MIT Technology Review
Insights

Global Insights

A quarterly briefing for Global Panel members

Preface

Global Insights is a quarterly report series prepared exclusively for MIT Technology Review Global Panel members. The focus of the series is to explore how momentous world and local events and trends will affect technology and business strategy in five regions of the globe—Asia, Europe, Latin America, the Middle East and Africa, and North America. The report has five sections—one section per region. Each section is broken into three parts: (1) the "Impact dashboard for technology decision-makers" details the events and trends that have a bearing on technology and business strategy in the region and their immediate and long-term impact, along with a rating of each impact: low, moderate, or high; (2) the main article delves into the events and trends and their current or predicted impact, providing color, context, commentary; and (3) "Elsewhere in brief" examines other business- and technology-related news in the region. The views expressed in this report are those of MIT Technology Review Insights, which is editorially independent.

Editor's note

We're now more than half a year into the coronavirus pandemic, this issue of Global Insights marking the third since lockdowns and physical-distancing mandates took hold in North America alone. As always, MIT Technology Review Insights has worked to provide timely and accurate technology and business news and analysis. For the most up-to-date coverage of covid-19 and its effects, sign up for MIT Technology Review's *Coronavirus Tech Report* newsletter.

AI in the real world

Japanese AI technology companies are using the economic reset covid-19 has brought to explore practical new applications.

Impact dashboard for technology decision-makers

Event/trend	Immediate impact	Long-term impact
Technology vendors in Japan are increasing research-and-development efforts to discover relevant, and profitable, AI applications.	**MODERATE:** Japan's AI industry still lacks critical mass, although investment and international cooperation are growing.	**HIGH:** Health-care AI applications are a particular opportunity for Japan, for immediate pandemic-management applications, medical-image analysis (in which Japan is a world leader), and elder care.

In July 2019, Masayoshi Son, chairman of SoftBank and head of the world's largest private equity technology fund, told an international conference that **Japan's** AI industry is "underdeveloped," and that a lack of so-called unicorns (startups valued at more than $1 billion) was causing the industry to lose ground to China and the rest of Asia. Later that year, he urged the government to make AI a mandatory subject for college entrance exams, saying, "Japanese students don't study if they are not asked."

A year later, the sector seems in much better shape. Preferred Networks, a Tokyo-based AI startup, whose investors include Toyota and Fanuc, a robotics firm valued at nearly $3.5 billion, is considered Japan's largest unicorn. Preferred's deep-learning technologies are deployed in AI-based research-and-development efforts for companies in an assortment of sectors, including autonomous driving, cosmetics, and petrochemicals. In late August, Preferred partnered with Japanese corporate titan Mitsui Group to apply its technologies to find underground oil and gas reserves. The large swath of potential use cases and applications the company is pursuing is not unusual for AI startups (**China's** leading AI foundry SenseTime casts a similarly wide, industry-agnostic net), but the absence of a single, large-scale commercial success has made it difficult for Preferred to gain traction.

Japanese companies with AI aspirations are also increasingly collaborating internationally. Israeli medtech startup Binah.ai recently announced a slew of coronavirus-related projects with Japanese firms, including a facial recognition project with NTT Data's Health Data Bank and infection monitoring with MySOS and Macnica Networks.

Elsewhere in brief

- **South Korea: SK's X-ray vision.** Korea's leading mobile carrier **SK Telecom** has been investing in technology to expand its wireless 5G offerings to specific industries, including health care. To this end, in June the company added a $20 million equity stake in Israeli medical imaging company Nanox to a $5 million investment earlier this year. SK plans to introduce "MsaaS" (medical screening as a service) in South Korea and Vietnam later this year.
- **India: Robo-docs.** Bangalore-based **Invento Robotics** has been expanding its line of autonomous robots with health-care facility applications to augment the workloads of essential front-liners. One model launched in April, C-Astra, deploys embedded ultraviolet-C lamps to disinfect common areas and is being used by Apollo, India's largest chain of private hospitals. Invento's Mitra robot, originally designed to greet visitors at hotels or retail shops, has been redeployed to check on patients at health-care facilities—recording patient data, taking temperatures, and establishing video calls with consulting doctors.

Shields down

As another landmark European Union ruling over data privacy rattles US big tech, another EU-US data transfer legislation is in the works.

Impact dashboard for technology decision-makers

Event/trend	Immediate impact	Long-term impact
On July 16, the Court of Justice of the EU declared the Privacy Shield—a 2016 agreement between the EU and the US guaranteeing trans-Atlantic transmission of EU data—invalid.	**HIGH:** The EU continues to maintain a vigilant stance in codifying its data privacy law, the GDPR; the stark contrast to US laxness may exert more influence over practices of globally minded US tech giants.	**HIGH** to **MODERATE:** Such vigilance will be difficult to maintain without a compliant tech industry the EU can call its own. Unlike China, the EU does not command a holistic tech ecosystem, which over time may blunt the global influence of GDPR-inspired regulation.

The **European Union's** Court of Justice ruling striking down the Privacy Shield data transfer agreement has become known as "Schrems II," because it is the second case that Austrian data privacy activist Max Schrems has successfully litigated, largely against Facebook's violation of European data privacy laws. The EU decision invalidates an agreement between Europe and the United States to allow (largely American) companies to export data out of EU jurisdictions despite the overarching provisions of the trading bloc's sweeping General Data Privacy Regulation (GDPR), which went into effect in 2018. Ironically, shortly after this ruling was handed down, the EU's executive body and the US Department of Commerce announced they would start discussions to redesign a new and binding Privacy Shield legislation.

The Privacy Shield itself was a reincarnation of an earlier attempt to create exceptions for US tech company compliance with GDPR (the so-called Safe Harbor agreement). The ruling lays bare a fundamental misalignment between the data privacy regimes of the two markets—or rather, Europe has a strong and clear regime, one that it is willing to expend political and regulatory energy to defend, and the US lacks any such regulation at a federal level. Technology companies once again must bend to the letter of the GDPR if they wish to continue to serve European markets, but the fact that the US has immediately chosen to seek another negotiated exception indicates that this gap in regulatory perspectives will continue to cause conflict.

Elsewhere in brief

- **Denmark: Pharma-transformation. Practio** is a Danish health-care software startup that allows clients to schedule vaccines needed for traveling and get them administered at a participating pharmacy. While pandemic lockdowns have largely put this business on hold, the company has been working on an expansion plan that includes covid-19 antibody tests and a service platform that turns pharmacies into community health centers, freeing capacity at hospitals and clinics. Practio received €8.2 million ($9.7 million) in financing from health-care tech investment funds to execute on the plan in existing markets and expand into Germany.

- **United Kingdom: Omnivorous HR tech.** The covid-19 crisis is compelling startups in human-resources technology to help dispersed and remote workforces easily navigate benefits, compliance, taxes, and other administrative matters. **Omnipresent**, a UK and Austrian startup that offers automated hiring and payroll-management services for organizations with teams working across multiple countries, received $2 million in seed financing from a consortium of investors. Ominpresent co-CEO Matt Wilson calls the startup's offering "global employment as a service."

Steady streaming

The region is becoming a world leader in live-streaming concerts and could be a model for the entertainment industry in the post-pandemic economy.

Impact dashboard for technology decision-makers

Event/trend	Immediate impact	Long-term impact
Millions of consumers in Brazil have been watching YouTube live-stream concerts, and digital app players across Latin America are developing new services to exploit this emerging opportunity.	**MODERATE:** Live event streaming has turned into a useful new revenue stream for digital companies, particularly those looking to transform their services into all-encompassing "super apps."	**MODERATE** to **HIGH:** Latin America's early lead in live-stream digital entertainment could becoming a appealing model for other digital app players globally.

Boletia is a Monterrey, **Mexico**, online ticketing service for live music that has seen its traditional business lines—music concerts and sporting events—dry up during the pandemic. The company has used its payment platform to host live-streamed events through a new service called NEERME.

Latin America has proven to be a receptive market for online streaming concerts, even as it has become one of the fastest-growing epicenters of covid-19 infections. Since April, **Brazil** has seen a number of YouTube live-streaming events with attendees in the millions, including the world's largest such concert—nearly three-and-a-half million viewers watched superstar Marília Mendonça sing from her living room. Outside of the ticketing and traditional streaming players, the space is also being eyed by other app-based service companies: Rappi, the Bogota, **Colombia**, online delivery startup with more than 25 million users in 10 countries across the region, hosted its first online concert over its app in June, headlined by Columbian pop star Manual Medrano.

Online payments are surging throughout the region—Brazilian credit card payments platform Cielo (which has a relationship with Facebook's WhatsApp to handle payment processing in Brazil) reported a 200% increase in transaction volumes this year. Rappi, Boletia, and others are looking to wrap live entertainment services into a one-stop-shop "super app," as the region's consumers swiftly adapt to the new normal of pandemic life.

Elsewhere in brief

- **Argentina: NUCLEANDO option.** Argentina's **National Atomic Energy Commission** (CNEA) is using remote-learning technology to augment a regional education program, named NUCLEANDO, launched earlier this year with the aim of introducing 250,000 students in Latin America and the Caribbean to nuclear-energy-related science disciplines. Using the Virtual Campus digital platform developed on Moodle by the Latin American Network for Education in Nuclear Technology, CNEA is delivering virtual multimedia training courses for teachers and staff in universities and research institutes.

- **Trinidad and Tobago: Digital government transformation.** Trinidadians went to the polls August 10 in a national election, which was among other things a referendum on the Caribbean nation's digital future. Both the ruling **People's National Movement** (PNM) party and the opposition **United National Congress** campaigned on a collection of e-government initiatives to improve broadband infrastructure, attract technology investment, and establish a national digital identity program. The victorious PNM also plans to remove taxes on sales of computers and smartphones and provide tax credits for tech startups.

Rush to the red planet

The UAE becomes the first Arab state to launch a space orbiter to Mars in what is becoming a busy year for interplanetary exploration.

Impact dashboard for technology decision-makers

Event/trend	Immediate impact	Long-term impact
The United Arab Emirates Space Agency successfully launched its Hope probe from Japan's Tanegashima Space Center on July 16. The craft is scheduled to reach Mars in February 2021.	**LOW:** The mission will commemorate the 50th anniversary of the country's founding and make a survey of the planet's atmospheric conditions.	**MODERATE:** The UAE does not yet have a broad space exploration program, but the Hope project represents an important step in transnational space collaboration and marks a step-change increase in global efforts to reach and understand Mars.

The **United Arab Emirates'** Hope probe joins a convoy of missions to Mars this summer, from the United States and China, all taking advantage of a window of proximity between Earth and Mars that occurs every two years. The UAE is the first Persian Gulf nation to mount a Mars expedition—indeed, the first to launch a spacecraft beyond Earth's orbit. The mission of the Al Amal probe, as it's known in Arabic, is concerned with developing a comprehensive picture of the thinning effect that solar winds are having on Mars' atmosphere.

Four US institutes—the University of Colorado Boulder, Arizona State University, Northern Arizona University, and the Space Sciences Laboratory of the University of California, Berkeley—provided the Emirati team with training and instruments.

While the Hope expedition doesn't represent a critically new component in Martian exploration, it is an important harbinger of the future of interplanetary exploration. The UAE is in some ways using its space industry to redefine science and technology in a "post-oil" economy. Tapping Japanese space agencies for the launch and US academic bodies in shaping the research agenda, the Hope project is a distinctly transnational affair. Even the atmospheric research it is conducting is a continuation of the observations made by MAVEN, an orbital probe launched by NASA in 2014 to study the red planet's atmosphere. Coordinated and collaborative Martian missions will most likely be the model for successful scientific research in the future.

Elsewhere in brief

- **Nigeria: Going postal.** The **Nigerian Postal Service** has come under fire for introducing hefty new licensing fees for participants (read: its own competitors) in the country's logistics and courier industry. The new fees, ranging from $52,000 for international couriers and $650 for local delivery agents, clearly target Nigeria's e-commerce players and drew condemnation from the country's minister of Communications and the Digital Economy.
- **Mozambique: Loon-er mission.** Global tech giants have for years made a development mission of increasing broadband access in rural Africa, but many have been stymied by operational or infrastructural challenges. **Google Loon**, which uses helium balloons to carry broadband wireless relay equipment, reached an agreement in May with **Vodacom Mozambique** to provide 4G-based internet connectivity in two northern provinces.
- **Africa: Malware imports.** Malicious code has been found on 53,000 low-cost Tecno phones sold in Ethiopia, Cameroon, Egypt, Ghana, and South Africa. Anti-fraud platform vendor Upstream, which found the code, said Chinese manufacturer Transsion was taking advantage of the "most vulnerable." Transsion, the top-selling mobile manufacturer in Africa, said the malware was installed in the supply chain.

Slow roll

Touted as an emerging mass-market phenomenon, driverless cars won't rule the roads for years to come, new research forecasts.

Impact dashboard for technology decision-makers

Event/trend	Immediate impact	Long-term impact
MIT researchers predicted in a recent brief that the cost and complexity of producing fully autonomous vehicles, coupled with their ability to navigate inclement conditions and rural environments, will mean it will be a decade or more before they are widely used in US transportation systems.	**MODERATE:** There's a great deal of industry confidence in the imminent development of completely autonomous-driving technology, and the MIT report's warning bells could serve as a further catalyst.	**HIGH:** If properly heeded, the report's recommendations to pursue parallel development of mixed human-machine systems alongside fully driverless technology could alter the composition of the new mobility ecosystem in a more sustainable manner.

In July, **US** entrepreneur Elon Musk announced to the World AI Conference in Shanghai that his car company Tesla will have fully autonomous, "Level 5" technology in place this year. Around the world, and particularly in North America, where much autonomous-vehicle (AV) innovation is taking place, there are similarly confident predictions that a driverless world is nearly upon us.

But heady predictions about AVs may obscure the hard reality that a noticeable impact on economies and society is still likely some time away. MIT's Task Force on the Work of the Future, which examines how technological innovation is changing jobs, published a report predicting it will take another decade or longer for driverless vehicles to be commonly available to commuters in North America. Complexity and cost are the primary hurdles: the report notes that while the costs of Level 2 autonomous systems—which employ a mix of machine and human driving—have dropped as mass production has increased, more advanced, Level 4 autonomous-car computers, sensors, and other components will not be manufactured at any scale for some time. This in turn, will make robo-taxi or ride-sharing services uncompetitive against human-operated alternatives, according to Harvard researcher Ashley Nunes, who has studied the economics of such services in San Francisco.

The MIT report concludes that AV network expansion will be gradual, and coverage will vary greatly in North America. Among its recommendations to leverage the cost and safety

benefits of autonomous systems is to increase investment in technologies that supplement human-machine interaction—AI-based augmented perception, prediction, and planning technologies—in addition to autonomous systems.

Elsewhere in brief

- **Canada: Virtual real estate bonds.** Toronto's **MountX Real Estate Capital**, which invests in "proptech" opportunities, has licensed digital asset management firm Vertalo to create and issue blockchain-based investment tokens for 15 digital real estate projects in Mexico and Canada. Vertalo is one of the few blockchain startups that has launched security token offerings on specialized cybersecurity trading platforms.

- **United States: A TikTok'ing clock. President Donald Trump's** criticism of Chinese tech companies has escalated, largely in the form of barbed language or acts such as the State Department's listing of "clean" 5G mobile carriers pledged to eschew Huawei gear. But the recent executive order prohibiting "transactions" with ByteDance and Tencent, owners of TikTok and WeChat, could sow lasting discord. Banning a zeitgeisty video-sharing app with 800 million users and a platform that sees 1 billion commercial transactions daily could weaken investor confidence in international technology transactions.

About Global Insights

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About MIT Technology Review Insights

MIT Technology Review Insights is the custom publishing division of MIT Technology Review, the world's longest-running technology magazine, backed by the world's foremost technology institution—producing live events and research on the leading technology and business challenges of the day. Insights conducts qualitative and quantitative research and analysis in the US and abroad and publishes a wide variety of content, including articles, reports, infographics, videos, and podcasts.

Global Panel

The MIT Technology Review Global Panel is an exclusive group of thought leaders, innovators, and executives. Panelists are asked to take part in surveys and share their expertise on a wide range of technology topics. They gain access to the results of the surveys they contribute to and have the opportunity to attend senior-level gatherings the world over. Learn more about the Global Panel at **insights.techreview.com/globalpanel/**.

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✉️ insights@technologyreview.com