dr Siouxsie Wiles @SiouxsieW



Our #FlattenTheCurve graphic is now up on @Wikipedia with proper attribution & a CC-BY-SA licence. Please share far & wide and translate it into any language you can! Details in the thread below. #Covid_19 #COVID2019 #COVID19 #coronavirus Thanks to @XTOTL & @TheSpinoffTV



7:12 AM · Mar 10, 2020



14.9K See the latest COVID-19 information on Twitter

Meanwhile, the field of data visualization flourished. A viral comic strip became an early demonstration of how to share public health information to “flatten the curve” without a frenzy. New Zealand created a superb landing site for the country’s COVID-19 response, complete with a color-coded system to let the public know how socially distanced they needed to be at any given time. Pentagram created a hopeful spin on the pandemic, visualizing all sorts of positive things that have come from it. New York Governor Andrew Cuomo did more with less, leveraging humble PowerPoint slides for his frank informational briefings. And The New York Times dedicated its entire front page to mark the loss of 100,000 Americans to COVID-19. Unfortunately, U.S. deaths have tripled since then.





[Image: courtesy MIT News]

THE RISE OF NONHUMAN HELPERS

Medical staffing has been in short supply during the pandemic, so much so, that many doctors and nurses have come out of retirement to help. But every time a healthcare practitioner comes into contact with a COVID-19 patient, there's an inherent risk of infection.



[Photos: vauva/iStock, Subhoj Arsh/Arri/iStock]

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One solution that's arisen is to connect humans to computers in telemedicine, which has ballooned during the pandemic. We see that in the tragic rows of iPads used in ICUs for end-of-life visits.

The other solution we've seen is to remove humans from the equation altogether. The Taiwanese company Brain Navi retrofitted a one-armed robot to take nasal swabs safely. At Brigham and Women's Hospital in Boston, Spot, a Boston Dynamics robot dog, was configured to walk into patient rooms and take vital signs without human contact. And real dogs did their part, too! In Helsinki Airport, dogs were trained to sniff and screen passengers for COVID-19. That's a good boy.

[Source Images: TheKoRp/iStock, oatintro/iStock, parinyabinsuk/iStock]

REIMAGINING THE OFFICE

Needless to say, 2020 proved that the office as we know it might be less necessary than we thought. Workers flocked to video chat platforms like Zoom, while Twitter announced that its employees wouldn't be forced to return to the office . . . ever again.

So what should we do with all of these vacant office buildings? As it turns out, there are a few excellent possibilities. We could turn them into affordable housing or we could turn them into schools. Either way, it certainly seems like a better option than putting up more cubicles.





[Photo: Michael Clevenger/Getty Images]

VACCINE DISTRIBUTION

If there's been one piece of good luck for us all during COVID-19, it's that the vaccines are working better than most public health officials expected, not with the ~40% efficacy of a typical flu vaccine, but with 90%-plus efficacy.

Now the challenge is in distributing the vaccines as quickly as possible, and keeping them cold along the way. Pfizer's vaccine, in particular, demands temperatures down to minus 80 degrees Celsius (that's minus 112 degrees Fahrenheit) to stay viable—though the company is working on a [powdered](#) version to sidestep this issue. It's a huge question of logistics. On this front, UNICEF's work has been an inspiration, as it's been [building a map of cold-storage solutions](#) to get the vaccine distributed across the developing world. And a company called [Sure Chill](#) has been providing countries with thousands of special vaccine refrigerators that can stay cold for days or even weeks without a source of power.

[Photo: Charles Obel/© UNICEF]

These logistical innovations are promising, but it's worth remembering that our COVID-19 vaccines are actually designed to be effective and easy to produce from anywhere in the world. These new, mRNA-style vaccines can [be easily manufactured locally](#) in low-tech facilities, rather than distributed from the central lab locations of Big Pharma.

Meanwhile, in places like the U.S., we can learn a lot from [how Amazon and Walmart ship and distribute products](#), leveraging our hyper-efficient supply chain for something that benefits public health instead of capitalism.

No, the list of innovations above wasn't enough to stop the devastation of COVID-19, especially here in the U.S. But it's encouraging to see that, even when the government failed to organize an adequate response, people have come together to build solutions themselves. Here's hoping for a brighter 2021.

ABOUT THE AUTHOR

Mark Wilson is a senior writer at Fast Company who has written about design, technology, and culture for almost 15 years. His work has appeared at Gizmodo, Kotaku, PopMech, PopSci, Esquire, American Photo and Lucky Peach [More](#)

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