

Technology Accelerated Innovation Dynamic Briefing

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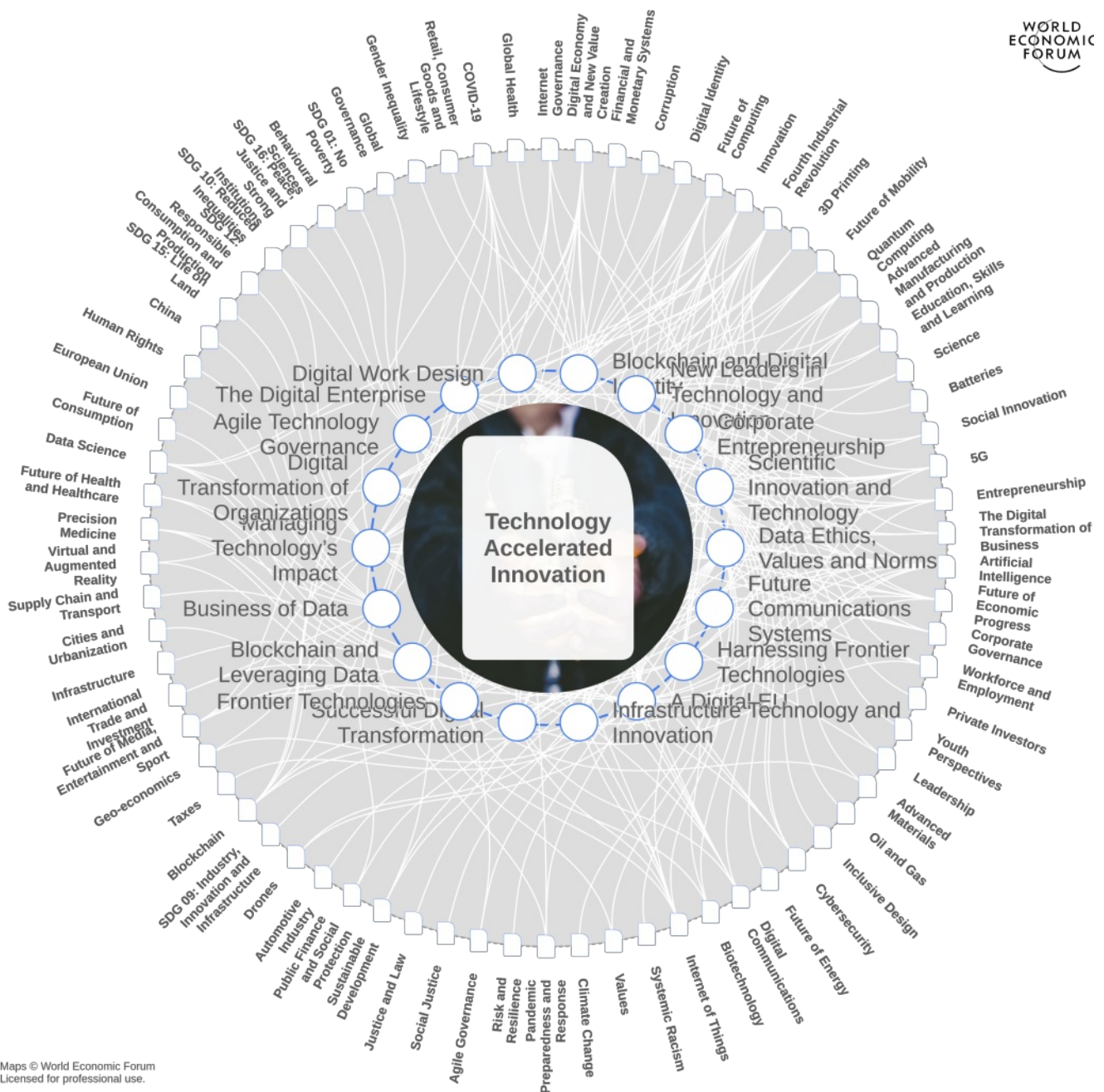


Technology Accelerated Innovation

Last review on Sat 01 January 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), 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.



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.

1. Blockchain and Digital Identity

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

2. New Leaders in Technology and Innovation

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

3. Corporate Entrepreneurship

Large businesses are adopting more entrepreneurial mindsets and practices.

4. Scientific Innovation and Technology

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

5. Data Ethics, Values and Norms

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

6. Future Communications Systems

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

7. Harnessing Frontier Technologies

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

8. A Digital EU

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

9. Infrastructure Technology and Innovation

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

10. Successful Digital Transformation

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

11. Frontier Technologies

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

12. Blockchain and Leveraging Data

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

13. Business of Data

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

14. Managing Technology's Impact

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

15. Digital Transformation of Organizations

The average lifespan for traditional companies is declining, while the revenue share for 'digital ecosystems' is expanding.

16. Agile Technology Governance

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

17. The Digital Enterprise

Becoming 'digital at the core' can potentially create more sustainable value.

18. Digital Work Design

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

Blockchain and Digital Identity

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.

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



Asian Development Bank

COVID-19, Digital Transactions, and Economic Activities: Puzzling Nexus of Wealth Enhancement, Trade, and Financial Technology

29 December 2021

ADB Working Paper Series COVID-19, DIGITAL TRANSACTIONS, AND ECONOMIC ACTIVITIES: PUZZLING NEXUS OF WEALTH ENHANCEMENT, TRADE, AND FINANCIAL TECHNOLOGY Muhammad Ayub Khan Mehar 1294 December 2021 Asian Development Bank Institute Muhammad Ayub Khan Mehar is an economic advisor at the Employers' Federation of Pakistan in Karachi. The views expressed in this paper are the views of the author and do not necessarily reflect the views or policies of ADBI, ADB, its Board of Directors, or the governments they represent. ADBI does not guarantee the accuracy of the data included in this paper and accepts no responsibility for any consequences of their use. Terminology used may not necessarily be consistent with ADB official terms. Working papers are subject to formal revision and correction before they are finalized and considered published.



The Tokenist

2021 Has Been The Year Of ETFs, With 445 Debuting

21 December 2021

445 Exchange Traded Funds made their debuts in 2021, making it a record year for the \$7 trillion industry. The post 2021 Has Been The Year Of ETFs, With 445 Debuting appeared first on The Tokenist .



STAT

Forget the hype and embrace the reality: How AI can improve health outcomes right now

21 December 2021

The story of artificial intelligence (AI) driving better health care outcomes has been a convoluted one, with hype-laden chapters on algorithmic cures for cancer and the future of robots replacing doctors . As those promises eventually proved overly ambitious , many people have lost the plot. When the world fixed its collective gaze on the Covid-19 pandemic and AI innovation fell off the hype cycle, it did not die. Instead, it has quietly emerged as a critical link between patients, providers, and payers by helping identify gaps in care, guide strategic decision-making, and improve patient engagement with care managers and primary care providers. Bots may not have replaced clinicians, but they have emerged as an important link in the care-management process.



Centre for European Policy Studies (CEPS)

Central bank digital currencies

16 December 2021

The discussion about central bank digital currencies (CBDCs) has gained impressive momentum. So far, however, the main focus has been on the macroeconomic implications of CBDCs and the narrow perspective of developing a digital substitute for cash. This paper adds the microeconomic dimension of CBDCs to the discussion. We provide an overview of the existing payment ecosystem and derive a systemic taxonomy of CBDCs that distinguishes between new payment assets and new payment systems. Using our systemic taxonomy, we are able to categorise different CBDC proposals. In order to discuss and evaluate the different CBDC design options, we develop two criteria: allocative efficiency, i.e. whether a market failure can be diagnosed that justifies a government intervention, and attractiveness to users, i.e.



Wharton School of the University of Pennsylvania - Knowledge@Wharton

Why Cashless Payments Open the Door for Fintech Lending

06 December 2021

Fintech lenders are more likely to approve loans to borrowers who have adopted cashless payments than to non-adopters, according to a recent research paper titled " Fintech Lending and Cashless Payments " by experts at Wharton and elsewhere. The cashless payment records of such borrowers provide lenders with verifiable information and thereby more efficient screening of loan applications. Those borrowers could also enjoy lower interest rates and may pose lower default risks, the paper noted.



SpringerOpen

Central bank digital currency, loan supply, and bank failure risk: a microeconomic approach

06 December 2021

Central bank digital currencies (CBDCs), which are legal tenders in digital form, are expected to reduce currency issuance and circulation costs and broaden the scope of monetary policy. In addition, these currencies may also reduce consumers' need for conventional demand deposits, which, in turn, increases banks' loan provision costs because deposits require higher rates of return. We use a microeconomic banking model to investigate the effects of introducing an economy-wide, account-type CBDC on a bank's loan supply and its failure risk. Given that a CBDC is expected to lower the cost of liquidity circulation and become a strong substitute for demand deposits, both the loan supply and the bank failure risk increase.

New Leaders in Technology and Innovation

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.

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



Brookings

Digital health tools for pandemic preparedness

28 December 2021

Steve Davis and Pardis Sabeti discuss the uptake of participatory digital health tools for pandemic preparedness and response. Davis and Sabeti moderated Room 3 focused on Sustainable Development Goal number 3—on good health and well-being—during the 2021 17 Rooms process.



Center for Global Development

Small and Medium Enterprises Amidst the Pandemic and Reopening: Digital Edge and Transformation

10 December 2021

Using administrative universal firm registration data as well as primary offline and online surveys of small business owners in China, we examine (i) whether the digitization of business operations helps small and medium enterprises (SMEs) better cope with the pandemic shock, and (ii) if the pandemic has induced digital technology adoption.



Wharton School of the University of Pennsylvania
- Knowledge@Wharton

Doing Capitalism Differently — One Backpack at a Time

29 November 2021

Davis Smith, founder of sustainable outdoor gear brand Cotopaxi, thinks of protecting the environment as table stakes in his larger mission to alleviate extreme poverty and uplift communities across the globe. The company allocates a portion of its revenue to nonprofits, hires refugees, works only with ethical supply chain partners, and runs a foundation that leverages donations from customers with its own charitable giving. So, it's only fitting that 94% of Cotopaxi's products last year were made with recycled, remnant, or responsibly sourced materials. "Are we perfect? Of course not," said Smith, a Wharton graduate.



RAND Corporation

Improving the Goal-Setting Process for U.S. Department of the Air Force Recruiters

16 November 2021

This Perspective compares and contrasts the current goal-setting process for U.S. Department of the Air Force recruiters with a more comprehensive one that accounts for factors influencing contract production.



The New Humanitarian

Sierra Leone tanker disaster sounds alarm on urban risk in Africa

12 November 2021

A fuel tanker explosion that killed more than 130 people last week in the Sierra Leonean capital, Freetown, has raised renewed questions over disaster preparedness in African cities and the urgent lessons that need to be learnt. The 5 November explosion followed a road accident between the tanker and a lorry at a busy road junction in the city's eastern district of Wellington, a densely populated semi-industrial hub. The resultant fireball destroyed homes, shops, and scores of vehicles and motorbikes – depriving countless people of their livelihoods. It is far from the first large-scale urban disaster to befall Sierra Leone: The country sits in 47th place out of 181 nations on the World Risk Index 2021. A massive landslide in 2017 killed at least 1,100 people – buried in the same cemetery as last week's tanker blast victims.



Pew Research Center

16% of Americans say they have ever invested in, traded or used cryptocurrency

11 November 2021

A smartphone app shows cryptocurrency exchange rates in April. (Chris Delmas/AFP via Getty Images) The vast majority of U.S. adults have heard at least a little about cryptocurrencies like Bitcoin or Ether, and 16% say they personally have invested in, traded or otherwise used one, according to a new Pew Research Center survey. Men ages 18 to 29 are particularly likely to say they have used cryptocurrencies. Overall, 86% of Americans say they have heard at least a little about cryptocurrencies, including 24% who say they have heard a lot about them, according to the survey of U.S. adults, conducted Sept. 13-19, 2021.



VoxEU

When industrial policy worked: The case of South Korea

09 November 2021

Industrial policy is back on the agenda in high-income countries. This column examines the impact of firm-level industrial policy measures in the 1970s on the South Korean economy. The authors find that South Korea's heavy and manufacturing industries are an example of where activist industrial policy appears to have succeeded, with the temporary subsidies having a large and statistically significant effect on firm sales as long as 30 years after they ended. However, today's policymakers face the same challenge as those in the past: identifying conditions – such as dynamic productivity effects or externalities – under which activist industrial policy is welfare-improving.

Corporate Entrepreneurship

Large businesses are adopting more entrepreneurial mindsets and practices

The emergence of technologies such as artificial intelligence and nanotechnology, in combination with the introduction of new and innovative business models, has disrupted entire industries - and challenged previously well-established businesses. Despite their dominant market positions and significant financial resources, many corporate incumbents have been disrupted to the point of losing out on growth opportunities, due to an inability to keep up with more agile startups. Often, these large firms lose out due to an unwillingness to embrace innovation that may cannibalize their existing products and services. Meanwhile many are losing top talent, who move on to start their own ventures or join fast-growing startups. In order to keep up and to stay competitive, incumbent corporations are increasingly launching internal entrepreneurship initiatives that complement their businesses. By re-examining their organizational design and business models, these companies hope to co-opt startups' best practices. This is typically done by creating structures or units separate from the core business; a number of companies are increasingly availing themselves of corporate incubators, accelerators, and innovation labs in order to drive this innovation outside of the core business.

One of the first corporate innovation labs to support research and development efforts separate from the core business was Bell Labs, the legendary R&D unit that was once owned by AT&T and spawned the transistor and the laser. More recently, corporate-sponsored hackathons and accelerator and incubation programs have provided different types of entrepreneurship support. Companies have also established their own venture capital investment funds; in the Nordic countries alone, the number of corporate venture investments more than doubled between 2014 and 2018, to 109, according to a report published by Oxford Research. Meanwhile corporate ventures are being designed that pursue entrepreneurial opportunities but are embedded within a company's environment. For example, Bosch, the German multinational engineering and technology firm, has been increasing its investment in programs to support corporate ventures. One of their most successful examples is Bosch eBike System, which was established in 2009 as a corporate venture within Bosch and subsequently developed into one of the leading manufacturers of drive systems for pedelecs (electric bicycles where a motor assists the rider's pedalling).

Related insight areas: [Future of Economic Progress](#), [Fourth Industrial Revolution](#), [Financial and Monetary Systems](#), [Innovation](#), [Corporate Governance](#), [Workforce and Employment](#), [Private Investors](#), [Youth Perspectives](#), [Leadership](#)



Asian Development Bank

Harnessing Digitalization for Sustainable Economic Development: Insights for Asia

24 December 2021

Harnessing Digitalization for Sustainable Economic Development: Insights for Asia describes digitalization's role in raising the productive capacities of economies. It examines how digital transformation can enhance trade, financial inclusion, and firm competitiveness, as well as how greater digital infrastructure investment, internet connectivity, and financial and digital education in the region can maximize digitalization's economic benefits. It also explains the importance of striking the right balance between the regulation and supervision of financial technology to enable innovation and safeguarding financial stability and consumer protection. Part I of the book seeks to build an understanding of digitalization's effects on macroeconomic performance, including through trade channels and financial inclusion.



ETH Zürich

Freedom to fail

17 December 2021

The Student Project House offers a model of what learning might look like in the future. With no course credits on offer, students are encouraged to develop critical thinking skills and to venture into unknown territory.



LSE Business Review

Where are business angels from?

09 December 2021

Business angels, those who invest in entrepreneurial ventures at a very early stage, play a key role for new business development, which can help improve a country's productivity. But where are business angels from? Fei Qin, Tomasz Mickiewicz, and Saul Estrin write that people are more likely to become investors in entrepreneurial ventures when their peers have higher levels of ... Continued.



VoxEU

The effects of FinTech lending on small and medium-sized enterprises

09 December 2021

The rapid growth of FinTech platforms creates challenges and opportunities for financial markets. This column uses a new dataset from a Portuguese FinTech platform to study the determinants of lending demand and the consequences of FinTech loans for small and medium-sized enterprises. It finds that FinTech lending caters mainly to larger SMEs, with higher profitability and a lower credit risk. Additionally, it shows that firms increase assets, employment, and sales following an approved FinTech loan. Finally, FinTech lending allows firms to diversify their pool of lenders and reduce exposure to shocks in the banking system.



Asian Development Bank

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03 December 2021

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Observer Research Foundation

Women in Finance: The Need To Invest In Gender

02 December 2021

Women's growing contribution to the development of financial markets as fintech leaders, retail investors, angel investors, venture capitalists, and private equity owners cannot be overlooked. Will more female investors and women in fintech help meet the acute need for private and public capital for gender-impact and gender lens investment? How can we build a new narrative to dispel the myths around female investors? .



LSE Business Review

Michio Kaku: As the golden age of silicon comes to an end, Silicon Valley risks becoming another rust belt

29 November 2021

The expected arrival of quantum computers heralds the end of the silicon era, an event that may lead to the disappearance of Silicon Valley as we know it. This is just one of the many changes that will likely be caused by the technological advances expected over the next decades. Michio Kaku, theoretical physicist and futurist, ... Continued.

Scientific Innovation and Technology

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.

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



Frontiers

3D Bioprinting Strategies, Challenges, and Opportunities to Model the Lung Tissue Microenvironment and Its Function

24 November 2021

Human lungs are organs with an intricate hierarchical structure and complex composition; lungs also present heterogeneous mechanical properties that impose dynamic stress on different tissue components during the process of breathing. These physiological characteristics combined create a system that is challenging to model in vitro. Many efforts have been dedicated to develop reliable models that afford a better understanding of the structure of the lung and to study cell dynamics, disease evolution, and drug pharmacodynamics and pharmacokinetics in the lung. This review presents methodologies used to develop lung tissue models, highlighting their advantages and current limitations, focusing on 3D bioprinting as a promising set of technologies that can address current challenges.

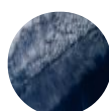


Centro Euro-Mediterraneo sui Cambiamenti Climatici

To understand solar geoengineering, we need the social sciences

12 November 2021

Twenty-one scholars from across the scientific spectrum outline the need to include the social sciences in solar geoengineering research in a new article for Science's Policy Forum.



Harvard Kennedy School - Belfer Center for Science and International Affairs

Social Science Research to Inform Solar Geoengineering

12 November 2021

The overarching question imparting urgency to this exploration is: Can U.S.-Russian contention in cyberspace cause the two nuclear superpowers to stumble into war? Renewables are widely perceived as an opportunity to shatter the hegemony of fossil fuel-rich states and democratize the energy landscape. Virtually all countries have access to some renewable energy resources (especially solar and wind power) and could thus substitute foreign supply with local resources. Our research shows, however, that the role countries are likely to assume in decarbonized energy systems will be based not only on their resource endowment but also on their policy choices.



Science Daily

Near-earth asteroid might be a lost fragment of the moon

11 November 2021

Kamo'oalewa is a quasi-satellite -- a subcategory of near-Earth asteroids that orbit the sun but remain relatively close to Earth. Little is known about these objects because they are faint and difficult to observe.



The Conversation

A dangerous parasite could be used to treat cancer – new research in mice

03 November 2021

A parasite commonly found in cats' faeces might one day help treat cancer. My colleagues and I have discovered that the parasite that causes toxoplasmosis – a condition that can be harmful to pregnant women and those with a suppressed immune system – might be useful at destroying cancer tumours. At least, that's what our study in mice suggests. For many years now, researchers have been looking at how they can use the body's immune system to treat cancer – known as immunotherapy. This is because, alongside protecting us from the harmful effects of bacteria and viruses, our immune system also rids the body of abnormal cells, such as cancer cells.



Wired

As the Arctic Warms, AI Forecasts Scope Out Shifting Sea Ice

03 November 2021

For generations, the inhabitants of the Arctic have counted on seasonal sea ice, which grows and retreats during the year. Polar bears and marine mammals rely on it as a hunting spot and a place to rest; Indigenous people fish from openings in the ice known as polynyas, and use well-known routes across the ice to travel from place to place. Some scientists and research firms are now deploying tools powered by artificial intelligence to provide more accurate and timely forecasts of what parts of the Arctic Ocean will be covered with ice, and when. AI algorithms complement existing models that use physics to understand what's happening at the ocean's surface, a dynamic zone where cold underwater currents meet harsh winds to create floating rafts of ice.

Data Ethics, Values and Norms

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.

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



London School of Economics and Political Science

2021 In Review: The Culture of Academic Publishing

22 December 2021

Responding to the necessities of the COVID-19 pandemic and the accelerating application of the open paradigm to more and more aspects of research, academic publishing and the cultures that support it continue to be in flux in 2021. This review brings together posts focused on the way in which the publication of research has developed ... Continued.



VoxEU

Autocratic AI dystopias: From science fiction to social science fact

17 December 2021

The growth of artificial intelligence technology brings the potential of a 'fourth industrial revolution', but also poses challenges for democratic institutions. This column analyses the mutually reinforcing relationship between AI innovation and the political control objectives of autocrats. In the context of facial recognition AI in China, it shows that episodes of local political unrest lead to higher public procurement of AI technologies. Furthermore, these technologies are shown to mitigate the potential for exogenous shocks to trigger unrest, while also boosting broader software innovation in affected regions.

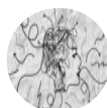


Harvard Kennedy School - Belfer Center for Science and International Affairs

Harvard Kennedy School's Technology and Public Purpose Project 21-22 Class of Non-Resident Fellows

14 December 2021

The TAPP Project welcomed three new non-resident fellows, Ashlie Burkart, Joaquin Candela and Woodrow Rosenbaum, to join our class of non-resident fellows. The TAPP project looks forward to working with our fellows to continue advancing tech and public purpose.



London School of Economics and Political Science

Book Review: Behavioral Insights by Michael Hallsworth and Elspeth Kirkman

04 December 2021

In Behavioral Insights, Michael Hallsworth and Elspeth Kirkman offer a pragmatic and engaging new overview of behavioural informed design, exploring its history, application, limitations and its future possibilities. Gee Connolly recommends the book to anyone looking for a succinct and clear summary of the behavioural insights approach as well as tangible techniques for applying insights to real-world scenarios. This review originally appeared on LSE ... Continued.



Brookings

An AI fair lending policy agenda for the federal financial regulators

02 December 2021

Michael Akinwumi, John Merrill, Lisa Rice, Kareem Saleh, and Maureen Yap discuss artificial intelligence's impact on fair lending and outline regulatory proposals to mitigate the risk of implementing AI in this field.



Project Syndicate

The High Stakes of Rising Inflation

30 November 2021

Although some of the obvious factors behind recent price surges will almost certainly subside in due time, others will linger, adding to the already-high inflationary pressures that have been building across the global economy. Worst of all, major central banks continue to put themselves out on a limb.



Harvard Business School Working Knowledge

TikTok: Super App or Supernova?

30 November 2021

TikTok's parent company, ByteDance, was launched in 2012 around the simple idea of helping users entertain themselves on their smartphones while on the Beijing Subway. By May 2020, TikTok operated in 155 countries and had roughly 1 billion monthly active users, placing it in the top ranks of digital platforms globally. But the app had drawn the attention of competitors, regulators, and politicians, especially in the US, where commercial success was critical to its long-term enterprise value. Would TikTok become the first "Super App" with a global footprint, or did it run the risk of becoming a supernova that shone brightly only for a passing moment? Harvard Business School senior lecturer Jeffrey Rayport discusses these strategic challenges in his case, "TikTok in 2020: Super App or Supernova?"

Future Communications Systems

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.

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

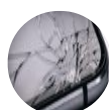


Frontiers

Toward a Computational Neuroethology of Vocal Communication: From Bioacoustics to Neurophysiology, Emerging Tools and Future Directions

20 December 2021

Recently developed methods in computational neuroethology have enabled increasingly detailed and comprehensive quantification of animal movements and behavioral kinematics. Vocal communication behavior is well poised for application of similar large-scale quantification methods in the service of physiological and ethological studies. This review describes emerging techniques that can be applied to acoustic and vocal communication signals with the goal of enabling study beyond a small number of model species. We review a range of modern computational methods for bioacoustics, signal processing, and brain-behavior mapping. Along with a discussion of recent advances and techniques, we include challenges and broader goals in establishing a framework for the computational neuroethology of vocal communication.



Harvard Business School Working Knowledge

How a Company Made Employees So Miserable, They Killed Themselves

16 November 2021

In 2009, a 51-year-old man killed himself in Marseille, a city in southern France, leaving behind a suicide note that blamed his employer for “overwork” and “management by terror.” “I am committing suicide because of my work at France Télécom,” his note said. “That’s the only reason.” That same year, a 49-year-old technician at the same company stabbed himself in front of his colleagues after learning he had been demoted. Between 2006 and 2009, at least 19 France Télécom employees took their own lives, 12 others attempted suicide, and eight suffered from serious depression, all of which was reportedly linked to job-related misery.



Frontiers

Energy Efficiency and Pollution Control Through ICTs for Sustainable Development

12 November 2021

The goal of this paper is to prove the necessity for a more thorough consideration and more active use of the modern ICTs for the technological support for the practical implementation of the SDGs’ ecological block in the aspect of the increase of energy efficiency and environmental pollution control. The originality of this paper is as follows: it develops a proprietary methodology of evaluating the technical readiness (level of the development of ICTs) for implementing the ecological block of the SDGs, which envisage the increase of energy efficiency and the growth of environmental pollution control. The highest (but moderate) technological readiness to implement the ecological block of the SDGs among developed countries has been shown by Canada (14.42 points) and Denmark (11.03 points), among developing countries—China (7.72 points).



World Economic Forum

Facebook is now 'Meta.' This is what 'metaverse' could mean

29 October 2021

The metaverse doesn’t exist - at least not yet. As of today, there isn’t anything that could legitimately be identified as a metaverse. A useful parallel for understanding its maturity – with a hat-tip to technology analyst Benedict Evans for the reference – may be the story of when telecoms entrepreneur Craig McCaw first heard about the internet. Reputedly, it was Apple Chief Executive Steve Jobs who described the implications that a globally distributed network of interconnected computers could have on communications, commerce and information.



Observer Research Foundation

5G, 6G and Beyond: How to Secure the Internet?

20 October 2021

The operationalisation of 5G wireless technology is still in its early stages in many countries and promises to both revolutionise connectivity and bring unprecedented risks. At the same time, many industry players are already brainstorming the next generation of wireless technology. While 5G, and 6G after it, has the capability to bring about the internet of everything, it must be met with forward-thinking capacity-building and governance.

Harnessing Frontier Technologies

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.

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

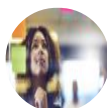


MIT Sloan Management Review

Six Ways Leaders Can Adapt to the Workplace of 2022

28 December 2021

For most companies and managers, responding effectively to the impact of COVID-19 was still the biggest challenge of 2021.



MIT Sloan Management Review

Management Articles for Starting the New Year

27 December 2021

As we head into a new year, leaders at all levels in the organization can benefit from reflecting on areas for improvement in the months to come. From handling leadership transitions to taking the time to learn new skills, the following five articles from MIT SMR's library offer numerous insights from leadership experts across the globe. Get Updates on Transformative Leadership Evidence-based resources that can help you lead your team more effectively, delivered to your inbox monthly. Please enter a valid email address.



VoxEU

Inflation narratives

23 December 2021

Inflation has recently surged in both the US and the EU. This column uses responses from surveys of a representative sample of the US population as well as academic economists and US firm managers to show that households and managers are more likely than experts to think that the current surge in inflation will be persistent. Since the narratives individuals use to explain movements in inflation appear central to whether inflation expectations remain anchored, communication strategies by policymakers could put emphasis on specific narratives that highlight that inflationary pressures are unlikely to persist.



World Economic Forum

How digital tracing can reduce industrial carbon emissions

15 December 2021

Decarbonizing indirect greenhouse gas emissions from industry is a big challenge. Digital tracking and tracing of materials and goods effectively, reliably and responsibly could help reduce emissions. Carbon emissions information must be detailed and easy to disclose if companies are benefit from the competitive advantage that better end-to-end traceability can offer. Despite the multiple calls for action from climate scientists and civil society, evidence reported daily suggests current pledges are not enough to stop the climate crisis. The industrial sector is failing and companies must act now if we want to limit the temperature rise to 1.5° C and meet the most recent goals set at COP26 .



Asian Development Bank

The World's Struggling Supply Chains Need Greater Transparency to Speed Recovery

14 December 2021

Current blockages in some supply chains are raising questions about the complexity and importance of these networks. Is a given supply chain robust enough to keep operating through a crisis, or even through a minor strain in the chain? Are workers throughout the chain treated fairly? Do all companies in a chain maintain proper environmental standards? In too many cases, answers to these and similar questions are often unobtainable at the moment.



Harvard Business School Working Knowledge

Want to Build Better Leaders? Focus on Mindset, Skills, Knowledge

07 December 2021

Middle management used to be the place where careers stalled, but the COVID-19 pandemic has turned that notion on its head. In fact, mid-level leaders possess more agency now than at any other time in recent history. The tight job market is opening up new opportunities for capable middle managers who show initiative. The old saying "people don't leave organizations; people leave people" has never been truer. Companies that don't tangibly show that they value their best people—by developing their skills and helping them reach their full potential—will lose them, perhaps to competitors.

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. Telework, 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 concerns (the EU's foreign investment screening regulation and its toolbox on 5G cybersecurity are important in this regard). Issues related to the fair taxation of US tech multinationals with a large presence in Europe are also unsettled, though commitments to a corporate tax reform that would set a global minimum rate of 15% promise to have an impact on this situation.

In February 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 for all digital services, including social media sites and online marketplaces, meant to foster innovation and competitiveness and to create a safer digital space where fundamental rights can be protected. 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. The Commission proposed ways to turn Europe into the global hub for trustworthy artificial intelligence in 2021; 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 discussions are also underway to strengthen Europe's position in the vitally strategic area of semiconductor production.

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



Observer Research Foundation

The Russia–Ukraine border crisis: Europe’s moment of reckoning

18 December 2021

The relations between the European Union (EU)–Russia persistently provoke hostility as illustrated by the natural gas crisis across Europe in October and November, and now the deployment of forces by Russia at the Ukraine border. The West has labelled Russia’s movement as aggressive actions; however, the Russians have denied such accusations by claiming they are moving in their own territory. The western intelligence services believe around 100,000 troops have been deployed by Russia, but Russian President Vladimir Putin has dismissed any rumours of any imminent threat of invasion.



Centre for European Policy Studies (CEPS)

Russia’s threat to invade Ukraine and Europe’s soft power

17 December 2021

Vladimir Putin’s threat to invade Ukraine forces all parties to make their calculations with three fundamental variables. The first two have dominated public debate so far: the preparedness of Russia to go to war, and the possible impact of Western sanctions in reply. But there is third variable, arguably the most important of all, namely how Ukraine – its leadership and population – see their future, and within that the key role of the EU. Putin’s overarching objectives are clear: for Ukraine to fail in its Westernisation and Europeanisation, and to obtain guarantees against its accession to NATO. His tactics on the other hand are deliberately unclear, manifestly threatening war while denying it.

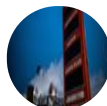


London School of Economics and Political Science

Neoliberalisation and the Social and Solidarity Economy in Greece

15 December 2021

When SYRIZA drafted law 4430/2016 on the ‘Social and Solidarity Economy and the development of its actors’ (SSE), the left-wing governing party found itself in the tricky position of having to satisfy various competing demands. SYRIZA wanted this law to live up to their pledge to support the direct democratic and anti-capitalist practices of the solidarity movement in Greece that emerged as a response to years of austerity and neoliberalisation. [1] But they also had to adhere to the European Commission’s market-based requirements and definitions of social enterprises. [2] They wanted to harness the visions of the solidarity movement to radically transform the modes of production, distribution, and consumption. They also decided to mobilize the law to alleviate the shattering rates of unemployment in the country’s labor market.

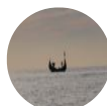


Brookings

The emerging global natural gas market and the energy crisis of 2021–2022

14 December 2021

The ongoing energy crisis of late 2021 looks sure to move into 2022. Alex Gilbert, Morgan D. Bazilian, and Samantha Gross consider a few of the tensions arising for government policy, investors, and consumers.



Observer Research Foundation

Non-traditional security in the Bay of Bengal

13 December 2021

With the escalation of great power competition, much attention has been given to the rise of traditional security, or state-based, concerns. The challenges in this sphere still largely reside in the “what-if” space. As in, what if China were to do X? Or what does US-China competition mean for country Y? These are clearly important questions to ask. Yet, when discussing non-traditional security, or issues that go beyond purely state-based conceptions of security, stakeholders are dealing with challenges that are not a question of “what if,” but “when”.



Project Syndicate

The New Franco-Italian Alliance in Europe

24 November 2021

Behind a new bilateral cooperation agreement between France and Italy is a burgeoning political alliance that could reshape the European Union and its global role. With German Chancellor Angela Merkel departing, all eyes are now on Italian Prime Minister Mario Draghi and French President Emmanuel Macron.



Bocconi Knowledge

Robots in Europe Vote for the Radical Right

22 November 2021

Three Bocconi professors, in a paper newly published in PNAS, find another piece of evidence on the effects of economic distress on the rise of populist parties. Voters react to automation in the same way they react to globalization and to import competition from China.

Infrastructure Technology and Innovation

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).

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



Project Syndicate

Italy's Consumer-Blind Trustbusting

16 December 2021

After many decades in which antitrust enforcement adhered to the principle of consumer welfare, regulators have begun to explore new options for reining in Big Tech. But, judging by Italy's recent fine imposed on Amazon, more dominant players may soon find themselves being punished for their success.



German Institute for International and Security Affairs

Attribution: A Major Challenge for EU Cyber Sanctions

16 December 2021

An Analysis of WannaCry, NotPetya, Cloud Hopper, Bundestag Hack and the Attack on the OPCW The attribution of cyberattacks is a sovereign act by the EU Member States. However, these all have different technical and intelligence capabilities. This leads to a lack of coherence in European cyber diplomacy, for example when imposing cyber sanctions. Analysis of policy responses to the WannaCry, NotPetya, Cloud Hopper, OPCW, and Bundestag hack cyber incidents reveals the following problems: Attribution takes a long time and relies on intelligence from NATO partners; the technical realities and the legal facts for classifying and prosecuting cyberattacks do not always match; the weighting of the criteria for establishing what constitutes a crime is unclear.



Duke Fuqua School of Business

Three Factors Contributing to the Ongoing Global Supply-Chain Crisis

09 December 2021

"This is something that we will be studying for a long time, so the answers are not entirely clear, but it appears to be a combination of complicated global supply networks and logistics processes that are being simultaneously strained at many different points," Swinney said. It appears that three major issues have contributed most to the chaos: COVID creating a shortage of workers that has reduced production capacity around the world, distortions to typical demand due to changes in customer purchasing behavior, and the fact that manufacturing and logistics systems are often run at or near their maximum capacity, he said. Manufacturing and logistics "Things like factories, ports and trucking capacity are expensive, so they're designed to run at high utilization.



RAND Corporation

Wing-Level Mission Assurance for a Cyber-Contested Environment

09 December 2021

The authors offer ways to help wings assure their missions despite cyber attacks, focusing on how wings can maintain situational awareness, defend their systems, and respond to and recover from attacks to survive and operate when under cyber attack.



Harvard Kennedy School - Belfer Center for Science and International Affairs

Student Fellows Share Goals and Special Moments

08 December 2021

More than 30 Harvard Kennedy School (HKS) students were selected by the Belfer Center for the coveted 2021-2022 Belfer Young Leader Student Fellowships. We asked the student fellows who will graduate in the spring of 2022 to share with us their professional interests and goals for the future as well as their most memorable experiences at HKS, tips for others, or something not well known about themselves. Meet some of our impressive upcoming grads!.



Land Portal

Planning for progress in Timor-Leste

30 November 2021

After two decades of independence, development in Timor-Leste is exemplified by growing economic activity in Dili, the country's capital city. Businesses are emerging on various corners, new infrastructure and public buildings are being constructed, and much improved information and communication technology has opened doors for the service sector and private enterprises to grow. Despite this notable progress, the increasingly vibrant capital has many flaws. The city is prone to disaster as evidenced by the deadly floods that occurred in April this year. Given that many people still live in hazard-susceptible areas, future disasters such as flooding and landslide very likely will claim more lives and cause greater damage.

Successful Digital Transformation

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.

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



MIT Sloan Management Review

Catching Up Fast by Driving Value From AI | Thomas H. Davenport and Randy Bean

29 December 2021

This column series looks at the biggest data and analytics challenges facing modern companies and dives deep into successful use cases that can help other organizations accelerate their AI progress. More in this series Some organizations may feel that acquiring AI capabilities is a race, and if a company starts late, it can never catch up. That notion is belied by Scotiabank (officially the Bank of Nova Scotia), which has pursued a results-oriented approach to artificial intelligence over the past two years. While some of its resources are devoted to exploring how new technologies — including blockchain and quantum computing — might drive fresh business models and products, the great majority of its data and AI work is focused on improving operations today rather than incubating for the future.

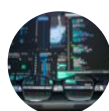


Asian Development Bank

Managing the Development of Digital Marketplaces in Asia

22 December 2021

This book examines the scope, potential benefits, and challenges of digital platforms in Asia and the Pacific. It proposes measures and policies to help maximize social and economic gains while alleviating adverse effects.



World Economic Forum

How 4IR is encouraging the development of people, not just machines

20 December 2021

New manufacturing opportunities are expected to create 133 million jobs in the next four years due to the Fourth Industrial Revolution (4IR), but an estimated 75 million jobs are likely to be lost to technology development at the same time. Manufacturers must prioritise their people and their technology to thrive in the 4IR age. Emerging best practice in this area involves attracting and engaging with talent, and working with third parties to develop the skills of both current and future employees, as well as third parties such as suppliers. We live in one the most exciting ages ever – the age of the Fourth Industrial Revolution (4IR).



RAND Corporation

The global digital skills gap

15 December 2021

The overarching aim of the research was to better understand at a macro level whether and why the digital skills gap is widening, its implications for digital and social inequalities, and what various stakeholders are doing in response.



World Economic Forum

We need to connect every school to the internet. Here's how

10 December 2021

During the COVID-19 pandemic, 1.6 billion children globally were affected by school closures. Analysis suggests that increasing schools' digital connectivity and, therefore students' access to education, can increase a country's GDP and the duration of schooling for pupils. Mapping and assessing the connectivity of schools worldwide is a much-needed step to stimulate the investment and infrastructure required to improve digital connectivity of schools worldwide. Imagine connecting every school in the world to the internet. It is possible.



RAND Corporation

An Exploratory Analysis of Trends in Text Data from Congressional Oversight Hearings

08 December 2021

Trends in what is said in congressional committees could signal the emergence of issues for policymakers. In this Perspective, researchers describe a proof of concept for how to acquire and begin analyzing congressional text data for policy analysis.



Harvard Kennedy School - Belfer Center for Science and International Affairs

Center Alumni Tapped to Serve the Nation

08 December 2021

The Belfer Center is proud that more than a dozen of our community members, including Bonnie Jenkins, Eric Lander, Samantha Power, Wendy Sherman, Jake Sullivan, and—pending Senate confirmation—Sasha Baker and Nick Burns, have answered the call to serve in the Biden administration. We're also pleased that a new generation of leaders who are recent Harvard Kennedy School graduates and Belfer alums are serving important—and in some cases, very senior—roles as well. Meredith Berger, Marcus Comiter, Caitlin Conley, Raina Davis, Jeff Fields, Aditi Kumar, and Aoibhean Thinnies are helping run important projects on industrial policy, AI, law enforcement, and national security.

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.

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



World Economic Forum

3 ways to accelerate the biomanufacturing revolution

22 December 2021

Advances in synthetic biology are spurring a biomanufacturing revolution. It can help us address our gravest challenges, from microplastic pollution to pandemic prevention and preparedness. Here are 3 areas through which we can accelerate this transformation. Our collective ability to engineer biology together with the deployment of automation, AI and data-analytics in production processes, has advanced in leaps and bounds over the last two decades, spurring a biomanufacturing revolution. Economies of scale are enabling significant cost reductions in fundamental unit operations, which in turn have enabled a maturation of the overall biological engineering toolkit.



VoxEU

The impact of lean inventories

17 December 2021

Just-in-time production has contributed to the decline in inventory holdings over the last several decades. Using US firm-level data, this column argues that just-in-time production creates a trade-off between firm profitability and vulnerability to large unexpected shocks. The theoretical analysis indicates that just-in-time production raises firm value by 1.3%. At the same time, amid a widespread supply disruption, a leaner economy experiences a deeper output contraction.



Frontiers

Editorial: Multi-Omics Technologies for Optimizing Synthetic Biomanufacturing

15 December 2021

Industrial manufacturing endures as an essential human activity yielding a variety of useful products; it plays a significant role in the global economy with huge impacts in everyday life. However, the manufacturing process requires consumption of various raw materials (especially petroleum derivatives), generates a variety of harmful waste products, causes pollution, and is energetically inefficient. Biological manufacturing from sustainable, affordable, and scalable feedstocks potentially enables the displacement of the entire portfolio of currently available products produced by industrial processes, enabling the manufacturing of renewable and ecofriendly products (Clomburg et al., 2017).



Asian Development Bank

Big Data for Better Tourism Policy, Management, and Sustainable Recovery from COVID-19

14 December 2021

BIG DATA FOR BETTER TOURISM POLICY, MANAGEMENT, AND SUSTAINABLE RECOVERY FROM COVID-19 DECEMBER 2021 BIG DATA FOR BETTER TOURISM POLICY, MANAGEMENT, AND SUSTAINABLE RECOVERY FROM COVID-19 DECEMBER 2021 Co-publication of the Asian Development Bank and the World Tourism Organization. Creative Commons Attribution-NonCommercial 3.0 IGO license (CC BY-NC 3.0 IGO) © 2021 Asian Development Bank (ADB) and World Tourism Organization (UNWTO) Asian Development Bank 6 ADB Avenue Mandaluyong City 1550 Metro Manila Philippines World Tourism Organization (UNWTO) Calle del Poeta Joan Maragall, 42 28020 Madrid Spain Tel +63 2 8632 4444 Fax +63 2 8636 2444 www.adb.org Tel +34 915 67 81 00 E-mail info@unwto.org www.unwto.org Some rights reserved. This report focuses on the kinds of big data, particularly in economic, social, and environmental areas, which governments need to compile to assist with planning smart destinations.² The sources of these data include tourism big data, non- tourism specific big data (such as credit card spending, mobility data, etc. Defining Big Data “Big data” refers to the large, diverse, structured and unstructured datasets of information that organizations, people, and machines (sensors) constantly generate and transmit at ever-increasing rates (Ghotkar and Rokde 2016). Table 1: Primary Locations, Categories, and Sources of Big Data Big Data Location Internal: Data a company generates, owns, and controls. Big data analysis and big data visualization are the two skills needed to actually interpret the big data being collected.



World Economic Forum

Why sharing data is crucial for progress in bioeconomy

09 December 2021

This piece was authored by The Global Commons Working Group of the World Economic Forum Global Future Council on Synthetic Biology . Biotechnology is making it possible to combat global challenges such as COVID-19. To progress further, biological data and its benefits have to be shared globally, too. If the biotechnology revolution is to benefit everyone, we must embrace new forms of collaboration. Thoughtful ethical guardrails, data sharing restrictions and privacy safeguards are needed to ensure proper use, while overly complicated barriers to sharing biological data or unclear benefit sharing mechanisms could risk limiting scientific progress.

Blockchain and Leveraging Data

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.

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



Brookings Institution

Unlocking young women's economic potential through digital mentoring in India

28 December 2021

Echidna Global Scholar Arundhuti Gupta discusses her research focused on how to leverage digital mentoring to increase women's workforce participation in India. .



Project Syndicate

Mark Zuckerberg's Ring of Power

27 December 2021

Learning to appreciate that control is an illusion is hard, especially when we are prepared to sacrifice almost everything, to pay any price, to control others. But if we are to stop others – Mark Zuckerberg, for example – from controlling us, it is a lesson we must learn.



ETH Zürich

Watch out for fakes

17 December 2021

ETH alumna Leonie Flückiger is blazing a trail through the male-dominated world of tech start-ups with her company Adresta, which uses a blockchain-based certificate to authenticate luxury timepieces. She hopes to encourage other women to follow in her footsteps.



LSE Business Review

Zuckerverse: why we should vote with our feet and stay away from Facebook

10 December 2021

Facebook's rebrand to 'Meta' is an attempt to draw eyes away from the trail of scandal left in its wake. The company has a lot of explaining to do. Until then, Sid Mohasseb advises users to stay away from the platform. He says there's no reason to expect that the company's business model will change: 97% ... Continued.



Wharton School of the University of Pennsylvania
- Knowledge@Wharton

How Consumers and Retailers Can Reduce Returns

06 December 2021

Returns are costly for retailers and even more expensive for the planet when unwanted products end up in landfills. Wharton's Gad Allon explains how innovating the reverse supply chain coupled with a shift in consumer attitudes can help reduce returns.

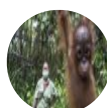


SpringerOpen

Detection of illicit cryptomining using network metadata

04 December 2021

Illicit cryptocurrency mining has become one of the prevalent methods for monetization of computer security incidents. In this attack, victims' computing resources are abused to mine cryptocurrency for the benefit of attackers. The most popular illicitly mined digital coin is Monero as it provides strong anonymity and is efficiently mined on CPUs. Illicit mining crucially relies on communication between compromised systems and remote mining pools using the de facto standard protocol Stratum. While prior research primarily focused on endpoint-based detection of in-browser mining, in this paper, we address network-based detection of cryptomining malware in general. We propose XMR-Ray, a machine learning detector using novel features based on reconstructing the Stratum protocol from raw NetFlow records.



Project Syndicate

Endangered Wildlife Should Pay for Its Own Protection

02 December 2021

The Great Apes, including gorillas, chimpanzees, and bonobos, are ideal early candidates for an "Interspecies Money" approach. Giving them a digital wallet linked to their identity and the ability to spend money on their own protection could improve their lives and increase their chances of survival.

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.

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



Asian Development Bank

Digital Technologies for Government-Supported Health Insurance Systems in Asia and the Pacific

22 December 2021

DIGITAL TECHNOLOGIES SAMPLE OF A TWO-DECK FOR GOVERNMENT PUBLICATION TITLE SUPPORTED HEALTH INSURANCE SYSTEMS IN ASIA AND THE PACIFIC JUNE 2021 DECEMBER 2021 ASIAN DEVELOPMENT BANK DIGITAL TECHNOLOGIES FOR GOVERNMENT-SUPPORTED HEALTH INSURANCE SYSTEMS IN ASIA AND THE PACIFIC DECEMBER 2021 ASIAN DEVELOPMENT BANK Creative Commons Attribution 3.0 IGO license (CC BY 3.0 IGO) © 2021 Asian Development Bank 6 ADB Avenue, Mandaluyong City, 1550 Metro Manila, Philippines Tel +63 2 8632 4444; Fax +63 2 8636 2444 www.adb.org Some rights reserved. Published in 2021.



Project Syndicate

The Danger of Digitalizing Aid

20 December 2021

The humanitarian aid sector faces growing pressure to innovate and adopt digital technologies, reflecting the urgent need to make such assistance more effective. But the world's most vulnerable communities must not be forced to make themselves visible to governments that may not have their best interests at heart.

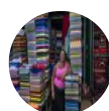


Center for Global Development

How Can Multilateral Organizations Strengthen Global Data Governance Practices? Roundtable Summary

06 December 2021

This brief is based on a roundtable hosted by CGD as part of the Governing Data for Development project, which explores how governments can use data to support innovation, development, and inclusive growth while protecting citizens and communities against harm. The views expressed here are those of the participants and do not necessarily represent the views of CGD staff. For other briefs in the series, as well as more on the project, visit cgdev.org/governing-data.



World Economic Forum

5 ways trade can support a gender-equal recovery

06 December 2021

Women have been disproportionately affected by the economic impact of the COVID-19 pandemic. Members of The World Trade Organization must ensure trade policies empower women to enable a gender equal recovery. Here are five reasons why taking a gender-responsive approach to trade can achieve this goal. Ahead of the now postponed 12th Ministerial Conference of the World Trade Organization (WTO), member countries are considering how to advance the still incomplete agenda on gender and trade. The evidence is increasingly clear that while the international trade architecture itself is embedded with the principle of non-discrimination, the benefits of trade are not equally distributed across gender lines.



World Economic Forum

Innovating for Sustainability: The Entrepreneurs Who Could Save the World | Sustainable Summit 2021

01 December 2021

With digitization helping emerging economies make up 57% of global trade by 2030, innovation and entrepreneurship remain critical in ensuring strong development action. Speakers: Allon Raiz, Kristin Hughes, Maren Hjorth Bauer, Lasse Lindqvist, Jennifer Blanke, Tom Birbeck, Job Oyebisi, Nivedha RM, Natasha Franck, William Kwende.

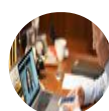


World Economic Forum

Digital health inclusion can provide healthcare for all - this is how

30 November 2021

The COVID-19 pandemic accelerated a digital shift in healthcare delivery that was a long time coming. Thanks to a wave of technologies, the idea of assisting people – no matter their location – became a reality.



Asia Global Institute

Digital Trade in the Indo-Pacific: A New Flashpoint in the US-China Rivalry

25 November 2021

The Biden administration in the US is pushing a plurilateral digital trade agreement in the Indo-Pacific. Washington hopes such a deal would be a powerful counterweight to China's efforts to impose its own digital standards in the region, writes Vasuki Shastry of Chatham House.

Managing Technology's Impact

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.

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



Center for International Forestry Research
Multistakeholder initiatives: fostering landscape-based natural resources management in Sumbawa

20 December 2021

Sumbawa District and the other three-district and one-municipality governments in Sumbawa Island have faced serious ecological challenges due to the increasing deforestation and forest conversion. As a small island, accumulated impacts due to these conditions, escalated by climate change, have been more serious compared to large island. Including the threats to the Bajo People, who have been living for generations in Bungin Island (Coral Villages). Produced by CIFOR and Rekam Jejak Nusantara Foundation, the video captures the activities implemented by KANOPPI and the associated impacts. Through participatory action research, KANOPPI influences the policy processes and translates landscape-based strategies into practices through a complementary agroforestry approach.



Australian Institute of International Affairs
Germany Has Declared a Feminist Foreign Policy... So What Happens Next?

09 December 2021

Germany's new coalition agreement explicitly mentions a feminist foreign policy approach.



London School of Economics and Political Science
The State of Democracy, Public Trust and Citizen Engagement in Greece and the Role of Vouliwatch

06 December 2021

Greece is often referred to as the birthplace of democracy, and that might well be the case, however the country's rich historical heritage should not be perceived as a de facto guarantor of its democratic future. The admirable, albeit relatively recent democratic tradition of this country often acts as a veil which coincidentally, if not conveniently, adorns and covers a rather problematic political present. Every issue mentioned in the long and bleak list above is, I believe, horizontally permeated by a constant variable, which is that a large number of citizens in western democracies, and to an even greater degree in Greece, feel let down by the political elites and the democratic process.



Brookings
Staffing and compensation are at the heart of building a better early childhood system

01 December 2021

When COVID-19 hit, the work of being a child-care teacher — already challenging and low paying — became even more demanding, dangerous, and emotionally challenging. Prior to the pandemic, teachers left child-care sites at extremely high rates (more than twice as high as those of K-12 teachers), and the pandemic has exacerbated this issue.



London School of Economics and Political Science
Cutting Edge Issues in Development – COVID-19, Corporatisation and Closing Space: The Triple Threat to Civil Society in India

01 December 2021

On Friday 26 November, Ingrid Srinath gave an online lecture on 'COVID-19, Corporatisation and Closing Space: The Triple Threat to Civil Society in India' as part of the Cutting Edge Issues in Development Lecture Series for 2021/22. Ingrid Srinath is the Founder Director of the Centre for Social Impact and Philanthropy (CSIP) at Ashoka University. LSE ID's Professor David Lewis was an invited discussant for the lecture. Read what MSc students Ananya Radhakrishnan, Krithika Rao, Muskaan Arora and Bhuvan Majmudar took away from the lecture below. You can watch the lecture back on YouTube or listen to the podcast.



Brookings
Unlocking young women's economic potential through digital mentoring in India

30 November 2021

Imagine a room full of university students in India: young men and women sitting shoulder to shoulder in equal numbers. Fast forward 10 years: 8 out of those 10 men are likely to be active in the work force compared to only 3 out of 10 of the women. This example illustrates one of the....

Digital Transformation of Organizations

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.

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



[RAND Corporation](#)

Cognitive Behavioral Intervention for Trauma in Schools (CBITS) for American Indian Youth

22 December 2021

The Cognitive Behavioral Intervention for Trauma in Schools (CBITS) program helps students exposed to traumatic events who are experiencing emotional or behavioral problems. This tool is an adaptation of the CBITS program for American Indian youth.

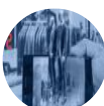


[Project Syndicate](#)

Fixing Global Trade Finance

21 December 2021

The smaller the business, the more difficult it is to navigate the complexity, fragmentation, and opacity of today's trade-finance system. But more digital interconnection would greatly benefit micro, small, and medium-size enterprises and hence the global economy, too.



[McGill University](#)

New Normal: How the Pandemic Changed Shopping Forever with Mehmet Gumus

16 December 2021

How we shop today certainly isn't the same as it was before March 2020. The COVID-19 pandemic launched a swift if unsteady shift in shopping habits—and retailers quickly learned that adaptation was essential to survival. In episode 4 of the second season of the "New Normal" podcast series, Professor Mehmet Gumus from the Desautels Faculty of Management at McGill University joins journalist Dave Kaufman to discuss how the COVID-19 pandemic helped to speed up the shift in how people shop and consume, what the future of brick-and-mortar establishments might look like, and the increasing role of omnichannel shopping in the everyday shopping experience of the consumer.



[Wharton School of the University of Pennsylvania](#)
- [Knowledge@Wharton](#)

How Big Companies Can Cultivate Intrapreneurs

14 December 2021

The following article was written by Scott Snyder, a senior fellow at Wharton's Mack Institute for Innovation Management and author of the book *Goliath's Revenge: How Established Companies Turn the Tables on Digital Disruptors*, and Bill Seibel, author of *Press Go — Lessons Earned by a Serial Entrepreneur*, and former CEO and founder of Mobiquity. Snyder is also Chief Digital Officer at EVERSANA. If history has taught us anything, it's that big corporations struggle with disruptive innovation. Whether it's missing a new wave like IBM underestimating the value of the operating system, Kodak underplaying the impact of digital photography, or JC Penney doubling down on brick-and-mortar stores as the Amazon-effect was taking over retail, big companies seem to lack the ability to innovate ahead of the next disruption.



[University of St. Gallen](#)

Upskilling platform to fill the educational gaps caused by the pandemic

06 December 2021

The Institute of Information Management at the HSG is promoting the circular skill economy: from February 2022 onwards, the Swiss Higher Education Institutions EHB, EPFL, UZH, ZHAW, as well as the HSG, will be working on the development of the Swiss Circular Economy of Skills and Competences (SCESC) under the leadership of Evrlearn founder Felix Schmid and HSG business IT specialist Dr. Roman Rietsche. The upskilling platform approved by Innosuisse is intended to enable people to pursue a self-determined career.



[Project Syndicate](#)

Digital Finance Without Cryptocurrencies

01 December 2021

Digital payments and financial transactions hold the promise of greater convenience, stronger competition, and increased savings to society. But when it comes to digital currencies, central banks – and not free-floating cryptocurrencies or stablecoins – should lead the way.

Agile Technology Governance

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.

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



Frontiers

Editorial: Intelligence and Safety for Humanoid Robots: Design, Control, and Applications

20 December 2021

Humanoid robots attract growing research interests from different communities, both as tools for artificial intelligence research and neurocognitive interaction assessment and as enabling technology with high societal impacts as personal robots for health, education, and entertainment. These robots, modelled on the basis of the embodiment of neural systems in software and hardware devices, are characterized by a high number of degrees of freedom, complex end effectors and locomotion mechanisms on the hardware side.



MIT Sloan Management Review

How Customer Connections Can Help Drive Decision-Making for Marketers

15 December 2021

Connecting With Customers in the Age of Acceleration The pandemic forced companies to speed digital transformation and adapt to a virtual world. Customers are now rewarding those that offer the best experiences and engage authentically. To succeed in the next era, businesses and marketers must meet new expectations and build new strategies and skills. No organization has escaped the pandemic's impact, but for many companies, the experience has allowed them to learn more about their own customers.



TED

Kayvon Tehranian: How NFTs are building the internet of the future | TED

14 December 2021

In this revelatory talk, technologist Kayvon Tehranian explores why NFTs -- digital assets that represent a certificate of ownership on the internet -- are a technological breakthrough. Learn how NFTs are putting power and economic control back into the hands of digital creators -- and pushing forward the internet's next evolution. .



MIT Sloan Management Review

Break Out to Open Innovation

07 December 2021

Mercedes-Benz AG produces over 2 million passenger cars annually for a global market in the throes of transformation. Automakers are meeting new demands for electrification and connectivity, new competitors are arising, and customers have new expectations, such as the desire for sustainable mobility. All of these trends are driving the need to speed innovation in every facet of the automotive industry.



World Economic Forum

Why failing can help build business - Lessons from 9 entrepreneurs

30 November 2021

It is widely known that the default state of a startup is failure. 90% of startups and 75% of venture-backed startups fail . Failing doesn't mean losing: here are the lessons from 9 entrepreneurs on why failure can help build business. The reasons vary from wrong product market fit, depletion of capital, bad partnership, regulatory hurdles to bad hiring and many more. These factors often function as multipliers in the startup world.



The Science Breaker

Flowering plants outcompeted conifers

26 November 2021

It is commonly accepted that the burst in diversity of flowering plants, between 125 and 80 million years ago, had a negative impact on the diversity of other plant groups such as conifers (plants with cones). The diversity of conifers is strongly linked to the increasing diversity of flowering plants since 66 million years ago, thus attesting to the role of competition between plants.



International Labour Organization

Future-ready skills and lifelong learning systems

25 November 2021

The call to Member States in the ILO Centenary Declaration for the Future of Work is to invest in human capacities and the institutions of work to shape a fair, inclusive and secure future of work with full, productive and freely chosen employment and decent work for all. At its 340th Session, the ILO's Governing Body called on the ILO to take the lead role on skills and lifelong learning, with a strong emphasis on social dialogue and tripartism, human-centred recovery, promoting opportunities for decent work and increasing productivity as a vehicle for inclusive recovery and resilience.

The Digital Enterprise

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.

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



Brookings Institution

Digital cash transfer infrastructure

28 December 2021

In this seventh interview of the “17 Rooms” podcast, Michael Faye and Minister Cina Lawson discuss building digital cash transfer infrastructure for emergency response and adaptive social protection. Faye, CEO and co-founder of GiveDirectly and Lawson, Minister of Digital Economy and Digital Transformation in Togo, moderated Room 1 focused on Sustainable Development Goal number 1 —on no poverty—during the 2021 17 Rooms flagship process. Subscribe!

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SpringerOpen

Measuring migration 2.0: a review of digital data sources

21 December 2021

The interest in human migration is at its all-time high, yet data to measure migration is notoriously limited. “Big data” or “digital trace data” have emerged as new sources of migration measurement complementing ‘traditional’ census, administrative and survey data. This paper reviews the strengths and weaknesses of eight novel, digital data sources along five domains: reliability, validity, scope, access and ethics. The review highlights the opportunities for migration scholars but also stresses the ethical and empirical challenges. This review intends to be of service to researchers and policy analysts alike and help them navigate this new and increasingly complex field.



Project Syndicate

Imagining a Global Digital Order

16 December 2021

In the absence of universal basic standards and rules for how data is used and how digital markets operate, the world risks missing out on potential solutions to global problems that new technologies have to offer. The leading digital powers must recognize that more alignment is in everyone's best interest.



LSE Business Review

By allowing work to be done externally, broadband technology has increased outsourcing

13 December 2021

Domestic outsourcing has grown substantially in developed countries over the past two decades. One reason for this is technological change that allows work to be done externally. Antonin Bergeaud, Clement Malgouyres, Clement Mazet-Sonilhac and Sara Signorelli show that broadband technology increases firm productivity and the relative demand for high-skilled workers. Both low- and high-skilled workers ... Continued.



MIT Sloan Management Review

How Marketers Can Address Data Challenges to Drive Growth

08 December 2021

Connecting With Customers in the Age of Acceleration The pandemic forced companies to speed digital transformation and adapt to a virtual world. Customers are now rewarding those that offer the best experiences and engage authentically. To succeed in the next era, businesses and marketers must meet new expectations and build new strategies and skills. Imagine that you have just been promoted to manager at a large food company and will be in charge of a popular candy brand primarily sold in grocery stores.



LSE Business Review

When oligopolies confuse consumers, beware the rise of confusopoly

08 December 2021

Confusing consumers can be profitable for companies, in particular in a competitive market where they can hardly increase their prices without losing their consumers. Ambre Nicolle, Christos Genakos, and Tobias Kretschmer study the UK mobile telecommunications market before the introduction of 4G services – and find evidence that mobile operators decreased the transparency of their ... Continued.



Asian Development Bank

Public Lending Schemes for SMEs in Asia and the Pacific: Lessons from the Republic of Korea and the United States

07 December 2021

This brief draws on experiences from the Republic of Korea and the United States to provide insights on how public lending schemes can support small and medium-sized enterprises (SMEs) in developing countries in Asia and the Pacific.

Digital Work Design

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.

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



Wired

Why 2021 Was the Biggest Year for the Labor Movement in Games

28 December 2021

Marked by walkouts, strikes, petitions, and open letters, 2021 has been the biggest year yet for workers in the US video game industry taking a stand against labor conditions. Over the last year, a vocal contingent of video game workers has warned employers that they won't tolerate subpar labor conditions just to fulfill their childhood dream of making video games. "In my experience, it actually isn't suffering that drives people to take the risk and organize," says Tom Smith, senior director of organizing for the Communications Workers of America, the country's largest communications and media union. "It's hope.



World Economic Forum

Stakeholder Capitalism | Ep 2 - How Trade Unions Lift Worker Wages | World Economic Forum

23 December 2021

The decline of incomes for the bottom 50% of Americans has coincided with a fall in union membership. This episode looks at how those two facts might be linked and looks to Denmark where union representation is welcomed by employers.



International Labour Organization

ILO promotes productivity on Lebanon farms through modern greenhouse initiative

22 December 2021

The ILO is piloting an initiative to test the impact of modern greenhouses on productivity and working conditions on selected farms in Lebanon, which have been affected by the financial and economic crisis in the country.

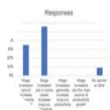


Raconteur

Widening jobs access for neurodiverse workers

13 December 2021

What does 'neurodiverse' mean? While many of us might think of autistic savants like 'Rain Man', the reality is far removed from a Hollywood film. To be diagnosed with autism, a person must display "difficulties with social interaction and communication, in addition to restricted interests and repetitive behaviours", according to the Autism Research Centre at the University of Cambridge. They're at a very high risk of mental health problems, particularly depression and anxiety, the centre notes. Data from the UK's National Autistic Society shows that about 0.6% of the world's population is on the autism spectrum.



VoxEU

Towards a high-wage, high-productivity economy

09 December 2021

Many commentators have understood the UK government's proposed 'high-wage, high-productivity' model as suggesting that wage increases will themselves lead to innovation and higher productivity. In the November 2021 CfM survey, the panel of UK experts is nearly unanimous that that wage increases generally do not increase productivity in the long run; the consensus is that productivity drives wage increases. A minority thinks that government intervention in wages could lead to higher productivity, but even this minority argues that such policies should be complemented with investments in skills and other productivity-enhancing measures.



Project Syndicate

The Great Labor Market Shakeup

06 December 2021

The COVID-19 pandemic has restructured entire industries and changed the way workers think about their jobs, especially in low-paid occupations and sectors. But a full recovery in employment is still possible: policymakers and employers need only offer workers the support they are demanding.



The Vienna Institute for International Economic Studies

Empirical Productivity Distributions and International Trade

05 December 2021

We develop a novel theory-consistent methodology that allows us to recover nonparametric firm-level productivity distributions for 15 countries and 18 sectors using data on aggregated firm-level sales. We use these distributions against the backdrop of a multi-sector version of a standard Melitz (2003) trade model to quantify the role of technology in shaping international trade flows. We find that, on average, absolute advantage measured as productivity differences across countries within sectors explains 14% of the total variation in bilateral trade shares. In contrast, on average, comparative advantage measured as productivity differences across sectors within countries explains 43% of the variation in trade flows in the workhorse model.

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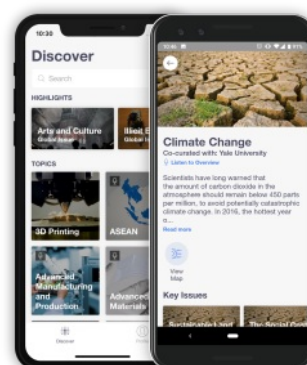
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