

# Technology Accelerated Innovation Dynamic Briefing

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# Technology Accelerated Innovation

Last review on Sat 07 May 2022

## About

This dynamic briefing draws on the collective intelligence of the Forum network to explore the key trends, interconnections and interdependencies between industry, regional and global issues. In the briefing, you will find a visual representation of this topic (Transformation Map – interactive version available online via [intelligence.weforum.org](https://intelligence.weforum.org)), an overview and the key trends affecting it, along with summaries and links to the latest research and analysis on each of the trends. Briefings for countries also include the relevant data from the Forum's benchmarking indices. The content is continuously updated with the latest thinking of leaders and experts from across the Forum network, and with insights from Forum meetings, projects communities and activities.



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# Executive summary

Technology Accelerated Innovation Intelligence Map - insights and perspectives on Technology and Innovation curated by Digoshen via World Economic Forum Strategic insights and contextual intelligence.

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# AI for What Purpose?

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## **We should consider whether some applications of the technology should be banned entirely**

While current artificial intelligence algorithms may be limited to learning a single task, the technology's underlying principles and techniques are applicable to a surprisingly wide range of uses. Indeed, almost every sector of the economy and society has been affected by AI - or will be soon. Given this broad applicability, and the current shortage of AI-related talent, it is necessary to consider how we should develop and use this new tool to its maximum positive benefit. We should also consider whether some AI systems create such a high risk of potential misuse that they should not be allowed at all. Facial recognition, for example, is one area of AI that has come under particularly intense public scrutiny, both because of related privacy concerns and due to the technology's potential use as a tool of oppression; it therefore serves as a particularly thorny test case for when and how a particular area of AI both can and should be shut down entirely, and whether it is possible to use such technology responsibly and benevolently.

In other cases, challenges related to AI lie not with the broad technology itself but with its specific use. Algorithms applied within the criminal justice system, for example, have come under strong criticism - as they not only have potentially huge impacts on individuals' lives, but are also subject to the deeply-embedded biases and historical inequities reflected in the training data and human developers that inform them. In this context, AI systems risk exacerbating existing inequities in consequential and damaging ways. Even among less controversial uses of AI there remains the question of how to best leverage scarce resources. A huge portion of AI-related talent, for example, has been directed at the development of autonomous vehicles and other private, for-profit company endeavours, and military applications - leaving fewer capable people dedicated to deploying AI for the common good. As we foster a technology that many believe has the potential to reshape society, we need to find new ways for it to represent the interests of many different stakeholders, and to play a positive role in our future.

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Related insight areas: [The Digital Economy](#), [Corporate Governance](#), [Agile Governance](#), [Risk and Resilience](#), [Science](#), [Systemic Racism](#), [Justice and Law](#), [Values](#), [Mobility](#), [The Ocean](#), [LGBTI Inclusion](#), [Global Governance](#), [Education](#), [Skills and Learning](#), [International Security](#), [Digital Identity](#), [Human Rights](#)



Frontiers

## Increasing Robustness of Brain–Computer Interfaces Through Automatic Detection and Removal of Corrupted Input Signals

28 April 2022

For brain–computer interfaces (BCIs) to be viable for long-term daily usage, they must be able to quickly identify and adapt to signal disruptions. Furthermore, the detection and mitigation steps need to occur automatically and without the need for user intervention while also being computationally tractable for the low-power hardware that will be used in a deployed BCI system. Here, we focus on disruptions that are likely to occur during chronic use that cause some recording channels to fail but leave the remaining channels unaffected. In these cases, the algorithm that translates recorded neural activity into actions, the neural decoder, should seamlessly identify and adjust to the altered neural signals with minimal inconvenience to the user.



NiemanLab

## Yes, journalists show more (cognitive) bias on Twitter

21 April 2022

One of the most fruitful areas of psychological research over the past several decades has been in the heuristics and biases that serve as cognitive shortcuts for people attempting to evaluate situations and make decisions. The concepts in this area have taken on several different terms — dual processing, heuristics, central and peripheral processing, System 1 and System 2 — but they all illustrate a similar idea.



GovLab - Living Library

## Police surveillance and facial recognition: Why data privacy is an imperative for communities of color

13 April 2022

Paper by Nicol Turner Lee and Caitlin Chin: “Governments and private companies have a long history of collecting data from civilians, often justifying the resulting loss of privacy in the name of national security, economic stability, or other societal benefits. It is important to note that these trade-offs do not affect all individuals equally. In fact, surveillance and data collection have disproportionately affected communities of color under both past and current circumstances and political regimes. From the historical surveillance of civil rights leaders by the Federal Bureau of Investigation (FBI) to the current misuse of facial recognition technologies, surveillance patterns often reflect existing societal biases and build upon harmful and virtuous cycles.



Wired

## Europe Is Building a Huge International Facial Recognition System

06 April 2022

For the past 15 years, police forces searching for criminals in Europe have been able to share fingerprints, DNA data, and details of vehicle owners with each other. If officials in France suspect someone they are looking for is in Spain, they can ask Spanish authorities to check fingerprints against their database. Now European lawmakers are set to include millions of photos of people’s faces in this system—and allow facial recognition to be used on an unprecedented scale.



Mott MacDonald (RSS Feed)

## Let’s move now to tackle the risks of artificial intelligence

24 March 2022

You have probably noticed advertisements on the web which have a knack of knowing exactly what you are interested in. You may have sought help from a digital assistant such as Alexa or Siri, and you will almost certainly have spoken to intelligent machines on the telephone. Whether you are aware of it or not, artificial intelligence (AI) is playing an increasingly important part in your life. AI can deliver enormous benefits. For example, it is already being used to diagnose illnesses and improve the safety of self-driving cars.



Ecole Polytechnique Fédérale de Lausanne

## Deep learning: a framework for image analysis in life sciences

11 March 2022

11.03.22 - Deep learning models are becoming increasingly common in bioimage analysis. Yet a lack of standardization and the use of these algorithms by non-experts are potential sources of bias. Scientists from EPFL and the European Bioinformatics Institute (EMBL-EBI) offer practical tips and guidance in a paper recently published in the journal IEEE. Scientists are constantly seeking imaging systems that are faster, more powerful and capable of supporting longer observation times. This is especially true in life sciences, where objects of interest are rarely visible to the naked eye. As technological progress allows us to study life on ever smaller scales of time and space, often at less than nanoscale, researchers are also turning to increasingly powerful artificial intelligence programs to sort through and analyze these vast datasets.



# AI and the Future of Jobs

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## Preparing for a future without human work will require more than addressing basic financial needs

Is artificial intelligence coming for your job? While some reports suggest nearly half of all jobs may be automated, other analyses note two important nuances. The first is that AI creates as well as replaces jobs. AI systems still need humans to develop them, handle nonroutine cases, provide a human touch, and monitor for failures. New technologies can also sometimes create entirely novel jobs - like social media influencer. A second nuance is that - at least for the foreseeable future - AI systems will only be able take over specific tasks rather than entire jobs. One report estimated that while 60% of all jobs have at least some tasks that could be automated, only 5% are under threat of full automation. And, as AI excels at routine tasks, it can free up humans for more interesting challenges. This augmentation-rather-than-automation approach offers the best opportunities for not only preserving employment but also ensuring effective and valuable AI. Actively involving workers in the development, adoption, and implementation of the technology can result in systems that are more practical, innovative, and effective.

Even with an augmentation approach, however, AI systems will result in potentially significant job disruptions - and call for a rethinking of education, employment, and policy systems. While technology skills would seem a worthwhile investment focus, there is also a need for general skills that can improve employment adaptability - such as critical thinking, and the skills that AI struggles with replicating such as creativity, human touch, and emotional intelligence. It is not certain whether human work will eventually disappear, but two features of the current situation are particularly troubling. The first is prevalent wealth inequality both within and between countries. If AI does lead to widespread job displacement, extreme inequality could lead to disastrous outcomes. The second is the central role that work plays as a source of personal worth and meaning in many societies. One popular proposed solution to a future without work is a universal basic income, where people receive regular payment regardless of employment. While such a program might address financial need, truly preparing for a future without work requires a deeper reinvention of human identity.

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Related insight areas: [Entrepreneurship](#), [Mining and Metals](#), [Education, Skills and Learning](#), [The Digital Economy](#), [Advanced Manufacturing and Production](#), [Fourth Industrial Revolution](#), [Workforce and Employment](#), [Economic Progress](#), [Human Rights](#), [Public Finance and Social Protection](#), [Future of Media](#), [Entertainment and Sport](#), [Mental Health](#)



**International Telecommunication Union**  
**How AI can help fight misinformation**  
 02 May 2022

Identifying and isolating misinformation and disinformation poses a major challenge to increasingly digital news ecosystems. Advances in AI could help online information users sort out fact from fiction.



**Fraunhofer-Gesellschaft**  
**Artificial intelligence – but please be trustworthy!**  
 02 May 2022

To date, entrepreneurs have not put a lot of trust in artificial intelligence – many processes are still performed manually. An example of how artificial intelligence and control technology can be combined to create a completely trustworthy system is RoboGrinder: A grinding machine developed by the Fraunhofer Institute for Mechatronic Systems Design IEM, which eliminates up to 40 percent of grinding processes. It can be seen at the joint Fraunhofer booth at the Hannover Messe 2022 from May 30 to June 2 (Hall 5, Booth A06).



**Wired**  
**Elon Musk Reaches Deal to Buy Twitter for \$44 Billion**  
 25 April 2022

Elon Musk became the new owner of Twitter on Monday, after completing a stunning \$44 billion takeover of the social media platform, ending a process that has vacillated between a done deal and dead in the water in the last three weeks. "Free speech is the bedrock of a functioning democracy, and Twitter is the digital town square where matters vital to the future of humanity are debated," Musk said in a press release announcing the news. Twitter independent board chair Bret Taylor described the deal as "the best path forward" for the company's shareholders. The result ends prolonged speculation over Musk's financial interest in Twitter.



**World Economic Forum**  
**Machine learning can help protect urban water. Here's how**  
 22 April 2022

Climate change has highlighted the importance of preserving freshwater as a resource. Effective infrastructure management in cities is vital to preserve water. Real-Time Sensor Networks with Machine Learning can predict and troubleshoot water leakages more effectively. Water is perhaps Earth's most unique natural resource. As the largest natural resource, water covers about 71% of Earth's surface, but only 1.2% of freshwater is potable.



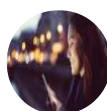
**Social Europe**  
**Artificial intelligence: filling the gaps**  
 14 April 2022

Stronger legislation than the European Commission envisages is needed to regulate AI and protect workers. Artificial intelligence (AI) is of strategic importance for the European Union: the European Commission frequently affirms that 'artificial intelligence with a purpose can make Europe a world leader'. Recently, the commissioner for the digital age, Margrethe Vestager, again insisted on AI's 'huge potential' but admitted there was 'a certain reluctance', a hesitation on the part of the public: 'Can we trust the authorities that put it in place?' One had to be able to trust in technology, she said, 'because this is the only way to open markets for AI to be used'. Trust is indeed central to the acceptance of AI by European citizens.



**Mott MacDonald**  
**Should ports rush to automate?**  
 13 April 2022

Should ports rush to automate? Automation: Miracle cure or red herring? Senior ports and maritime engineer Alex To appraises the opportunities and benefits. Mention automation in container ports and most people think 'heavy machinery', and the use of robotics and software to replace humans operating cranes and vehicles. The new fully automated Euromax Port at Rotterdam offers a state-of-the-art example of how the substitution of manual operation can bring impressive efficiencies and competitive advantages.



**Harvard Business School Working Knowledge**  
**Swiping Right: How Data Helped This Online Dating Site Make More Matches**  
 12 April 2022

Machine learning might have the answer to an age-old dating conundrum: Who makes the first move? Research by Edward McFowland probes how data can spur more digital interactions, with potentially wide-reaching implications.

# Foundational Elements of the Metaverse

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**This virtual world will rely on real technologies and emerging behavioural patterns**

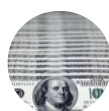
Ultimately, there will be no metaverse without the chips and software required to power it. After Meta, the parent company of Facebook, announced plans in late 2021 to move aggressively into developing virtual reality and the metaverse, shares of chipmaker Nvidia hit record highs. Nvidia designs chips and graphics cards that generate high-resolution, 3-D images, as well as software that can be used to design virtual worlds. Other pieces of hardware required for participating in the metaverse include controllers that register hand and finger movements to interact in a virtual environment, and headsets. Some headsets currently available can cost thousands of dollars, though many are available for a few hundred dollars. According to an estimate published by eMarketer, the number of virtual-reality headsets in use globally should increase from 35 million in 2022 to 70 million by 2026. However, the company has also noted “pain points” for users that include the fact that headsets can be hot and uncomfortable, especially difficult to use for people who wear glasses, and suffer from poor battery life. Efforts are underway to develop alternatives to headsets for gaining metaverse access.

Other basic elements likely to feed into the early versions of the metaverse include the burgeoning use of cryptocurrencies. Just as the initial versions of the internet disrupted industries that rely on transferring information (like the news media), cryptocurrencies are disrupting industries that transfer value - like video games, or banking. The expansion of the metaverse will likely rely heavily on trading in such virtual currencies and assets, underpinned by blockchain technology. Other “metaverse activities” already proliferating, even as this next version of the internet remains theoretical, include shopping at virtual stores, watching films and TV shows, completing jobs for real money, and attending live concerts all within games. Roblox, a game platform first released in 2006, has players create avatars that can chat with others in the virtual world, earn virtual currency (“Robux”), or host parties. One Roblox executive said in a published interview that much of the platform’s appeal is due to its emphasis on “unstructured play,” at a time when many children are now more restricted when it comes to real-world activities than previous generations.

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Related insight areas: [Future of Media](#), [Entertainment and Sport](#), [Cybersecurity](#), [Banking and Capital Markets](#), [Virtual and Augmented Reality](#), [The Digital Economy](#), [Blockchain](#), [The Digital Transformation of Business](#), [Data Policy](#), [Internet Governance](#), [Digital Communications](#), [Behavioural Sciences](#), [Mental Health](#), [Fourth Industrial Revolution](#), [Future of Computing](#)





Pew Research Center

## As telework continues for many U.S. workers, no sign of widespread 'Zoom fatigue'

04 May 2022

A substitute teacher works from her home in April 2020 during the COVID-19 pandemic. (Olivier Douliery/AFP/Getty Images) As remote work continues for many Americans, more than half of workers who say their jobs can mainly be done from home say they often use online platforms to connect with co-workers (56%). Most of these workers say they are fine with the amount of time they spend on video calls, but about one-in-four say they are worn out by it, according to a January 2022 Pew Research Center survey. The use of video calling or online conferencing services, like Zoom or Webex, is particularly common among those whose jobs can be done from home and who are, in fact, working from home all or most of the time.



Asian Development Bank (ADB)

## People and Stories from Asia and the Pacific

03 May 2022

Explore Asia and the Pacific through the Asian Development Bank's (ADB) official YouTube channel. Witness remarkable stories and inspirational narratives from the people of the region. 00:00 Asia and the Pacific 00:18 Working together in the region 00:32 Subscribe to the ADB YouTube channel #adb #asiandevelopmentbank #adbvideos

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RAND Corporation

## Leveraging Technology to Support Prisoner Reentry

27 April 2022

The corrections sector increasingly uses technology to provide supervision services and programs for individuals reentering the community after incarceration. Experts identified strategies for employing technology to improve reentry outcomes.



Royal United Services Institute (RUSI)

## Securing Future Realities: What Can We Expect from the Metaverse?

26 April 2022

Innovations in augmented and virtual reality present opportunities to unlock diplomacy. Nonetheless, cyber security risks to users remain. To realise the potential of the metaverse in international engagements, these risks must be identified and effectively mitigated.



World Economic Forum

## Making the metaverse mainstream is about the user experience. Here's why

25 April 2022

The metaverse – essentially a 3D version of the internet – is the next big thing when it comes to technology. It still has a long way to go before it breaks into the mainstream and becomes popular with the public. Metaverse platforms should focus on user experience and minimizing entry barriers to increase uptake. "We must rapidly begin the shift from a thing-oriented society to a person-oriented society, when machines and computers, profit motives and property rights, are considered more important than people, the giant triplets of racism, extreme materialism, and militarism are incapable of being conquered" – Martin Luther King The metaverse – a virtual space in which users can interact digitally within an environment and with other users – is a hot topic right now, but there is still a lot to develop for it to make it into the mainstream.



The New Yorker

## Why Would Elon Musk Want to Buy Twitter?

21 April 2022

Kyle Chayka writes about Elon Musk's interest in purchasing Twitter, and how his intent seems rooted less in making the company more profitable and more in preserving Twitter's capacity to incite chaos as a tool of influence.



GovLab - Living Library

## The challenges of protecting data and rights in the metaverse

20 April 2022

Virtual reality systems work by capturing extensive biological data about a user's body, including pupil dilation, eye movement, facial expressions, skin temperature, and emotional responses to stimuli.

# Blockchain and Digital Identity

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## **Current systems for identity management are siloed and inefficient, and call for new models**

About one billion people around the world remain without the official proof of identity often crucial for receiving services and benefits - and those with official proof often have little-to-no control over how it is being managed. The concept of digital identity has therefore become increasingly important for many governments and institutions, given the ways it can potentially help knock down barriers when it comes to everything from property ownership, to political participation, to receiving fair access medical care and services. The COVID-19 pandemic has only brought issues related to identity management further into focus - as pandemic relief and stimulus payments, medical records, and address information all generally reside in separate systems with no means of interoperating. Many governments are therefore now exploring the use of blockchain technology to enable more seamless and secure systems for identity management. Some countries, such as Estonia, had already become leaders in the use of blockchain-based digital identity; an estimated 98% of Estonian residents have a national ID-card that functions as a travel ID, health insurance card, proof of identification for banking, and more.

In Canada, blockchain technology has been used to credential over 500,000 businesses through its “Verifiable Organizations Network.” In any country, adequate oversight and management are central to the use of blockchain - not least because unique and consistent identifiers are prerequisites for decentralized services. For example, blockchain-based currency transactions are routed via public addresses that represent a transacting entity, and signed off on via a unique private key (a cryptography tool used to encrypt and decrypt code). However, the anonymity this enables may come into conflict with regulations related to identification that are designed to minimize illicit transfers of funds. As a result, blockchain-based digital identity systems still face considerable technological, managerial, and regulatory issues. In addition to the scalability considerations first required in order to support billions of individual users, data integrity will be critical - especially given the potential for administrators to interact with a large volume of relatively unsecure, “off-chain” data. Regulatory models will likely need to adapt, in order to accommodate new models of identity and prevent adverse related consequences such as social exclusion or widening digital divides.

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Related insight areas: [Future of Computing](#), [Retail](#), [Consumer Goods and Lifestyle](#), [Global Health](#), [Innovation](#), [Internet Governance](#), [Digital Identity](#), [COVID-19](#), [Fourth Industrial Revolution](#), [Corruption](#), [The Digital Economy](#), [Financial and Monetary Systems](#)



Project Syndicate

## Greening the Crypto Revolution

06 May 2022

The explosive growth of Bitcoin and other cryptocurrencies has opened up a new front in the broader climate crisis by threatening to offset the progress made in recent years toward decarbonization. For the technology to gain wider adoption over the long term, its proponents will have to get serious about reducing its energy usage.



VoxEU

## Historical lessons on the real effects of unstable stablecoins

03 May 2022

Innovations in private money creation, such as stablecoins, can be economically useful because they improve efficiency in the payments system. However, if these currencies are not fully 'stable', uncertainty over their value may be a source of transactions friction that have real costs. The column discusses how the National Banking Act of 1864 in the US provides a natural experiment for evaluating the effects of stabilising the value of private money. The act introduced a new type of private money that was fully stable for the first time. Gaining access to the stable money generated growth in economic sectors that were sensitive to transaction costs.

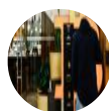


Project Syndicate

## CBDCs for the People

18 April 2022

With the rapid adoption of digital payment technologies, central banks have an opportunity to explore reforms and new tools, including by issuing their own digital currencies. Provided that policymakers get the design right, a CBDC could go a long way toward improving financial inclusion and driving innovation.



Asia Global Institute

## The Geography of Digital Money

14 April 2022

In the new monetary geography, writes technology policy expert Andy Yee of the University College London Centre for Blockchain Technologies, the authority of states is by no means eliminated, but they have to operate with reduced monopoly power. With the emergence of Bitcoin and other decentralized crypto-currency and central bank digital money such as China's e-CNY, governments must now act like strategic oligopolists, competing for the allegiance of end users for their currencies. This suggests a future of public-private partnership, with central banks creating their digital currencies, while outsourcing the distribution, innovation, and consumer-facing activity to the private sector.



VoxEU

## Monetary policy and financial stability implications of central bank digital currencies

13 April 2022

Central banks around the world are exploring the possibility of issuing retail central bank digital currencies. This column takes stock of advances in research on their possible implications for financial stability and monetary policy depending on their design. It also identifies avenues for further research that could usefully inform future policy decisions on such currencies.



SpringerOpen

## Robust estimation of time-dependent precision matrix with application to the cryptocurrency market

12 April 2022

Most financial signals show time dependency that, combined with noisy and extreme events, poses serious problems in the parameter estimations of statistical models. Moreover, when addressing asset pricing, portfolio selection, and investment strategies, accurate estimates of the relationship among assets are as necessary as are delicate in a time-dependent context. In this regard, fundamental tools that increasingly attract research interests are precision matrix and graphical models, which are able to obtain insights into the joint evolution of financial quantities. In this paper, we present a robust divergence estimator for a time-varying precision matrix that can manage both the extreme events and time-dependency that affect financial time series.



SpringerOpen

## Bitcoin price change and trend prediction through twitter sentiment and data volume

11 April 2022

Twitter sentiment has been shown to be useful in predicting whether Bitcoin's price will increase or decrease. Yet the state-of-the-art is limited to predicting the price direction and not the magnitude of increase/decrease. In this paper, we seek to build on the state-of-the-art to not only predict the direction yet to also predict the magnitude of increase/decrease. We utilise not only sentiment extracted from tweets, but also the volume of tweets. We present results from experiments exploring the relation between sentiment and future price at different temporal granularities, with the goal of discovering the optimal time interval at which the sentiment expressed becomes a reliable indicator of price change.

# New Leaders in Technology and Innovation

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## Emerging-market multinationals are playing a more prominent role in global innovation

Multinational corporations from emerging markets have matured into technological leaders and innovators, significantly shaping their respective fields. This is evident in their volume of patent applications, and enabled by both their R&D investment levels and by spending on education and key infrastructure in their home countries. Many governments have intensified efforts to boost local science, technology, and innovation capabilities, helping to create once-inconceivable competition for companies from advanced economies. In the 2020 Global Innovation Index, published by Portulans Institute and the World Intellectual Property Organization, seven emerging economies - China, Malaysia, Poland, Thailand, Russia, India, and the Philippines - featured among the top 50, compared with five a decade earlier. China ranked 14th in 2020, above Canada and Japan, and just below France and Israel. At the same time, Latin America lagged as Mexico, Brazil, and Argentina ranked 55th, 62nd, and 80th, respectively. Separately, four emerging-market countries were counted among the ten largest R&D spenders in 2018, according to UNESCO: China (2nd), India (6th), Brazil (8th), and Russia (9th), which collectively accounted for almost a third of all global R&D spending.

According to the European Commission Industrial R&D Investment Scoreboard, emerging-market multinationals, led by those from China, accounted for one in four of the biggest global R&D spenders in 2019. As emerging-market multinationals have proliferated, China and India have come to rank among the top 10 countries in terms of number of companies with high R&D spending. China has become a leader in terms of 5G, mobile payments, electric vehicles and batteries, and artificial intelligence. It has also completed its BeiDou Navigation Satellite System (BDS), which rivals America's GPS and Europe's Galileo. Similarly, other emerging economies have made significant advancements in new products and services, production processes, and innovative business models in fields including medicine, pharmaceuticals healthcare, nuclear technology, and e-commerce - as evidenced by China's Alibaba, Nigeria's Jumia Group, and Argentina's Mercado Libre. These online marketplaces and other emerging-market multinationals have been able to transform challenges into opportunities, by developing payment systems and business models tailored to their particular markets needs - often finding themselves at the forefront of technological development and the global digital economy as a result.

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Related insight areas: [Entrepreneurship](#), [Mobility](#), [Science](#), [Social Innovation](#), [Innovation](#), [Advanced Manufacturing and Production](#), [The Digital Transformation of Business](#), [Batteries](#), [The Digital Economy](#), [Quantum Computing](#), [Artificial Intelligence](#), [5G](#), [Education](#), [Skills and Learning](#), [3D Printing](#)

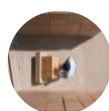


Asian Development Bank

## Leapfrog into Technology to Avoid Getting Leapfrogged Yourself

06 April 2022

Those that still question the need for technology leapfrogging in development need to know if we continue to use camel-era technology on the highway, we may get hit by fast cars that have embraced innovation.



Harvard Business Review

## In Uncertain Times, Big Companies Need to Take Care of Their Suppliers

06 April 2022

The resilience of a supply chain is dependent on the reliable performance of the suppliers who make it up, but the fiscal health of many of lower-tier firms is often not visible to executives at companies several tiers up. This is especially true for original equipment manufacturers (OEMs) like automakers or industrial equipment producers who often have many lower-tier suppliers. The problem is that many of these OEMs designed their procurement strategies and supply agreements during a time when the global geopolitical and trading environments were comparatively benign, with steady growth of cross-border trade, low inflation, and stable raw materials and logistics costs.



GreenBiz

## Will just transition agendas reshape supply chain sustainability goals?

30 March 2022

The concept of supporting a "just transition" is becoming more visible in sustainability circles, and if it gains ground, it could become part of corporate pledges akin to those that commit companies to net-zero operations by a certain year. Such an outcome has significant implications for supply chain sustainability. Is just transition another short-lived buzzword that will have minimal impact on supply chain operations or is it something more substantial? Will just transition's star fade after it rises? There are various interpretations of just transition.



World Economic Forum

## Artificial Intelligence for Children

30 March 2022

This toolkit is designed to help companies develop trustworthy artificial intelligence for children and youth. Children and youth are surrounded by AI in many of the products they use in their daily lives, from social media to education technology, video games, smart toys and speakers. AI determines the videos children watch online, their curriculum as they learn, and the way they play and interact with others. This toolkit, produced by a diverse team of youth, technologists, academics and business leaders, is designed to help companies develop trustworthy artificial intelligence (AI) for children and youth and to help parents, guardians, children and youth responsibly buy and safely use AI products. AI can be used to educate and empower children and youth and have a positive impact on society.

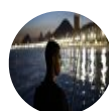


Global Development Network

## Trade liberalization, productivity, and innovation: evidence from Chile

14 March 2022

While it is generally agreed that trade liberalization promotes productivity growth in developing countries, greater exposure to imports does not necessarily promote innovation. This column reports evidence from Chile that the positive impact of foreign competition is likely to be greater, the larger the share of firms close to the frontiers of technological progress and productivity.



SpringerNature

## Textile wastewater heavy metal removal using Luffa cylindrica activated carbon: an ANN and ANFIS predictive model evaluation

18 February 2022

**Abstract** This study investigated the application of soft computing models [Artificial neural network (ANN) and Adaptive neuro-fuzzy inference system (ANFIS)] in removing heavy metals [chromium (VI), vanadium (V) and iron (II)] from textile wastewater using Luffa cylindrica activated carbon (LAC). The effect of pH, contact time and adsorbent dosage on the adsorptive potential of the prepared LAC were determined using a batch mode experiment. Fourier Transform Infrared Spectroscopy and scanning electron micrograph assessed the potential of the adsorbent in this study. ANN and ANFIS were evaluated using the coefficient of determination ( $R^2$ ) and mean square error (MSE).



# Entrepreneurship and Development

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## The SDGs frequently set the agenda for entrepreneurs aiming to make a positive contribution

“Development” is often defined as balancing social prosperity, economic performance, and environmental resilience - for the benefit of both current and future generations. Entrepreneurship plays an important role in development, by creating and expanding access to new products, technologies, and services, often in concert with public initiatives. These efforts can have both positive and negative impacts on social behaviour, general well-being, employment, and the environment. This raises practical and policy questions about the merits of entrepreneurial activity beyond the accumulation of wealth - including about how it may benefit some communities more than others. On one hand, entrepreneurship generally creates jobs, drives economic growth and innovation, and contributes to better living standards. On the other, its benefits are often unevenly distributed, frequently lead to the overexploitation of natural resources, and can negatively impact vulnerable populations. Within the context of development there is therefore a need to reconsider some common assumptions about entrepreneurial activity, and focus on ways to make it work better (and more fairly) for society. At present, the agenda for entrepreneurs aiming to make a positive contribution to development is often set by the United Nations’ Sustainable Development Goals (SDGs).

When entrepreneurial efforts coalesce around development challenges (particularly the most pernicious, persistent, complex, and widespread), the intent is often to expand access to goods and services, and to generate more sustainable and socially-inclusive innovation. Entrepreneurial networks and new ways of organizing are key, as single actors may not have the capacity necessary to address complex challenges on their own. The core questions are how value is best created and distributed, and how to create an enabling ecosystem where entrepreneurial activity on the part of companies, governments, and community groups can flourish. The success of entrepreneurial activity cannot be judged simply on the basis of shareholder value; instead, the value created for the most marginalized communities becomes key. Numerous entrepreneurial experiments in the context of development in recent decades have taught us how crucial the local cultural and political context is for both the process and outcomes - and many examples have illustrated the need for equal amounts of discipline and inspiration for future generations of entrepreneurs. The challenge now is to learn from these efforts, whether large-scale, state-subsidized capacity- and infrastructure building, or the work of civil society agencies at the village level.

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Related insight areas: [Private Investors](#), [Economic Progress](#), [Inequality](#), [Supply Chains](#), [Geopolitics](#), [Sustainable Development](#), [Youth Perspectives](#), [Development Finance](#), [Values](#), [Workforce and Employment](#), [Corporate Governance](#)



Project Syndicate

### The Forgotten Origins of Silicon Valley

15 April 2022

Sebastian Mallaby's new book offers a detailed exploration of how US venture capital became the go-to model for commercializing innovations at the technological frontier. But no industry exists in a vacuum, so it is important to consider precisely why this model evolved where and when it did.



Asian Development Bank

### How Social Enterprises Can Help Us Meet the SDGs

31 March 2022

The adoption of the Sustainable Development Goals (SDGs) has intensified the search for sustainable solutions to development problems. While multilateral agencies such as ADB can provide funding for infrastructure, technical assistance to build and strengthen systems, it is clear that development assistance cannot go on indefinitely, as one of its aims is to nurture self-reliance and self-sustaining solutions. A promising approach to sustainable development that complements development assistance is social entrepreneurship. In our recent paper Social Entrepreneurship: Improving Global Health we explain how social entrepreneurs have improved global health while also facilitating economic, social and environmental wellbeing. Social entrepreneurship can be characterized by the adoption and practice of several principles.



The Economist

### The bid to make Florida's biggest city a tech hub

31 March 2022

URBAN RENEWALS rarely trace their origins to Twitter, but then Miami is no conventional city. "How can I help?" Francis Suarez, Miami's mayor, asked on Twitter in 2020, after a tech entrepreneur suggested moving Silicon Valley out of the Bay Area. Mr Suarez has an enthusiastic following as he tries to rebrand Miami from a party paradise into a hub for digital finance and technology. He even sports a T-shirt carrying a "#HowCanIHelp?" tagline. With the highest share of foreign-born residents of any metro area (more than half its people were not born in America), Miami is a vibrant city with a strong Latino influence.



Next City

### Decolonizing Capital: A Crucial Step Towards Racial and Economic Justice

21 March 2022

Op-ed: Pacific Community Ventures President & CEO, Bulbul Gupta shares how a new strategy that grounds the CDFI in experimentation and research, can democratize funds and restore equity in our communities.



International Labour Organization

### UPSHIFT Uganda - how life skills are supporting youth

21 February 2022

"UPSHIFT", a social innovation and entrepreneurship programme of the ILO and UNICEF is being implemented by "Unleashed", a community organization for youth. In this video, watch trainers explaining the programme and how life skills are supporting youth to identify and solve their own issues.



International Labour Organization

### Creating decent jobs for youth through digital transformation

17 February 2022

An introduction to the ILO/ITU/AU Joint Programme on Boosting Decent Jobs and Enhancing Skills for Youth in Africa's Digital Economy.



LSE Business Review

### What is social capital privilege?

17 February 2022

Social capital — the networks and links within and between social groups — can benefit us by increasing wellbeing and creating economic opportunities. For people and organisations, the problem comes when social bonds and bridges work to exclude others rather than include. Henry Dowell writes that social bridges between diverse groups of people are important ... Continued.

# Scientific Innovation and Technology

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## Governments have a big role to play when it comes to adapting global innovation to local needs

Scientific research enables the development of technologies necessary for a more sustainable future, greater well-being, and a more globally-connected society. Innovation and technology must be deeply embedded in education systems, because it is through innovation that new ideas will be applied, new companies formed, and new jobs created. Ultimately, science graduates can become job creators instead of just job seekers - if undergraduate and graduate scientific educations provide flexible curricula with entrepreneurship tracks. Centres for incubating ideas with potential scientific and humanitarian impact must become central to educational institutions. For example, Imperial College London, American University of Beirut and other leading institutions have established innovation parks and startup incubators in order better to instil an innovative and entrepreneurial spirit in students. In addition, many universities are now moving towards more flexible curricula that promote a multi-disciplinary and creativity-based education. Technology and innovation have been vital throughout human history, and this will continue to be the case. While water and steam power were the source of the First Industrial Revolution, electric power for mass production underpinned the second, and electronics and information technology informed the third - bringing us to the fourth.

The borders between physical, biological, digital spheres are merging in the Fourth Industrial Revolution, amid advances in artificial intelligence, quantum computing, the Internet of Things, nanotechnology, and advanced materials. Countries around the world must try to implement policies that facilitate this innovation and integrate it into their development (successful related efforts undertaken by developing countries around the world have been highlighted by the United Nations Conference on Trade and Development). Innovation must be adaptive and incremental - and build on a country's particular potential to develop technological and scientific solutions for local problems, with a possible global impact. In addition, innovation is necessary when seeking to adapt solutions developed elsewhere to local needs. Such challenges can almost always be opportunities for driving innovation forward. In many low-income countries, for example, mobile devices and wireless internet connectivity have proven invaluable for helping address the need for public and information services - and basic utilities such as electricity - in previously-neglected areas. In addition, access to vaccines and medications has expanded in some areas thanks to innovation, with one prime example being drone delivery services in rural Rwanda.

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Related insight areas: [Fourth Industrial Revolution](#), [Economic Progress](#), [Advanced Materials](#), [Social Innovation](#), [Digital Communications](#), [Diversity and Inclusion](#), [Artificial Intelligence](#), [Innovation](#), [Internet of Things](#), [Entrepreneurship](#), [Quantum Computing](#), [5G](#), [Advanced Manufacturing and Production](#), [Biotechnology](#), [Oil and Gas](#), [Energy](#), [Cybersecurity](#)

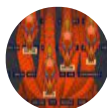


Nautilus

### A Viral Twitter Thread Reawakens the Dark History of Anthropology

21 April 2022

I'm an anthropologist and rarely have I seen such a harmful mix of inaccuracies and stereotypes about Indigenous people. The post A Viral Twitter Thread Reawakens the Dark History of Anthropology appeared first on Nautilus | Science Connected .



Nautilus

### Researchers Gain New Understanding From Simple AI

15 April 2022

Language processing programs are notoriously hard to interpret, but smaller versions can provide important insights into how they work. The post Researchers Gain New Understanding From Simple AI appeared first on Nautilus | Science Connected .



World Economic Forum

### 3 women in AI who are helping bridge the gender equity gap

06 April 2022

Artificial intelligence (AI) is becoming increasingly mainstream across sectors and has great potential to benefit society. Its full potential can only be realised if the technology represents the diversity of the populations it represents. Here are three women in AI who are working to address gender equity in the technology's development. Artificial intelligence (AI) is rapidly advancing across sectors and industries and while it has great potential to benefit society, this can only be realized if AI truly represents the diversity of the populations it represents. Gender equity, specifically, is not currently realized in AI development.

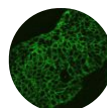


Cornell University

### Rational neural network advances machine-human discovery

06 April 2022

In a new paper, researchers take a step toward the day when deep learning will enhance scientific exploration of natural phenomena such as weather systems, climate change, fluid dynamics, genetics and more.



Fraunhofer-Gesellschaft

### Speed meets precision: A new laser scanning microscope improves cancer cell detection

01 April 2022

Fraunhofer researchers have developed a very fast technology for determining whether a tumor has been fully removed — before the patient even leaves the operating theater. Using a combination of laser scanning microscopy and fluorescent tumor markers, doctors can detect any remaining cancer cells immediately after operations.



Wired

### The First Drug-Releasing Contact Lens Is Here

30 March 2022

Allergy season is upon us, and for the 40 percent of contact lens wearers who suffer from itchy eyes, there's a new option for how to treat them: the first lens that can deliver a drug directly to the eye. Made by Johnson & Johnson, they contain the antihistamine ketotifen and were approved by the US Food and Drug Administration earlier this month. This may be just the start of using the contact lens as a platform for dosing medication. "The once futuristic concept of drug-delivery contact lenses is now a reality," says Melissa Barnett, a principal optometrist at the UC Davis Eye Center who wasn't involved in the development of Johnson & Johnson's lenses.



Science Daily

### Clock gene mutation found to contribute to the development of autism

22 March 2022

Autism spectrum disorder, or ASD, refers to a neurodevelopmental disorder characterized by a wide range of behavioral conditions including challenges with social skills, repetitive behaviors, speech and nonverbal communication. According to the Centers for Disease Control and Prevention, ASD affects one in 44 children in the U.S. About 50-80% of children with ASD have sleep problems, compared to less than 30% in the general population.

# Data Ethics, Values and Norms

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## Data can be deployed to solve global problems and achieve the SDGs, with the right oversight

The development and deployment of any emerging technology keys on social values, preferences, and ethical norms. It is important for organizations to understand these factors in a local context before formulating how they will govern data and artificial intelligence; in addition to whether local values and norms are adequately reflected, they should seriously consider the interplay between technology and individual rights, and how to put safeguards in place that incentivize responsible and human-centric development. Ensuring the trustworthiness of an organization's data practices is essential, often for practical reasons; for example, Facebook was sued in the US in 2019, after the Department of Housing and Urban Development alleged the company was violating a prohibition on housing discrimination because its machine learning algorithms functioned like an advertiser that excludes users based on race, ethnicity or religion. Certain foundational elements should be considered at the start of commercial projects: privacy, accountability, safety and security, transparency and explainability, fairness and non-discrimination, human control of technology, professional responsibility, and the promotion of human values. Understanding these in the relevant context is necessary for responsible data use.

By using data responsibly, businesses, non-profits, and governments can better address many of the unprecedented social and environmental challenges we now face - not least current and future pandemics, and environmental disasters aggravated by the worsening impacts of climate change. For example, artificial intelligence can play a significant role in achieving the UN Sustainable Development Goals - one study published in 2020 found that AI can enable the accomplishment of 134 targets across all 17 global goals if its development is supported by the necessary regulatory oversight (though it may also inhibit 59 targets). Some of the levers at hand that can help facilitate the use of data for good include global digital trade, the facilitation of equitable access to data flows, and responsible data collection. Technical elements such as data portability and interoperability are also important. The need to mitigate risks calls for putting firm safeguards in place related to cybersecurity, encryption, risk management, accountability, and overall data protection. Some uses of data and machine learning present particular sets of risks, like privacy breaches and phishing attacks.

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Related insight areas: [Systemic Racism](#), [Social Justice](#), [Values](#), [Pandemic Preparedness and Response](#), [Sustainable Development](#), [Justice and Law](#), [Risk and Resilience](#), [Internet Governance](#), [Artificial Intelligence](#), [Corporate Governance](#), [Cybersecurity](#), [Climate Change](#), [COVID-19](#), [Agile Governance](#)





World Bank

## Protecting Privacy and Empowering People To Control Their Personal Data | Toby Norman, Simprints

28 April 2022

In 2019, the World Bank Group's Identification for Development (ID4D) Initiative, a cross sectoral initiative that helps countries realize the transformational potential of digital identification, launched the Mission Billion Innovation Challenge to crowdsource innovative ideas to solve persistent challenges on this agenda. Innovators, non-profits and agencies around the globe were able to submit their ideas and winners were chosen for their innovative solutions. The theme of Mission Billion 2019 was protecting privacy and empowering people to control their personal data, while the theme of Mission Billion 2020 was focused on ensuring the accessibility of ID systems for vulnerable groups. Fast forward two years, we interviewed 2019 MBC Winner Toby Norman, CEO of Simprints to learn more about the impact of Mission Billion on their ideas.



Harvard Kennedy School - Ash Center

## Best Practices for the Governance of Digital Public Goods

14 April 2022

"Digital government" is becoming simply "government." As a result, an ever-increasing number of systems and processes critical to the operation of government—the core infrastructure of a state—are being digitized. This necessity creates enormous opportunities—to enhance, scale, and even standardize government services—and challenges—including a risk that building out this new infrastructure will impose costs that will reinforce global inequities. In this light, it is no surprise that Digital Public Goods (DPGs)—an institutionalized sharing of "open-source software, open data, open AI models, open standards, and open content" between government and other actors—are an increasingly discussed model.<sup>1</sup> This presents an opportunity to share the burden of modernizing the core infrastructure of a state.



Harvard Kennedy School – Journalist's Resource

## How they did it: Milwaukee Journal Sentinel reporters show how low-income Black renters in the city face disproportionate electrical fire dangers

28 March 2022

Facebook Twitter LinkedIn Reddit Email In the opening lines of their multiyear "Wires and Fires" investigation, Milwaukee Journal Sentinel reporters Raquel Rutledge, John Diedrich and Daphne Chen explain that fires caused by an inanimate force — electricity — discriminate by ZIP code. The story quickly moves to Patricia Colston, a mother and grandmother, and her friend Clarence Murrell. Both died in an Oct. 2019 electrical fire in a bungalow situated in the "already distressed 53206 ZIP code," the reporters write. 53206 and the surrounding areas are the "epicenter for electrical fire danger in the city." Officials had done little to mitigate the electrical fire risk, the reporters explain in their Aug. 2021 story, the first in the three-part series. "The people affected the most: low-income Black renters," they write.



Harvard Kennedy School – Journalist's Resource

## How they did it: Washington Post reporters reveal FEMA failures, denial of disaster aid to Black families in the South

25 March 2022

Facebook Twitter LinkedIn Reddit Email It took a lot of work to get the numbers the Federal Emergency Management Agency would not share. After Washington Post reporters Hannah Dreier and Andrew Ba Tran figured out how to scrape the data from a dormant government website — pulling 9.5 million records, 1,000 rows at a time — they discovered how badly FEMA had failed the people it was created to help. The federal agency's mission is to prepare the country for and respond to natural disasters such as hurricanes, wildfires and floods. FEMA also oversees federal recovery efforts, including distributing funding to help communities rebuild. Dreier and Tran show that FEMA has denied the overwhelming majority of disaster survivors' requests for aid in recent years.

# Future Communications Systems

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## Systems that are self-aware, self-optimizing and self-healing are on the horizon

With the advent of smarter devices and services, demand for wireless data increases exponentially. A key resource in this regard is wireless spectrum, which is scarce. Spectrum scarcity will only be exacerbated by the spread of devices with online connections via the Internet of Things, not to mention future communications systems that will rely on aerial drones, in-car connections and underwater cables. Massive efforts are underway to address this issue. New developments such as cognitive radio, for example, which can automatically channel communication through available spectrum, and so-called small cell networks, which use low-powered radio access nodes to increase capacity and coverage, are meant to ease spectrum scarcity. Indoor coverage can also be provided by Wi-Fi networks, which work on unlicensed spectrum that is unrestricted and not allocated or approved by a regulator. However, these technologies are based on conventional, block structure-based communications systems - which provide stability, but also suffer from inherent limitations when it comes to fulfilling high-capacity requirements such as fast signal processing.

Machine learning, which uses artificial intelligence to help computers gather information on their own without programming, and deep learning, where computers learn algorithms in much the same way a human brain absorbs information, have become increasingly important for the industry. Researchers are actively engaged in extending deep learning capabilities to communications infrastructure; they are generally attracted by the conceptual simplicity of systems that can learn to communicate over any type of channel, without the need for complex mathematical modelling and analysis. According to a white paper published by the World Economic Forum in 2017, a communication network currently servicing 10 million endpoints and 10,000 nodes could see those numbers increase by up to five times by 2020 - which would be impossible for human beings to control and manage without the aid of machine-learning techniques. So-called autonomous cognitive networks, which will be a reality soon, are self-aware, self-optimizing, and self-healing. However, there are related challenges. Although recently proposed deep learning-based algorithms show signs that they can achieve better performance, they lack solid theoretical analysis. While communication channels are now being generated by mathematical models during simulations, actual channel scenarios are far more complex and subject to change.

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Related insight areas: [Automotive Industry](#), [Future of Computing](#), [Fourth Industrial Revolution](#), [Public Finance and Social Protection](#), [Internet of Things](#), [Artificial Intelligence](#), [Economic Progress](#)

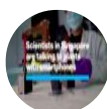


Brookings

## Africa and the future of digital diplomacy

23 March 2022

Digital diplomacy refers to the broad use of technology, particularly the internet and other information and communication technologies (ICTs)-based innovations, in the conduct of diplomacy. With new technology providing access to instant information and interactive online communication, the use of these tools by diplomats and government officials is becoming widespread. In fact, the internet has three fundamental impacts on diplomatic relations: First, it multiplies and amplifies the number of voices and interests involved in international policymaking. Second, it accelerates and frees the dissemination of information—accurate or not—about any issue or event. Third, it enables traditional diplomatic services to be delivered faster and more cost effectively.



World Economic Forum

## Talking to Plants Using Smartphones | Green Solutions | World Economic Forum

17 February 2022

Scientists from Singapore are talking to plants with smartphones.



GSMA- External Affairs

## AI for Impact Blog Series: (1) Introduction to Implementing Ethical Principles into Everyday Business

07 February 2022

Artificial Intelligence (AI) is a powerful, emerging force transforming business and society. It can help organisations improve prediction, optimise operations, allocate resources more efficiently, and personalise digital solutions. PwC estimates AI could contribute US\$15.7 trillion to the global economy by 2030.

# Harnessing Frontier Technologies

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## Companies are combining and mainstreaming frontier technologies to create new value

Technologies that help us push into as-yet-unexplored realms of biology, energy, computing, and intelligence may be essential for a healthy reset of the global economy in the wake of COVID-19. Whether it is through efforts to understand how quantum physics plays a role in natural energy and human consciousness (quantum biology), developing artificial intelligence that does not require excessive training data liable to inject human bias, or even the study of how disease and disorders might be treated through an understanding of the chemistry of venom (venomics), the post-pandemic Great Reset could benefit from the exploration of technology at its furthest frontiers.

These endeavours could help to rebuild in ways that emphasize sustainability and improve human and environmental health, and establish greater resilience in anticipation of future crises - by bolstering government services, enabling more efficient infrastructure including public transportation and sustainable energy systems, expanding educational opportunities, and fostering ways for businesses to develop services for their customers that create genuine, enduring value.

### KEY INSIGHTS FROM THE DISCUSSIONS

“The positive news is that thanks to these frontier technologies, we're at the point where driving ESG and sustainability across the value chain is actually a competitive advantage.”

Flexible modular manufacturing, autonomous order management in the hospital ecosystem, and AI-powered cloud connectors of internal/external data sources are examples of frontier technologies transforming collaboration across supply chains.

Digitally-enabled data visibility and intelligence extends across organizations to suppliers, customers, and communities in ways that enable value creation for everyone.

Places like innovation hubs help large firms, small companies, and startups collaborate to create new, agile solutions.

Augmentation technologies, digital academies, and AI process data can serve and empower frontline workers - especially during the current crisis.

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Related insight areas: [Advanced Manufacturing and Production](#), [Fourth Industrial Revolution](#), [Biotechnology](#), [3D Printing](#), [Blockchain](#), [Artificial Intelligence](#), [SDG 09: Industry, Innovation and Infrastructure](#), [Quantum Computing](#), [Drones](#)



Fraunhofer-Gesellschaft

### AutoInspect takes the quality of industrial inspection processes to a new level

02 May 2022

The quality of industrial production processes is ensured by a large number of sensor-based individual inspections. This generates large amounts of data. However, until now, the information from the individual sensors has generally only been looked at in isolation. The AutoInspect solution from the Fraunhofer Institute of Optronics, System Technologies and Image Exploitation IOSB overcomes this issue by linking all of the data to create a consolidated overview. Now, for the first time, linking the measured values is facilitating intelligent evaluation and the detection of hidden faults. This increases efficiency and ultimately improves product quality. A demonstrator will be presented at the Hannover Messe 2022 from May 30 to June 2 at the joint Fraunhofer booth in Hall 5, Booth A06.



Fraunhofer-Gesellschaft

### Taking the fight to microplastics with lasers

01 April 2022

Until now, wastewater treatment plants have not been able to sufficiently filter out tiny microplastics in wastewater, but this could soon change: The first laser-drilled microplastic filter is being tested in a wastewater treatment plant. It contains sheets with extremely small holes just 10 micrometers in diameter. The technology to efficiently drill millions of such holes was developed at the Fraunhofer Institute for Laser Technology ILT, and now the institute's engineers are scaling up ultrashortpulse (USP) laser technology in the kW range. Visitors can learn more about the microplastic filter and ultrashortpulse lasers at the Fraunhofer booth A6.441 at LASER World of PHOTONICS.



Harvard Kennedy School - Belfer Center for Science and International Affairs

### Reducing the Risk of "Dirty Bombs"

31 March 2022

In the spectrum of threats to nuclear security, highly radioactive materials such as cesium-137 and cobalt-60 represent a set of concerns and challenges which is much different from that of fissile materials like highly enriched uranium. Unlike the latter, they cannot be used to build a nuclear weapon. However, terrorists could use such sources to construct a so-called "dirty bomb", an improvised explosive device which spreads the radioactive substances in a populated area. Although, according to most planning scenarios, such a "dirty bomb" would likely cause few radiation-related casualties, its economic effects could still be in the billions of dollars – especially if parts of a city needed to be shut down for weeks or months while they are being decontaminated.



Harvard Kennedy School – Journalist's Resource

### How they did it: ProPublica reporters expose hot spots of toxic air pollution across the US

21 March 2022

Facebook Twitter LinkedIn Reddit Email A team of ProPublica reporters spent two years analyzing billions of rows of data from the U.S. Environmental Protection Agency and created a map that shows more than 1,000 toxic hot spots near industrial plants, where the risk of cancer for more than a fifth of the nation's population is elevated. The map is the most detailed of its kind, according to ProPublica. An accompanying series, "Sacrifice Zones," explains the data and shines a light on the stories of people who live close to the factories. "I learned so much about bureaucracy and the ways that human beings are sort of collateral damage in the capitalist world economy really, because I think that what's happening in the U.S.



Harvard Business School Working Knowledge

### How Racial Bias Taints Customer Service: Evidence from 6,000 Hotels

28 February 2022

Hotel concierges provide better service to white customers than Black and Asian customers, says research by Alexandra Feldberg and colleague. They offer three strategies to help companies detect bias on the front line.



## Despite daunting competition, efforts are underway to reposition Europe as a digital leader

COVID-19 has highlighted the central role played by the digital revolution in European societies, and in the European Union's economic development. Remote work, digital entertainment, and e-commerce quickly became more prevalent, and the overwhelming shift to digital accelerated demand for new infrastructure. Yet, there are relatively few world-beating digital companies in Europe; most have a marginal presence in global markets. The fragmentation of the internal EU market, coupled with relatively risk-averse domestic regulation, can make it a less hospitable environment for aspiring firms than the US or China. This has revived talk of designating strategic companies to supply digital infrastructure, which also reflects concerns about the penetration of European markets by American and Chinese firms that may bring with them added security issues (the EU's foreign investment screening regulation and its toolbox on 5G cybersecurity are important in this regard). Russia's invasion of Ukraine further underscored the growing importance of cyber defense, while issues related to the fair taxation of US tech multinationals with large presences in Europe remain unsettled - though commitments to a global corporate tax minimum of 15% may have an impact on this situation.

In 2020, the European Commission presented its "Shaping Europe's Digital Future" strategy, which aims to reposition Europe as a digital leader. It proposed new rules including the Digital Markets Act (DMA) and Digital Services Act (DSA), which are expected to be adopted in 2022 and meant to foster innovation and competitiveness - while creating a digital space that safeguards fundamental rights. The EU continues to use its regulatory power to set digital standards and shape relations with non-European countries and companies - through, for example, the General Data Protection Regulation and the Directive on Copyright in the Digital Single Market. However, to achieve the "European tech sovereignty" Commission President Ursula von der Leyen has called for, Europe must address strategic areas where it lags behind. In 2021 the Commission proposed ways to turn Europe into "the" global hub for trustworthy artificial intelligence, and the first-ever legal framework on AI and a new Coordinated Plan with Member States aims to guarantee the fundamental rights of citizens and businesses while spurring AI use, investment, and innovation. Meanwhile the Commission also proposed the "European Chips Act" to strengthen the region's position in the vitally-strategic area of semiconductor production.

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Related insight areas: [Fourth Industrial Revolution](#), [Economic Progress](#), [Taxes](#), [Digital Communications](#), [Geo-economics](#), [Future of Computing](#), [5G](#), [Innovation](#), [Entrepreneurship](#), [Digital Identity](#), [Trade and Investment](#), [Future of Media](#), [Entertainment and Sport](#), [Artificial Intelligence](#), [Infrastructure](#), [The Digital Economy](#)



Observer Research Foundation

## Yuans and Euros: Decoding China's Influence in Europe

28 April 2022

Lithuanian Minister of Foreign Affairs Gabrielius Landsbergis in conversation with Garima Mohan, Fellow, German Marshall Fund of the United States, Germany.



Brookings

## How will France's changing political dynamics shape Macron's next term?

26 April 2022

While Emmanuel Macron won re-election as France's president, far-right challenge Marine Le Pen gained a larger share of the vote than ever before. Célia Belin and Agneska Bloch explain how the political dynamics at play and the upcoming legislative elections are likely to shape Macron's second term.



Yale Environment 360

## How U.S. Gas Exports to Europe Could Lock in Future Emissions

21 April 2022

The U.S. plans to boost liquefied natural gas exports to Europe to help the EU reduce its dependence on Russian gas. This could spur an expansion of LNG terminals, which analysts say would lead to long-term increases in gas production and greenhouse gas emissions.



Nature

## Le Pen election win would be disastrous for research, France and Europe

20 April 2022

Marine Le Pen is promising to repeal unpopular changes to research institutions. But the wider impact of her presidency would be catastrophic. Marine Le Pen is promising to repeal unpopular changes to research institutions. But the wider impact of her presidency would be catastrophic.



Social Europe

## What to do with Russian oil and gas

13 April 2022

The European Union should apply import tariffs, instead of imposing an embargo.



The Diplomat

## China's Vision for Relations With Europe Is Slipping Out of Reach

12 April 2022

The April 1 Summit between the European Union (EU) and China was the first in the aftermath of the Ukraine war – and, for that matter, the first since the shelving of the Comprehensive Agreement on Investment in May last year. Sino-European relations have steadily deteriorated over recent years, in light of rising tensions over security and trade concerns, European criticisms of perceived human rights violations in China, and an escalating cycle of sanctions and counter-sanctions. In hopefully shedding some light on the future of Beijing-Brussels dynamics, this piece seeks to examine China's vision for Sino-European relations, and the EU in particular, prior to outlining pressing challenges facing the realization of this vision. What Is China's Vision for Sino-European Relations?.



European Centre For International Political Economy

## Episode 77: IP in the EU FTA's Series: IP and the Sustainable Agri-food Sector with Olivier de Matos

06 April 2022

In this online conversation, Jacki Davis talks to Olivier de Matos, the Director-General of CropLife Europe, which represents providers of innovative farm solutions. One of the sectors examined in the recent ECIPE study: "The Benefits of Intellectual Property Rights in EU Free Trade Agreements".

# Infrastructure Technology and Innovation

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## The adoption of emerging technologies in infrastructure development lags behind other sectors

More actively embracing new technologies is not only a way to potentially improve existing infrastructure, but also a key potential means of closing an infrastructure investment gap expected to reach \$22 billion in India, \$100 billion in China, and \$162 billion in the US by the year 2030, according to the Global Infrastructure Hub. Due to the economic and political importance of infrastructure projects, and related sensitivities, developers and investors are often hesitant to incorporate emerging technology into their planning. As a result, the engineering and construction industry remains among the least digitally transformed, leading to project delays, poor design, environmental damage, and ballooning costs. This is happening even as emerging technologies have the potential to transform entire infrastructure systems through the use of advanced materials, robotics, 3D printing, the Internet of Things (which strings devices and appliances together via an internet connection), and data analytics. Examples of the impact of technology on construction include China-based Broad Sustainable Building's construction of a 57-story tower in just 19 days in 2014 - in part by using advanced prefabrication techniques.

Building Information Modeling (BIM) is another example of helpful innovation, thanks to the way it enables developers to create data-based, digital 3D models of projects so that architects, engineers, and contractors can simultaneously collaborate. This potentially increases efficiency and quality, while reducing errors, delays, and costs. Better integrating new technology into infrastructure development could not only result in more badly-needed infrastructure, but also in more sustainable and efficient infrastructure. Drone deliveries could take vehicles and related emissions off the road, autonomous vehicles could boost road capacity, and more digital tracking of road use could help to better predict the need for new infrastructure, according to a report published by the McKinsey Global Institute in 2016. However, new regulatory and business models will need to be created in order to pave the way for new technologies, while the general thinking about infrastructure development should shift to more strongly emphasize connectivity between mobility and utility systems, and between living and work spaces (particularly in urban environments).

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Related insight areas: [Internet of Things](#), [Drones](#), [Cities and Urbanization](#), [Supply Chains](#), [3D Printing](#), [Advanced Manufacturing and Production](#), [Artificial Intelligence](#), [Mobility](#), [Future of Computing](#), [Innovation](#)



Asian Development Bank

## 6 Challenges to Advancing GMS Economic Corridors

30 April 2022

The Greater Mekong Subregion (GMS) shows in stark relief how better linkages within and between countries can spur economic prosperity. A focus on developing the East-West, North-South and South economic corridors has driven development in GMS countries by integrating road systems to interconnect borders, urban centers, hubs of production, trade, tourism, and seaports. The results have been impressive. Road density has more than doubled, and nearly 6,000 kilometers of roads have been completed with ADB support. Improved connectivity has significantly boosted trade and investment among GMS countries.



Frontiers

## Urban Resilience and Transportation Infrastructure Level in the Yangtze River Delta

28 April 2022

The development of urban resilience is inseparable from the construction of urban infrastructure. As an important lifeline of the city, transportation infrastructure is an important part of improving urban resilience. Studying the coordinated development degree of urban resilience and transportation infrastructure level is related to the future development of the city. On the basis of measuring the urban resilience and transportation infrastructure level in the Yangtze River Delta, this study uses the coupling coordination model and spatial autocorrelation model to explore the spatiotemporal evolution trend of the coupling coordination between urban resilience and transportation infrastructure level.



Asian Development Bank

## In India, Capturing the Value of Land Near Metro Stations Is Critical

06 April 2022

India is urbanizing rapidly and many of its cities are relying on government-financed metro rail as the backbone of their mass transit networks. This raises the question of what can be done to ensure that the economic benefits of the metro system are maximized, and how these initiatives can be financed. Our research indicates that in India, land use management is critical in shaping the amount of socio-economic benefit that metro rail can help create. Relaxation of floor-area ratios—the ratio between floor area of a building and the size of the land parcel where a building is located—has been widely adopted. This allows more businesses to use the space in an area.

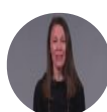


Mott MacDonald (RSS Feed)

## Putting people first when designing city environments

24 March 2022

Our behavioural insights work has been exceptionally well received by clients who regularly use our outputs to support planning and policy. Our work also helps support clients' social inclusion, environmental and sustainability goals. As designers of buildings, spaces and infrastructure we should be aware that we can influence the ways people act in their surroundings, but also that engineering solutions will often have the greatest impact when implemented in conjunction with soft measures to encourage and support behaviour change.



International Monetary Fund (IMF)

## Analyze This! How Do Conflicts Affect the Global Economy?

18 March 2022

Our latest Analyze This! video explains the impact of conflict on trade, financial markets, and the global economy.



Duke Fuqua School of Business

## Demetrio Carceller Arce (MBA '91) Discusses Sustainability and Leadership in a Pandemic

17 March 2022

This made selling beer quite complicated, said Carceller Arce, who spoke with Duke University's Fuqua School of Business Dean Bill Boulding for the Distinguished Speakers Series. Carceller Arce is also CEO and chairman of energy company Disa and serves on Fuqua's Board of Visitors. "We were declared a strategic industry which meant that we had to keep our plants open and running, but at the same time, I was really worried about the risks that our people were taking," Carceller Arce said. With operations continuing in Madrid but at a standstill in Catalonia, home to the city of Barcelona, DAMM had close to 2,000 people on hand without enough work to do. "That was difficult to adjust but we managed to get through," Carceller Arce said.



Yale Environment 360

## How Climate Change Is Disrupting the Global Supply Chain

10 March 2022

Extreme weather, from floods to wildfires, is increasingly hammering ports, highways, and factories worldwide, and experts warn these climate-induced disruptions will only get worse.

# Successful Digital Transformation

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## Companies that double down on digital transformation may be better able to weather COVID-19

According to the results of a survey published by SAP, while nearly all corporate leaders think digital technologies will drastically disrupt their industry, just 44% believe they are prepared for that disruption. Soon, just about every company will need to think like a technology company - or risk extinction. Many companies struggle to realize a return on their investment in digital transformation. Companies collectively spent an estimated \$1.2 trillion on transformation efforts in 2019, according to IDC, yet research published by MIT found that only 13% of business leaders believe their organizations are truly equipped to compete in the digital age. Evidence suggests that the most successful efforts do not approach transformation simply as a way to experiment or cut costs, but rather as a fundamental tool to create new value. Artificial intelligence, 5G, and autonomous vehicles have all amplified opportunities to create value; an estimated 80% of all emerging technologies will have foundations in AI by 2021, while the number of 5G connections in the world is expected to triple by 2023, and more than half of all passenger vehicles will be electric by 2040.

As the financial and business impact of COVID-19 spreads, companies that double down on responsible digital transformation efforts may be better able to thrive. However, strong leadership will be required. Fostering cultural changes and a “digital at the core” mindset will be necessary, as will crowdsourcing and co-creating and piloting new ideas and business models among different teams. Large companies that are not digital natives often find it difficult to replace legacy structures and processes with digital-first approaches. At all of these companies, leaders need to be equipped with digital skills to keep pace with technology advancements, and to make timely decisions. However, according to the results of a survey published by the MIT Sloan School of Management, only 9% of executives strongly believed their leaders had the right skills to thrive in a digital economy. The need for digital skills at all levels applies to even the most traditional of businesses; the European Central Bank, for example, has recommended that banks need to adopt new and diverse skills and experience when it comes to technology and digital innovation - especially at the board level.

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Related insight areas: [5G](#), [Innovation](#), [Digital Communications](#), [Artificial Intelligence](#), [Internet of Things](#), [Entrepreneurship](#), [Sustainable Development](#), [Workforce and Employment](#), [Fourth Industrial Revolution](#), [COVID-19](#), [The Digital Economy](#)





International Telecommunication Union

### Digital natives, you have the floor...

04 May 2022

Digital policy-makers need to work hand-in-hand with young people to co-create bold new solutions for our common digital future, writes Doreen Bogdan-Martin, Director of the ITU Telecommunication Development Bureau.



Fraunhofer-Gesellschaft

### Smart screws keep bridges, machines and wind turbines safe

02 May 2022

Screw connections on critical infrastructures are exposed to major stresses and must therefore be checked on a regular basis. Researchers at the Fraunhofer Cluster of Excellence Cognitive Internet Technologies CCIT have now developed a technology that allows the stability of the screw connections to be checked at any time by remote monitoring. This increases safety and reduces the time and effort spent on inspections.



RAND Corporation

### Securing 5G

29 April 2022

In this report, researchers describe fifth-generation (5G) security and identify where the United States has security advantages or disadvantages relative to China in the 5G competition and how to preserve those advantages.



The Innovator

### How Digital Transformation Is Helping Factories Become Greener

08 April 2022

Schneider Electric's digital transformation has helped its factories become greener. Now it's being held up as an example to manufacturers in other sectors. The company's Le Vaudreuil facility in France's Normandy region is one of three manufacturing sites that were recognized as "sustainability lighthouses" on March 30 by the World Economic Forum. These lighthouses "defy [...] The post How Digital Transformation Is Helping Factories Become Greener appeared first on The Innovator .



Mott MacDonald (RSS Feed)

### Bridging the gap between infrastructure and digital

24 March 2022

The tech houses and start-ups will gain access to a new sector that offers vast potential for growth and will enjoy access to better data sets for building their apps and innovative services. They also gain the support and gravitas of partnering with a firm that is well used to working with major asset owners and regulators and has a deep understanding of the connection between infrastructure and its purpose. The ultimate benefit will be through enhanced economic, social and environmental outcomes.



Mott MacDonald (RSS Feed)

### Long live the digital revolution

24 March 2022

The march of technology has touched almost every aspect of our lives. It's time for infrastructure to catch up. With smart phones in our pockets, we have access to data and services that were undreamed of a generation ago. In manufacturing and increasingly in the professions, humans stand side by side with machines in the workplace.



Asian Development Bank

### How Standardized Bar Codes Can Make Supply Chains More Transparent

15 March 2022

Look around you. How many bar codes are within your reach? It seems as if these stripes of coded messages, and their upgraded offspring the square blotches of information known as QR codes (for "quick response") and the tiny radio devices known as RFIDs (radio frequency identification), are virtually everywhere. Still, there is a need for the technology to reach even further and improve global supply chains in the process. Greater use of this 48-year-old system of identification standards would help make global supply chains more environmentally and socially sustainable, improve safety and security for key goods like food and medicine and generally make trade more efficient, sustainable and inclusive.

## **Whether focused on quantum biology or AI, cutting-edge development must contribute to solving humanity's greatest challenges**

Technologies that help us push into as-yet-unexplored realms of biology, energy, computing, and intelligence may be essential for a healthy reset of the global economy in the wake of COVID-19. Whether it is through efforts to understand how quantum physics plays a role in natural energy and human consciousness (quantum biology), developing artificial intelligence that does not require excessive training data liable to inject human bias, or even the study of how disease and disorders might be treated through an understanding of the chemistry of venom (venomics), the post-pandemic Great Reset could benefit greatly from the exploration of technology at its furthest frontiers. These endeavours could not only help to rebuild in ways that emphasize sustainability and improve both human and environmental health, but also establish greater resilience in anticipation of future crises - by bolstering government services, enabling more efficient infrastructure including public transportation and sustainable energy systems, expanding educational opportunities, and fostering ways for businesses to develop services for their customers that create genuine, enduring value.

Frontier technologies will require careful and considered regulation and oversight, if they are to contribute to the greater good. A respect for human dignity, a concerted effort to create inclusive benefits attainable for anyone regardless of gender, race, or ethnicity, and legitimate attempts to establish trust must drive any technology development or regulatory effort. Some of the frontier technologies now on the horizon present grave threats. Digital phenotyping, or using computer systems to profile someone's physical or mental health, for example, raises significant privacy issues and could be subject to misuse. Meanwhile the use of big data and artificial intelligence to predict criminal activity raises multiple red flags related to cultural and racial bias, and the anticipated spread of lethal autonomous weapons calls for proactive efforts to bind them with some level of protective safeguards. We must take proactive steps to ensure that the adoption of any technology - be it 3D printing or satellites - does not enable the abuse of power, instill and aggravate systemic racism, expand wealth disparities, and rob the vulnerable of their livelihoods.

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Related insight areas: [Blockchain](#), [Advanced Manufacturing and Production](#), [Precision Medicine](#), [Biotechnology](#), [Virtual and Augmented Reality](#), [The Digital Economy](#), [Science](#), [3D Printing](#), [Future of Computing](#), [Advanced Materials](#), [Artificial Intelligence](#), [Quantum Computing](#)



World Economic Forum

### 'Open' technology can tackle the world's biggest problems - here's what's holding it back

02 May 2022

Open source approaches to technologies can help governments more efficiently develop tailored solutions to big and urgent challenges. Implementing digital public goods (DPGs) to leverage digital public infrastructure (DPI) can provide crucial interventions for emergencies and development. DPI and DPGs, when combined with community engagement and accountable governance, form Open Digital Ecosystems (ODEs) that democratize access to government systems and enable collaborative citizen-centric services. Key changes must be made to ensure that governments can maximize digital ecosystems to accelerate the achievement of UN Sustainable Development Goals. The utility of technological solutions in a crisis has never been clearer.



Fraunhofer-Gesellschaft

### Reference-factory.H2 – electrolyzer and fuel cell production of the future

02 May 2022

Hydrogen is a key element in the energy transition. To ensure that hydrogen can become generally established as an energy source, it must be produced at market prices, in sufficient quantities and in a climate-neutral manner, and used with a high CO<sub>2</sub> reduction rate. This requires affordable, robust hydrogen systems in the form of electrolyzers and fuel cells. With the intent of launching their serial production in the future, Reference-factory.H2 provides both a design for guidance and a modular system based on new and specifically optimized technologies. This shall contribute to the economically viable production of electrolyzers and fuel cells, accelerate their market breakthrough and massively reduce the cost of hydrogen.



Frontiers

### The Potential Role of RNA Structure in Crop Molecular Breeding

02 May 2022

The continually growing human population creates a concomitantly increasing demand for nutritious crops with high yields. Advances in high throughput sequencing technologies have revealed the genetic architecture of major crops. This includes extensive information enabling comprehensive genetic markers for breeding selection, new gene discoveries, and novel gene regulatory strategies for crop editing. RNA structure is an important type of genetic feature, essential for post-transcriptional regulation of gene expression. Here, we summarize recent advances in genome-wide RNA structure studies in crops and review the associated RNA structure-mediated regulation of gene expression. We also discuss the functional importance of those single nucleotide variations that induce large RNA structure disparities.



GovLab - Living Library

### How Smart Tech Tried to Solve the Mental Health Crisis and Only Made It Worse

18 April 2022

Article by Emma Bedor Hiland: "Crisis Text Line was supposed to be the exception. Skyrocketing rates of depression, anxiety, and mental distress over the last decade demanded new, innovative solutions. The non-profit organization was founded in 2013 with the mission of providing free mental health text messaging services and crisis intervention tools. It seemed like the right moment to use technology to make the world a better place. Over the following years, the accolades and praise the platform received reflected its success.

# Blockchain and Leveraging Data

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**The technology can provide infrastructure for data sharing, exchange, and ownership**

Data is the lifeblood of the Fourth Industrial Revolution, with 2.5 quintillion bytes of data now being produced daily amid some of the most profound technological change in history. To date, many large, centralized companies have been able to leverage data to target online advertising, sell products, or to simply re-package data (including personal internet user data) for sale to other companies - which calls for serious ethical considerations. Many prohibitive siloes remain in critical areas - for example, in the application of genomic data to attempt to treat rare diseases - due to a combination of regulation and proprietary oversight. The features that make blockchain technology unique may enable entirely new models for the valuation of data, its consumption, and means of compensating others for it. The DataNet project hosted at University College London, for example, is exploring related technical specifications for addressing, data tagging, permissioning, and more. These aspects are all key to facilitating data marketplaces and exchanges, where entities can freely share data and people can potentially be compensated for its use.

Blockchain can be especially powerful in this regard when combined with other Fourth Industrial Revolution technologies. Ant Group, the large Chinese financial services company, is for example combining the Internet of Things, artificial intelligence, and blockchain in order to try to provide secure, integrated services in diverse markets around the world; while Internet of Things devices are able to provide large amounts of valuable data, artificial intelligence is used to process that data, and blockchain serves as a trust-enabling layer of infrastructure. However, using blockchain for data transactions can create technological, institutional, and ethical problems. In terms of technology, privacy can be breached during “off-chain” data integration and analysis (even if data “on-chain” is safe). From an institutional point of view, containing data in a blockchain might be technically impossible if it has been collected from multiple, non-standardized platforms or countries. And, in terms of ethics, a social consensus is required on what constitutes adequate privacy protections, fair access for both people and companies aiming to exploit their data, and just rules to dictate sharing.

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Related insight areas: [Precision Medicine](#), [Values](#), [Future of Media](#), [Entertainment and Sport](#), [Internet of Things](#), [Future of Consumption](#), [Fourth Industrial Revolution](#), [Artificial Intelligence](#), [Data Science](#), [Health and Healthcare](#), [Internet Governance](#)



NiemanLab

### Local news outlets were targeted in Facebook's smear campaign against TikTok

31 March 2022

Facebook hired a large consulting firm to undermine its competitor TikTok. The Washington Post's Taylor Lorenz and Drew Harwell reported in an eye-popping scoop on Wednesday. The secret campaign specifically targeted local reporters to help amplify questionable claims about the platform. .



Istituto Affari Internazionali

### Central Bank Digital Currencies: Governance, Interoperability, and Inclusive Growth

30 March 2022

As economies have become increasingly digitalized, central bank digital currencies (CBDCs) have been at the forefront of the agenda for central banks as a means to enhance payments systems' efficiency (both domestically and cross-border) and increase financial inclusion, and more broadly to support the effective transmission of monetary policy in the digital age (BIS, 2020; Boar and Wehrli, 2021). While the potential of CBDCs to meet these goals is clear, a secure underlying infrastructure and a credible, globally accepted system is of paramount importance.



Wired

### Facebook Has a Child Predation Problem

13 March 2022

While trying to map the extent and impact of place-based Facebook groups where QAnon and allied disinformation spread, I went looking for Facebook groups with names including 10, 11, or 12. This was part of my work with the Pitt Disinformation Lab, and I was thinking of the 10th, 11th, or 12th wards of the city of Pittsburgh. What appeared instead was a group named "Buscando novi@ de 9,10,11,12,13 años." Looking for \*a nine-year-old\* girlfriend? The page's aesthetic was cartoon cute: oversized eyes with long lashes, hearts and pastels.



Harvard Kennedy School – Journalist's Resource

### White papers, working papers, preprints, journal articles: What's the difference?

25 February 2022

Facebook Twitter LinkedIn Reddit Email This tip sheet, originally published in May 2018, has been updated to include preprint research, a type of research featured often in news coverage of the coronavirus pandemic. Journalists rely most often on four types of research in their work. White papers, working papers, preprints and peer-reviewed journal articles. How are they different? And which is best? Below, we explain each, pointing out its strengths and weaknesses. As always, we urge journalists to use care in selecting any research to ground their coverage and fact-check claims. Peer-reviewed article Peer-reviewed research — the kind that appears in academic journals and that we highlight here at The Journalist's Resource — has undergone a detailed critique by scholars with expertise in the field.



Asia Global Institute

### Play to Earn: Southeast Asia's Fast-Growing Video Gaming Industry

24 February 2022

Southeast Asia has emerged as a major hub for the global video gaming industry, because of both its large community of players and the expanding game development business. Muhammad Azka Prasetya of GreenUrbanomia analyzes the trends and challenges for the sector in the context of the growth of e-sports and the application of new technology such as virtual reality.



University of St. Gallen

### How does Switzerland pay?

23 February 2022

About half of the online payments are now being transacted through smartphone, tablet and co. In addition, approx. 30 per cent of Swiss people use neobanks. This is revealed by the latest Swiss Payment Monitor, a study conducted by the ZHAW and the HSG.

## Innovative approaches to data stewardship manage trade-offs while creating inclusive value

Increasing digital connectivity has led to unprecedented volumes of online data. According to IDC, the “global datasphere” will grow from 33 zettabytes in 2018 to 175 zettabytes by 2025 - when three-quarters of the world's population will interact with data every day, nearly half of all data will be available to the public via the cloud, and nearly a third of it will be provided in real-time to aid decision making. Companies and governments are increasingly using data to try to add value by delivering personalized healthcare, or by building smarter cities and public services. Data has been a particularly useful public health tool during the COVID-19 crisis; at least 25 countries have introduced contact-tracing applications meant to curb its spread. As data increasingly becomes a source of economic value, there is mounting pressure to share and use it in ways that benefit everyone. This means respecting personal freedoms like privacy and security, and actively preventing the use of data to perpetrate human rights abuses or to discriminate. Governments have introduced rules to enforce responsible data use, such as the European Union’s General Data Protection Regulation - which aims to give internet users more control over their personal data.

With most data-driven innovation and services coming out of the private sector, businesses play an increasingly important role in demonstrating responsible data stewardship. New mechanisms - including business models, technologies, and practices - are being developed in isolated pockets across various industries. Business leadership is essential for unlocking data’s transformative value in a way that builds trust and relieves pressure on policy-makers to intensively regulate industries. Efforts such as the Sovrin ledger, designed as a public repository for digital identities, and Massachusetts Institute of Technology’s Solid project strive to embed new internet principles, rules, and protocols that give people more control over their personal data online. Meanwhile innovative legal and collaborative structures are being tested to streamline data sharing, such as data-trade marketplaces. Data is critical for national security and a nation’s competitiveness; while data flows across borders are necessary for global trade, governments are increasingly trying to reduce their dependence on foreign firms by asserting data sovereignty. Examples of this include China’s data localization rules, and the GAIA-X data sovereignty effort spearheaded in Europe by Germany and France. The harmonization and coordination of governments’ policy frameworks will be key for balancing national goals with the benefits of international innovation.

Priorities for collaboration:

- Identify and promote technology and policy innovation in trusted data sharing and use.

- Mobilize business stewardship and leadership on data.

- Coordinate global cooperation on cross-border data flows.

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Related insight areas: [Data Science](#), [Public Finance and Social Protection](#), [Health and Healthcare](#), [Precision Medicine](#), [China](#), [COVID-19](#), [European Union](#), [Geo-economics](#), [Trade and Investment](#), [Digital Identity](#), [Human Rights](#)





Center for China and Globalization

## General Manager of China Public Affairs for LinkedIn: A Look at the Digital Economy in Terms of Talent Using the LinkedIn Economic Graph

05 May 2022

“ Digital talent provides a unique perspective to study the global digital transformation and gain insights into the global digital economy. Trends like talent migration, hiring rates, and in-demand skills by region are focuses for LinkedIn and we are partnering with governments and non-governmental organizations around the world to share these insights and recommend policy solutions.



UN Climate Change

## NHS hospitals are publishing their plans to achieve net zero: here's what it will actually take to get there

25 April 2022

The NHS – which makes up 4% of the UK's total carbon footprint – is aiming to reach net zero by 2045. If it succeeds, it's likely to become the world's first healthcare system to do so. The post NHS hospitals are publishing their plans to achieve net zero: here's what it will actually take to get there appeared first on Climate Champions .



London School of Economics and Political Science

## What does Open Science mean for disciplines where pen and paper are still the main working methods?

21 April 2022

Open Science and its wider application to the social sciences and humanities, is predicated on the idea that research can be reproduced and shared across digital platforms, but to what extent do researchers actually use digital tools a part of their work? Commenting on a recent study into the workflows of social scientists and humanities ... Continued.



The Conversation

## Your forgotten digital footprints could step on your job prospects - here's how to clean up

06 April 2022

Applying for a new (or first) job can be time consuming. The job application process, particularly for graduate schemes, involves multiple steps: tailoring your application, psychometric testing, interviews and participation in a day or more of assessments online or in person. The process can also involve intrusive scrutiny of your digital footprints. Behind the scenes, up to 80% of employers and recruitment agencies use social media content as part of their assessment of candidate suitability. Being open online about health conditions, addiction issues or pregnancy can adversely affect an applicant's chances of success when applying for jobs, as can a profile which shows polarised views, non-mainstream lifestyle choices, or excessive partying.

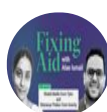


Wired

## In the World of NFTs, Who's Making Money Off Your Image?

05 April 2022

You might be disturbed, not only that your name and face have been used without consent, but that your inclusion in this gallery was crafted as a tacit nod to an “investment-driven” art world of which you want no part. This speculative IRL example mirrors the emergence of “portrait piracy” in the non-fungible token (NFT) market: part identity theft, part exploitation imagery, part cryptocurrency side hustle. (NFTs are not tied to ownership of actual—digital or physical—artwork, but a receipt of the purchase of a record on a blockchain, like a notarized certificate of authenticity for digital collectables.) Two NFT collections have demonstrated how artists seeking to monetize nonconsensual images are using them to lucrative ends.



The New Humanitarian

## Fixing Aid | Can blockchain help fix the I.D. problem for a billion people?

31 March 2022

Today, we look at how to help people who have fled their homes or live in vulnerable environments access their personal documents – from I.D.s to diplomas – in a secure and streamlined way. Two startups offer some solutions – and, yes, blockchain is involved! Imagine having to flee your home.

# Managing Technology's Impact

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## Governments must help people deal with technological change, as they compete with tech giants for influence

Technology does not exist in isolation; it impacts the ways we relate to one another, the health of economies, and the stability of governments. One of the most significant tech-related challenges is the effect of artificial intelligence on labour markets - a study published by the Brookings Institution in 2019 estimated that roughly one in four jobs in the US was “highly vulnerable” to automation. COVID-19 is likely to accelerate this trend, as workplaces look for ways to get more done with less human contact (and often with fewer humans). Tech-related economic disruptions have potential social impacts. Some may be positive - AI can help detect financial fraud, for example, diagnose diseases, or improve agricultural productivity. But technological change can also leave most vulnerable people behind. Governments face a difficult task in deciding how best to harvest the potential of new technologies without aggravating social dislocation and exclusion. They must embrace efficiency gains that result from technology, but do so with smart and adaptive regulation. The “precautionary principle” should be used in all cases: do not wait until harmful effects are proven, before enacting regulation to shield society from potential downsides.

Governments have a major role to play in keeping the public aware of the technological changes likely to affect them most. Technology has become an important component of international relations, for example; the US-China trade conflict results in part from efforts to control access to the most cutting-edge innovation. The market valuations and reach of the largest US tech firms including Apple, Facebook, and Tesla have soared, lending them serious clout and helping them rival governments in terms of global influence. Apple, for example, surpassed the entire German DAX index in terms of value, while Tesla, which produces less than half a million cars per year (compared to Toyota's 10 million) became the world's most valuable automaker in mid-2020. The COVID-19 pandemic has only boosted the big tech firms' size and sway, prompting questions about whether they will adopt commensurate corporate responsibility practices. The evidence so far is mixed. Some efforts, such as Microsoft contributing to affordable housing in the Seattle area, have drawn praise. But some critics argue that these efforts pale in comparison to the companies' revenue, and may be little more than window dressing.

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Related insight areas: [Internet Governance](#), [Future of Computing](#), [Cybersecurity](#), [The Digital Economy](#), [COVID-19](#), [SDG 10: Reduced Inequalities](#), [Digital Communications](#), [Artificial Intelligence](#), [Innovation](#), [Fourth Industrial Revolution](#), [SDG 15: Life on Land](#), [Workforce and Employment](#), [Pandemic Preparedness and Response](#), [Mobility](#), [Corporate Governance](#), [5G](#), [Blockchain](#), [SDG 12: Responsible Consumption and Production](#), [Future of Media](#), [Entertainment and Sport](#), [Data Science](#)



VoxEU

## Zombie firms and the take-up of support measures during Covid-19

04 May 2022

Governments around the world enacted unprecedented measures to support firms impacted by the Covid-19 pandemic. This column focuses on Italy to examine the extent to which these measures ended up also benefitting non-viable but still active firms. The authors find that ‘zombie firms’ were less likely than healthy firms to access public support measures in the form of either grants, debt moratoria, or government-guaranteed loans, suggesting that these measures did not contribute to a zombification of the economy.



Australian Institute of International Affairs

## Digital Diplomacy in Africa

14 April 2022

If COVID-19 has proved an intense adversity in Africa as elsewhere in the world, it has also proved a boon in some respects. The African digital diplomacy sphere is instructive in these respects. The adage “every misfortune is a blessing” is common across Africa, an equivalent of “every cloud has a silver lining.” Before early 2020, when governments around the continent instituted restrictions on physical contact and movement, the use of digital technologies for diplomatic work by African nations was at best perfunctory. Save for a few countries such as South Africa, African diplomats and officials responsible for foreign policy and international affairs used social media platforms, voice and video streaming, and the internet more broadly in the same way as ordinary citizens.



Harvard Business Review

## How to Use Correlation to Make Predictions

06 April 2022

Too many leaders take an incomplete approach to understanding empirical patterns, leading to costly mistakes and misinterpretations. As we have discussed before, one extremely common mistake is interpreting a misleading correlation as causal. We’ve advised countless organizations on the topic. We’ve written research papers, managerial articles, and even a book dedicated to the power of experiments and causal inference tools — a toolkit that economists have adopted and adapted over the past few decades. Yet, while we are deep believers in the causal inference toolkit, we’ve also seen the reverse problem — leaders who overlook useful patterns because they are not causal.



Clean Energy Wire

## Europe must come together as a green electricity and hydrogen union – analyst

06 April 2022

Europe must come together as a green electricity and hydrogen union – analyst “Across Europe, we must expand power grids with interconnectors and establish hydrogen corridors,” says Kirsten Westphal. Image: BMBF. Europe must act as a true green electricity and hydrogen union to stand its ground in a competitive world that moves to climate neutrality, says energy analyst Kirsten Westphal. The continent should establish hydrogen corridors to neighbouring regions with rich renewable resources, Westphal, who works for the German government’s hydrogen import initiative H2 Global, told Clean Energy Wire in an interview.



VoxEU

## Globalisation and the effective taxation of capital versus labour

06 April 2022

Globalisation has wide-ranging effects on tax systems. This column uses a new dataset of taxes on capital and labour across countries and time to assess these dynamics. The authors document a global convergence of average effective labour and capital taxes over time, as labour taxes have increased and capital taxes fallen. However, the large fall in capital taxation in developed economies contrasts its gradual rise in developing economies, albeit from a low base. This trend is consistent with evidence suggesting the causal effect of trade integration on the tax capacity of developing economies.



The Conversation

## Pandemic parliaments: lessons learned from two years trying to run democracies living under COVID-19

18 March 2022

Parliaments matter more than ever in times of crisis. They oversee emergency responses, evaluate and pass legislation, and approve funds to meet urgent public needs. They have a key role to play in maintaining transparent, effective government. When they do all this well, they make it easier for people to trust their governments. When a government has to take extreme measures, it helps to know that other parties in parliament will act to stop it from going any further than is absolutely necessary.

# Digital Transformation of Organizations

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**The average lifespan for traditional companies is declining, while the revenue share for ‘digital ecosystems’ is expanding**

The Fourth Industrial Revolution has reshaped entire industries - as sources of value shift across value chains and accelerate the need for greater agility, adaptability, and transformation.

According to McKinsey & Company, an emerging set of “digital ecosystems” modelled after firms like Facebook and Airbnb could account for more than \$60 trillion in revenue by 2025, or more than 30% of all global corporate revenue. Traditional organizations need to quickly reimagine ways to create and capture new business value in the face of this digital disruption. The average tenure of a company in the S&P 500 Index of large, US-traded firms is expected to decline from 24 years in 2016 to 12 years by 2027, as corporate leaders deal with an unprecedented combination of disruptive technologies, changing customer behaviour, and an impending climate crisis. However, disruptive technologies are also creating significant new value opportunities. Advanced 5G telecom networks are expected to generate more than \$600 billion in new business by 2026, for example, while the market for distributed “edge” computing is expected to more than triple between 2019 and 2024, to \$9 billion.

People increasingly expect technology to be personalized, convenient, and on-demand; and, according to the research firm Nielsen, nearly half of all consumers are now more likely to try new brands than they were five years ago. These people also expect companies to play a constructive role in society. According to a study published by Accenture, 62% of consumers say their purchasing consideration is driven by a company’s ethical values and authenticity, and 74% want more transparency on companies’ stances on environmental and social issues, and on how they source their products and ensure safe working conditions. In response, many business leaders have transformed their organizations to create new value. While nearly 96% of organizations are in some phase of transformation, according to research firm IDG, and 90% of enterprises have already adopted a “digital-first” business strategy, the results have so far been mixed; less than half of executives now believe they can extract and maintain the planned value from their transformation initiatives. Companies of all types now have a shared opportunity to exchange information and co-create new frameworks, tools, and partnerships to successfully transition to a new business normal.

Priorities for collaboration:

-Accelerate successful business transformation to respond to technological and social disruption.

-Identify collective learnings and strengthen collaboration across industries.

-Co-create new insights, models, decision frameworks, and tools.

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Related insight areas: [Corporate Governance](#), [Innovation](#), [Entrepreneurship](#), [Blockchain](#), [3D Printing](#), [The Digital Transformation of Business](#), [Fourth Industrial Revolution](#), [Economic Progress](#), [Virtual and Augmented Reality](#), [Leadership](#), [Artificial Intelligence](#)

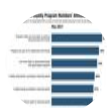


International Telecommunication Union

### Older adults join the fintech revolution

02 May 2022

By ITU News Older people who suffer from dementia are likely to start having problems managing their money years before their clinical diagnosis. Financial mistakes, such as forgetting to pay bills or trouble managing savings, may be an early sign of Alzheimer disease, according to the researchers behind a 2021 US study that analysed more [...] The post Older adults join the fintech revolution appeared first on ITU Hub .



World Economic Forum

### Can brands make reusable packaging more attractive than single-use plastic? NFTs could be the answer

27 April 2022

The reusable packaging market could be a \$10 billion opportunity to eliminate single-use plastic. Despite this many brands are reluctant to believe their customers can change their throw away habits. Next-generation reward schemes using digital currencies could accelerate the circular economy. Undoubtedly, one of the best ways to reduce plastic pollution is to eliminate single-use plastic and introduce long-lasting reusable packaging instead. Brands are still reluctant to abandon the low-cost convenience of grab-and-go.



GovLab - Living Library

### Digital Responsibility

18 April 2022

The transformative effects of digital technologies require researchers to understand the long-term consequences of the digital transformation process and to contribute to its design in a responsible way. This important challenge is addressed by the emerging concept of Digital Responsibility (DR). While the concept is increasingly recognized by political and organizational groups, the academic discussion is still not systematically evolving and the core elements of DR are not yet integrated into a coherent structured framework. This article presents a first systematic overview about the relevant levels of DR (personal, corporate and societal), its core principles and the key research themes for business & information systems researchers that relate to important questions of digital responsibility.



UN Capital Development Fund (UNCDF)

### Inclusive Digital Economy Scorecard (IDES)

12 April 2022

About the Scorecard The Inclusive Digital Economy Scorecard (IDES) is a strategic performance and policy tool that has been developed to support countries in better understanding and monitoring the status of their digital transformation, with a view to helping them make it more inclusive.



Wired

### The Metaverse Could Radically Reshape Fashion

11 April 2022

In 2020, London-based fashion designer Scarlett Yang created a garment that looked like glass, changed texture in response to temperature and weather, and dissolved if you left it in water.



Harvard Business Review

### How the Metaverse Could Change Work

05 April 2022

Imagine a world where you could have a beachside conversation with your colleagues, take meeting notes while floating around a space station, or teleport from your office in London to New York, all without taking a step outside your front door.



Electronic Frontier Foundation

### Day of Action for Antitrust: Our Rights Are Tied to Having Choices

04 April 2022

Today, EFF joins a diverse coalition of civil society and tech companies to call on Congress to pass strong anti-monopoly rules for the Internet.

# Agile Technology Governance

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## **Some governments will be able to reinvent themselves to better understand what they are regulating**

Governments may have to reinvent the ways that they operate in order to keep pace with technology. Powerful digital tools like artificial intelligence are swiftly disintermediating entire markets - taking influence away from traditional regulators and unskilled workers, and increasingly handing it to corporations and skilled labour. Governments everywhere are meanwhile being challenged to move beyond simply understanding major technological advances to being able to mitigate, shape, and harness them in order to govern better - that is, to become more accessible, transparent, and trustworthy. Governments making this transition will be forced to entirely change their approaches to creating and enforcing regulation, not least in order to safely stimulate rather than stymie innovation. These governments may have to create brand-new instruments to cope with the spread of new technologies, either by nurturing internal expertise or working together with the private sector. Those that are agile will be able to find ways to reinvent themselves in order to better understand what it is they are regulating - and to steer technological development in ways that improve the state of the world for everyone.

Faster 5G mobile networks promise to only make digital communication more ubiquitous, while increasing processing power and storage capacity are boosting the scope of knowledge immediately available to just about any computer user. When coupled with the increased availability and quality of data, communicated through increasingly rich and varied visualizations and other analytic techniques, these trends have the potential to fundamentally reshape communication, news reporting, and public services - in ways that can respond more directly to the needs of the public. But there are also serious related risks that need to be managed. According to Cisco's 2018 Annual Cybersecurity Report, cyber attackers targeting governments have developed increasingly sophisticated and threatening malware, and can cover their tracks with encryption while exploiting new vulnerabilities in cloud computing and the Internet of Things. New and evolving rules of the road such as the European Union's General Data Protection Regulation, which came into effect in 2018, will be critical for managing the consequences of such threats - but will also introduce their own new complexities to governing.

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Related insight areas: [SDG 16: Peace, Justice and Strong Institutions](#), [SDG 10: Reduced Inequalities](#), [Digital Communications](#), [Future of Media, Entertainment and Sport](#), [Agile Governance](#), [Internet of Things](#), [Global Governance](#), [Corporate Governance](#), [5G](#), [Innovation](#), [Blockchain](#), [Cybersecurity](#), [SDG 01: No Poverty](#), [Behavioural Sciences](#)



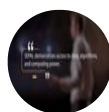


Wharton School of the University of Pennsylvania  
- Knowledge@Wharton

## Making the Business Case for ESG

04 May 2022

Witold Henisz is a Wharton management professor, director of the Wharton Political Risk Lab, and founder of the Wharton ESG Analytics Lab. He's also a subject-matter expert on one of the most pressing issues in business today, which is ESG. Many investors want to put their money into socially conscious companies that proffer environmental, social, and governance criteria, but actually measuring a company's ESG impact is an imperfect science at best.



Food and Agriculture Organization of the United Nations

## SEPAL: A powerful, open-source platform for forest and land monitoring.

02 May 2022

SEPAL ([openforis.org/sepal](https://openforis.org/sepal)) is a freely available, open-source, powerful computing platform that helps users make efficient and effective use of satellite data for autonomous land monitoring. Information is key to making good land management decisions. Satellite data provides an invaluable source of land, water, and atmospheric observations for identifying, measuring, and monitoring threats and improvements to global natural resources. However, the vast quantities of data available, however, can be challenging to use effectively. Leveraging both Google's Earth Engine and Amazon Web Services cloud computers, along with existing open-source software for processing satellite data, SEPAL makes it easy for anyone, anywhere to access massive amounts of data and put those data to bear immediately on critical environmental issues.



Frontiers

## How Does Green Credit Promote Carbon Reduction? A Mediated Model

28 April 2022

Using China's provincial panel data from 2006 to 2016, this paper develops a dynamic panel data model to investigate the impact and mechanism of green credit on carbon emissions at the national and regional levels. According to the findings, green credit significantly reduces carbon emissions, with the eastern region having the greatest reduction effect. Green credit, with the exception of the western region, has a strong positive impact on disruptive low-carbon innovation. When green credit is combined with disruptive low-carbon innovation, both can significantly reduce carbon emissions; however, the green credit impact diminishes. It can be concluded that disruptive low-carbon innovation has a mediation effect on green credit's contribution to carbon emission reduction.



Eco-Business

## The future is circular for luxury automobiles: BMW sustainable design chief

06 April 2022

Do recyclable materials take the gloss out of luxury? Daniela Bohlinger, head of sustainability at BMW Group Design, shares how the heritage car brand is striving to create a design language that strikes the right balance.



Sustainable Development Solutions Network

## Catalyzing Earth Observations for Sustainable Development in Africa

06 April 2022

The growth of Earth Observation data (EO) has skyrocketed over the past few years with technological advancements and a surge in new technologies. With these technologies, users can add more granularity, temporal, and localized information to their data. And the rise in EO shows no signs of slowing down anytime soon. According to a recent analysis by Morgan Stanley, space-borne EO's value is expected to exceed \$25 billion USD by 2040. Additionally, a recent assessment highlights that existing EO systems could generate data for 33 Sustainable Development Goals (SDGs) indicators across 14 goals.



Electronic Frontier Foundation

## Cybersecurity Experts Urge EU Lawmakers to Fix Website Authentication Proposal That Puts Internet Users' Security and Privacy at Risk

03 March 2022

Electronic Frontier Foundation (EFF) technologists, along with 36 of the world's top cybersecurity experts, today urged European lawmakers to reject proposed changes to European Union (EU) regulations for securing electronic payments and other online transactions that will...

# The Digital Enterprise

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## Becoming ‘digital at the core’ can potentially create more sustainable value

Millennials and Gen Z account for nearly half the global workforce, and are updating expectations for employers everywhere. Remote working is important to many millennials (who are now as old as 40), for example, and COVID-19’s social distancing requirements have accelerated what had been a gradual shift to both more remote working, and more digitally-enabled customer experiences. Companies will need to be able to accommodate this with digital solutions that maintain engagement, health, and well-being. In addition, as workforces become more distributed, and connected devices and data networks are increasingly used, ensuring security will become more challenging - necessitating the management of more significant vulnerabilities. Companies will generally need to be open and flexible, to proactively plan for cybersecurity risks, and to be willing to take responsibility for helping employees acquire new and necessary digital skills. Other reasons for aggressively pursuing a digital transformation predate the pandemic; according to the MIT Initiative on the Digital Economy, the “digerati,” or firms that excel both in digital intensity and transformation management capabilities, have been shown to be 26% more profitable than their peers.

In response, an estimated 87% of CEOs expect to see a change in their operating models within three years, according to research cited by Deloitte in 2019. Technology and data can help support demand forecasting, inventory stocking, tracking, and delivery. Amazon, for example, has used a shipping model meant to predict buying behaviour in order to have products on hand locally before they are ordered. As COVID-19 disrupted supply chains with lockdowns and border closures, many organizations looked for ways to bolster resilience and transparency, and many manufacturers turned to selling products through channels like Amazon. Increasingly, companies everywhere will make greater use of technologies such as blockchain, cloud computing, artificial intelligence, and robotics as part of efforts to build resilience - and Unilever and United Kingdom-based supermarket chain Sainsbury’s have already sought to use blockchain to increase the sustainability and transparency of their supply chains. While the pandemic has led to revenue losses in many industries, investing in digital solutions can be one means to help better manage costs during a difficult time.

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Related insight areas: [Artificial Intelligence](#), [Data Science](#), [Education](#), [Skills and Learning](#), [Internet of Things](#), [COVID-19](#), [Entrepreneurship](#), [Blockchain](#), [Innovation](#), [Digital Communications](#), [Workforce and Employment](#), [Fourth Industrial Revolution](#), [The Digital Economy](#), [Sustainable Development](#), [5G](#), [Cybersecurity](#)



Fraunhofer-Gesellschaft

### Temporary, local 5G network to help fight forest fires

02 May 2022

When it comes to activities such as fighting forest fires, monitoring construction sites or providing multimedia services at sports and other mass events, a reliable, secure 5G campus network is often needed locally and temporarily to ensure maximum network coverage on the entire site. Thanks to the 5G+ Nomadic Node from the Fraunhofer Institute for Open Communication Systems FOKUS, this kind of non-public, temporary network can be set up at short notice in order, for instance, to connect emergency forces with each other or control firefighting robots remotely. The entire hardware and software fits into a couple of mobile server rack containers. The operation of the adapted 5G mobile network with a satellite connection will be presented at the Hannover Messe 2022 from May 30 to June 2 at the joint Fraunhofer booth in Hall 5, Booth A06.



MIT Sloan Management Review

### The Loneliness of the Hybrid Worker

02 May 2022

Having supportive colleagues in the workplace is key to feeling less isolated when working from home.



GovLab - Living Library

### Towards Public Digital Infrastructure

13 April 2022

We already have the technical and governance building blocks at our disposal to make this Public Digital Infrastructure model a reality. We also have the political momentum on our side through a number of ambitious policy proposals and funding agendas on the European level. The challenge now is to integrate these building blocks into a single cohesive system, and to ensure we put into place the right institutions and rules to ensure the DPI can achieve trust, scale and openness. We could see this as an alternative, parallel infrastructure, made up of open, trustworthy solutions and public goods. Through collaborative interoperability, solutions built on top of the Public Digital Infrastructure would proactively set out to integrate their solutions with other tools built on the framework.



MIT Sloan Management Review

### Cracking the Culture Code for Successful Digital Transformation

06 April 2022

Digital transformation transcends technology and business models.



Mott MacDonald (RSS Feed)

### Technology should support your airport business plan – not replace it

24 March 2022

There's a lot more to digital transformation than using the latest technology. Airports must first consider information management, societal behaviour change and market forces. The difference between good airports and the best airports is less about the technology, and more about how they manage their data. This allows them to understand the needs of passengers, as well as their relative strengths in the market. To get the best out of technology it should be used in a targeted way to support the business plan.



Eco-Business

### Tapping the cloud to power Indonesia's digital healthcare shift

16 March 2022

At the height of the Covid-19 pandemic, some of the worst-hit provinces relied on health-tech solutions to manage the strain on their hospital facilities, said Astrid Dita, an economist and policy lead at a global cloud computing company.



Asian Development Bank (ADB)

### SEADS 2022: Sustainable Solutions for Southeast Asia's Recovery

15 March 2022

The coronavirus disease (COVID-19) pandemic hit Southeast Asia, and the rest of the world, hard, reversing the region's hard-won gains in reducing poverty, creating jobs, and enhancing health and well-being. But the seeds of recovery are starting to take root. To help address COVID and other development challenges, in 2020, ADB launched the Southeast Asia Development Symposium or SEADS. The first two SEADS took place amidst the onset of the COVID-19 crisis, and accordingly focused on helping Southeast Asian countries counter the immediate impacts of COVID-19. As countries continue to grapple with the severe economic, health, and social impacts of the pandemic, SEADS 2022, "Sustainable Solutions for Southeast Asia's Recovery," will focus on innovative solutions to build back better and rebound from the COVID-19 crisis.

# Digital Work Design

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**Organizations have needs for flexibility, speed, and scalability that call for new ways of organizing work**

Finding new ways to organize work - both within firms and at their fringes - has become a central factor in economic success or failure. As the focal point of organizations shifts alongside the global economy from an emphasis on products to information, a shift is also occurring from linear to exponential organizations. Organizations now need to be ambidextrous, in the sense of providing structure, culture, and processes for older, established work and products, while at the same time they provide new and different work designs for the technology-product-market combinations of tomorrow. One related trend that has only been accelerated by the advent of the COVID-19 crisis is the importance of being able to work globally in virtual teams. As more companies (such as Twitter and Microsoft) announce that employees can now work from home at least part of the week indefinitely, a new work reality will take hold that is more bottom-up than top-down, and shifting from concentrated, large structures to distributed smaller structures, and from hierarchical organization to team-and-work-group-based structures across departments and even whole entities.

This calls for new ways to ensure entrepreneurship, and for the identification of ways colleagues can function even while having never met face to face. One key for organizing this new work paradigm will be setting the correct defaults - as they are the most effective and efficient way to influence behaviour. In some parts of an organization, control may be the best default, whereas in others it may be trust. Some parts of a company may flourish through bureaucracy and perfection, whereas others produce the most value possible through iteration and experimentation. Digital work design will be influenced by some developments that will continue indefinitely. Greater openness, for example, means companies will have more permeable boundaries, allowing permanent employees to work together with “free permanent” employees handling project based work on a temporary contract - in turn giving both companies and workers the benefits of “flexicurity” (flexibility and security). In addition, democratization and de-hierarchization will increase participation in decision-making at multiple levels, and will involve everything from choosing team members and leaders to direct ownership through equity stakes.

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Related insight areas: [Artificial Intelligence](#), [Digital Communications](#), [Pandemic Preparedness and Response](#), [Social Innovation](#), [COVID-19](#), [Gender Inequality](#), [Economic Progress](#), [Corporate Governance](#), [The Digital Transformation of Business](#), [The Digital Economy](#), [Fourth Industrial Revolution](#), [Data Science](#)



GreenBiz

## The sustainability job market is booming. What does that mean for hiring?

02 May 2022

Defining a "sustainability" job is tough. "Everybody who wants to work in sustainability should be cautious about a job that's called a 'sustainability' job," she said.



Frontiers on COVID19

## Relationship between negative emotions and medical staff burnout during the prevention and control of the COVID-19 epidemic: the mediating role of psychological resilience

02 May 2022

We herein investigated the relationship between psychological status and the various emotions of medical staff during the prevention and control of coronavirus disease 2019 (COVID-19) epidemic. In this study, the convenience sampling method was used to select medical staff members as participants, and a cross-sectional study design was implemented. The instruments included the Burnout Clinical Subtype Questionnaire (BCSQ-36), the 10-item Connor-Davidson Resilience Scale (CD-RISC-10), the self-rated 16-item Quick Inventory of Depressive Symptomatology (QIDS-SR16), and the Self-rating Anxiety Scale (SAS). In total, 876 medical staff members were selected in this study. The CD-RISC-10 was negatively correlated with all other scales ( $P < 0.01$ ).



Policy Center For The New South

## Education-Skills-Mobility Nexus

13 April 2022



Mott MacDonald

## Protecting workers will protect supply chains in pandemic

13 April 2022

s The eight projects are all up and running – four supporting the garments industry, in Bangladesh and Myanmar, and four supporting the agriculture sector, in Ethiopia, Ghana, Kenya, Tanzania and Zimbabwe. It's not just communities and the environment that benefit – it's good for the bottom line, too. Increasing the resilience of supply chains will ensure companies can continue to supply customers with their products throughout the pandemic and during future economic shocks. This will not just protect jobs in developing countries, but jobs in the UK: importers, distributors, wholesalers, and shop staff.



UNICEF

## Going back to school in Madagascar | UNICEF

06 April 2022

This is how 12-year-old Clarissa from Madagascar found her way back to the classroom amid COVID-19. .

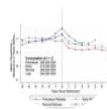


University of Chicago

## Universal basic income policies don't cause people to leave workforce, study finds

31 March 2022

New research from the University of Chicago Harris School of Public Policy suggests that a universal basic income would not cause people to leave the workforce. Such proposals, including one considered by Hillary Clinton during her 2016 presidential campaign, include direct payments that ensure each resident has a baseline of income to provide for basic needs. While previous research has focused on the effects of these unconditional cash transfers at the micro level—for example, winning the lottery—this study examined their large-scale impact by looking at a government program that has supported Alaska residents for the past 25 years. In a working paper released Feb. 12 by the National Bureau of Economic Research, Assoc. Prof. Damon Jones of Harris Public Policy and Asst.



VoxEU

## The hidden costs of incentivising later retirement

22 March 2022

This column uncovers significant redistributive costs of pension reforms that incentivise later retirement, especially when it comes to incentivising later retirement at very early and late retirement ages.



# References

---

## 1. AI for What Purpose?

- Increasing Robustness of Brain–Computer Interfaces Through Automatic Detection and Removal of Corrupted Input Signals, Frontiers, [www.frontiersin.org](http://www.frontiersin.org)
- Yes, journalists show more (cognitive) bias on Twitter, NiemanLab, [www.niemanlab.org](http://www.niemanlab.org)
- Police surveillance and facial recognition: Why data privacy is an imperative for communities of color, GovLab - Living Library, [thelivinglib.org](http://thelivinglib.org)
- Europe Is Building a Huge International Facial Recognition System, Wired, [www.wired.com](http://www.wired.com)
- Let's move now to tackle the risks of artificial intelligence, Mott MacDonald (RSS Feed), [www.mottmac.com](http://www.mottmac.com)
- Deep learning: a framework for image analysis in life sciences, Ecole Polytechnique Fédérale de Lausanne, [actu.epfl.ch](http://actu.epfl.ch)

## 2. AI and the Future of Jobs

- How AI can help fight misinformation, International Telecommunication Union, [www.itu.int](http://www.itu.int)
- Artificial intelligence – but please be trustworthy!, Fraunhofer-Gesellschaft, [www.fraunhofer.de](http://www.fraunhofer.de)
- Elon Musk Reaches Deal to Buy Twitter for \$44 Billion, Wired, [www.wired.com](http://www.wired.com)
- Machine learning can help protect urban water. Here's how, World Economic Forum, [www.weforum.org](http://www.weforum.org)
- Artificial intelligence: filling the gaps, Social Europe, [socialeurope.eu](http://socialeurope.eu)
- Should ports rush to automate?, Mott MacDonald, [www.mottmac.com](http://www.mottmac.com)
- Swiping Right: How Data Helped This Online Dating Site Make More Matches, Harvard Business School Working Knowledge, [hbswk.hbs.edu](http://hbswk.hbs.edu)

## 3. Foundational Elements of the Metaverse

- As telework continues for many U.S. workers, no sign of widespread 'Zoom fatigue', Pew Research Center, [www.pewresearch.org](http://www.pewresearch.org)
- People and Stories from Asia and the Pacific, Asian Development Bank (ADB), [www.youtube.com](http://www.youtube.com)
- Leveraging Technology to Support Prisoner Reentry, RAND Corporation, [www.rand.org](http://www.rand.org)
- Securing Future Realities: What Can We Expect from the Metaverse?, Royal United Services Institute (RUSI), [www.rusi.org](http://www.rusi.org)
- Making the metaverse mainstream is about the user experience. Here's why, World Economic Forum, [www.weforum.org](http://www.weforum.org)
- Why Would Elon Musk Want to Buy Twitter?, The New Yorker, [www.newyorker.com](http://www.newyorker.com)
- The challenges of protecting data and rights in the metaverse, GovLab - Living Library, [thelivinglib.org](http://thelivinglib.org)

## 4. Blockchain and Digital Identity

- Greening the Crypto Revolution, Project Syndicate, [www.project-syndicate.org](http://www.project-syndicate.org)
- Historical lessons on the real effects of unstable stablecoins, VoxEU, [voxeu.org](http://voxeu.org)
- CBDCs for the People, Project Syndicate, [www.project-syndicate.org](http://www.project-syndicate.org)
- The Geography of Digital Money, Asia Global Institute, [www.asiaglobalonline.hku.hk](http://www.asiaglobalonline.hku.hk)
- Monetary policy and financial stability implications of central bank digital currencies, VoxEU, [voxeu.org](http://voxeu.org)
- Robust estimation of time-dependent precision matrix with application to the cryptocurrency market, SpringerOpen, [jfin-swufe.springeropen.com](http://jfin-swufe.springeropen.com)
- Bitcoin price changes and trend prediction through twitter sentiment and

## 5. New Leaders in Technology and Innovation

- Leapfrog into Technology to Avoid Getting Leapfrogged Yourself, Asian Development Bank, [blogs.adb.org](http://blogs.adb.org)
- In Uncertain Times, Big Companies Need to Take Care of Their Suppliers, Harvard Business Review, [hbr.org](http://hbr.org)
- Will just transition agendas reshape supply chain sustainability goals?, GreenBiz, [www.greenbiz.com](http://www.greenbiz.com)
- Artificial Intelligence for Children, World Economic Forum, [www.weforum.org](http://www.weforum.org)
- Trade liberalization, productivity, and innovation: evidence from Chile, Global Development Network, [www.globaldev.blog](http://www.globaldev.blog)
- Textile wastewater heavy metal removal using Luffa cylindrica activated carbon: an ANN and ANFIS predictive model evaluation, SpringerNature, [link.springer.com](http://link.springer.com)

## 6. Entrepreneurship and Development

- The Forgotten Origins of Silicon Valley, Project Syndicate, [www.project-syndicate.org](http://www.project-syndicate.org)
- How Social Enterprises Can Help Us Meet the SDGs, Asian Development Bank, [blogs.adb.org](http://blogs.adb.org)
- The bid to make Florida's biggest city a tech hub, The Economist, [www.economist.com](http://www.economist.com)
- Decolonizing Capital: A Crucial Step Towards Racial and Economic Justice, Next City, [nextcity.org](http://nextcity.org)
- UPSHIFT Uganda - how life skills are supporting youth, International Labour Organization, [www.youtube.com](http://www.youtube.com)
- Creating decent jobs for youth through digital transformation, International Labour Organization, [www.youtube.com](http://www.youtube.com)
- What is social capital privilege?, LSE Business Review, [blogs.lse.ac.uk](http://blogs.lse.ac.uk)

## 7. Scientific Innovation and Technology

- A Viral Twitter Thread Reawakens the Dark History of Anthropology, Nautilus, [nautil.us](http://nautil.us)
- Researchers Gain New Understanding From Simple AI, Nautilus, [nautil.us](http://nautil.us)
- 3 women in AI who are helping bridge the gender equity gap, World Economic Forum, [www.weforum.org](http://www.weforum.org)
- Rational neural network advances machine-human discovery, Cornell University, [news.cornell.edu](http://news.cornell.edu)
- Speed meets precision: A new laser scanning microscope improves cancer cell detection, Fraunhofer-Gesellschaft, [www.fraunhofer.de](http://www.fraunhofer.de)
- The First Drug-Releasing Contact Lens Is Here, Wired, [www.wired.com](http://www.wired.com)
- Clock gene mutation found to contribute to the development of autism, Science Daily, [www.sciencedaily.com](http://www.sciencedaily.com)

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- Some URLs have been shortened for readability. Please follow the URL given to visit the source of the article. A full URL can be provided on request.



# Continue the experience online

## Explore the collective intelligence of the World Economic Forum

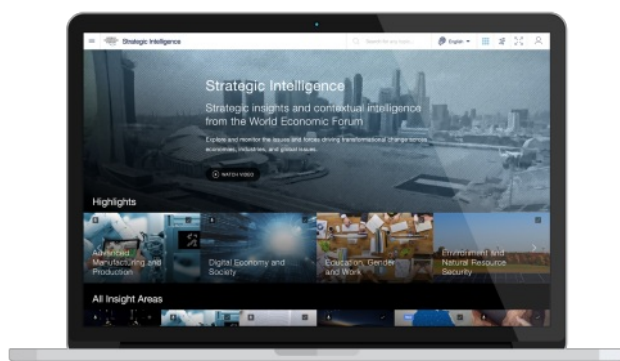
In today's world, individuals and organizations can find it difficult to keep up with the latest trends or to make sense of the countless transformations taking place around them.

How can you decipher the potential impact of rapidly unfolding changes when you're flooded with information—some of it misleading or unreliable? How do you continuously adapt your vision and strategy within a fast-evolving global context?

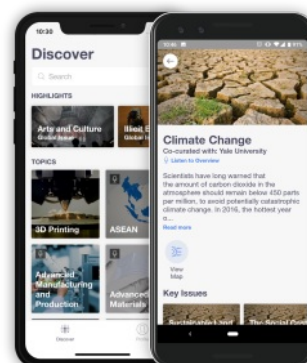
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