

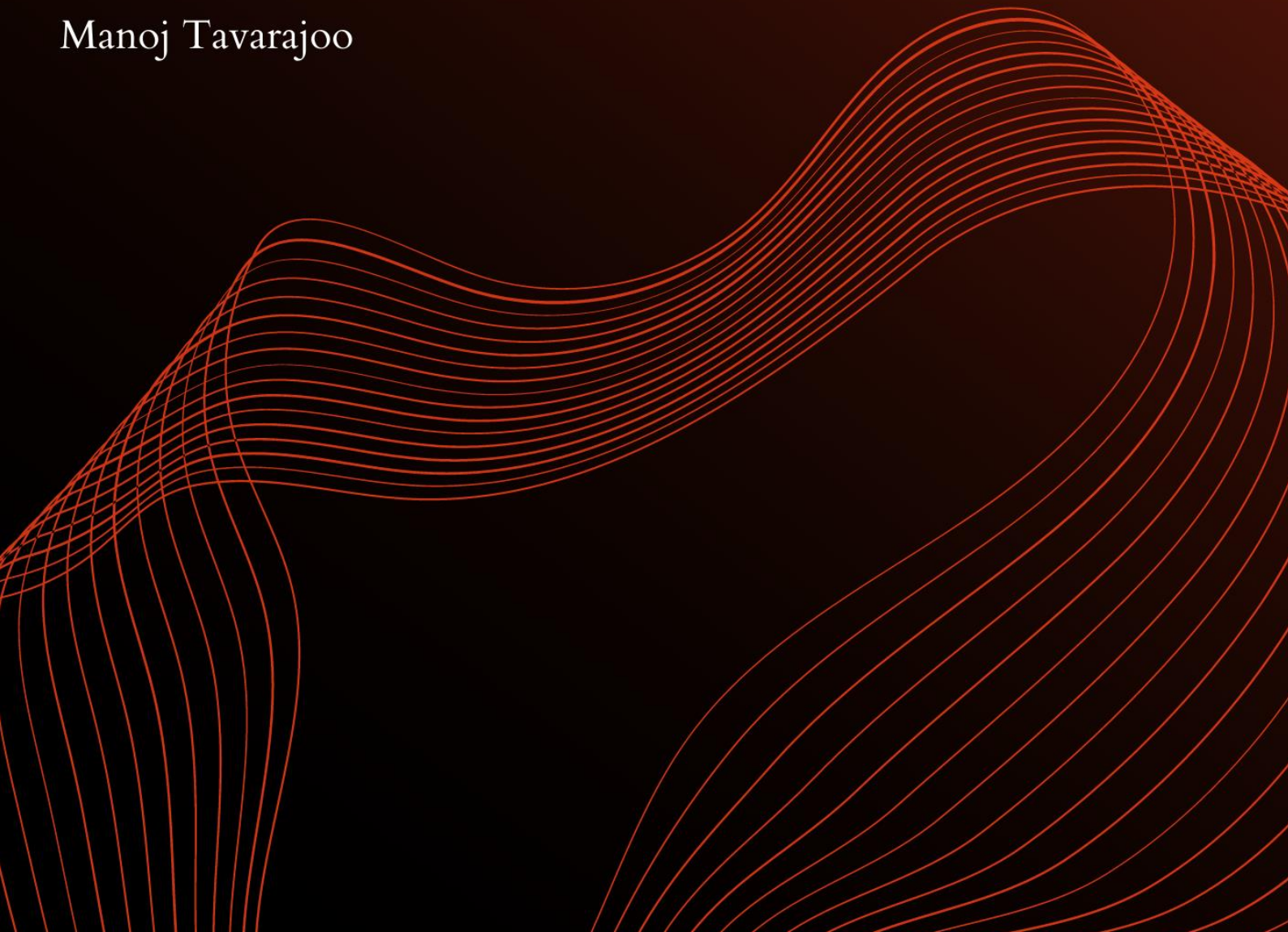


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THE WORLD IN 2022

Top 10 Business and Technology Predictions

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The current developments of human existence during this COVID-19 pandemic led to rapid changes in technology and business. Across all sectors, organisations are grappling with rapid transformation. On top of that, there are enormous global shifts and challenges to contend with such as climate change, shifting political plays, and rise of economic power. Our world is changing fast; organisations must strive and learn to adapt accordingly.

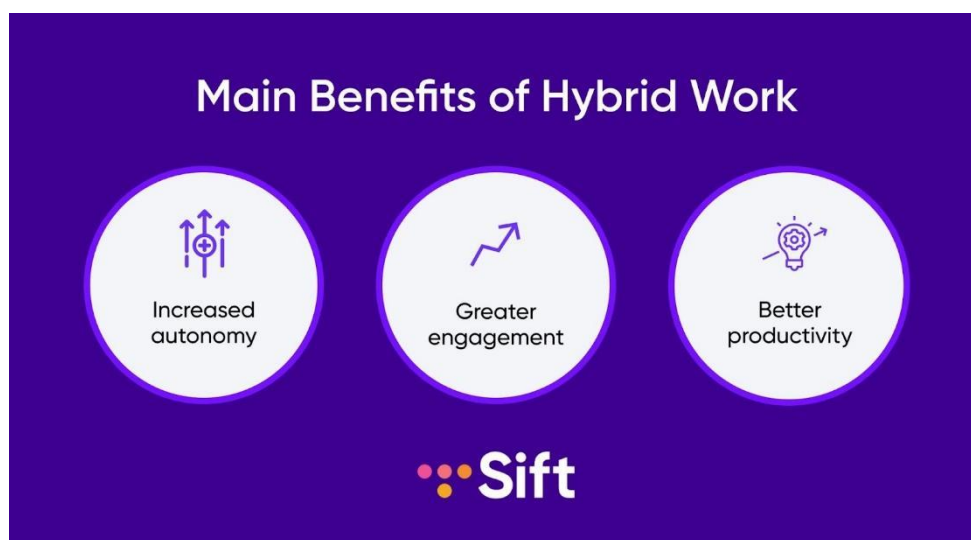
These 10 major trends provide an insight as to how the field of business and technology are evolving to suit our rapidly changing world.

#1 Hybrid work is the new norm

The coronavirus pandemic altered work in ways once thought inconceivable, allowing us to reimagine how we do our jobs and question the traditional work model. Whether you were a trendy start-up who had jumped on the flexible working bandwagon as a way of attracting talent, or a multibillion-dollar business that once scoffed at the idea of letting their employees work from beyond the confines of their open-office, the pandemic spared no one. As lockdowns and restrictions rolled in, it soon became obvious that work-from-home was a mandate and no longer a cool perk.

For better or for worse, we all embraced the home office model as best as we could. Whether the infrastructure was there or not, whether we thought our employees could do their jobs as well, or whether we even believed our company would make it.

Fast forward a couple of years, there is a compromise that allows employers to retain talent, and for employees to maintain the work-life balance they feel they need to be able to thrive. And that compromise is the hybrid work model—a model that involves a mixture of on-site and remote work—which continues to gain traction in our post-pandemic economy.

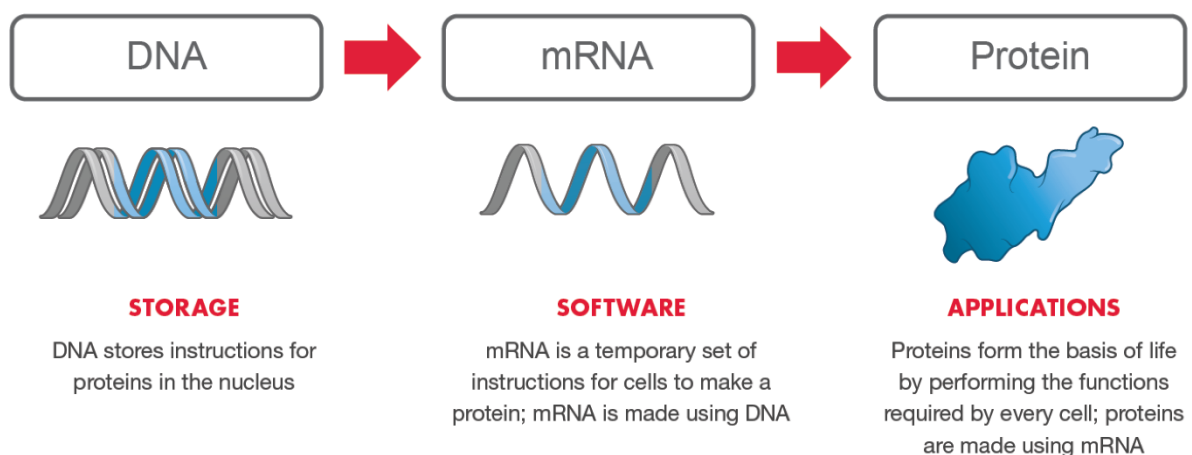


Research conducted by McKinsey states that post-pandemic, 52% of the workforce desire a hybrid working arrangement as opposed to returning back fully to the office. There is no doubt that existing hybrid work models practiced by companies today will be modified to become more innovative in the near future to allow for increased autonomy, greater engagement and better productivity.

#2 The pharmaceutical shift

The appearance of COVID-19 escalated the progressive processes of many industries, and arguably one of the most monumental changes was with the pharmaceutical industry. Drug-testing, and the creation of a whole new vaccine—as we have observed in the last two years—have become faster and easier endeavours to conduct. Consultations and data collections on the other hand have moved online, transforming the initially rigid roots of pharmaceutical practice.

The speed at which COVID-19 tests and vaccines such as Pfizer, Moderna, and AstraZeneca were created was phenomenal because scientists and pharmaceutical professionals were dealing with an unfamiliar virus that seemed to mutate and evolve. The revolutionary technology developed by Moderna, Pfizer, BioNTech incorporated mRNA and will not only put a stopper on the deadly symptoms of the virus for most people, but also save countless lives in the future forthcoming decades. This is because the newly created mRNA platforms will allow for detailed customisation and (theoretically) immunise people against almost any kind of infectious ailment. It is appropriate to state that in 2022, we will see the emergence of more new technologies for the production of coronavirus tests and vaccines.



Source: Moderna - mRNA technology platform

#3 Delivery and payments go contactless

The new normal perpetuated by governments across the globe comes—as we all know—with standard operating procedures that require us to practice social distancing at all times in public spaces, regardless of whether you are fully vaccinated or not. The result of this is that many people prefer to conduct their daily to weekly tasks of grocery shopping and food-ordering online, in the comfort of their own homes. Touching objects that are usually touched by many, such as door handles, keypads, trolleys, terminals, tables, and more becomes an unnecessary endurance, especially if they are not disinfected or sanitised well.

Due to the rising ‘better safe than sorry’ mindset and practice of the people to stay safe, delivery services have upped their game from the delivery of food to the delivery of packages. Prior to the pandemic, the F&B industry was already spurring in growth with its food deliveries, but now: They have innovated and kept up with the times. Most restaurants are now available to have orders delivered from mobile applications; these applications have introduced the method of contactless delivery and payment.

Contactless solutions allow consumers to have their orders—whether food or a parcel—to be placed at their doorstep upon successful delivery without having to physically step out of their homes to sign any consignment forms for proof of delivery. In fact, courier services simply take a picture of the parcel outside your house and send it to you via tracking numbers for your ease of a contactless notification. In terms of payment, contactless payment options are available from courier services and food delivery applications; consumers can pay via cards and e-wallets which are heavily preferred as opposed to cash.

These tap-to-pay contactless payment systems are now being implemented as mandatory in some places, even in drive-thru services and large grocery chains. Contactless payment methods are being advertised in partnership with mobile delivery applications and courier services. This is to encourage consumers to use application-specific e-wallets that can be topped up like Apple Pay, PayPal, GrabPay and Shopee Pay. Some companies have gone the extra mile to enhance consumer experiences by incorporating drones and AI powered technologies.

A good example of these contactless solutions is Uber: Uber launched Uber Connect and Uber Direct, services where people can send contactless packages and receive contactless deliveries for household needs respectively. This transitional period between in-store shopping and contactless ordering is apparent, and the process will only get increasingly seamless in the foreseeable future.

#4 The boom of telehealth

The healthcare industry has undoubtedly been one of the most regarded sectors lately, as the pandemic uncovered loopholes and gaps where deficiencies were found. This imposed upon the industry an abrupt shift in healthcare delivery models and services in terms of how they attend to the needs of patients, medical staff, and communities. The result of this shift, along with the limitations of public health orders, brought about the more prominent existence of telehealth which will reinstate and redefine the healthcare industry with a more digital touch.

The utilisation of telehealth prior to the pandemic was low, but as with most cases in most sectors, the pandemic has given rise to the beneficial necessity of it. Patients can communicate with their doctors via video conferencing calls especially for relatively minor cases, and eventually with 5G and robotics technology, remote surgeries will become the norm. Healthcare organisations are looking to permanently adopt telehealth solutions as a viable delivery model of care, as it greatly helps patients that are located far away or in rural areas with no direct access to in-person consultations.

While the challenges of telehealth may directly contradict the purpose of its existence in terms of the lack of access to technology in lower income areas, connectivity issues with telemedicine platforms, and regulatory compliance issues, the healthcare industry will continuously explore options to find effective methods and solutions to overcome them in due time.

In 2022, with a focus on access and improving connectivity, healthcare providers can build a sustainable healthcare model that will increase clinical efficiency and promote patient-centered healthcare in a post-pandemic world.

#5 Exponential growth in online learning

The concept of online learning is now so widely practiced and normal that going to class for a physical face-to-face session raises eyebrows. The rapid adaptation of online learning has impacted institutions in terms of how they will deliver quality education to an increasingly systemically online world.

Administrative and technological departments in educational institutions had to work quickly to find an alternative learning method in order to transition existing students into online learning in a seamless manner. While some institutions were seemingly put on hold for several months to a year, others began training students to use designated online platforms in the days prior to a national lockdown. Access and connectivity remain a heavy issue for many students and even staff, but extensive resources have been allocated and provided to develop online learning infrastructures that connect students to their respective courses and learning materials.

These online infrastructures include platforms like Blackboard, Google Classroom, Microsoft Teams, and Zoom, which are also used for student-instructor communication. This spur of online education has increased the specialisation of providing education remotely in a paramount manner, something the structure of its predecessor could not entirely boast. This is because the purpose of distanced or online education was to allow learners who could not participate full-time to an academic course to complete their certification in their own flexible timing. It may not have had the best learning models then, but now that this area of learning is being expanded and paid more attention to, it will be interesting to see which aspects of remote learning will remain post-pandemic.

Nevertheless, online education will remain and find new audiences because of the flexibility and learning possibilities displayed by institutions that were successful in implementing full-blown online courses. With 5G technology set to bridge the connectivity issues, and rapid adoption of emerging technologies like AI, AR, VR and XR into education platforms, signs are clear that the online learning industry will grow exponentially in 2022 and beyond.

#6 5G connecting the world

If you have not been exposed to the increased speed and bandwidth, low-latency, enhanced security and connection density of 5G on your smartphones, laptops, or other personal devices, then you may have a chance to experience them soon. The 5G network is about to shake up the world more than it already has in several places, and we have only had a glimpse of its potential transformations.

5G-enabled Internet of Things with many devices, sensors, applications and mobile connectivity all aimed at improving product quality, increasing productivity, lowering costs and enhancing safety in industrial workplaces. 5G also looks into inclusivity by ensuring that physical distance will not hamper wireless connections; factories and facilities located away from city centres will also receive the same benefits of 5G as those within close proximity do.

The 5G network also aims to enhance sustainability agenda and is being deployed to make the usage of water and energy more efficient. Cities are in the works of becoming smart cities that use 5G to monitor the quality of water and air in real time. Connected-vehicles technology will be able to communicate with smart infrastructure to minimise heavy traffic that will ultimately reduce vehicle emissions.

On the other hand, 5G will revolutionise on-device artificial intelligence (AI). The combination of AI and 5G will allow for health concerns to be met almost immediately as wearable smart devices running on said combination will be smart enough and quick enough to identify ailments and send alerts to your doctor or other medical specialists. 5G technology is vastly increasing the video bandwidth for Extended Reality (XR) with powerful computing and minimal delays to close the gap between the real and virtual worlds, which will help with the concept of the metaverse (see #8).

As previously stated, these examples provide only a limited glimpse into the possibilities of 5G. Expect all kinds of interactions in connectivity from business operations to autonomous cars, to smart cities to telemedicine, and everything in between. We can and should choose to embrace this new form of pervasive connectivity.



#7 Sustainability taking centre stage

Permeating through an ever-increasing number of industries, sustainability is finally being taken into consideration by the technological sector as a responsible theme in its approach. Brand value promotion has experienced a significant spike in 2021 with more businesses focusing on sustainability concepts that include behavioural and attitude changes towards climate change, diversification, resource conservation, as well as social inequality. These focuses are also the highlights of consumer thoughts as they question the ethical aspects of their buying decisions with goods and services, causing ignorant brands the risk of heavy consumer and investor loss if they do not hop onto the sustainability bandwagon.

Technology companies are finding new ways to conserve and reduce the usage of energy that comes with large digital storage requirements, powerful computing engines, and the energy required to provide seamless infrastructure services to consumers at all times. The expectation of sustainability in 2022 is that most corporate big names will implement measures and innovations that are aimed at achieving net-zero carbon emissions. With over 200 sustainable energy projects on a global scale, the biggest cloud company, Amazon, is generating 8.5GW a year. Currently, Amazon is focused on reducing the usage of downstream energy which is created by some of its products consumed by customers.

#8 The making of Metaverse

The term, 'metaverse' has been circulating news platforms as of late. Due to the pandemic, VR/AR technologies have been dominating the business and entertainment sector, allowing for the convenience of more interactive endeavours in telecommuting and telecommunication. Termed as an immersive technology, some of the transformations that Augmented Reality (AR) presents include AR avatars, indoor AR navigation, mobile AR, AR in-cloud, remote assistants, AI-integrated augmented and virtual reality, virtual sport events, and facial/eye recognition. These technological advancements will become more common implementations and practices in 2022, especially with the wider deployment of the 5G network.

All of this has sparked founder and CEO of Facebook, Mark Zuckerberg, to change their company name to "Meta", as part of a further rebranding and expansion of the global-scale virtualisation currently happening in most sectors. Being a direct reference to the term, metaverse, the concept of this rebranding is a union between Virtual Reality (VR), Augmented Reality (AR), Extended Reality (XR), social media, the future of connected devices, gaming, and a whole new configuration of the internet.

The goal is simple: To expand the horizon of digitalisation and virtualisation to provide a phenomenally new way of communicating with everyone around you.

#9 Cloud intelligence

The popularity and mass adoption of cloud computing gained prominence due to the COVID-19 pandemic as organisations changed their work model.

Cloud computing plays a key role in the delivery of artificial intelligence (AI) services. Machine learning platforms require enormous processing power and data bandwidth for training and

processing data, and cloud data centres make this available to anyone. Most of the daily AI use cases we see all around us—from Google Search to Instagram filters—are stored in the cloud, and technology that routes traffic from data centres to our devices and manages storage infrastructure is built on machine learning.

The development and evolution of cloud and AI are inextricably interlinked, and this will only become more significant during 2022 and beyond. Strong trends in AI will be intelligent algorithms: Generative machine learning that can create anything from art to synthetic data to train more AIs—as well as language modelling—increasing the accuracy where machines can understand human languages. Cloud computing will certainly play a key role in delivering these services to users as well as building the infrastructure to deliver them.

#10 Modernisation of Autonomous Systems

One of the most essential technologies in the past several years has been autonomous systems. In 2022, companies across various industries will see a rise in the need for automation in their daily operations. This is because autonomous systems will also utilise AI technology and modify algorithms to learn the best methods and procedures for different and specified tasks. Security systems in particular will benefit from the consistent innovation of this newly significant technology, as automated responses to security breaches and concerns will aid in countering a problem faster than manual responses.

‘Hyper-automation’ is a term widely used in the field of autonomous systems to describe the more calculated or elaborate approach to anything related to automation. It combines AI and ML technology, packaged software, and additional automation tools to achieve the aim of a more concentrated approach of improvement in several aspects of business:

- Improving a business’s quality of work
- Accelerating business processes
- Enhancing the decision-making capabilities

It is appropriate to assume that hyper-automation will become an imminent technological trend to keep an eye out for in 2022 and the following years to come.

Looking into the future

The main themes of 2022 from a technological and business perspective will tinge on digitalisation, seamless connectivity, automation and sustainable development. The human experience during the pandemic has led and will continue to lead to rapid changes in technology and business in years to come.

Hybrid working and online learning will increase the demand for digitalisation and virtualization. As Facebook transitions into becoming the first metaverse-type company, ideas of a fully virtual environment may become a reality sooner than later. Along these lines, advancements and innovations in 5G, autonomous systems, cloud computing, and artificial intelligence will become an emphasis for many companies as well. All of these technological and business trends may bring the world into a new digital era that will shape the future.



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