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The Post Covid Reality

They say that necessity is the mother of invention. The Coronavirus emergency has set the stage for human ingenuity and innovation, while accelerating structural shifts that had already been long at play: Primarily towards sustainability and digitalisation. Once the dust settles on this tragic episode, heat-of-the-moment measures adopted through necessity will likely stay ingrained in our lifestyles, while at the same time, we will be left with an important souvenir: A reminder about the vulnerability of humanity, especially in front of climate change. An understanding of tomorrow's world can help investors make informed, strategic investment choices. In this article, we outline some of the resounding themes emerging from the pandemic.

V

IRTUAL REALITY

Talk
of virtual reality has long been in the ether, but its application in our every daily lives beyond videogame headsets that leave you circling the room jousting invisible enemies has been limited, even if the technology is already there.

Back in 2016, Microsoft took its first leap into the realm of mixed reality with HoloLens, a smart-glasses headset that enabled the wearer to view and interact with anchored virtual objects and displays. Today, software additions to HoloLens, such as Dynamics 365 Remote Assist are enabling cross-distance collaboration, allowing the wearers to see the same live view and solve problems in real-time [1]. Previously, such technology was leveraged for things like field service repairs (e.g. sharing a live view of a problem with an engineer who could directly annotate the experience to provide an expert opinion) or training. As the pandemic intensified, remote assist scenarios have been extended to emergencies in far-flung locations where medical experts are not readily available. As another example, medical equipment may need crucial maintenance quickly, inside a hospital full of infected patients. With virtual reality, personnel can quickly assist in repairs using remote assist technology. A company called Delta Cygni Labs is doing exactly this via a phone application called "POINTR'. Through POINTR, an expert anywhere in the world can see the problem and visualize the solution directly to the video or screenshot. In January the company had approximately 50-100 downloads and now there are over a thousand downloads per week. [2] It's therefore not a stretch to imagine that we could soon be consulting experts on problems within our homes in the same way, for example with a boiler, in case there is a quick fix before a call-out.

But
virtual reality goes beyond repairs. Companies can use the technology to showcase their products in 3D, or to demonstrate products/ buildings that do not exist yet (in photorealistic quality).

This year, several high-profile trade events across the globe had to be cancelled, for example, the Mobile World Congress, an annual trade event held in Barcelona which attracts more than 100,000 people. By March 2020, HTC, a virtual reality headset maker had organized an event,

based completely on virtual reality technology. It drew 2,000 registrants from more than 55 countries, marking the first physical industry event that was fully replaced by virtual reality.

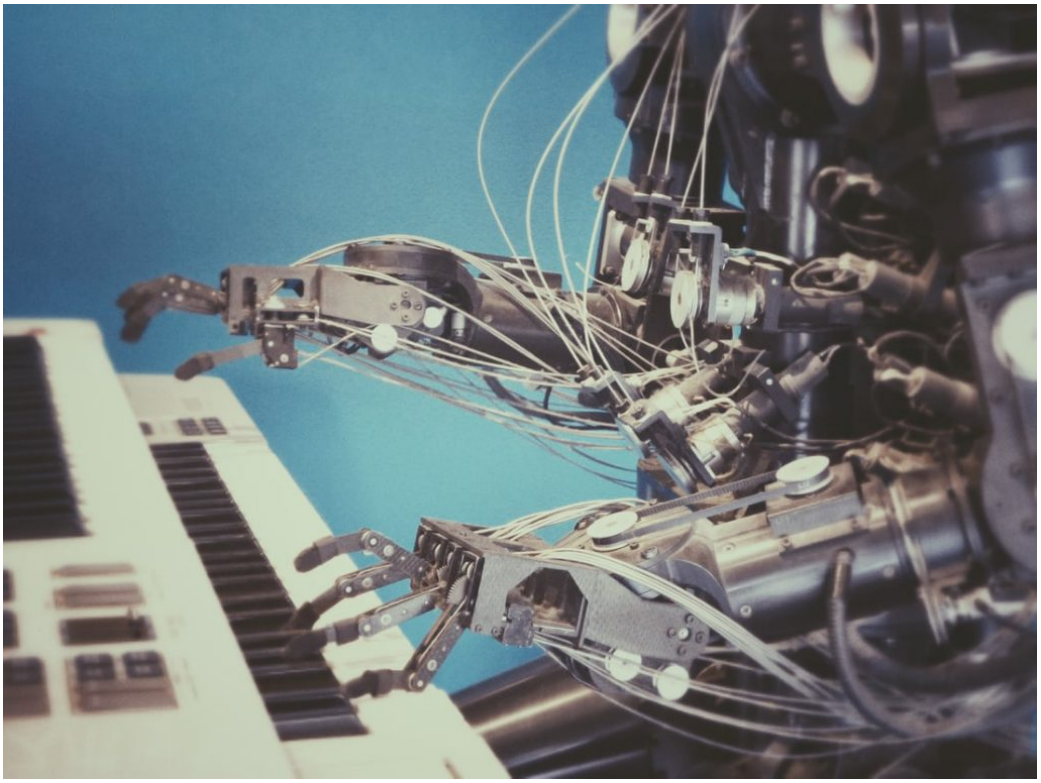
More companies may follow suit, with e-conferences that reduce costs and carbon emissions (especially from international travel) as well as the need to congregate in closed spaces. In doing so, they can create and demonstrate virtual prototypes which can be more easily edited and tailored to client needs before resource-intensive physical production begins.

E–LEARNING

Online education was already gathering pace before the pandemic. Language learning apps such as Babbel and Duolingo were considered legitimate tools for leaning a language (according to an independent study conducted by the City University of New York and the University of South Carolina, 34 hours of Duolingo are equivalent to a full university semester of language education). At the same time, platforms such as Coursera, were democratizing education, making entire courses from renowned institutions, such as Harvard and Yale, available to everyone, for free, online. However, education has been pushed even further into the digital realm by the pandemic.

By the middle of April, almost 200 countries had announced school or university closures, affecting roughly 1.6 billion students. Many educational institutions started offering courses online to ensure education was not disrupted by quarantine measures. Some had to rapidly build technology to ensure continuity and it is unlikely that such technology is simply disregarded in the future.

The governor of New York, Andrew Cuomo, announced a partnership with the Bill and Melinda Gates Foundation to develop “a smarter education system”. He called Bill Gates “a visionary” whose “thoughts on technology and education should be advanced”, commenting “… all these buildings, all these physical classrooms – why, with all the technology you have?”. It’s yet to be seen what the partnership will produce but what we do know is that no city trends harder than New York and what happens there, usually gets regurgitated elsewhere.



The crisis has given momentum to start-ups in the “edtech” sector in fields such as virtual and/or augmented reality, 3D printing and artificial-intelligence-enabled robot teachers. Of course, if online learning was to become a mainstay in our societies, authorities would have to ensure that children from lower-income households have the resources required to participate, which would bring fiscal flows to the sector. [3]

3D PRINTING

The pandemic has
been a boon for 3D printing, with “citizen
supply chains” forming across the Western world. To mitigate supply chain
shocks for essential medical equipment, members of the public and institutions
with 3D printers, have been mobilised and are manufacturing it at home.

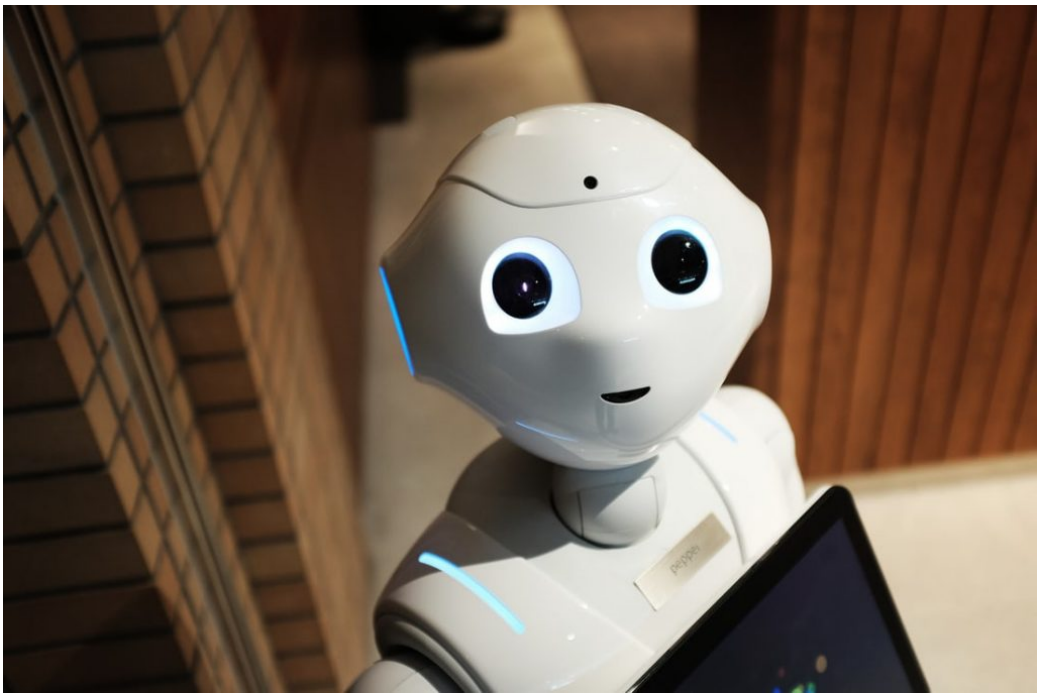
Here in Luxembourg, citizens, secondary schools and businesses have made 750 3D printers available for producing healthcare supplies. ArcelorMittal developed a 3D-printed ventilator prototype and now it is working on a second that would not only provide oxygen to the lungs but engage artificial intelligence algorithms to feed medicine to the patient.

In the UK, a team at the University of Sheffield called iForge has made 600 face shields for healthcare workers using 3D-printed frames, while an Italian firm called Isinnova hit the headlines when it announced it had 3D-printed ventilator tubes for a hospital in Brescia.

The pandemic has highlighted the benefits of 3D printing such as flexibility in production (the same printer can produce various products based on different design files and materials), their ability to tackle supply chain bottlenecks (simple parts can be made onsite quickly without requiring a lengthy procurement process) and low costs after initial spending on the equipment. Once issues such as copyright law and safety standards are ironed out, it is imaginable that 3D printing becomes more prevalent in our daily lives. Imagine you could immediately print the tiny IKEA screw that has gone missing but without which your chest of drawers has only three legs!

ROBOTICS

Already, robots have made their way into some work places, but there has been no widespread switch from man to machine. Coronavirus, and the resultant need for social distancing, may indeed be a catalyst for further automation. Amid the pandemic, hospitals have deployed robots to sterilise rooms and deliver supplies, while supermarkets in the US are using robots to clean the aisles. If the onshoring that many are now contemplating ensues, we can expect that a lot of the processes brought back will be automated in some shape or form.



TELEHEALTH

Telehealth was gaining momentum before the pandemic, with Google search data being used to track various potential outbreaks. There are mounting success stories from around the globe: In South Africa, for example, two-thirds of pregnant women have access to maternal healthcare and education services via a messaging service which runs partly on artificial intelligence, using an algorithm that suggests responses to frequently asked questions for staff to approve or correct. The app is mutually beneficial as it makes essential prenatal care available to women in rural locations and allows others to avoid long waiting times, while the government can amass vast amounts of data in that it can better target policy responses and assess risks. A similar Covid-19 messaging platform based on the same technology has now been rolled out in the country and has more than 2 million users.

In Brazil, an online diagnostic platform called Portal Telemedicina, connects primary healthcare workers (especially in far-flung locations) and specialists. Using artificial intelligence and algorithms, it conducts probabilistic matching of the patient across different databases, amassing data which gives the specialist a 360-degree holistic view of the patient.

Telehealth has emerged as an effective tool in tackling the spread of coronavirus (for example, in Asian countries, phone apps enabled contact tracing) while providing essential primary care. The highly contagious nature of the disease means that healthcare workers have been putting themselves in danger to help patients, while hospitals risk becoming hot spots for transmission. Chatbots can diagnose patients without risking contamination while wearable devices can detect vital signs.

Governer Cuomo, announced a second collaboration, with Google CEO Eric Schmidt, to reimagine New York state's post-Covid reality, with an emphasis on permanently integrating technology into every aspect of civic life. Schmidt said that telehealth would be one of the first priorities.

Globally, we could indeed see a proliferation of tech-assisted medicine in the future, while

mobile phones could become our medical records that pick up on existing and new health indicators: where we move, our temperature, our pulse, the symptoms we Google...

ONLINE CONSUMPTION

Jack Ma, the founder of Alibaba once said: "In America, e-commerce is dessert. In China, it is the main course." The coronavirus pandemic has accelerated the switch to online shopping, through necessity (a trend that spells more bad news for struggling brick and mortar stores). Amazon, for example, has experienced what Brian Olsavsky, its finance chief, recently described as “unprecedented demand”.

However, with the virus still at large, the entire logistics system of e-retailers must be well thought out. This is giving rise to contactless delivery services, for example using drones, robotics or arrangements whereby products are left at designated locations.

In the US and Europe, no company is better poised than Amazon to rise to the challenges of creating a “vaccinated supply chain” whereby each point of contact is designed to avoid contamination. But beyond virus-proofing its own operations, Amazon also has the scale and distribution network to become a key provider of testing. As writes Scott Galloway [4]:

'*it’s possible the largest new consumer category in history is testing for Covid-19 virus and immunities and Amazon may* become the market share leader in this category.'

It is not only e-shopping for physical goods that has grown in scope - the consumption of services has also moved into cyber space. Online entertainment has become even more pertinent. Amid mass lockdowns, people have moved from pubs to PlayStation online; “Fortnite” (a videogame) is now more frequently searched on Google than “football”! There is a whole plethora of online courses available now, from meditation, to pilates, to yoga. Certain museums and galleries have even moved collections online whereby you can take virtual tours from the comfort of your own home. All this adds a new dimension of convenience which is likely to still be appreciated after Covid fades away.

WORKING FROM HOME

Some
firms had already embraced tele-working and the advantages it brings such as access to a global talent pool, reduced time spent commuting, reduced costs on large office spaces and the freedom to work when one feels most productive, however, some had dilly-dallied with regard to implementing home working solutions. These companies were suddenly compelled by the pandemic to roll-out teleworking hastily.

Remote working leverages technologies such as virtual private networks (VPNs), online conferencing tools (Zoom and Webex, for example), voice over internet protocols (VoIPs) and even facial recognition technologies that enable a person to appear before a virtual background to preserve the privacy of their home.

With economic activity having dropped like a stone, chief executives need to find ways to cut costs and leaning up property portfolios could be a good place to start. Here in Luxembourg, a

petition calling for reform to Luxembourg's employment law to make remote working a right has reached the 4,500 signature threshold that requires the question to be debated publicly in the Chamber of Deputies. The petition calls for employees to be able to work from home for half their daily or weekly working hours as determined by their contract.

Ultimately, less commuting would have beneficial side effects for the planet, reducing carbon emmissions and fossil fuel usage.

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The key result of coronavirus is that the digitalization of our lives has been re-branded and fast-forwarded. As the author Naomi Klein writes [5], previously, the future was being sold to us in the name of friction-free convenience and personalization. Now, it is being sold to us as the only possible way to pandemic-proof our lives. But, as Noah Yuval Harari comments [6], many short-term emergency measures will become a fixture of life. That is the nature of emergencies. They fast-forward historical processes.

If
all the technologies mentioned in this piece are to become mainstream, we first need a fully-connected population. That's where the core technologies of the 4th industrial revolution will play a role: 5G networks, blockchain, big data, the internet of things and robust cloud-based infrastructures. Such areas are expected to receive government inflows in major economies (if not already). It is expected there will be more pressure on governments to embrace public-private partnerships to further develop technological trends – as has already been seen in China.

As technology seeps into more areas of our lives, our homes could begin to serve as our schools, our gyms, our doctor's offices, our workplaces.

If digitalisation has been fast-forwarded, pollution and carbon emissions were sent into slow motion during the global lockdown. Rivers ran clear and smog cleared from some of the world's

most polluted cities. With scientists pointing out that viruses such as Covid-19 could ultimately be the result of deforestation [7] (because of logging, mining, road building through remote places, rapid urbanisation and population growth) bringing people into closer contact with wild animals which harbour pathogens, companies will be under more pressure to examine their relationship with the natural world.

Great change brings many great opportunities for an array of companies in all kinds of sectors. What is certain is that those firms that don't go with the flow of digitalization will struggle to stay relevant. Beyond coronavirus, climate change will become the next big challenge that fosters a wave of innovation and human problem-solving. A shift towards ESG-investment criteria will likely put pressure on those companies failing on the sustainability front, and reward those who are flourishing.

IMPORTANT DISCLAIMER: This article mentions various companies simply to illustrate some of the new technologies emerging, for information purposes only. In no way should any examples in this article be taken as an investment recommendation.

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