Ather Energy sold 6479 units in June registering a 101% year-on-year growth

Ather Energy, India's leading electric scooter brand, announced today its sales performance for June , with a total of 6,479 units sold. This represents a good 101% year-on-year growth for the company, further solidifying its position in the electric scooter market.The standout product in Ather Energy's lineup is the newly launched Ather 450S electric scooter, which has been received with great enthusiasm by customers. Starting at an attractive price point of INR 129,999, the Ather 450S offers an exceptional blend of performance, style, and sustainability, making it an ideal choice for eco-conscious commuters.

To further support the adoption of electric two-wheelers and enhance affordability for consumers, Ather Energy has partnered with leading financial institutions including IDFC First Bank, Bajaj Finance, and Hero FinCorp to introduce an industry-first 60-month loan product. This pioneering initiative is aimed at providing flexible financing options to customers and promoting the widespread usage of electric vehicles across the country.Ravneet Singh Phokela, Chief Business Officer at Ather Energy,

expressed his thoughts on the company's recent performance and future prospects, stating, "In June , we delivered 6,479 units to our customers. The drop in numbers was expected, given the recent price increase on account of the lower FAME subsidy and consumers bringing their purchases forward into May. We remain optimistic about

an industry bounce-back over the next 2-3 months. "

Phokela further commented on the subsidy reduction, saying, " We have always been of the view that the subsidy should be phased off gradually over time so that consumers can adjust to more realistic market prices. While it impacts short-

term financials, this is certainly a step in the right direction from a long-term perspective. To make EV scooters more affordable and to accelerate their adoption, we introduced India's first 60-month loan product. We continue to work with our finance partners to create exciting new plans for different consumer segments."

How should a robot explore the Moon? A simple question shows the limits of current AI systems

Rapid progress in artificial intelligence (AI) has spurred some leading voices in the field to call for a research pause, raise the possibility of AI-driven human extinction, and even ask for government regulation. At the heart of their concern is the idea AI might become so powerful we lose control of it.

But have we missed a more fundamental problem?

Ultimately, AI systems should help humans make better, more accurate decisions. Yet even the most impressive and flexible of today's AI tools – such as the large language models behind the likes of ChatGPT – can have the opposite effect.Why? They have two crucial weaknesses. They do not help decision-makers understand causation or uncertainty. And they create incentives to collect huge amounts of data and may encourage a lax attitude to privacy, legal and ethical questions and risks.

Cause, effect and confidenceChatGPT and other "foundation models" use an approach called deep learning to trawl through enormous datasets and identify associations between factors contained in that data, such as the patterns of language or links between images and descriptions. Consequently, they are great at interpolating – that is, predicting or filling in the gaps between known values.Interpolation is not the same as cre-

ation. It does not generate knowledge, nor the insights necessary for decision-makers operating in complex environments.

However, these approaches require huge amounts of data. As a result, they encourage organisations to assemble enormous repositories of data – or trawl through existing datasets collected for other purposes. Dealing with "big data" brings considerable risks around security, privacy, legality and ethics.In low-stakes situations, predictions based on "what the data suggest will happen" can be incredibly useful. But when the stakes are higher, there are two more questions we need to answer.The first is about how the world works: "what is driving this outcome?" The second is about our knowledge of the world: "how confident are we about this?"From big data to useful information

Perhaps surprisingly, AI systems designed to infer causal relationships don't need "big data". Instead, they need useful information. The usefulness of the information depends on the question at hand, the decisions we face, and the value we attach to the consequences of those decisions.

To paraphrase the US statistician and writer Nate Silver, the amount of truth is approximately constant irrespective of the volume of data we collect.So, what is the solution? The process starts with developing AI techniques that tell us what we genu-

inely don't know, rather than producing variations of existing knowledge.Why? Because this helps us identify and acquire the minimum amount of valuable information, in a sequence that will enable us to disentangle causes and effects.A robot on the MoonSuch knowledge-building AI systems exist already.As a simple example, consider a robot sent to the Moon to answer the question, "What does the Moon's surface look like?"

The robot's designers may give it a prior "belief" about what it will find, along with an indication of how much "confidence" it should have in that belief. The degree of confidence is as important as the belief, because it is a measure of what the robot doesn't know.

The robot lands and faces a decision: which way should it go?

Since the robot's goal is to learn as quickly as possible about the Moon's surface, it should go in the direction that maximises its learning. This can be measured by which new knowledge will reduce the robot's uncertainty about the landscape – or how much it will increase the robot's confidence in its knowledge.The robot goes to its new location, records observations using its sensors, and updates its belief and associated confidence. In doing so it learns about the Moon's sur-

face in the most efficient manner possible.

Robotic systems like this – known as "active SLAM" (Active Simultaneous Localisation and Mapping) – were first proposed more than 20 years ago, and they are still an active area of research. This approach of steadily gathering knowledge and updating understanding is based on a statistical technique called Bayesian optimisation.

Mapping unknown landscapesA decision-maker in government or industry faces more complexity than the robot on the Moon, but the thinking is the same. Their jobs involve exploring and mapping unknown social or economic landscapes.Suppose we wish to develop policies to encourage all children to thrive at school and finish high school. We need a conceptual map of which actions, at what time, and under what conditions, will help to achieve these goals.Using the robot's principles, we formulate an initial question: "Which intervention(s) will most help children?"Next, we construct a draft conceptual map using existing knowledge. We also need a measure of our confidence in that knowledge.Then we develop a model that incorporates different sources of information. These won't be from robotic sensors, but from communities, lived experience, and any useful information from recorded data.

A walk through the past in new york

In the 19 years since my book "The Island at the Center of the World," about the Dutch settlement that preceded New York, came out, I've changed the way I think about the history and geography of New Amsterdam, which occupied the southern tip of Manhattan Island in the 1600s.In recent years, as the culpability of our forebears has come into focus, I've come to see the "Dutch" period as comprising three constituencies: the European settlement (which was only about half Dutch); the Native Americans, who were steadily displaced yet remained a force; and the enslaved Africans, who were brought here against their will but employed agency and ingenuity to their situation.In preparation for next year's 400th anniversary of the Dutch colony, I'm hitting the streets as I put together a walking tour that will tell a complex story of New York's beginnings. It's a story of settlement, conquest, peace, strife, promise, prosperity, enslavement, and freedom. Here's how you can follow.

The obvious start of such a tour is at the tip of Battery Park, looking into the harbor. The Statue of Liberty and Ellis Island speak to the city's ideals of freedom and promise and its long relationship with the water, from clipper ships to World War II battleships to commuter ferries. But in my mind's eye, I see the waterscape incised by silent canoes. Several groups of Munsee people inhabited the wider region for centuries — a homeland stretching from Connecticut through New York and New Jersey to Delaware — and moved seasonally from the mainland to the island they called Manahatta, which translates roughly as "place of wood for making bows," to fish and hunt.The African Burial Ground at Broadway and Duane Street, an excavated burial ground Ñ the oldest in North America Ñ for free and enslaved Africans, in New York, May 23, 2023. (George Etheredge/The New York Times) The African Burial Ground at Broadway and Duane Street, an excavated burial ground Ñ the oldest in North America Ñ for free and enslaved Africans, in New York, May 23, 2023. Ahead of next yearÕs 400th anniversary of the Dutch colony of New Netherland, the historian and author of ÒThe Island at the Center of the WorldÓ offers a walking tour of often-overlooked Native American and Black sites. (George Etheredge/The New York Times)I envision, too, Henry Hudson's small wooden sailing vessel, the Half Moon, appearing on the horizon in September 1609, as he charted the area for the Dutch, setting in motion a historic transformation. Then, in 1624, another Dutch vessel arrived, bearing the first settlers of the colony of New Netherland.

Cross Battery Park, which is all landfill, and you come to the original shoreline of Manhattan. The plaza in front of the Alexander Hamilton U.S. Custom House is probably where, in 1626, Dutch settlers under the command of Peter Minuit made the infamous purchase of the island from a branch of the Munsee. What each side thought was going on in this exchange is an interesting question. The Dutch knew that the Native Americans had no notion of property transfer. Both sides believed they were entering into a defensive pact. Neither could know what the coming centuries would bring. But it can't be denied that the event was a milestone in the dispossession of Native Americans from their land.The Custom House, which was built in 1907 from a design by architect Cass Gilbert, occupies the site of Fort Amsterdam, the bulwark that protected New Amsterdam. By a curious coincidence, it happens to be the home of the National Museum of the American Indian, whose permanent exhibition, "Native New York," offers a primer on the Indigenous groups who have called the New York state region home, from the Unkechaug and other tribes of pre-contact Long Island to the Mohawk ironworkers who helped build 20th-century skyscrapers.

The Munsee surely had in mind a working relationship with the Dutch, who came initially to trade furs. That trade continued throughout the lifetime of the colony, but the Dutch soon shifted their attention northward, where the Mohawk, who lived along the river of the same name, had a more plentiful supply of beavers. The relationship suffered its first serious blow when Willem Kieft, a director of New Netherland, declared war on the Munsee in 1643. In attacking his colony's business partners, Kieft acted against the wishes of his own people, and the war inflicted terrible losses on both sides. Even greater suffering came to the Native Americans as a result of smallpox, which the Europeans brought unwittingly.Manuel Plaza sits on what was once the property of Manuel de Gerrit de Reus, a Black resident of Dutch Manhattan, in New York, May 23, 2023. (George Etheredge/The New York Times) Manuel Plaza sits on what was once the property of Manuel de Gerrit de Reus, a Black resident of Dutch Manhattan, in New York, May 23, 2023. Ahead of next yearÕs 400th anniversary of the Dutch colony of New Netherland, the historian and author of ÒThe Island at the Center of the WorldÓ offers a walking tour of often-overlooked Native American and Black sites. (George Etheredge/The New York Times)That said, the Munsee are very much alive today. Through myriad treaties and swindles, they have split apart, and many were relocated or simply moved — to Oklahoma, Kansas, Delaware, and Ontario. Others never went anywhere. "We're still here, 30 miles from where we were all those years ago," Michaeline Picaro, a member of the Turtle Clan of the Ramapough Munsee Lenape, in Andover, New Jersey, told me. She and her husband, Chief Vincent Mann, run a farm and serve as advocates for their community.

Head down Whitehall to Pearl Street. Lower Manhattan is enveloped by several blocks of landfill. I find it useful to walk the original shoreline, which on the east was Pearl Street. The section on either side of Whitehall Street contained the first Dutch houses, erected in the 1620s: On the west side of the street, a row of them overlooked the East River and the wilds of what would later become the village of Breuckelen. In one of these lived Catalina Trico and her husband, Joris Rapalje, a couple of nobodies from present-day Belgium who showed up in Amsterdam as immigrants seeking work, heard of this new venture, got married, jumped on one of the first ships and made their lives here. They would have 11 children, 10 of whom lived to marry and have children of their own. Their descendants today number in the millions. I think of them as the Adam and Eve of New Amsterdam.At the corner of Pearl Street and Coenties Slip, an outline in gray stones on the wide sidewalk marks the foundation of a building that started life as the Stadts Herberg, or city tavern. Ships arriving from Europe would anchor in the East River; then passengers were rowed to a nearby dock. Apparently, the first thing everyone wanted to do after 10 or 12 weeks at sea was have a drink, so this was the most popular spot in town.It stood to reason, then, that when the city won a municipal charter in 1653, this same building would be converted into Manhattan's first City Hall. Here, New Amsterdam's twin burgemeesters, or mayors, would hold sessions with their council, resolving disputes and managing their city.Continuing to the corner of Pearl and Wall Streets, we come to the site of one of the most far-reaching achievements of that council. Stop and face south. You're at the northeast corner of the city. To your left, imagine the East River lapping at your feet. To your right, it's not so hard to envision the legendary wall running down the middle of the street. The wall — actually more of a fence made of planks — was built in the wake of the municipal charter, when the new city government took measures to defend the place against an expected attack from the English. It's no accident that global finance is associated with that wall and this street.The same Dutch who founded New Amsterdam created the world's first stock exchange and invented many of the building blocks of capitalism, upon which New York rose.

A bronze statue of George Washington in the Financial District of New York, May 24, 2023. (George Etheredge/The New York Times) A bronze statue of George Washington in the Financial District of New York, May 24, 2023. Ahead of next yearÕs 400th anniversary of the Dutch colony of New Netherland, the historian and author of ÒThe Island at the Center of the WorldÓ offers a walking tour of often-overlooked Native American and Black sites. From here, one might head west down Wall Street, traversing New Amsterdam's northern border, but let's cut down Beaver Street into the middle of the city. On South William Street in the Dutch period there stood a building that was for a time the home of enslaved Africans owned by the West India Co. Throughout most of the Dutch period, slavery was a haphazard business in New Netherland, with Africans reaching Manhattan as "cargo" on Spanish or Portuguese ships that had been captured in the Caribbean. Those who arrived were pressed into the service of the West India Co., or WIC, which ran the colony.Andrea C. Mosterman, author of "Spaces of Enslavement: A History of Slavery and Resistance in Dutch New York," surmises that multiple families were crammed here into one modest house. In 1659, five years before the English took over the colony, the WIC decided to undertake an "experiment with a parcel of Negroes," beginning what would become, under English rule, a major trade that would forever alter the trajectory of the American experience.Continuing down South William and turning right, we come to Broad Street. It got its name because the Dutch had carved a canal down the middle, with roads on both sides. Later, the whole thing was paved over, and it became one of the widest streets in lower Manhattan.The intersection of Broad and Wall Streets is one of those spots that overload the mind with historical associations. Here is the New York Stock Exchange, another reminder of Dutch financial innovations. Opposite it sits Federal Hall, where George Washington was inaugurated as the first president in 1789.

In the Dutch period, this was the northern edge of the city. Just a few steps away, at Wall and Broadway, was the gate that led out of the city.A display at ÒNative New York,Ó an exhibition at the National Museum of the American Indian, in New York, May 24, 2023. (George Etheredge/The New York Times) A display at ÒNative New York,Ó an exhibition at the National Museum of the American Indian, in New York, May 24, 2023. Ahead of next yearÕs 400th anniversary of the Dutch colony of New Netherland, the historian and author of ÒThe Island at the Center of the WorldÓ offers a walking tour of often-overlooked Native American and Black sites.

The southernmost section of Broadway follows the route of the Wickquasgeck Trail, named for a branch of the Munsee whose territory encompassed much of Manhattan. The Dutch adopted it as their main thoroughfare up the island. It was a busy road, plied by Europeans, Africans, and Native Americans, as well as by horses and wagons. Walking up it as I did recently, hearing snippets of French, Spanish, Chinese, and what might have been Tagalog, I reflected on a talk I heard recently by Ross Perlin, director of the Endangered Language Alliance. He noted that the often-cited figure of 18 languages spoken in New Amsterdam almost certainly didn't include African or Native American languages, and that, when these were added, the figure would probably have been 25 or more.Between Liberty and Ann streets,

Explained | Did climate change really make the U.P. heatwave twice as likely?

A deadly heatwave over Uttar Pradesh recently claimed as many as 100 lives. There were subsequently several reports saying that according to a model called the "Climate Shift Index" (CSI), developed by a reputed U.S. nonprofit called Climate Central, this heatwave was made twice as likely by climate change.What is the scientific confidence level in such local attribution of individual weather events to climate change? And what are the consequences of such claims?

How can climate change influence weather?

An exercise to determine climate change's influence on a weather event involves two exercises: detection and attribution. A heatwave is defined based on the normal temperature of a region; 'normal' in turn is defined based on long-term historical data. The temperatures in Uttar Pradesh during the June 14-16 period met the definition of a heatwave. Put another way, a heatwave was definitely detected. Next, in terms of attribution, the CSI implies that the heatwave was made twice as likely due to global warming.Several scientific and socioeconomic questions arise with such proclamations from trusted climate organisations.Equally importantly, the experts who developed methods to rapidly compute the extent to which a weather event can be attributed to climate change have set out caveats and shortcomings – and these tend to get lost when the impact of climate change on a particular event is reported to the general public in a context-agnostic manner.

What are attribution models?

Scientifically speaking, an attribution exercise compares real conditions that have occurred with a so-called counterfactual world – a hypothetical world where climate change has not occurred.Scientists create counterfactual worlds for these weather events using historical weather data and model simulations. The observations are constrained by limitations and the models are never accurate. Setting them aside, we must also take a fuller view of attributions and their associated claims.According to Climate Central, its CSI is "grounded" in work described in a paper published in June 2022.

How accurate are the models?

Experts developed rapid attribution methods to help with policies, climate adaptation, and for health-impact studies. On the other hand, the outcomes of heatwaves and such extreme weather events are related to the vulnerability of the population exposed to the hazard, which attributions must account for – but they don't.Attributions also don't account for the confluence of multiple natural weather conditions as well as human decisions that led to a heatwave being so deadly. (The most dire consequence of natural hazards often tends to be the product of too little attention being paid to early warnings that may already have been issued.)Our historic analysis of temperatures allows us to say, with high confidence, that in the last few decades, heatwaves have been getting worse over many parts of India even as other parts of the country appear to be cooling. On the other hand, our confidence in the changes in extreme rainfall events is not as high. This is partly due to the smaller spatial scales at which rainfall events happen and their ability to change at shorter timescales.Some of the low-confidence in historic changes is also related to a lack of reliable data with sufficient spatial and temporal coverage, even though India has some of the best rainfall data among the world's countries. Poor data coverage in turn affects the counterfactual world built by combining the sparse data and imperfect models. Ultimately, This is how the inferred impact of climate change on a particular weather event can be erroneous.In fact, we must accept that there is really no way to scientifically ensure the accuracy of such attributions.

What is natural variability?

In this context, we need to ask some key science questions. A rather unique set-up of events – including warming of the northern Indian Ocean from January onwards and the cyclones and typhoons during May and June – have disrupted the normal march of the southwest monsoon this year. Also playing out in the background is the world's transition from a La Niña winter in 2022-2023 to the emerging El Niño summer of 2023.These events also underscore the fact that natural variability – i.e. natural variations in the climate – always adds to or subtracts from the effects of climate change at the local level. For example, South India can have its hottest summer and in the same summer Chennai can have its coolest day in June.Climate change also affects the natural variability itself. The

number and intensities of tropical cyclones as well as the El Niños and the La Niñas are also likely being affected by climate change. But the models do not agree on some of these estimates; the models used for attributions don't even simulate cyclones!

What does this mean for the Uttar Pradesh heatwave?

The attribution approach that the CSI has taken does not consider such local weather systems. Studies have found that even irrigation can affect heatwaves, but neither the attribution data nor the models in the Uttar Pradesh case represent such effects.This brings us to the socioeconomic and sociopolitical implications of claims that climate change made the heatwave X-times more likely. What is the longer-term context? Should farmers worry about what it means for the rest of the agricultural season? Should people start moving? Should businesses and investors begin to reconsider their plans in the State?It is naïve to assume that limited indices – which have their purpose in a specific context, in a supplementary capacity – will only impel climate adaptation, to deal with heatwaves, and not have other off-target consequences.So, we desperately need a 360-degree view of such claims, especially in light of their potential deficiencies. Event-by-event attribution on a daily timescale is neither possible with sufficient accuracy nor is it practically valuable. It can also divert resources away from other, more worthy efforts, such as improving early-warning systems.Raghu Murtugudde is a visiting professor at IIT Bombay and an emeritus professor at the University of Maryland.

Canada will require Google and Meta to pay media outlets for news under bill set to become law

Canada's Senate on Thursday passed a bill that will require Google and Meta to pay media outlets for news content that they share or otherwise repurpose on their platforms.The bill, which is set to become law, was passed amid a standoff between Prime Minister Justin Trudeau's government and Silicon Valley tech giants.

Ottawa has said the law creates a level playing field between online advertising giants and the shrinking news industry. And Canadian Heritage Minister Pablo Rodriguez has promised to push back on what he describes as "threats" from Facebook and Google to remove journalism from their platforms.Meta confirmed Thursday that it plans to comply with the bill by ending news availability on Facebook and Instagram for its Canadian users, as it had previously suggested. Meta would not offer details about the timeline for that move, but said it will pull local news from its site before the Online News Act takes effect. The bill will come into force six months after it receives royal assent.

"We have repeatedly shared that in order to comply with Bill C-18, which was passed today in Parliament, content from news outlets, including news publishers and broadcasters, will no longer be available to people accessing our platforms in Canada," said Lisa Laventure, head of communications for Meta in Canada.Legacy media and broadcasters have praised the bill, which promises to "enhance fairness" in the digital news marketplace and help bring in more money for shrinking newsrooms. Tech giants including Meta and Google have been blamed in the past for disrupting and dominating the advertising industry, eclipsing smaller, traditional players.

Meta, which is based in Menlo Park, California, has taken similar steps in the past. In 2021, it briefly blocked news from its platform in Australia after the country passed legislation that would compel tech companies to pay publishers for using their news stories. It later struck deals with Australian publishers.Laura Scaffidi, a spokesperson for the minister, said Rodriguez was set to have a meeting Thursday afternoon

with Google, which has hinted that removing news links from its popular search engine is a possibility. The company didn't provide comment on the matter.Meta is already undergoing a test that blocks news for up to five percent of its Canadian users, and Google ran a similar test earlier this year.The Online News Act requires both companies to enter into agreements with news publishers to pay them for news content that appears on their sites if it helps the tech giants generate money."The tech giants do not have obligations under the act immediately after Bill C-18 passes. As part of this process, all details will be made public before any tech giant is designated under the act," said Scaffidi.

Four ways criminals could use AI to target more victims

Lancaster: Warnings about artificial intelligence (AI) are ubiquitous right now. They have included fearful messages about AI's potential to cause the extinction of humans, invoking images of the Terminator movies. The UK Prime Minister Rishi Sunak has even set up a summit to discuss AI safety.However, we have been using AI tools for a long time – from the algorithms used to recommend relevant products on shopping websites, to cars with technology that recognises traffic signs and provides lane positioning. AI is a tool to increase efficiency, process and sort large volumes of data, and offload decision making.

Nevertheless, these tools are open to everyone, including criminals. And we're already seeing the early stage adoption of AI by criminals. Deepfake technology has been used to generate revenge pornography, for example.Technology enhances the efficiency of criminal activity. It allows lawbreakers to target a greater number of people and helps them be more plausible. Observing how criminals have adapted to, and adopted, technological advances in the past, can provide some clues as to how they might use AI.A better phishing hookAI tools like ChatGPT and Google's Bard provide writing support, allowing inexperienced writers to craft effective marketing messages, for example. However, this technology could also help criminals sound more believable when contacting potential victims.

Think about all those spam phishing emails and texts that are badly written and easily detected. Being plausible is key to being able to elicit information from a victim. Phishing is a numbers game: an estimated 3.4 billion spam emails are sent every day. My own calculations show that if criminals were able to improve their messages so that as little as 0.000005% of them now convinced someone to reveal information, it would result in 6.2 million more phishing victims each year.Automated interactionsOne of the early uses for AI tools was to automate interactions between customers and services over text, chat messages and the phone. This enabled a faster response to customers and optimised business efficiency. Your first contact with an organisation is likely to be with an AI system, before you get to speak to a human. Criminals can use the same tools to create automated interactions with large numbers of potential victims, at a scale not possible if it were just carried out by humans. They can impersonate legitimate services like banks over the phone and on email, in an attempt to elicit information that would allow them to steal your money.DeepfakesAI is really good at generating mathematical models that can be "trained" on large amounts of real-world data, making those models better at a given task. Deepfake technology in video and audio is an example of this. A deepfake act called Metaphysic, recently demonstrated the technology's potential when they unveiled a video of Simon Cowell singing opera on the television show America's Got Talent.

This technology is beyond the reach of most criminals, but the ability to use AI to mimic the way a person would respond to texts, write emails, leave voice notes or make phone calls is freely available using AI. So is the data to train it, which can be gathered from videos on social media, for example.Social media has always been a rich seam for criminals mining information on potential targets. There is now the potential for AI to be used to create a deepfake version of you. This deepfake can be exploited to interact with friends and family, convincing them to hand criminals information on you. Gaining a better insight into your life makes it easier to guess passwords or pins.Brute forcingAnother technique used by criminals called "brute forcing" could also benefit from AI. This is where many combinations of characters and symbols are tried in turn to see if they match your passwords.That's why long, complex passwords are safer; they are harder to guess by this method. Brute forcing is resource intensive, but it's easier if you know something about the person. For example, this allows lists of potential passwords to be ordered according to priority – increasing the efficiency of the process. For instance, they could start off with combinations that relate to the names of family members or pets.Algorithms trained on your data could be used to help build these prioritised lists more accurately and target many people at once – so fewer resources are needed. Specific AI tools could be developed that harvest your online data, then analyse it all to build a profile of you.

If, for example, you frequently posted on social media about Taylor Swift, manually going through your posts for password clues would be hard work. Automated tools do this quickly and efficiently. All of this information would go into making the profile, making it easier to guess passwords and pins.Healthy scepticismWe should not be frightened of AI, as it could bring real benefits to society. But as with any new technology, society needs to adapt to and understand it. Although we take smart phones for granted now, society had to adjust to having them in our lives. They have largely been beneficial, but uncertainties remain, such as a good amount of screen time for children.As individuals, we should be proactive in our attempts to understand AI, not complacent. We should develop our own approaches to it, maintaining a healthy sense of scepticism. We will need to consider how we verify the validity of what we are reading, hearing or seeing.These simple acts will help society reap the benefits of AI while ensuring we can protect ourselves from potential harms.

Amazon sued by U.S. regulator over thwarting attempts to cancel Prime membership

Amazon has been sued by the Federal Trade Commission after it "knowingly duped millions of consumers" into signing up for an Amazon Prime membership and then made it difficult for them cancel the service, according to a press release from the FTC on Wednesday.

The release said that for years, Amazon has used 'dark patterns' or user interface manipulations in order to trick users into signing up for its Prime membership and then stopping them from cancelling the membership by making this process complicated.The FTC also alleged that Amazon delayed or stopped changes that would have made it easier for consumers to cancel their Prime membership.

According to the regulator, it was hard for consumers to shop on the e-commerce site without automatically signing up for the $14.99 per month Prime membership, as opting out of this was made confusing on the platform.

"Amazon tricked and trapped people into recurring subscriptions without their consent, not only frustrating users but also costing them significant money," said FTC Chair Lina M. Khan, in a statement, calling out 'dark patterns' in digital markets.Amazon's complicated Prime cancellation process has also come under fire in the European Union. The company agreed to make the process simpler there.

The FTC said it was taking action against Amazon for tricking users into signing up for Amazon Prime and then making it hard for them to cancel their subscription

Cells with bare minimum genes can still evolve as fast as normal cells: study

Around 5,000-10,000 years ago, dairy farming changed some people's DNA. As they began to drink milk, human adults' genes began to accumulate mutations that would help them digest it.Such mutations help an organism evolve. Complex organisms like humans contain thousands of genes, most of which are not essential for survival. Mutations in these genes are not lethal. As a result, evolutionary forces can act on these genes, and any beneficial mutation becomes more abundant over time.But what if a simple organism contained only those genes essential for its survival? Any mutation in such an organism could lethally disrupt its cellular functions. How will evolutionary forces act on the genome of such an organism when it contains so few targets on which selection can act?Through 2,000 generations

Researchers from Indiana University, Bloomington, used a synthetically designed minimal cell containing only genes essential for survival to answer this question. Their findings, published recently in the journal Nature, showed that even such a cell can evolve as fast as a normal cell.This "demonstrates the capacity for organisms to adapt, even with an unnatural genome that would seemingly provide little flexibility," said Jay Lennon, a professor at Indiana University, whose team made the discovery.Dr. Lennon's team used a synthetic version of Mycoplasma mycoides, a microbe commonly found in the guts of goats and cattle. They created a stripped-down minimal cell (JCVI-syn3.B) with only 493 genes, down from the 901 genes in the non-minimal strain (JCVI-syn1.0). Although the minimal cells were alive and could reproduce, genome minimisation also made them sick, reducing their fitness by over 50%.To test whether these minimal cells responded differently to the forces of evolution compared to non-minimal cells, the team grew them separately in a liquid medium, transferring a small, fixed amount of the population into fresh medium every day. They did this for 300 days, allowing the bacterial lineage to pass through 2,000 generations (equivalent to about 40,000 years of human evolution).

'This is unavoidable'In this time, they found that the minimal cells exhibited a mutation rate comparable to that exhibited by non-minimal cells. (Indeed, Mycoplasma mycoides has the highest recorded mutation rate for any cellular organism.)"It's not surprising the mutations arose in the minimal cell. This is unavoidable," Dr. Lennon said. "What's more important is that the rate of adaptation was not hampered by having a synthetically reduced genome."

Over 300 days, they found that the minimal cell also effectively regained all of the fitness it had lost due to genome minimisation and could perform as well as the non-minimised cell – suggesting that a 'reduced' genome is not a permanent curse.This said, the minimal cell grew to be smaller than the non-minimal cell: the size of the non-minimal cell increased by 80% over 300 days whereas the minimal cell remained the same size. When the team examined the genomes of the adapted cells, they found that the minimal and non-

minimal cells improved their fitness and evolved via distinct genetic pathways.Surprising fitness"It is an interesting question to ask – in what ways is a minimal cell going to behave differently during evolution compared to a non-minimal cell? But the fact that a minimal cell evolved is not surprising," Deepa Agashe, an associate professor at the National Centre for Biological Sciences (NCBS), Bengaluru, who studies evolutionary biology, said."Anything that is able to survive and reproduce can evolve."

Dr. Agashe added that enough genetic variation will be generated, to help the cell to evolve, thanks to the high mutation rate, the large population size used in the experiment, and the sufficient growth material provided in the nutrient-rich liquid medium."Mutations are inevitable," said Samay Pande, an assistant professor at the Indian Institute for Science, Bengaluru, who studies the evolutionary dynamics of bacterial predators. He noted that a high mutation rate wasn't surprising – given that the mechanisms responsible for correcting these mutations were compromised in minimal cells. Instead, he added, "I am more surprised by the extent of the fitness gain than the fact that such cells can evolve."An interesting step would be to see whether an organism with a lower inherent mutation rate adapts as well, according to Dr. Agashe – something the authors have also noted. She also observed that using more independent cell populations (the experiments have four) or using media that didn't encourage microbial growth as much could also shine light on the ways
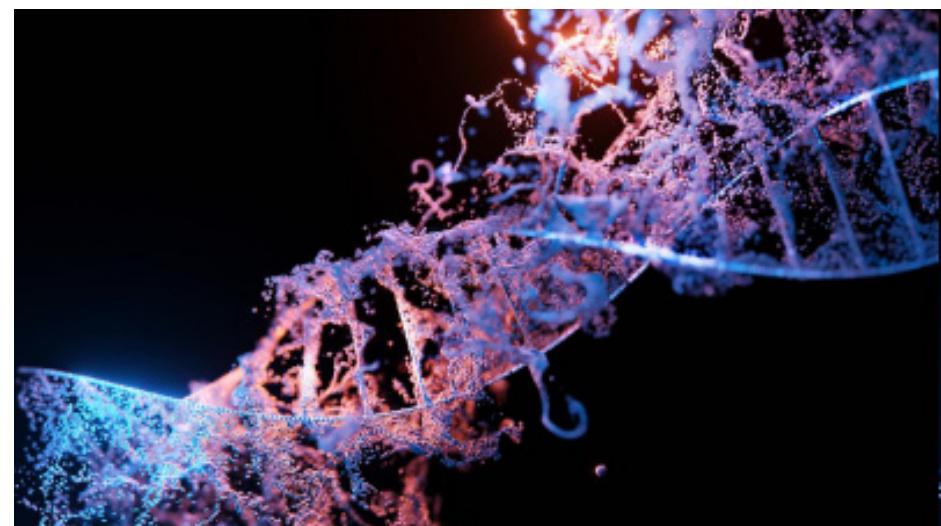

in which minimal cells evolve differently.Dr. Lennon agreed, saying that they may want to see whether "a minimal cell adapts as easily when maintained in different, perhaps more stressful environments."

'Something fundamental about evolution'Nonetheless, the finding that the evolutionary potential of organisms remains very high despite their distinct evolutionary trajectories is a "very significant contribution to our understanding of microbial evolution," according to Dr. Pande."Scientists learn from simple-case scenarios. We were able to learn something fundamental about evolution and its limits (or lack thereof) by studying a minimal cell," Dr. Lennon added.He said that his team's findings were relevant to syn-

thetic biology, where researchers apply engineering principles to design organisms for applications in medicine and fuel production. "Engineered cells are not static. They evolve. Our study sheds some light on how synthetic organisms might change when confronted by the inevitable forces of evolution," he said.Dr Agashe agreed. She noted the importance of minimal cells in synthetic biology since the large genomes of normal bacterial cells can interfere with the cell's ability to do what it was designed for.

From that perspective, "it is good to understand the minimal cell more, and to know that you can evolve those synthetic cells in interesting ways," she said."I do feel that it is going to lead to a lot of interesting work in future."

Instagram back after brief global outage

New Delhi: Meta-owned Instagram was back online after a brief global outage on Tuesday as users witnessed errors saying the app couldn't refresh, while it also went blank for some others.According to the website outage tracking portal

DownDetector, more than 59,000 users reported the outage issue.Around 85 per cent of people had reported problems with the app, 10 per cent while using the website, and 6 per cent with the Instagram feed."Every time I went to launch the app, it

would crash, leave my feeds blank, and my messages would vanish. This was happening with my personal account, which was linked to my business account," a user said."I can't access my IG account or the web on either my PC or my phone, no matter what I do. I've been attempting to do this for a while. It is very annoying," another user wrote.Later, #Instagramdown also started trending on Twitter (Now X) after users witnessed the outage.

"Instagram being down almost gave me a heart attack thinking they took down my account #instagramdown," a user tweeted."Me finding out insta is down after switching my Wi-Fi and data on and off for the 50th time #instagramdown #instagram," one more user said.Meta did not immediately comment on the reason for the outage.In October last year, thousands of Instagram users from all over the world reported issues, locking users out and informing many of them that "we suspended your account".Several users had reported being unable to appeal Instagram's decision, resulting in their accounts being logged out and their email and password not being found.

Patients and patents — the double-edged sword

The most raucous discussions on health care are often centred around costs — costs of treatment, drugs, and hospitalisation being so exorbitant that paying for healthcare impoverishes even one initially able to pay for treatment. But over the course of taking care of oneself, impoverishment, or depletion of resources, is more often likely than not, leading to patients discontinuing treatment regimens. The most obvious fallout of this is mortality and morbidity of the patients themselves, but also in a large public health sense, this kind of behaviour can lead to deadly drug-resistant strains of pathogens gaining ground. That the costs of research and development of drugs are very high, and therefore, will have to be passed on to the customers in order that the pharmaceutical industry remains viable, is often the excuse. Leading us to the classic conundrum: when demand spurs supply but somewhere in the process, commercial interests put the product out of the reach of the target group. There is nothing as tragic as a solution being available within sight, but remaining beyond grasp. And, what Gandhi said about there being enough for everyone's need, but not for their greed.

In fact, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) was evolved in order to offer interventions that relate to the standards of patent protection accorded to inventions in pharmaceuticals. Under the TRIPS Agreement, patent rights are not absolute but can be subject to limitations or exceptions. The World Trade Organisation lists three types of exclusions: inventions the prevention of whose commercial exploitation is necessary to protect ordre public or morality, including to protect animal or plant life or health; diagnostic, therapeutic and surgical methods for the treatment of humans or animals; and certain plant and animal inventions. Under the TRIPS Agreement, the available term of protection must expire no earlier than 20 years from the date of filing the patent application.More recently, the expiry of the primary patent for the critical, lifesaving drug-resistant tuberculosis (DR-TB) drug bedaquiline made headlines. Bindu Shajan Perappadan reported that, as Johnson & Johnson's 20-year primary patent on bedaquiline expired in a large number of countries, including India, on July 18, Médecins Sans Frontières reiterated its call for the U.S. pharmaceutical corporation to publicly announce that it will not enforce any 'secondary' patents for the drug in any country with a high burden of TB. Moreover, it should withdraw and abandon all pending secondary patent applications for this critical drug everywhere.

In good measure, the current position has to do a lot with the 'pre-grant opposition' petition that was filed by a patient group and two TB survivors — Nandita Venkatesan from India, and Phumeza Tisile from South Africa. As a result of their legal challenge, in a landmark decision before World TB Day, the Indian Patent Office rejected the U.S. corporation J&J's secondary patent which would have extended its monopoly for four more years. In this article, Leena Menghaney and Vidya Krishnan explain the impact of this patent expiry on costs and availability in the Indian scenario.More on the topic of

affordability and healthcare funding, a study by a team at IIT-Madras found that conditional funding of health projects has a positive impact. R. Sujatha reports on the study which showed that whenever the States received funding only if they complied with the Central Government's requirements, they increased investments in primary health care. An unexpected health funding spin-off from the pandemic is corporates beginning to offer cover for outpatient department visits to their employees. Maitri Porecha notes how in a comparative study, there was a definite increase in the number of companies providing OPD benefits in 2023. Of the 251 IT, manufacturing, pharma, engineering, financial and other companies studied, only 40 were providing out-patient department (OPD) benefits in 2019. However, in 2023, this number had grown to 85 companies.

Last week, there was much discussion on the medical education sector in India. That's when we also discovered that 10%-55% of BDS and MDS seats fell vacant across India for over five years, as per data from the Dental Council of India. The lack of job and growth opportunities, low pay, and little awareness of mouthcare in tier-2 and tier-3 cities was resulting in the demand for graduate and post-graduate degree courses in dentistry. In a follow-up to the National Testing Academy cancelling the National Exit Test for MBBS students for the year, AIIMS also cancelled the mock NExT exam scheduled for Friday (July 28). With 40% of the districts having no nursing colleges, the Health Ministry urged the States to correct regional disparities. It might not come as a surprise to those following medical and allied courses education in this country that 42% of the nursing colleges are in five southern States.There are always the infectious diseases and non-communicable diseases to deal with, inevitably linked with lifestyle issues and climate change. We have said this before, in an Indian context, but last week, it was the World Health Organisation warning that cases of dengue fever could reach close to record highs this year, partly due to global warming benefiting mosquitoes that spread it. Dengue rates are rising globally, with reported cases since 2000 up eightfold to 4.2 million in 2022, the WHO said. Did you know that environmental contaminants have an impact on the male fertility crisis? Do read this article by Liana Maree, Daniel Marcu, and Shannen Keyser. They write that concern is rising about substances such as per- and polyfluoroalkyl substances, nanomaterials and endocrine-disrupting compounds, present in personal-care products such as soaps, shampoos and hair sprays, as well as food wrap, water bottles and many other items.Sadness, sleeplessness, stress, and anxiety top mental health concerns shared on Tele MANAS, the toll-free digital arm of the Centre's District Mental Health Programme, available in 20 languages. Not helping our populations on the brink of an NCD epidemic any. Stress, lack of sleep and anxiety are not what the doctor ordered, in order to keep metabolic disorders at bay. Also, as a run-up to World Drowning Prevention Day on July 25, Zubeda Hamid discovered that death by water could be prevented with the State and individuals taking adequate precautions.Will the world miss its Zero

Hunger Sustainable Development Goal? If the Global Report on the Food Crises (GRFC) 2023 is anything to go by, the world is more likely to miss its 2030 target to eliminate hunger which is inevitable. While an intervening pandemic, a war, and unfavourable governmental policies have impeded the reduction of food insecurity, the GRFC has offered some solutions as well, I write here.And how much technology is too much technology? For our interesting tailpiece, do read this story, "Pandemic effect: Schools notice drastic increase in tech dependency among young children", writes Jahnavi T. R.

From the Health pagesYou might want to check out the following stories:A new drug prescribed for Alzheimer's patients, donanemab, was far from promising a cure but among those in the earliest stages of the disease, it significantly slowed cognitive decline, writes Jacob Koshy. More on the sugar-substitute carcinogenic property story here from Aju Mathew.Vipin M. Vashishtha and Puneet Kumar provide yet another angle to the role of oral polio virus vaccine in disease transmission. Sudden deaths of youth have been reported after COVID-19: Health Ministry in Lok Sabha. Medical device industry asks Health Ministry to reconsider new regulatory Bill.Further, continuing our offering of regional stories from across the country. Pick

your region and read on:AndhraAndhra Pradesh sees 27 deaths due to rabies in last 18 months, writes Tharun Boda.Over 1.8 lakh women were screened under the Arogya Mahila Scheme in 20 weeks.

DelhiFor sexually abused children, the road to rehab is long, says Samridhi Tiwari.KarnatakaNothing like the odd ones that catch our attention: Bengaluru doctor treats a senior citizen whose hand 'stole' blood from brain, Afshan Yasmeen writes.Survey finds 41% of respondents in Bengaluru consume foods with artificial sweeteners.KeralaProject X aims to impart sexuality education for school students in the capital district of Kerala, R.K. Roshni writes.Tamil NaduSerena Josephine M. writes on the complete Makkalai Thedi Maruthuvam experience in Tamil Nadu.Tamil Nadu to roll out cancer screening for women on pilot basis.Lack of access to health care can be fatal, as this tribal's family in Vellore found out.TelanganaHyderabad doctor extends lifeline to victims of Manipur ethnic violence, Siddharth Kumar Singh writes.V. Geethanath reports that scientist moots the installation of wastewater monitoring in STPs as a part of OneHealth and pandemic preparedness.Experts discuss parental diagnosis in preventing thalassemia.As always, do put us on your radar, as we bring more health content your way.

Twitter bids goodbye to blue bird, says Hello X

Elon Musk in recent times is famously known for making drastic changes in social media company Twitter. His biggest change came on Monday when he replaced the iconic blue bird with a black-and-white letter 'X'.Not just the logo on the platform, but the website name and Twitter's other corporate accounts also embraced this new branding.On Sunday, Musk tweeted "Soon we shall bid adieu to the twitter brand and, gradually, all the birds."It is no news that he wanted to rebrand the platform for quite some time now. Musk has a long history with the letter X. In 1999, he co-founded X.com, an online bank, which later became PayPal. The logo for his space company SpaceX is also X.And recently, riding the AI wave, his AI

business also goes by X.ai. With this, changing the Twitter logo to X seems only natural; although there were reports of resistance from private investors and banks. Signifying the change, Twitter's headquarters in San Francisco removed the sign letters, and the letter X was projected on the building after the announcement.It remains to be seen how Twitterati will adapt to this significant change on the platform. Will this rebranding attempt work or is it going to fall flat on its face?According to a report from TechCrunch, Microsoft is bringing its ChatGPT-powered version to Chrome and Safari. Although the tech giant has not made an official announcement, if this goes through, it has the potential to change how we browse the internet.

Israel battles quiet internal upheaval after passage of controversial bill on weakening Supreme Court

Angry protests following the passage of a controversial bill by Israel's Parliament this week on a controversial bill that could limit the Supreme Court's powers has given way to a quiet upheaval in the country with threats of mass emigration, resignations in critical positions, army desertions, strikes and flight of capital.Israeli Parliament approved the contentious law that prevents judicial checks on political power and forms a key part of Prime Minister Benjamin Netanyahu's plan to reshape the country's justice system, after weeks of unprecedented protests that have crippled the Jewish state.The bill passed on Monday with 64 votes in favour and zero against it, with the opposition boycotting the final vote on the bill in protest.It was the first major bill to pass in the government's much-criticised judicial overhaul plans.Multiple last-minute attempts within the Knesset (Israel's Parliament) to amend the bill or to come to a broader procedural compromise with the opposition failed.

Credit rating agency Moody's Investors Service on Tuesday warned about "negative consequences" and "significant risk" for Israel's economy and security situation following the passage of the first bill.Moody's had in April lowered Israel's credit outlook from "positive" to "stable," citing a "deterioration of Israel's governance" and upheaval over the government's bid to dramatically overhaul the judiciary."More specifically, we believe the wide-ranging nature of the government's proposals could materially weaken the judiciary's independence and disrupt effective checks and balances between the various branches of government, which are important aspects of strong institutions," Moody's noted."Israel has no written constitution and its institutional set-up relies to an important extent on judicial oversight and review," it said adding, "The executive and legislative institutions have become less predictable and more willing to create significant risks to economic and social stability".

Moody's also pointed out that some of its earlier concerns regarding the proposed reforms' impact on Israel's economy are also starting to materialise.Moody's still expects the country's economy to grow at a rate of 3 per cent both this year and in 2024, but cautioned that the projection does not "incorporate a negative effect from a prolonged period of social and political tensions".Unfazed by the critical report by the global credit rating agency, the government put out a statement rebuffing it as a "momentary response" adding that when the "dust settles it will become clear that Israel's economy is very strong".

"The Israeli economy is based on strong fundamentals and will continue to grow under experienced leadership that is enacting a responsible economic policy," read the joint statement by Prime Minister Netanyahu and Finance Minister Bezalel Smotrich.US investment bank Morgan Stanley on Tuesday lowered Israel's sovereign credit to a "dislike stance" citing "increased uncertainty about the economic outlook in the coming months", Times of Israel reported.US bank Citi told institutional clients that the environment in Israel is "much more tricky and dangerous", ad-

vising investors to hold off until the dust settles, the news portal said."The current events in Israel are challenging… and making investors increasingly nervous with regards to Israeli assets," Citi VP Michael Wiesen was quoted to have written in a note."We urge caution here and to wait for better levels/calmer market", he reportedly said.

Israeli shares turned to losses and the shekel weakened on Monday as angry protesters took over the streets following the passage of the bill.Almost 70 per cent of Israeli startups are taking active steps to pull money and shift parts of their businesses outside the country due to the uncertainty created around the proposed judicial overhaul, a survey by Start-Up Nation Central, which tracks the local tech ecosystem, was cited in local media as saying.The findings of the survey showed that 68 per cent of Israeli startups have started to take "legal and financial steps," including the withdrawal of cash reserves, moving their headquarters outside of Israel, relocating employees and conducting layoffs.Overall, 78 per cent of the surveyed startup executives reported that the government's controversial plan to weaken the country's judicial system is "negatively" impacting their operations, and 84 per cent of venture capital investors said it has a negative influence on their portfolio companies."Companies and investors are taking active steps to move activity away from Israel and this behaviour has increased significantly over the past three months," Start-Up Nation Central CEO, Avi Hasson, was quoted as saying."Concerning trends like registering a company abroad or launching new startups outside Israel will be hard to reverse," Hasson said.Another survey carried out on Tuesday found that nearly one-third of Israelis are considering leaving the country.The Channel 13 poll found that 28 per cent of the respondents were weighing a move abroad, 64 per cent were not, and 8 per cent were unsure.Over half of the survey's respondents, 54 per cent, said that they feared the judicial overhaul was harming Israel's security, and 56 per cent were worried about civil war.The poll carried out by pollster Camille Fuchs queried 711 respondents and had a margin of error of 3.7 per cent.Meanwhile, security-related concerns in the country have also deepened with threats from various quarters.Several senior scientists on the Israel Atomic Energy Commission have threatened to resign to protest the government's judicial overhaul, as per local media reports on Tuesday.The scientists are among several dozen experts who are "responsible for the development of Israel's nuclear capability," Channel 13 reported, referring to foreign reports about the Jewish state's alleged nuclear weapons arsenal.Israel maintains ambiguity regarding its nuclear capabilities.The report, which did not cite sources, said the scientists had been discussing their possible resignations in recent weeks, but there was no collective protest action, and that each of the scientists would decide on the matter individually.The military warned on Tuesday that combat readiness may soon
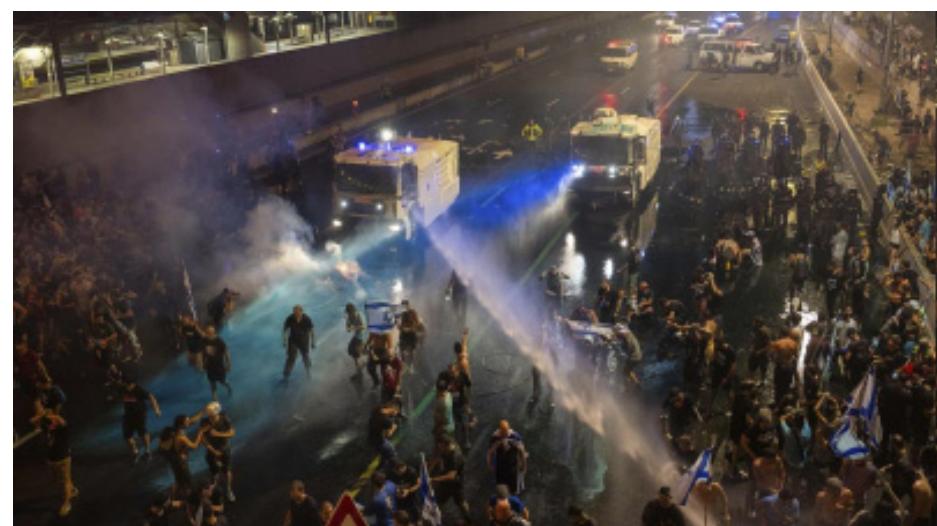
be harmed if reservist troops do not show up for duty over a lengthy period of time, amid efforts to insulate the army from national tensions over the government's controversial judicial overhaul.Thousands of reservists have threatened to end their volunteer reserve duty in protest of the overhaul in recent weeks, forcing Israel Defence Forces (IDF) Chief of Staff, Herzi Halevi, to issue a rare video statement on Tuesday calling for unity within the military.The IDF has said that the "cohesion" or unity of the forces has already been harmed amid the protests against the judicial overhaul, and "it will take time to fix".The army however claimed it is still fully battle-ready even though harm to the IDF's readiness has already begun.Should the thousands of reservists in key positions continue to not show up for duty, actual damage to the IDF's "competence" may occur within weeks, security officials said."At the current point in time, the IDF is competent. There is an increase in requests to end reserve service, and alongside this, there is a dialogue between commanders and service members," military spokesman Rear Adm Daniel Hagari told reporters."If reservists do not report for duty for a long time, there will be damage to the army's competence. This is a gradual process that will be affected according to the reporting for duty of the reservists," he added.

There have been at least two isolated cases of reservists not showing up for duty

when ordered to, according to the IDF.One was handed a NIS 1,000 (USD 270) fine and the other was given a 15-day suspended jail sentence, media reports said.Some 1,200 Israeli Air Force reservists in a letter on Tuesday reportedly announced their intention to end their volunteer service.According to a report, 60 per cent of them are said to have notified their commanders that they would no longer show up for duty.Reservists not showing up for volunteer service have not faced any disciplinary action.Israel's famed espionage agency Mossad has also reportedly seen "high tensions" internally over the issue.Mossad Director David Barnea was widely quoted in the international media as saying that if the government goes the wrong way, his agency will come out on the right side of history.On Monday, Barnea said that the government's repeal of the reasonableness standard had not crossed the line into bringing the agency into a legal dilemma, but if such a point arrived it would always remain loyal first to the rule of law, The Jerusalem Post reported.All the six living former chiefs of the spy agency have explicitly opposed the reasonableness standard repeal with five of them holding Netanyahu responsible for tearing the nation apart.Organisers of protests against the government's Judicial overhaul initiative have vowed to "fight till the finish" after having successfully organised mass rallies for 29 consecutive weeks since the beginning of the year.

Meta records impressive 11% revenue growth in Q2 of 2023

San Francisco: Meta has released its financial results report for the second quarter (Q2) of this year ended on June 30, in which it revealed that revenue was $32 billion — an increase of 11 per cent year-over-year — and Facebook's monthly active users were 3.03 billion — a spike of 3 per cent year-over-year.

"We had a good quarter. We continue to see strong engagement across our apps and we have the most exciting roadmap

I've seen in a while with Llama 2, Threads, Reels, new AI products in the pipeline, and the launch of Quest 3 this fall," Meta founder and CEO Mark Zuckerberg said in the report on Wednesday.

Moreover, the company reported that Facebook's daily active users were 2.06 billion on average for June, an increase of 5 per cent year-over-year.

"Long-term debt was $18.38 billion as of June 30, 2023," it added.

How do ants know how much food their hungry colony needs?

Ants are social insects that live in colonies. Individual ants perform specific tasks for the colony, like supplying food, cleaning the nest, defending the colony, etc. There's no 'control room' telling which ant what to do, yet they seem to know exactly what to do and when.Consider the foragers – worker ants that bring food into the colony. The amount of food they carry perfectly matches the colony's total hunger. How do they figure this? Scientists have puzzled over this question for some time. According to a new study, the trick might be in the way other ants eat the food the foragers carry.While the ants accomplish complicated tasks, they use simple rules to decide what to do at each step. When they carry more food, they simply move deeper into the nest; when they're carrying less than a certain amount, they leave to look for more food.Researchers at the Weizmann Institute of Science, Israel, conducted the study.Better together

How could an aggregate of simple decisions give rise to complex behaviour? Danny Raj M. studies collective phenomena at the Indian Institute of Science, Bengaluru. According to him, one technique researchers have used to study this question is to identify some "emergent" behaviour and then investigate the rules that ants follow to give rise to that behaviour.For example, ant colonies can compare different sites before building their nests. Individual ants fail to do this on their own whereas, together, they turn into competent site inspectors. So researchers first study their behaviour during an inspection, then observe how individual ants contribute to this phenomenon, and finally deduce the rules that govern this behaviour.Similarly, although only a few ants in a colony are foragers, they sense and sate the colony's hunger. Foragers bring food from a wild source and distribute it to ants in the nest. They store the food they collect, such as honeydew or nectar, in their 'crop' – a pouch above the stomach – and feed other ants mouth-to-mouth. They fetch more food when the colony is more hungry. They leave in search of more food when the stock in the crop drops below a certain threshold. All this continues until the colony has been fed.Informed decision-makingIndividual ants are not so smart, or they could be if they invested more energy than they're known to do. But they achieve these tasks by responding to some cues in their physical environment and what other ants are doing in that environment.

For example, ants leave substances called pheromones on their way to the food source so other foragers from the colony can follow the pheromone trail – instead of searching for the source from scratch.Previously, researchers have found that foragers decide when to exit the nest based on personal information and local information. Personal information is based on their memories of previous interactions; local information is that from the ants around them, and could be in the form of direct communication with their antennae or indirect communication that involves physical cues.However, these rules of foraging behaviour are complex and vary

by species, and there are more than 15,000 of them.Carpenter antsA 2012 study concluded that individual foragers determined when to exit the nest for more food by tracking the rate at which other foragers entered the nest. In a 2018 study, Dr. Feinerman and his colleagues reported that the rate at which foragers exit a nest depends on how much food a forager has and how hungry the colony as a whole is.The team studied a hungry colony of carpenter ants (genus Camponotus). In such a colony, ants eat more per mouth-to-mouth feeding interaction with foragers, which means foragers have few interactions with their colony-mates. In a less hungry colony, ants eat less per interaction, which means foragers spend more time distributing the food.So foragers need to 'compute' the colony's hunger level based on the number of interactions they need to unload the food they're carrying.Agent-based modelIn the new study, the researchers used an agent-based model to check an idea that could explain forager movement in ant colonies in the simplest way possible.In the model, ants were points that could move on a surface, or a plane – like the space in which ants move in the wild. This plane has a nest entrance, other ants in the space defining the nest, and a region outside the nest. The ants are then made to take a step into the nest or toward the exit, depending on their intent in a specific state.

The model also simulated encounters with other ants inside the nest to mimic feed-

ing interactions.After simulating these conditions for several cycles, the researchers calculated the frequency of ants exiting the nest.Based on the resulting data, they suggested that foragers simply move deeper when they carry more food.So when the colony is hungry, ants consume food from the forager faster. This causes the foragers' food stock to dwindle quickly, reducing the time they spend in the nest before leaving. But when the colony isn't hungry, the ants eat less, and the amount of food that foragers carry remains higher for longer. So the foragers move deeper into the nest and interact with more ants, and
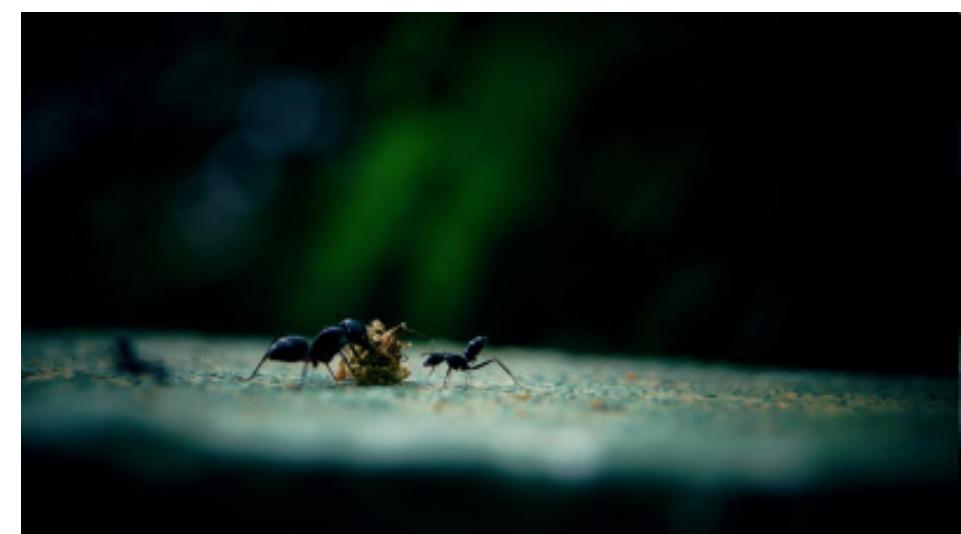
leave the nest less often for more food.When the amount of food in the crop drops below some threshold, the foragers exit.What if...?"This explanation reduces the cognitive load required for ants to give rise to the emergent phenomenon," Dr. Raj said.But he added that while the mechanism elucidated in this study could play out in normal circumstances, it could change if the circumstances changed. For example, would ants behave the same way if, say, the number of foragers decreases drastically and the colony suddenly becomes more hungry?We don't know, but we have a start.

AI industry leaders create forum to build powerful tech safely

OpenAI, Microsoft, Alphabet's Google and Anthropic are launching a forum to support safe and responsible development of large machine-learning models, top industry leaders in artificial intelligence said on Wednesday.The group will focus on coordinating safety research and articulating best practices of what is called "frontier AI models" that exceed the capabilities present in the most advanced existing models.They are highly capable foundation models that could have dangerous capabilities sufficient to pose severe risks to public safety, industry leaders have warned.

Generative AI models, like the one behind chatbots like ChatGPT, extrapolate large amounts of data at high speed to share responses in the form of prose, poetry and images.

While the use cases for such models are plenty, government bodies including the European Union and industry leaders including OpenAI's CEO Sam Altman have said appropriate guardrail measures would be necessary to tackle the risks posed by AI."Companies creating AI technology have a responsibility to ensure that it is safe, secure and remains under human control," Microsoft President Brad Smith said in a
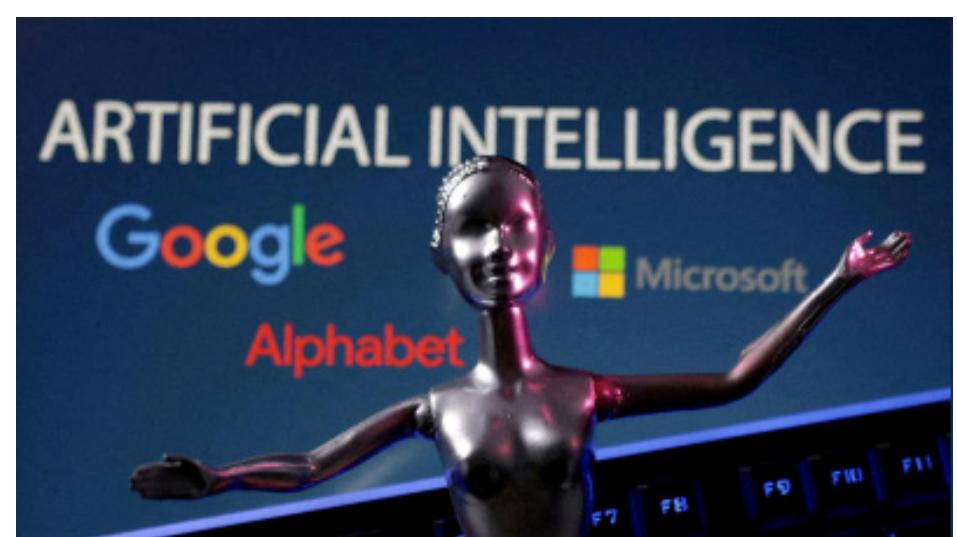
statement.

The industry body, Frontier Model Forum, will also work with policymakers and academics, facilitating information sharing among companies and governments.It will not engage in lobbying, an OpenAI spokesperson said, but will focus early on developing and sharing a public library of benchmarks and technical

evaluations for frontier AI models.The forum will create an advisory board in the coming months and also arrange for funding with a working group as well as create an executive board to lead its efforts."This is urgent work and this forum is well-positioned to act quickly to advance the state of AI safety," said Anna Makanju, Vice President of Global Affairs at OpenAI.