SWISSQUOTE MAGAZINE

FINANCE AND TECHNOLOGY UNPACKED

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CRYPTO
Altcoins' finest hour

TRANSPORT
Electric trucks hit the road

CREDIT
The deferred payment hype

DOSSIER

Nuclear power: The incredible comeback

Abandoned after Fukushima, nuclear energy is rising from the ashes

→ CAMECO → NUSCALE → KAZATOMPROM → NEXGEN ENERGY → KEPCO → OKLO → URANIUM ENERGY →

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omegawatches.com

THE MOONWATCH IN WHITE

Inspired by its history of space exploration, the most iconic chronograph on Earth now has a white dial. The Speedmaster Moonwatch has borrowed its latest look from the colours of astronaut spacesuits, while adding a glossy lacquered finish for the very first time. The white dial and red touches are also a tribute to the ALASKA I prototype that OMEGA produced in 1969, creating an authentic link to the Speedmaster's pioneering past. Worn on a comfortable and vintage-style bracelet, this stainless steel Moonwatch shines the spotlight on a new era of adventure.

OMEGA

An explosive topic

EDITORIAL

Certain topics are best avoided during family meals – at least if you want to prevent Sunday dinner from turning sour. Nuclear energy ranks among those divisive issues where rationality seems to hold no sway. You're either 'for' or 'against'; 'pro' or 'anti'; 'supporters' or 'opponents'. And the arguments of one side are rarely accepted by the other.

After reading the magazine you hold in your hands, the 'anti' camp will probably still consider nuclear power dangerous and capable of generating heaps of radioactive waste. And the pro-nuclear camp will continue to argue that the risk is minimal, that there is little waste and, above all, that nuclear power plants produce vast amounts of electricity while emitting very little carbon. This would compensate for the intermittency of renewable energies and ensure the much-desired energy transition.

After Fukushima in 2011, many thought the debate was settled. Won, not by arguments, but on the ground by the anti-nuclear camp. It was one disaster too many. More than any other accident, more than the incidents at Lucens in Switzerland (1969), Three Mile Island in the United States (1979) or Chernobyl in the USSR (1986), it closed the debate. Forever. One after another, Japan, Switzerland and Germany decided to abandon nuclear power 'once and for all'.

Indeed, it was 'final'. But that was then. Today, 14 years after Fukushima, nuclear energy is making a spectacular comeback. China, which never abandoned nuclear power, plans to build around 100 reactors by 2050. The European Union, several of whose member states had banned nuclear power but reversed their decision in 2025, has made this technology a pillar of its energy transition. This revival is making the nuclear industry shine on the stock markets.

Even in Switzerland, the debate has been reopened. On 16 August, a few days before this was written, the *NZZ* announced that more than 200 prominent figures from the business world had signed an open letter calling for the ban on building new power stations to be lifted. Here, unlike in many other countries, it is the people who will decide. But we will certainly have to discuss it over Sunday lunch before heading to the polls.

Happy reading!

BY MARC BÜRKI,
CEO OF SWISSQUOTE

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impressum

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SCANS

“AI is doing 30% to 50% of the work at Salesforce now”

Marc Benioff, CEO of Salesforce, which has laid off more than 1,000 employees since the start of the year.

+2.6%

The median increase in the price of made-in-China goods sold on Amazon to US buyers, according to an analysis of 1,400 products carried out by DataWeave. This increase, which is higher than inflation, reflects the import taxes introduced by Donald Trump’s administration. Furniture, electronic products and office supplies are the most affected.

Launched in February 2020, the Nike Victory Swim collection is designed for Muslim women.

FASHION

Veils, modesty and profits: religious fashion on the rise

The “modest fashion” market for Muslim women is booming. It is expected to reach $428 billion by 2027, according to an estimate by economic intelligence company DinarStandard, up a third since 2022. This craze has attracted the attention of major fashion groups. British retailer ASOS has created a section on its website dedicated to clothing offering maximum coverage, while Nike has launched a “modest clothing” swimwear line, having already introduced a hijab for professional athletes in 2017. As for luxury brands, Alexander McQueen, LVMH and Versace are producing special collections for sale ahead of important events in the Muslim calendar, such as Eid al-Fitr at the end of Ramadan.

© NIKE / RICHARD A. BROOKS, AFP / STEPHANE DE SAKUTIN, AFP

RANKING

The five most innovative companies in AI
(based on the number of patents filed in the United States between February 2024 and April 2025)

1. GOOGLE
61
2. INTEL
43
3. MICROSOFT
42
4. ERICSSON
38
5. CAPITAL ONE
33

Source: IFI Claims

The five countries where working from home is most common
(based on the average number of days per week spent working from home in early 2025)

1. CANADA
1.9 days
2. UNITED KINGDOM
1.8 days
3. FINLAND
1.7 days
4. UNITED STATES
1.6 days
5. GERMANY
1.6 days

Source: Stanford University

THE IMAGE

The Switch reaches new heights

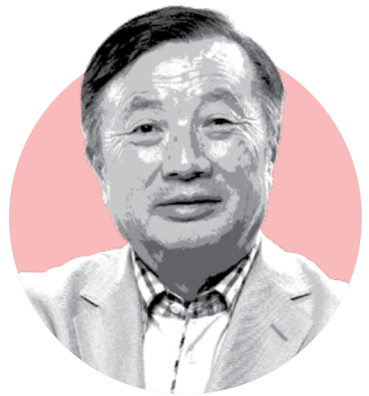
It’s unprecedented. According to results released by Nintendo in early August, the Japanese manufacturer sold 5.85 million units of its Switch 2 console in just 25 days (between 5 June, the date of release, and 30 June), making it the best launch in the history of the video game industry.

BEVERAGE

Coca-Cola bottler boosts its share price

Coca-Cola bottles, photographed at the Brüttisellen production site in the canton of Zurich, in 2020.

While Coca-Cola is feeling the effects of US tariffs, its main bottler in Europe and Asia-Pacific, Coca-Cola Europacific Partners, is in excellent health. Listed in London, the company saw its share price jump 146% in five years in mid-August, driven by steady growth in revenues and margins. It owes this success to an effective pricing strategy and the dynamism of certain distributed brands, such as Monster energy drinks. Present throughout the bottling chain, the company packages Coca-Cola products in plastic bottles, glass bottles, cans and other formats for the catering industry. It also benefits from a return on equity of 16%, well above the industry average (10%), and an ambitious €1 billion share buyback programme. → CCEP



“Our single chip is still behind the United States by a generation”

Ren Zhengfei, CEO of Huawei.

SCANNING

OPHTHALMOLOGY

Alcon: innovation in its sights

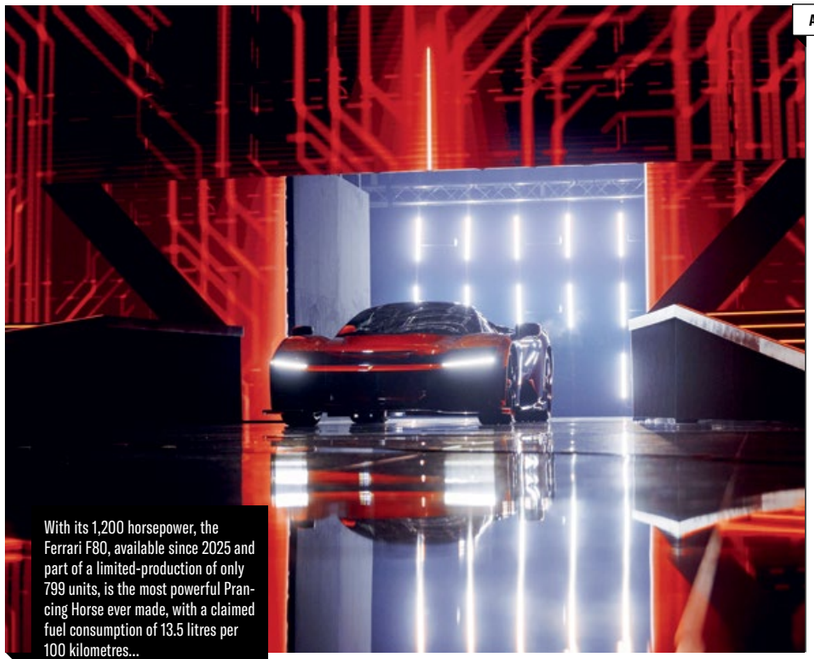
Swiss-Texan Alcon is set to acquire US group LumiThera. The deal will give it access to a key innovation in the treatment of macular degeneration, namely a photobiomodulation device that administers low-intensity light waves to stimulate mitochondrial energy production in the cells of the retina. By the end of the year, the ophthalmic company will also complete the acquisition of Aurion Biotech, which develops cell therapies, and Lensar, which sells laser cataract treatment systems. Hard hit by US tariffs that will cost it $80 million this year, Alcon remains well positioned in a highly competitive sector: its share price rose 6.7% in the first six months of the year, while the industry as a whole lost 8.4%. → ALC

$1.3 BN

The value of the fixed-line telephone market in 2024, according to Synergy Research Group. Demand remains strong in hospitals, hotels, call centres, offices and certain regulated industries such as finance, benefitting the handful of companies that dominate this market, such as Cisco and AT&T.

"More than 5%, but less than 20%"

In an interview with Bloomberg, AMD CEO **Lisa Su**, confirmed that chips produced in the US will be more expensive than those manufactured in Taiwan, with an estimated additional cost of 5% to 20%.



With its 1,200 horsepower, the Ferrari F80, available since 2025 and part of a limited-production of only 799 units, is the most powerful Prancing Horse ever made, with a claimed fuel consumption of 13.5 litres per 100 kilometres...

AUTOMOBILE

Ferrari unleashes its horses

While most automotive groups have had a difficult year, Ferrari is doing remarkably well. For instance, its market value stood at €76 billion in mid-August, compared with €25 billion for Stellantis. Its operating margin reached 28% last year, double that of its industry peers. The Italian group owes these good results to the quality and exclusivity of its products: it sold fewer than 14,000 vehicles last year. This has enabled it to raise its prices. The 12Cilindri model costs 30% more than the 812 Superfast, which it replaces. Similarly, the F80, one of the brand's most exclusive cars, costs €3.6 million, compared with €1.25 million for LaFerrari, the previous comparable model launched 12 years ago. Added to this is an extensive range of customisation options, which can increase the final price by 20%. → RACE

-75%

The drop in Jaguar car sales in Europe between January and April, compared to the same period last year. The British brand owes part of this decline to a failed rebranding campaign launched at the end of 2024, which included a video clip featuring no cars, a decidedly woke tone, and was intended to appeal to a younger audience.

OBESITY

China takes advantage of Ypsomed pens

China is one of the countries most affected by obesity. Nearly 35% of adults are overweight and 14% are obese. This situation has led to a surge in demand for GLP-1 receptor agonists. In early July, the drug regulatory authority approved the marketing of Mazdutide, developed by Eli Lilly and its Chinese partner Innovent Biologics. The product is administered via an injection pen manufactured by the Bern-based company Ypsomed. Easy to use, it can be administered by patients at home. To meet this new demand, the Swiss company has begun construction of a factory in Changzhou, southern Jiangsu. →YPSN

On 26 June 2025, Simon Michel, CEO of Ypsomed, inaugurated the Swiss company's first factory in China.

© YPSOMED / FERRARI / MICHAEL MATTHEY, AFP

FRAGRANCE

The fragrance oligopoly in the crosshairs

The fragrance and flavour market is dominated by an oligopoly consisting of American company International Flavours & Fragrances, German firm Symrise and two Swiss companies DSM-Firmenich and Givaudan, which together account for two-thirds of the global market according to *The Economist*. But the noose is beginning to tighten. Since 2023, they have been under investigation by the US, European, Swiss and British authorities for alleged price fixing. A group of consumers and small businesses has also filed a class action lawsuit in the United States, accusing them of anti-competitive practices. In early 2025, Unilever filed a lawsuit against them in the United Kingdom, announcing plans to invest €100 million to set up its own fragrance division. → DSFIR → GIVAUDAN

Bottles containing products are photographed at the Symrise plant in Holzminden, Germany, on 8 July, 2025.

THE QUESTION

As robotaxis continue to roll out, where is this emerging technology most likely to take hold?

"For now, autonomous taxis have been in service in a handful of cities in the United States, mainly under the auspices of Waymo, and in China, through Baidu, Pony.ai and WeRide. A few trials have also been conducted in the United Arab Emirates and Europe, but these remain pilot projects. Legislation is particularly favourable in the United States. At federal level, the law requires registration with the Department of Motor Vehicles and proof of certain road safety features, such as a steering wheel and brakes, even if these are not strictly necessary in the case of robotaxis. Some states, such as Texas, have passed laws actively encouraging the deployment of autonomous taxis. In China, authorisations are negotiated at regional level. Several major cities, including Beijing, Guangzhou and Wuhan, have introduced experimental zones where robotaxis can be deployed and tested. This approach makes it possible to quickly identify and fix bugs."

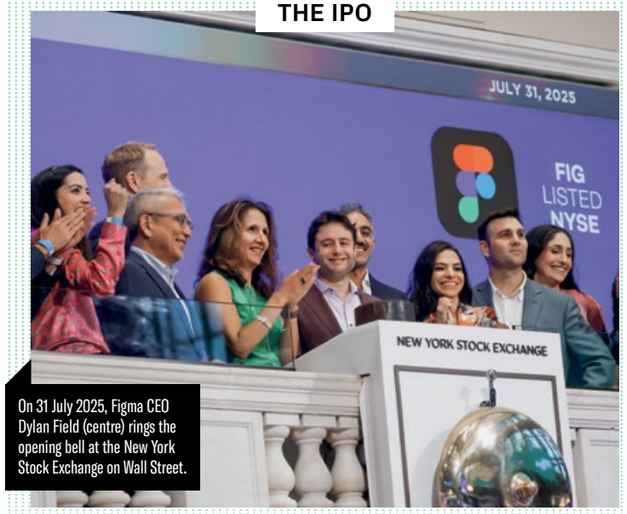
Bryant Walker Smith, associate professor of law at the University of South Carolina and expert on autonomous taxis.

Scanning

“I go to war every single day with the Chinese government, the Russian government, the Iranians, the North Koreans, probably Americans, the Israelis, all of them who are trying to hack into our customer sites”

Matthew Prince, CEO of Cloudflare.

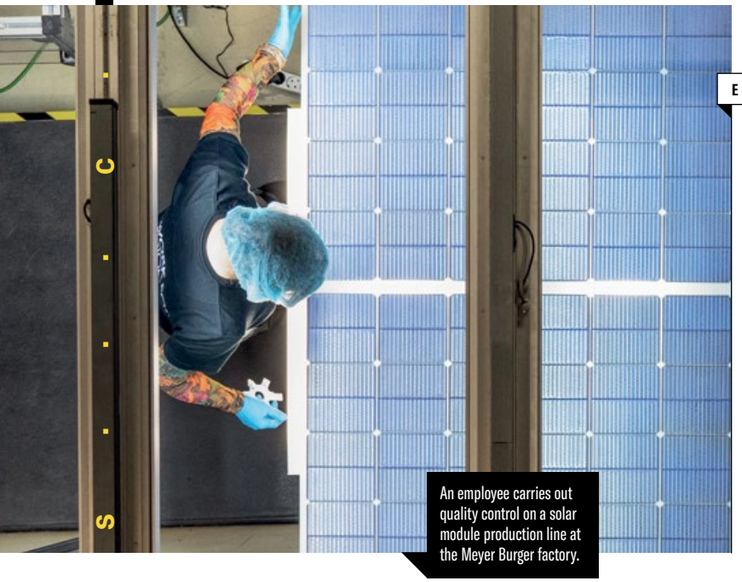
THE IPO



On 31 July 2025, Figma CEO Dylan Field (centre) rings the opening bell at the New York Stock Exchange on Wall Street.

Figma: user interface takes centre stage

Since its launch in 2016, the Figma suite of collaborative tools has become a benchmark for designing user interfaces (UI) for apps and websites. In 2023, the Californian company narrowly escaped a takeover bid by Adobe, its main competitor, which had planned to put $20 billion on the table before the British regulator blocked the deal. The transaction had to be abandoned and Figma received $1 billion in compensation, a financial windfall that ensured a solid balance sheet. This was added to revenues that reached $749 million last year, up 48%. The company is now preparing to list on the Nasdaq, hoping to raise $1.5 billion, which would make it one of the largest IPOs in the technology sector since 2021. → FIG



An employee carries out quality control on a solar module production line at the Meyer Burger factory.

ENERGY

Twilight hovers over Swiss solar panels

Thun-based solar panel manufacturer Meyer Burger is playing its last cards. Faced with liabilities estimated at between $500 million and $1 billion, it filed for bankruptcy in the United States at the end of June. It also halted production at its Arizona plant and laid off 282 employees. A month earlier, it had already dismissed 620 workers at two sites in Germany. Only the group’s Swiss subsidiary, which employs 60 people, will remain. Notably affected by competition from cheap solar modules from China, Meyer Burger is one of the last European companies still operating in this sector. → MYBUF

SOCIAL MEDIA

LinkedIn scores points

While Meta turns away from news-related content and X suffers from a highly divisive image linked to Elon Musk’s personality, LinkedIn continues to grow. Since its acquisition by Microsoft eight years ago, the social network has seen its revenues grow from $3 billion to $17 billion. Unlike its peers, it has also found an effective business model based on advertising revenue, fees charged to recruiters and paid subscriptions. However, its 1.1 billion users do not spend enough time on the platform. To remedy this, LinkedIn has started giving more visibility to content posted by its users – the number of comments has increased by 37% in one year – and is rolling out new artificial intelligence tools, such as a virtual agent that identifies the best candidates when a job vacancy arises. → LNKD

$109,000

The annual income threshold above which residents of Oman will be taxed from 2028. The 5% tax is the first income tax on individuals introduced by a Gulf country, as the region seeks to reduce its dependence on oil.

American model Gigi Hadid at a Victoria’s Secret fashion show in New York on 15 October 2024.

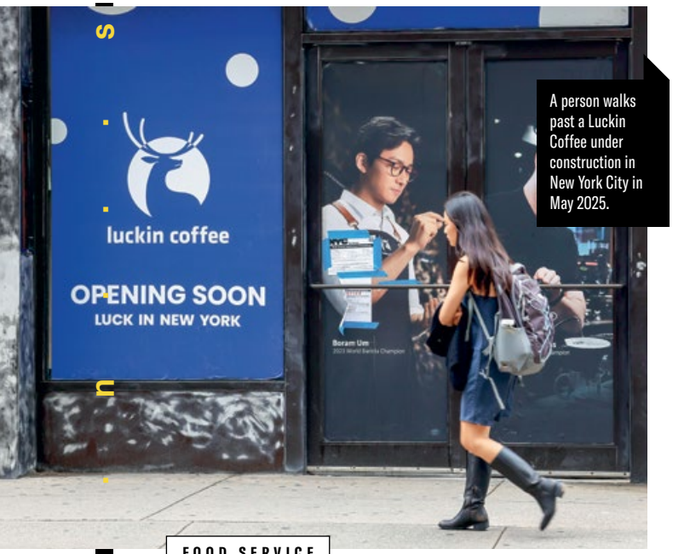
LINGERIE

Victoria’s Secret searches for its identity

The lingerie brand Victoria’s Secret, famous for its fashion shows featuring models with wings - «angels» - had its heyday around 2010. But the #MeToo movement dealt it a blow, as did the emergence of comfortable lingerie brands popular with Gen Z. An attempt to reinvent itself with pyjamas and cotton underwear has been largely unsuccessful. Sales reached $6.2 billion last year, down from $7.8 billion at its peak in 2016. Activist investors are now baring their teeth, demanding that the brand return to its roots and refocus on sexy lingerie. → VSCO

“We’ll be able to ensure the security of supply of Europe without Russian LNG in 2028”

TotalEnergies CEO **Patrick Pouyanné**.



A person walks past a Luckin Coffee under construction in New York City in May 2025.

FOOD SERVICE

Luckin Coffee fights back

In 2020, Chinese coffee chain Luckin Coffee seemed to be on its last legs. Its rapid expansion had been brought to a sudden halt by a report from short seller Muddy Waters, which accused it of fraud, including lying about its revenues. The company was subsequently delisted from the Nasdaq, its CEO resigned and it was hit with a $180 million fine in the United States. But five years later, the company – whose shares continue to be traded over the counter (OTC) – is making a comeback on American soil. It has just opened two stores in New York, adding to the 22,000 outlets it operates in China. It hopes to continue its expansion there, taking market share from Starbucks with lower prices. At Luckin Coffee, a coffee costs an average of $3.50, compared to its rival's $4.80 price tag. →LKNCY

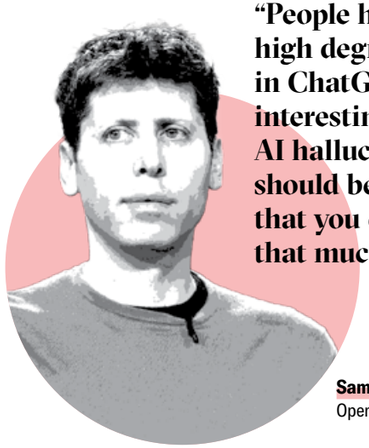
+50%

The increase in Philip Morris' share price in the first six months of the year. The cigarette manufacturer owes this success to the explosion in sales of its Zyn nicotine pouches. It sold 644 million packs in 2024 and expects to sell between 800 and 840 million this year. In the United States, it has been given the green light to promote the product on the grounds that it is less harmful to health than cigarettes.

THE FLOP

Jolly Rancher's not-so-jolly sweets

Jolly Rancher sweets, marketed by the American brand Hershey, are known for their bright colours and intense fruit flavours. But they also contain dangerous substances, according to the British agency responsible for food safety. These include mineral oil aromatic hydrocarbons (MOAH) and mineral oil saturated hydrocarbons (MOSH), two petroleum derivatives that make the sweets less sticky and shinier. They can accumulate in tissue and cause liver damage or cancer by altering genetic material. These sweets are already banned in the United Kingdom and the European Union, but continue to be imported by independent retailers, a practice that the British agency now wants to end. In the United States, the sale of Jolly Rancher sweets remains permitted, but the new Health Secretary Robert F. Kennedy Jr. has plans to ban harmful substances such as MOAH and MOSH.



"People have a very high degree of trust in ChatGPT, which is interesting because AI hallucinates. It should be the tech that you don't trust that much"

Sam Altman, CEO of OpenAI, owner of ChatGPT.

© ROBERT K. CHIN, ALAMY / BRET HONDOW, ALAMY

A hint of alt season

Crypto investors are monitoring for the slightest movement in the altcoin market. Summer, which has recently concluded, has offered renewed hope. BY LUDOVIC CHAPPEX

Will it materialise, or won't it? As with every Bitcoin bull cycle, the advent of an 'alt season' – that euphoric period characterised by an explosion in the price of alternative cryptocurrencies – remains the focus of speculation. To maintain objectivity when making predictions and adhere to established facts, one indicator is frequently used as a benchmark: Bitcoin's 'dominance'.

The macroeconomic situation is likely to set the tone for the coming weeks

This barometer, which can be easily consulted in real time on websites such as Coinmarketcap.com, represents the share of BTC's capitalisation relative to the capitalisation of all cryptocurrencies (including BTC). It is considered that when Bitcoin's dominance falls below 60% for a sustained period, altcoins enter a phase where they begin to outperform – although this is not an absolute rule. As a reminder, during previous alt seasons (January 2018 and May 2021), Bitcoin's dominance fell to around 33% and 40% respectively.

However, at the beginning of August, Bitcoin's dominance ventured into the crucial 58-60% zone, considered by many observers to be a tipping point, and the trend strengthened at the beginning of the last week of August. The surge in Ethereum's price in July (+50%) was viewed as one of the signals of this shift. To a lesser extent, several cryptocurrencies in the top 20 also saw their prices rise significantly.

Most notably, on 24 August, as this issue of *Swissquote Magazine* went to press, Ethereum surpassed its all-time high price, set in 2021, by soaring towards the $5,000 mark.

On the institutional side, the tone has shifted: in his monthly note dated 14 August, David Duong, global head of research at Coinbase, stated: "We think current market conditions now suggest a potential shift towards a full-scale altcoin season as we approach September."

© MANDEL NGAN, AFP

↑ Jerome Powell at a conference on 30 July in Washington, D.C. The Fed chairman will speak again on 17 September. Following his speech in Jackson Hole on 22 August, highlighting increased risks to employment, a rate cut from that date is now on the table.

However, the trend appears fragile. Duong pointed out in his note that Altcoin Season Index, another closely watched indicator measuring the proportion of altcoins that have outperformed BTC over the past 90 days, remains well below the values typically observed during an alt season. The Altcoin Season Index currently hovers around 53/100, whereas it had exceeded 75/100 at the peak of previous altcoin rallies. In essence, the rotation seems to have begun, but the frenzy has not yet taken off.

The macroeconomic situation is likely, as is often the case, to set the tone for the coming weeks and months in the market. Until mid-August, Fed Chair Jerome Powell maintained a firm stance: priority would be given to fighting inflation, with no rush to lower rates. Then the latest US employment figures showed a slowdown. On 22 August in Jackson Hole, Powell changed his tune, acknowledging that risks were shifting towards the labour market and leaving the door open for a cut as early as mid-September. Investors are now betting on a small 0.25% reduction on that date, provided that the next figures confirm the slowdown. ◢

crypto express

BTC and ETH among the heavyweights

The symbolism is striking. In July, Bitcoin surpassed Amazon in market capitalisation. And on 14 August, it reached a new milestone: with a record price exceeding $124,000, its capitalisation reached approximately $2.46 trillion, according to CoinDesk data, enabling it to overtake Google/Alphabet (approximately $2.4 trillion). Ethereum is also gaining momentum on its own scale: on 13 August, the second-largest cryptocurrency entered the ranks of the world's 25 biggest assets, surpassing the market capitalisation of Netflix ($575 billion compared to around $520 billion for the streaming company).

BitGo eyes an IPO

The wave of IPOs in the crypto sector shows no sign of abating. Following the remarkable success of Circle – issuer of the USDC stablecoin, now valued at over $25 billion – other players in the sector are preparing to enter the markets. On 13 August, the American exchange platform Bullish made a remarkable debut on Wall Street. The company raised $1.11 billion and its valuation climbed to $13.2 billion on its first day of trading, after its price soared from $37 to $118, before closing at $92.60. This success illustrates investors' growing confidence in digital asset infrastructure. In the wake of this, BitGo, a US specialist in digital asset custody, has just filed an application with the SEC for an IPO in the United States. BitGo claims to have secured nearly $100 billion in digital assets on behalf of institutional clients, up from around $60 billion at the start of the year.

DEMIS HASSABIS ON OUR AI FUTURE:

"IT'LL BE 10 TIMES BIGGER THAN THE INDUSTRIAL REVOLUTION – AND MAYBE 10 TIMES FASTER"

The head of Google's DeepMind says artificial intelligence could usher in an era of "incredible productivity" and "radical abundance". A portrait.

BY STEVE ROSE, *THE GUARDIAN*

© DANIO VINTINER

If you have a mental image of a Nobel prizewinner, Demis Hassabis probably doesn't fit it. Relatively young (he's 49), mixed race (his father is Greek-Cypriot, his mother Chinese-Singaporean), state-educated, he didn't exactly look out of place receiving his medal from the king of Sweden in December, amid a sea of grey-haired men, but it was "very surreal", he admits. "I'm really bad at enjoying the moment. I've won prizes in the past, and I'm always thinking, 'What's the next thing?' But this one was really special. It's something you dream about as a kid."

Well, maybe not you, but certainly him. Hassabis was marked out as exceptional from a young age – he was a chess prodigy when he was four. Today, arguably, he's one of the most important people in the world. As head of Google DeepMind, the tech giant's artificial intelligence arm, he's driving, if not necessarily steering, what promises to be the most significant technological revolution of our lifetimes.

As such, Hassabis finds himself in the position of being both a booster for AI and an apologist for it. The Nobel prize in chemistry was proof of the benefits AI can bring: DeepMind's AlphaFold database was able to predict the hitherto-unfathomable structures of proteins, the building blocks of life – a breakthrough that could lead to myriad medical advances. At the same time, fears are ever growing about the AI future that Google is helping to usher in.

Being an AI ambassador is the part Hassabis didn't dream about. "If I'd had my way, we would have left it in the lab for longer and done more things like AlphaFold, maybe cured cancer or something like that," he says. "But it is what it is, and there's some benefits to that. It's great that everyone gets to play around with the latest AI and feel for themselves what it's like. That's useful for society, actually, to kind of normalise it and adapt to it, and for governments to be discussing it ... I guess I have to speak up on, especially, the scientific side of how we should approach this, and think about the unknowns and how we can make them less unknown."

In person Hassabis is a mix of down-to-earth approachability and polished professionalism. Trim and well groomed, dressed entirely in black, he wears two watches: one a smart watch, the other an analogue dress watch (smart but not too flashy). He gives the impression of someone in a hurry. We're speaking in his office at DeepMind's London headquarters. On the walls outside are signed chess boards from greats such as Garry Kasparov, Magnus Carlsen and Judit Polgár. He still plays; there's a board set up on a table nearby.

It was the chess that started Hassabis down the path of thinking about thinking. Between the ages of four and 13 he played competitively in England junior teams. "When you do that at such a young age, it's very formative for the way your brain works. A lot of the way I think is influenced by strategic thinking from chess, and dealing with pressure."

On paper there's little else about Hassabis's background that foretold his future. His family are more on the arty side: "My dad's just finished composing a musical play in his retirement, which he staged at an arthouse theatre in north London. My sister's a composer, so I'm kind of the outlier of the family." They weren't poor, but not super-wealthy. He moved between various state schools in north London, and was home-schooled for a few years.

He was also a bit of an outsider at school, he says, but he seems to have known exactly where he was going. His childhood heroes were scientific pioneers such as Alan Turing and Richard Feynman. He spent his chess winnings on early home computers such as the Sinclair ZX Spectrum and a Commodore Amiga, and learned to code. "There were few people that were interested in computers in the late 80s. There was a group of us that used to hack around, making games and other stuff, and then that became my next career after chess."

"I said to Elon Musk, 'What if AI was the thing that went wrong? Then being on Mars wouldn't help you'"

In the 90s, the games industry was already working with AI. When he was 17, he coded the hit game Theme Park, in which players had to build a virtual amusement park. "The game reacted to how you were playing it," he says. Put a food stall too close to the rollercoaster exit and your virtual punters would start throwing up.

After studying computer science at the University of Cambridge, →

King Carl XVI Gustaf of Sweden (R) congratulates Nobel Prize in Chemistry 2024 laureate and British computational neuroscientist and AI researcher Demis Hassabis during the Nobel Prize award ceremony at the Concert Hall in Stockholm, Sweden on 10 December, 2024.

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then a PhD at University College London in neuroscience, he set up DeepMind in 2010 with Shane Legg, a fellow postdoctoral neuroscientist, and Mustafa Suleyman, a former schoolmate and a friend of his younger brother. The mission was straightforward, Hassabis says: "Solve intelligence and then use it to solve everything else."

DeepMind soon caught Silicon Valley's attention. In 2014 the team showed off an AI that learned to master Atari video games such as Breakout, without any prior knowledge. Interest started to come from now-familiar tech players, including Peter Thiel (who was an early DeepMind investor), Google, Facebook and Elon Musk. Hassabis first met Musk in 2012. Over lunch at Space X's factory in California, Musk told Hassabis his priority was getting to Mars "as a backup planet, in case something went wrong here. I don't think he'd thought much about AI at that point." Hassabis pointed out the flaw in his plan. "I said, 'What if AI was the thing that went wrong? Then being on Mars wouldn't help you, because if we got there, it would obviously be easy for an AI to get there, through our communication systems or whatever it was.' He just hadn't thought about that. So he sat there for a minute without saying anything, just sort of thinking, 'Hmm, that's probably true.'" Shortly after, Musk, too, became an investor in DeepMind.

In 2014, Google bought the company for £400 m (as a result, Musk and Thiel switched to backing the rival startup OpenAI). It wasn't just access to cash and hardware that convinced them to go with Google. Founders Larry Page and Sergey Brin were computer scientists like him, and "saw Google as ultimately an AI company", says Hassabis. He also used products such as Gmail and Maps. "And finally, I just thought that the mission of Google, which is to organise the world's information, is a cool mission."

From his office window, we can see the vast beige bulk of Google's just-about-finished new office, where DeepMind will be moving next year. It's fair to say the reason the tech giant is putting so much into Britain is because of Hassabis, who insisted on staying in London. "Our first backers were like, 'You've got to move to San Francisco,' but I wanted to prove it was possible here," he says. "I knew there was untapped talent around. And I knew, if we were successful, how important [AI] would be for the world, so I felt it was important to have a global approach to it, and, not just, you know, 100 square miles of Silicon Valley. I still believe that's important."

In 2016, DeepMind again caught the tech world's attention when its AI defeated one of the world's best players of Go – a board game considerably more complex than chess. The AlphaFold breakthrough on protein structures was another leap forward: DeepMind has now solved the structures of over 200 m proteins and made the resource publicly available.

"We'll have something that will exhibit all the cognitive capabilities humans have, maybe in the next five to 10 years"

But the AI landscape shifted seismically in 2022 with the release of OpenAI's ChatGPT, which captured the public imagination with its uncanny ability to tackle a host of problems – from strategy planning to writing poetry. ChatGPT caught big tech off guard, especially Google. "They really went for scaling, almost in a bet-the-house sort of way, which is impressive, and maybe you have to do that as a startup," says Hassabis. "We all had systems that are very similar, the leading labs, but we could see the flaws in it, like it would hallucinate sometimes. I don't think anyone fully understood, including OpenAI, that there would be these amazing use cases for it, and people would get a lot of value out of them. So that's an interesting lesson for us about how you can be a bit too close to your own technology."

The race is now on. DeepMind has become "the engine room of Google", as Hassabis puts it, and AI is being built into every corner of its business: AI search summaries; smart assistant Gemini (Google's answer to ChatGPT); an AI image generator (that can add in sound effects); AI-powered smart glasses, translation tools, shopping assistants. How much the public really craves this AI-enhanced world remains to be seen. Competitors are also raising their game. Mark Zuckerberg's Meta, Amazon, Apple, Microsoft and others are investing heavily, and poaching talent from their rivals. Zuckerberg is offering $100 m salaries for top researchers. Suleyman, who left DeepMind in 2019, is now head of Microsoft AI, which recently poached more than 20 engineers from DeepMind. He hesitates to call his former friend a rival: "We do very different things. I think he's more on the commercial applied side; we're still focused more on that frontier research side."

That frontier to be reached is surely AGI – "artificial general intelligence" – the pivotal point at which AI matches human intelligence. "I don't know if it will be a single moment. It may be a gradual thing that happens," he says, "but we'll have something that we could sort of reasonably call AGI, that exhibits all the cognitive capabilities humans have, maybe in the next five to 10 years, possibly the lower end of that."

In other words, we are in the final few years of pre-AGI civilisation, after which nothing may ever be the same again. To some the prospect is apocalyptic, to others, like Hassabis, it's utopian.

"Assuming we steward it safely and responsibly into the world, and obviously we're trying to play our part in that, then we should be in a world of what I sometimes call radical abundance," says Hassabis. He paints a picture of medical advances, room-temperature superconductors, nuclear fusion, advances in materials, mathematics. "It should lead to incredible productivity and therefore prosperity for society. Of course, we've got to make sure it gets distributed fairly, but that's more of a political question. And if it is, we should be in an amazing world of abundance for maybe the first time in human history, where things don't have to be zero sum. And if that works, we should be travelling to the stars, really."

Is he getting too close to his own technology? There are so many issues around AI, it's difficult to know where to even begin: deepfakes and misinformation; replacement of human jobs; vast energy consumption; use of copyright material, or simply AI deciding that we humans are expendable and taking matters into its own hands.

To pick one issue, the amount of water and electricity that future AI datacentres are predicted to require is astronomical, especially when the world is facing drought and a climate crisis. By the time AI cracks nuclear fusion, we may not have a planet left. "There's lots of ways of fixing that," Hassabis replies. "Yes, the energy required is going to be a lot for AI systems, but the amount we're going to get back, even just narrowly for climate [solutions] from these models, it's going to far outweigh the energy costs."

There's also the worry that "radical abundance" is another way of framing "mass unemployment": AI is already replacing human jobs. When we "never need to work again" – as many have promised – doesn't that really mean we're →

surrendering our economic power to whoever controls the AI? “That’s going to be one of the biggest things we’re gonna have to figure out,” he acknowledges. “Let’s say we get radical abundance, and we distribute that in a good way, what happens next?”

Hassabis has two sons in their late teens(his Italian-born wife is a molecular biologist). What does he envisage for their future? “It’s a bit like the era I was growing up in, where home computers were coming online. Obviously it’s going to be bigger than that, but you’ve got to embrace the new technology ... If you become an expert, kind of a ninja, at using these things, it’s going to really empower the people that are good at these tools.”

Non-ninjas will still have a place, however: “We need some great philosophers, but also economists to think about what the world should look like when something like this comes along. What is purpose? What is meaning?” He points out that there are many things we do that aren’t strictly for utility: sports, meditation, arts. “We’re going to lean into those areas, as a society, even more heavily, because we’ll have the time and the resources to do so.”

Demis Hassabis, CEO of DeepMind Technologies, addresses the crowd during Google’s annual I/O developers conference in Mountain View, California on 20 May, 2025.

It’s difficult to see Hassabis himself carving out much of that time, between DeepMind, his drug discovery company Isomorphic Labs and his endless public appearances – the list goes on. “I don’t have much time that isn’t working, seven days a week,” he acknowledges. “I spend time with my kids playing games, board games, and that’s some of my most fun times.” He doesn’t let them win, he says. “We play very competitively.”

He’s also a season ticket holder at Liverpool FC and makes it to “six, seven games a year”. He still plays chess online – “It’s a bit like going to the gym, for the mind.” And he’s a mean poker player, apparently. The night after winning his Nobel prize he celebrated with a poker night with Magnus Carlsen and some world poker champions. “In another universe, I might have been a professional gamer.”

So, no fears about the future? “I’m a cautious optimist,” he says. “So overall, if we’re given the time, I believe in human ingenuity. I think we’ll get this right. I think also, humans are infinitely adaptable. I mean, look where we are today. Our brains were evolved for a hunter-gatherer lifestyle and we’re in modern civilisation. The difference here is, it’s going to be 10 times bigger than the Industrial Revolution, and maybe 10 times faster.” The Industrial Revolution was not plain sailing for everyone, he admits, “but we wouldn’t wish it hadn’t happened. Obviously, we should try to minimise that disruption, but there is going to be change – hopefully for the better.” ◢

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DOSSIER

Nuclear power: the incredible comeback

Written off 14 years ago after the Fukushima disaster, nuclear energy is enjoying a renaissance with around 60 reactors under construction worldwide. Even countries such as Switzerland and Japan, which had banned nuclear power, are considering its return. BY BERTRAND BEAUTÉ

2025

will go down as a pivotal year for nuclear energy. It will mark the year of its revival after 14 years in purgatory. One after another, countries such as Italy, Denmark, Belgium and even Japan have announced their intention to reconsider their position on nuclear power. "We are experiencing a global renaissance," says Dominique Casaï, founder of Uram, an independent investment advisory firm based in Geneva that specialises in natural resources. "We are witnessing a major shift in the perception of this energy source. It is now considered a key component of the energy transition."

Who would have imagined this just 10 years ago? A brief retrospective: on 11 March 2011, a tsunami struck the Japanese coast. A 15-metre-high wave flooded the Fukushima Daiichi →

nuclear power plant, located on the coast, knocking out the reactor cooling systems. The Fukushima nuclear disaster had begun. Hydrogen explosions, forced evacuations and crisis management were broadcast around the world for weeks, causing global outrage. In the wake of this, several countries, including Japan, Germany, Switzerland and Belgium, decided to phase out nuclear power "for good".

"Fukushima set us back 15 years"

Dominique Casaï, founder of Uram, an independent investment advisory firm based in Geneva that specialises in natural resources

The number of nuclear reactors in operation worldwide fell from 442 in 2011 to 419 in 2012 – a figure that has not really changed since then, with 416 reactors in operation in 2025 according to figures from the International Atomic Energy Agency (IAEA). The price of uranium, the main fuel for reactors, also plummeted from over $70 at the beginning of 2011 to $30 in January 2018.

A new era

"I found this period very difficult," says Dominique Casaï, who has worked all his life in the raw materials sector, particularly uranium. "The phasing out of nuclear power, particularly in Germany, has led to the restart of coal-fired and Russian gas-fired power stations. We can see the result today... Fukushima set us back 15 years. The energy transition would be much further advanced today if it hadn't been for that incident."

Fourteen years later, nuclear power is regaining its prestige around the world. In January 2025, in a report entitled "The Path to a New Era for Nuclear Energy" the IAEA counted 63 reactors under construction worldwide, a figure not seen since the 1990s (see infographic on p. 32). And the money is pouring in: "Annual investment in nuclear power – which includes both new plants and life extensions for existing plants – increased by nearly 50% between 2020 and 2023, exceeding $60 billion," notes the IAEA in its report.

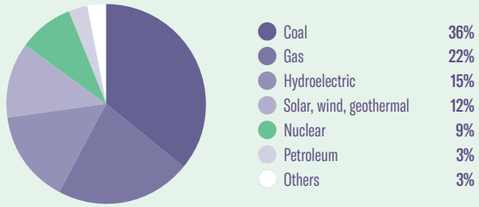
And this is only the beginning: "The projections for the construction of new reactors are extraordinary," emphasises Hervé Guérin, consulting partner for the Energy & Industry sector at Bartle. China, in particular, plans to double its fleet by 2040, with 100 reactors in the pipeline. Of the 63 reactors under construction worldwide, almost half (29) are located in China.

These figures contrast sharply with the situation in Europe, where only three reactors are currently under construction: two in the United Kingdom and one in Slovakia. But European countries are slowly gaining momentum. In July, the British government gave the final green light to the Sizewell C nuclear power plant project, estimated to cost £38 billion (nearly €44 billion). Paris, for its part, officially announced in June that six high-power reactors will be built in France by 2038. And many countries that had 'definitively' abandoned nuclear power are now reversing their decision.

Nuclear power far behind coal

In 2024, nuclear energy generated 2,844 TWh (terawatt hours), accounting for 9% of global electricity production.

Share of global production by electricity source, 2022



↑ A worker at the Flamanville (France) nuclear power plant construction site, pictured in 2016. For French electricians, this construction site has turned into a nightmare. In December 2024, 12 years behind schedule, the reactor was finally connected to the grid. But EDF teams have since been faced with problems that prevent the reactor from delivering its full power.

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On Thursday, 15 May 2025, Belgium voted in favour of a return to nuclear power. At the end of February 2025, the Italian Council of Ministers approved a decree paving the way for a return to nuclear power, pending parliamentary ratification. "By 2030, nuclear energy will be back in Italy, I am convinced of it," said Environment and Energy Security Minister Gilberto Pichetto Fratin. However, the country had abandoned nuclear power almost 30 years ago, in 1987, following the Chernobyl disaster.

In December 2024, the Swiss Federal Council proposed to amend Swiss law to allow the construction of new power plants, which has been banned since 2018. "Even in Germany, the idea of a return to nuclear power is gaining ground," notes Casaï. The list is not exhaustive. We could also mention Denmark, which last May opened the door to nuclear power, more than 40 years after turning its back on this energy option following the Three Mile Island accident. And so it goes for Europe.

In the United States, Donald Trump signed two executive orders in May 2025 aimed at accelerating the development of nuclear power. The goal is to quadruple nuclear energy consumption in the United States, from around 100 GW in 2024 to 400 GW by 2050. Even →

Japan, despite having been hit repeatedly by the harmful effects of radioactivity, seems to be softening its stance. While the island nation had intended to shut down all its power plants after Fukushima, the country's latest energy roadmap, adopted in February, plans to increase the share of electricity produced by nuclear power plants to 20% of the energy mix by 2040 by reviving old plants, extending their lifespan and even building new reactors.

> **"We see investment opportunities across the entire uranium cycle"**
>
> **Kenny Zhu**, research analyst at Global X ETFs

This information did not escape Kansai Electric Power Company, one of the leaders in the Japanese electricity industry. In July 2025, the company announced that it would launch a study with a view to building a new reactor at the Mihama power plant in Fukui Prefecture, Japan. "Given that natural resources are limited in Japan, [...] it is important that nuclear energy plays its part in the years to come," explained CEO Nozomu Mori.

"Some four years ago, the International Energy Agency (IEA) announced that nuclear energy was well positioned to make a comeback after a difficult period following the 2011 Great East Japan Earthquake and the accident at the Fukushima Daiichi plant," recalled Fatih Birol, the IEA's director, in January 2025. "Today, this comeback is clearly underway and nuclear power is on the cusp of a new era."

All the elements therefore seem to be in place for a major revival.

← Controlled demolition of the cooling tower at Germany's Biblis power plant (February 2023). After Fukushima, Berlin decided to phase out nuclear power and has been dismantling its reactors ever since.

This includes Switzerland, where even the population is changing its opinion. A survey by the Swiss Electricity Association (AES) conducted by the gfs.bern institute and published in June 2025 showed that 59% of Swiss people now say they strongly agree or somewhat agree that Switzerland should reconsider building nuclear power plants, whereas 58.2% of the population voted to abandon nuclear power in 2017.

Investors return

In this very favourable context, investors are reconsidering a sector they had fled after Fukushima. "As global energy demand rises, nuclear power has re-emerged in the global discourse as one of the possible solutions to the problem, creating opportunities for investors," says Kamil Sudiyarov, product manager at VanEck. This view is shared by Kenny Zhu, research analyst at Global X ETFs in New York: "We believe that nuclear energy can be a good investment." The market hype has already begun. Since the beginning of the year, for example, the VanEck Uranium and Nuclear Technologies ETF, which includes companies covering the entire sector, has posted a return of 51.58% (as of 18 August).

"The simplest and cheapest way to invest in the nuclear sector is to focus on uranium producers," explains Uram's Dominique Casaï. "The extension of reactor lifespans and the construction of new units around the world will drastically increase demand and drive prices up." Between January 2021 and July 2025, the price of uranium has already soared by 130% to over $70 today, bolstering mining company shares in its wake. "We see investment opportunities across the entire uranium cycle," notes Zhu. "Mining companies, of course, but also those responsible for uranium conversion and enrichment. Conversion and enrichment prices peaked in 2025."

Canadian company Cameco, one of the world's largest uranium producers, has seen its share price rise by 45% since the beginning of the year (as of 15 August). "The increase in de- →

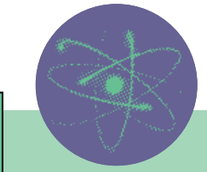
Funding in question

Without state financial support, there will be no nuclear power plants. This is, in a sense, the conclusion that emerges from the latest reactor construction projects in Europe. For example, the British government, which gave the final go-ahead in July for the construction of the Sizewell C power plant, will be the largest shareholder, with a 44.9% stake. The project, estimated to cost £38 billion (nearly €44 billion), will be mainly financed by the government and supplemented by private funding from the Canadian pension fund La Caisse (20% shareholders), British energy company Centrica (15%), French energy company EDF (12.5%) and Amber Infrastructure (7.6%).

The problem: Crippled by debt, some countries are struggling to raise the funds needed for their nuclear ambitions and are being forced to come up with more unusual solutions. In France, for example, President Emmanuel Macron wants countries that import nuclear electricity produced in France, notably Switzerland, to contribute to the cost of building new reactors. Paris plans to finance the construction of six new nuclear reactors by 2038 and is looking into the possibility of building eight more by 2050. The estimated cost of the first six? €80 billion, more than 55% of which will be covered by a subsidised (zero-interest) loan from the government. Operation of the reactors will then be secured by a guaranteed electricity sale price of €100 per megawatt hour. If market prices are lower, the government will compensate EDF for the difference.

A CHAOTIC HISTORY

1938



The phenomenon of nuclear fission, whereby a heavy atomic nucleus splits into two lighter ones, is described by German chemists Otto Hahn and Fritz Strassmann, as well as physicists Lise Meitner and Otto Robert Frisch.

1939

Physicist Leó Szilárd writes a letter signed by Albert Einstein (Einstein-Szilárd letter) to US President Franklin Delano Roosevelt, warning him that nuclear fission could lead to the construction of a new type of bomb. This leads to the launch of the Manhattan Project.

© DANIEL ROLAND, AFP

1945

On 6 August, a B-29 bomber named Enola Gay drops the Little Boy nuclear bomb on the city of Hiroshima, Japan. Three days later, Nagasaki is also destroyed by an atomic bomb.

1951

The world's first nuclear reactor to generate electricity, the Experimental Breeder Reactor I (EBR-I), built at the Idaho National Laboratory in the United States, goes into operation.

↑
In October 2024, Greenpeace activists protest against the revival of nuclear power near the Gravelines power plant in France.

mand is leading to higher uranium prices," confirms Hervé Guérin of Bartle.

That said, the uranium cycle is not the only gateway for investors. "The nuclear industry is a very broad sector that includes mining companies, reactor manufacturers, equipment suppliers, power plant operators, suppliers and waste treatment specialists," explains Guérin.

Obstacles to overcome

Only a handful of companies worldwide are capable of building reactors to meet demand: Russia's Rosatom, China's CNNC and CGN, France's EDF, the US's Westinghouse and South Korea's KEPCO (see company profiles on pp. 42 to 47). Of the 52 reactors whose construction has begun worldwide since 2017, 25 and 23 are Chinese and Russian designs respectively, according to the IAEA.

The reason? "Unlike China, which has never renounced nuclear power, Europe saw its nuclear industry largely stagnate after the Chernobyl disaster, with the exception of certain megaprojects such as Flamanville, Olkiluoto 3, and Hinkley Point C," points out Marc Elliott, investment specialist in Energy Transition at Union Bancaire Privée (UBP). "And it takes time to bring such a sector to a stage where large-scale deployment is efficient and profitable. This sector cannot be revived overnight. An entire industrial fabric must be rebuilt and skills redeveloped. It's a long and complex process." As a result, major nuclear reactor construction projects in Europe are turning into a nightmare. Manufacturers have lost the expertise they acquired in the 1970s and 1980s and are struggling to regain it.

> **"Investor confidence will be gained as projects are completed on time and without cost overruns"**
>
> **Hervé Guérin**, consulting partner for the Energy & Industry sector at Bartle

Although EDF recently completed two reactors (one in Finland and the other in France), both projects were plagued by delays and phenomenal cost overruns. According to a report published by the Court of Auditors in January 2025, the EPR reactor in Flamanville, which was connected to the French electricity grid on 21 December 2024, 12 years behind schedule, cost a total of €23.7 billion, instead of the €3.2 to €3.3 billion planned in 2006 before construction began. "Investor confidence will be gained as projects are completed on time and without cost overruns," says Guérin.

In the meantime, "restarting the sector in Europe requires significant budgetary incentives and strong political support," says Marc Elliott. And huge investments. The European Commission itself estimates that €241 billion will be needed by 2050, according to figures revealed in June 2025 in the eighth Nuclear Illustrative Programme (PINC). Specifically, €205 billion will be spent to build new power stations and €36 billion to extend existing facilities. In order to avoid the financing problems generated by giant power plants, much hope is being placed in smaller reactors – SMRs, or small modular reactors – which would produce a quarter or even a tenth of the energy of a conventional reactor.

According to their promoters, mass production could massively reduce these costs. However, despite ongoing projects led by innovative startups such as NuScale and Oklo, as well as giants such as Rolls-Royce, BWX Technologies and KEPCO, no SMRs are currently operational. "Grid deployments of SMRs are expected to emerge around 2030, with prototypes potentially emerging as early as 2028," says Zhu. "It's an interesting investment, but one for the long term." ◢

Engineering shortage

Beyond the financial aspect, reviving nuclear power will also be a human challenge. "When you announce the death of an industry, students no longer choose that field because it no longer has a future," says Hervé Guérin of the consulting firm Bartle. According to the European Commission's eighth illustrative nuclear programme (PINC), the European nuclear industry will need to recruit between 180,000 and 250,000 new professionals by 2050, including 100,000 to 150,000 for the construction of new power plants, 40,000 to 65,000 for their operation and 40,000 for decommissioning. This is a daunting task, given the lack of skills and personnel in this sector.

1962

Switzerland begins construction of its first experimental nuclear power plant in Lucens, in the canton of Vaud. On 21 January 1969, the date of the plant's activation, an accident occurs, causing several explosions and putting an end to the project. The accident is classified as level 4 (out of 7) on the International Nuclear Event Scale (INES).

1969

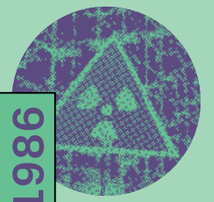
The Beznau power plant in the canton of Aargau is commissioned. Beznau is Switzerland's first nuclear power plant and is still in operation 56 years later, making it the oldest in the world. In December 2024, Axpo announced its intention to operate it until 2033.

© SAMEER AL DOUMY, AFP

1979

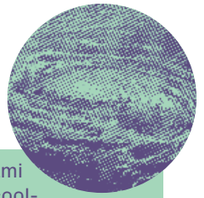
On 28 March, a nuclear accident occurs at the Three Mile Island nuclear power plant in the United States, leading to the meltdown of the reactor core. The accident is classified as a Level 5 incident on the INES scale.

1986



The Chernobyl nuclear disaster occurred at 1.23 am on 26 April 1986 in reactor 4 of the Lenin Nuclear Power Plant in Ukraine. Classified as a Level 7 accident on the INES scale, it is the most serious nuclear accident to date.

2011



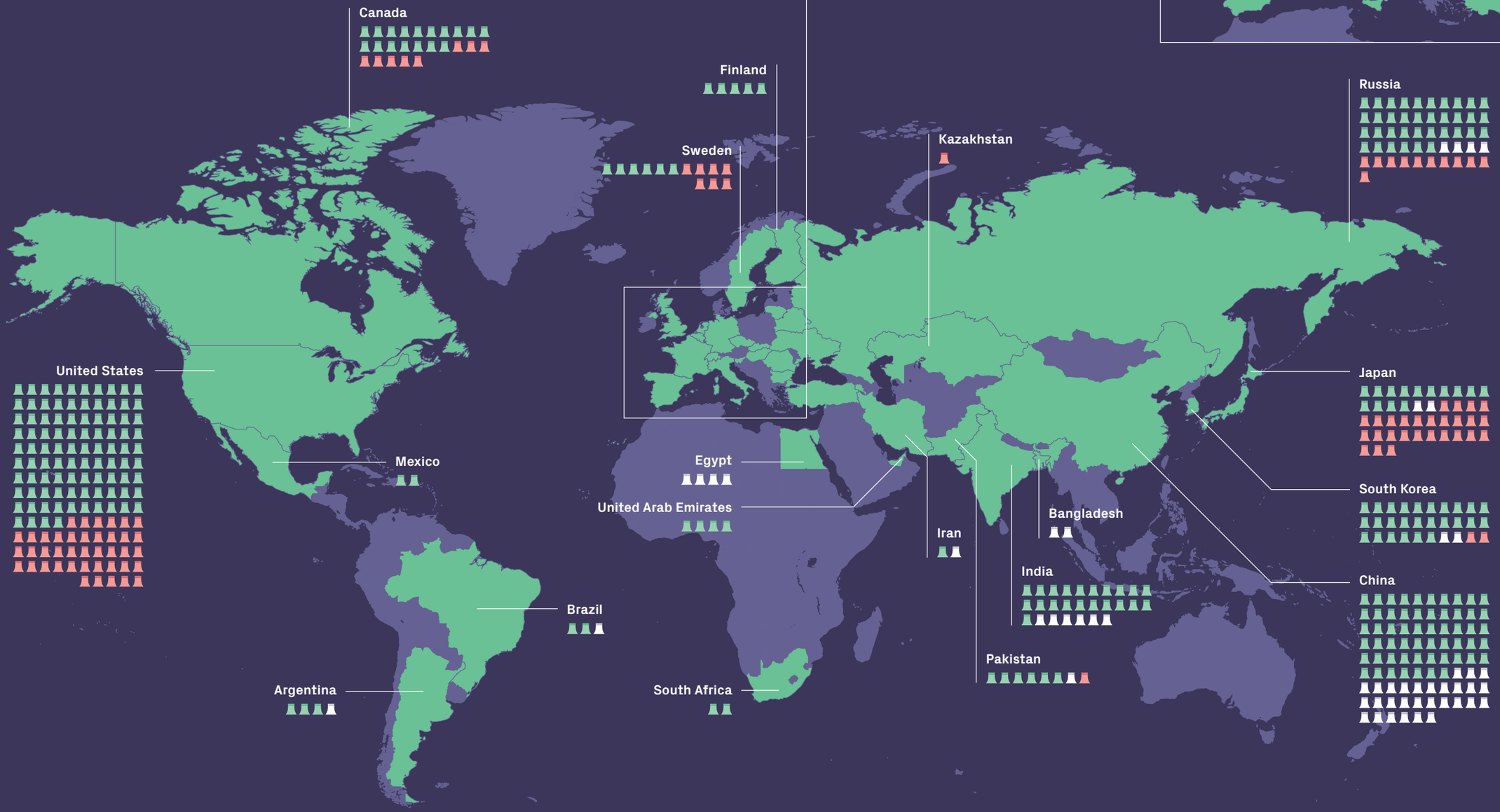
Following a tsunami on 11 March, the cooling systems at the Fukushima Daiichi nuclear power plant were knocked out, leading to a nuclear disaster. The second accident to be classified as level 7 – the highest on the scale – this event had significant repercussions for the global nuclear industry.

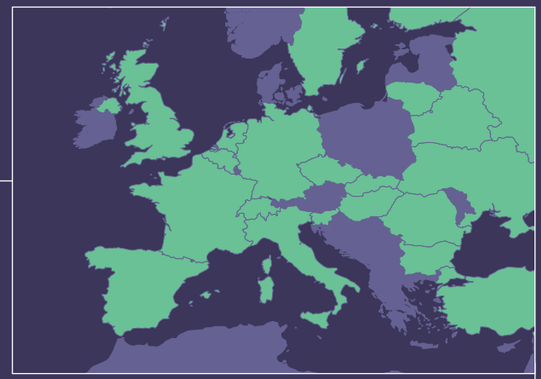
416 reactors worldwide

- Reactors in operation (416)
- Reactors under construction (62)
- Reactors decommissioned (209)

Nuclear power generation is expected to reach around 2,900 terawatt hours (TWh) this year – a record high. And it's not over yet: 62 reactors are currently under construction worldwide.

BY BERTRAND BEAUTÉ, INFOGRAPHIC: AURÉLIEN BARRELET





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SOURCE: THE INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA)

“It will be difficult to find a company to build a power plant in Switzerland”

As the Federal Council plans to lift the ban on the construction of new power plants, the Swiss Academy of Sciences published a report on the subject on 1 July. Interview with Urs Neu, head of the Energy Commission and lead author of the study. BY BERTRAND BEAUTÉ

↑ Dr Urs Neu, head of the Energy Commission of the Swiss Academy of Sciences, photographed here in August 2025.

© OLIVIER VOGELSANG

Will Switzerland revive nuclear power? The question has been on everyone’s lips since Energy Minister Albert Rösti announced his intention to lift the ban on the construction of new nuclear power plants – a ban, which came into force in 2017 in response to a referendum, and following the 2011 Fukushima disaster. Now, the debate between both sides of the nuclear energy argument is heating up once again.

In August 2024, for example, Greenpeace Switzerland published a brochure soberly entitled “Nuclear power has no future”. In the same year, the ‘Stop the Blackout’ initiative gathered nearly 130,000 signatures in support of nuclear power. Amid this fierce and highly polarised debate, the Swiss Academy of Sciences seeks to contribute rational and scientifically sound points. In July 2025, it published a report entitled “Prospects for nuclear energy in Switzerland”. Lead author and Head of the Swiss Academy of Sciences’ Energy Commission, Dr Urs Neu, explains the pros and cons of the debate in this interview with *Swissquote Magazine*.

The Federal Council is in favour of a return to nuclear power in Switzerland. How can we explain the resurgence of this energy source, which was thought to have been shelved after Fukushima?

Switzerland’s electricity supply is facing a challenge: consumption is increasing, particularly due to society’s electrification (mobility, heating, industry, data centres). At the same time, environmental strategy requires a reduction in greenhouse gas emissions. In this context, nuclear power appears to be a solution. It produces a lot of electricity while emitting very little CO_2. Another advantage is that nuclear reactors generate energy continuously, which can help balance the system, whereas renewable energies (wind and solar) only produce electricity at certain times.

> “The risk of a nuclear accident in Switzerland is minimal. However, it is not zero”

Is the main obstacle to its revival the Swiss population’s reluctance towards nuclear energy?

This is indeed a key issue, as the question will have to be put to a vote. It should be noted that the rejection of nuclear energy is different from the (partial) rejection of renewable energies. In the case of wind power, it is mainly local opposition – people who do not want to live near wind turbines and want to preserve the landscape – while at cantonal and national level, the population tends to be more in favour of wind turbines. With nuclear power, it is somewhat the opposite. Residents of municipalities with nuclear power plants in Switzerland and who benefit from advantages such as lower taxes would be more willing to accept a new reactor near their homes. At the cantonal and federal levels, however, the population is much more divided. The reason is simple: in the event of a nuclear accident, it is not only the population in the immediate vicinity of the reactor – that have accepted this risk – that would be affected, but a large part of Switzerland.

Are Swiss nuclear power plants safe, given that our country has the world’s oldest nuclear plant, Beznau, which was commissioned in 1969?

Switzerland has special regulations in this area: reactors do not have a predefined service lifespan, but must be constantly modernised to meet the latest safety requirements. Our power plants are therefore safer today than when they were built. If we decide to build new reactors, they will theoretically be even safer. The risk of an accident is therefore minimal. However, it is not zero, and the consequences of an accident would be dramatic: ‘Very low risk, very high impact’. The assessment and acceptance of such a risk are highly subjective. They depend on each individual’s assessment. Are we prepared to accept an extremely low risk that could have enormous consequences? It is up to the population to decide.

According to a study by the Association des entreprises électriques suisses (AES), the umbrella organisation for the Swiss electricity sector, electricity consumption is likely to rise to 90 terawatt hours per year by 2050, compared with 57 terawatt hours in 2024. Can this demand be met without nuclear energy?

In principle, yes. It all depends on how quickly expansion takes place and how well the energy system is structured and managed. Smart grids, for example, make it possible to adjust consumption to production, and, in conjunction with battery stor- →

age, to balance out daily fluctuations in electricity production and consumption or to compensate for peaks in production and consumption. The real problem with renewables is storing the photovoltaic electricity generated in summer until winter. Solar energy is much more abundant in summer than in winter. This requires incentives in the electricity market to ensure that the right technologies are further developed and, above all, that existing ones are also used.

“Even in a very optimistic scenario, it would be unlikely before 2050”

Nuclear power can help solve this problem, but it is not a panacea: it generates continuously even in winter and provides significant winter electricity, but it is – mainly for economic reasons – poorly suited to smoothing out fluctuations in production and, in particular, consumption. Band energy must also be distributed across fluctuating consumption using storage systems. Grid expansion is needed not only to absorb production peaks, but also to cope with increasing consumption peaks caused by heat pumps and the charging of electric cars. There is no clear answer to the question of whether an energy system with or without nuclear power is most economical.

Would building a new power plant not be as profitable as is claimed?

Building a new power plant represents a considerable financial risk for investors and operators. Most of the costs are related to construction, while operating costs remain relatively low. Profitability therefore depends heavily on construction costs and the utilisation rate of the plant. Today, the amortisation period for a reactor is generally estimated at 60 years. However, in a liberalised energy market dominated by renewables, the capacity utilisation is uncertain, especially in summer. This is because electricity surpluses from solar power plants are to be expected at that time. If you have to shut down your power plant in summer because electricity prices are very low or even negative, the average electricity costs per kilowatt hour increase accordingly.

Furthermore, the costs of a power plant depend not only on the construction costs (ed. note: French auditors estimate the total cost of the EPR reactor in Flamanville, which went into operation in December 2024, at €23.7 billion), but also on interest rates over 60 years. However, it is impossible to predict how these will evolve.

While it is certainly not fundamentally different in relation to a wind farm, firstly, the amortisation and construction periods are much shorter (around 20 years) and, secondly, the amount to be invested that is exposed to the profitability risk is around a thousand times lower. A nuclear power plant probably needs government support not only as investment aid, but also – at least in part – to cover the investment risks. If you look at what is happening elsewhere in the world, all new nuclear power plants being built today are subsidised by the public sector, which assumes part of the investment costs and risks. A new project in Switzerland without public assistance is not realistic.

Switzerland is a rich country. We could afford it...

Considering the federal government’s current austerity measures, that doesn’t seem so clear. If Switzerland decides to provide financial support for construction, the law will have to be amended, which will require a new referendum. The population would therefore have to vote on the issue several times: on whether to accept the ‘Stop the Blackout’ initiative or the Federal Council’s indirect counter-proposal; on a financing law and on the ‘general authorisation’ (framework approval). In addition, a construction and operating licence would be required. And finally, investors will have to decide whether to embark on such a project, given the financial conditions. Each of these political, economic and technical decisions could delay or halt a new construction project, further increasing the financial risk for investors.

Assuming that people are in favour of all of these issues, when could a new power plant be built in Switzerland?

Even in a very optimistic scenario, it would be unlikely before 2050. A construction company would also have to be selected, as we do not have one in Switzerland capable of carrying out such a project. Only a few companies in the world have the necessary expertise. Currently, Rosatom (Russia) and CNNC (China) are the largest power plant builders. However, it is difficult to imagine at this stage that a Russian company would build a power plant in Switzerland, and CNNC builds almost exclusively in China. The construction of a new plant in Switzerland would therefore probably be entrusted to a French (EDF), American (Westinghouse) or South Korean (KEPCO) company. Most of these

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↑
Here, the Gösgen nuclear power plant in the canton of Solothurn. Since the Mühleberg power plant’s shutdown in 2019, Switzerland has had four nuclear reactors (Beznau I and II, Gösgen and Leibstadt) which provide nearly 35% of the country’s electricity production.

providers are facing or have faced financial difficulties. EDF recently completed reactors in Finland and France and is currently building two in the United Kingdom. However, all of these projects have experienced delays and cost overruns. The Olkiluoto EPR project, originally scheduled to take four years and cost €3 billion, ultimately took 13 years and cost around €11 billion. EDF also planned to build six new reactors in France, as well as two more in the United Kingdom. However, the French Court of Auditors has questioned the profitability of these activities, and the timetable for the new French facilities has been postponed.

Westinghouse, for its part, had started building two reactors in the United States (Vogtle). However, work was halted in 2017 due to the company’s bankruptcy and completed by other companies with public funds. The Japanese have not built any new reactors for nearly 20 years and have faced technical problems. That leaves the Korean company KEPCO, which delivered six reactors to the United Arab Emirates (UAE) on schedule (after eight years of construction). But in the UAE, there are no financing problems, complex authorisation procedures or referendums. In short, it will be difficult to find a company that is willing and able to build a nuclear power plant in Switzerland. The 2050 deadline is therefore rather optimistic, and it may take longer. A new power plant is not a solution to the sharp rise in electricity demand expected well before 2050; at best, it could only partially replace the gradual phase out of existing power plants – and even then, only if Gösgen and Leibstadt nuclear power plants continue to operate well beyond 60 years.

Could small modular nuclear reactors (SMRs) (see p. 51), which are expected to be much cheaper and therefore easier to finance, be a solution for Switzerland?

SMRs are currently still in the development phase. They could be commercially available in the 2030s, but experience with costs and operation will still be very limited at that point. The idea behind SMRs is to build factories that produce large numbers of units in order to benefit from economies of scale and reduce costs. It remains to be proven that this works. But if a plant produces 10 or 20 SMRs per year – or even a hundred, which would be huge – will the cost advantage really be as significant as claimed? At this stage, the International Atomic Energy Agency (IAEA) is talking about cost parity with large power plants by the 2030s at the earliest. We are not in the automotive industry, where factories produce millions of vehicles and thus achieve enormous economies of scale. If the concept works, it could be an option. But I wouldn’t rely on it. ◢

↑ Satellite image taken in 2013 of the Arlit uranium mine in Niger, previously operated by the French company Orano (formerly Areva).

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A looming uranium shortage

The revival of nuclear energy in the West could be constrained by fuel scarcity and geopolitical uncertainties. An analysis.

BY BERTRAND BEAUTÉ

"Nothing tells the story of the nuclear industry's ups and downs better than the price of uranium," says Kamil Sudiyarov, product manager at VanEck. "From 2011 (Fukushima) to 2019, long-term prices were in decline, but since then they've more than doubled– from less than $40 per pound to about $80 today." Although we are still quite far from the 2007 peak when the price of uranium (long term) approached the $100 mark, all factors seem to be in place for new records to be broken in the coming years.

Indeed, the construction of new reactors and the extension of the lifespan of existing power plants will lead to an explosion in demand. According to the World Nuclear Association, uranium requirements to fuel power plants are expected to rise from 65,650 tonnes per year in 2023 to 130,000 tonnes by 2040, an increase of almost 100% over the period. The problem is that production currently falls well below consumption, with 'only' 50,000 tonnes of natural uranium being mined each year.

To make up the difference, countries are drawing on their reserves. "During the Cold War, producing countries built up incredible stocks of uranium," recalls Dominique Casaï, founder of Uram, an independent investment advisory firm based in Geneva that specialises in natural resources. "Since the 1990s, the market has been consuming more than is being produced, using these reserves. But today, these stocks are close to depletion, while demand for uranium is growing. The need to increase production is massive and urgent."

Production currently falls well below consumption

In itself, the world is not short of uranium. Geological resources of this mineral are abundant. But developing new mines to increase production takes time. "With the global resurgence of nuclear energy, there could be a risk of shortages," confirms Kenny Zhu, research analyst at Global X ETFs in New York. "But we don't think this will be a major problem. There is sufficient uranium on Earth to power all reactors, and the coming increase in prices for this mineral will justify the opening of new mines, as is the case in all commodity markets." This proves beneficial for major uranium producers, notably Kazakhstan's Kazatomprom, whose share price has risen by almost 20% since the beginning of the year (as of 19 August), and Canada's Cameco (+45%).

However, even if new mines are opened, security of supply cannot be guaranteed. "There are also geopolitical risks to consider," warns Zhu. Currently, Kazakhstan – a country close to China and Russia – accounts for 39% of global uranium production (in the form of yellowcake). However, the Central Asian country is increasingly turning to China to sell its ore. In 2024, Kazatomprom, which alone accounts for 20% of global production, made 58% of its sales in Asia, mainly in China and Russia, compared with 50% in 2022. At the same time, exports to America fell from 23% in 2022 to 15% in 2024, while those to Europe remained constant (27%), according to the company's annual report.

In addition, other major uranium miners are turning away from the West, such as Niger, which →

accounts for around 5% of global production. Long a symbol of Françafrique, the West African country has turned its back on its former colonial power since the 2023 coup. In June 2024, Niamey decided to withdraw the French company Orano's licence to operate the Imouraren mine – one of the world's largest deposits with 200,000 tonnes of reserves – and then, in June 2025, to nationalise the Somaïr mine. At the same time, the ruling junta has moved closer to Moscow. During an official visit to Niamey in July 2025, Russian Energy Minister Sergei Tsivilev stated that Russia wanted to "exploit uranium" in Niger.

Faced with this situation, the Centre for Strategic and International Studies (CSIS) sounded the alarm in a report published in February 2025. "Uranium is one of the most consequential elements of the modern era," writes the American organisation. "(...) It is a crucial mineral for energy and national security (...) However, supply chain vulnerabilities and dependencies on foreign adversaries challenge US leadership in the sector and create national and energy security risks."

From the 1950s to the late 1980s, the US was the world's leading producer of uranium, delivering between 20 and 45 million pounds of the mineral per year. But since then, supplies have been outsourced abroad. In 2023, for example, the US produced approximately 50,000 pounds of uranium domestically and imported more than 30 million pounds, according to CSIS figures.

The situation is even more critical for Western countries, as it does not only concern mining. "Canada (ed. note: 15% of global production in 2022) and Australia (9%) have significant uranium reserves underground. And these are countries close to the West that could potentially secure supplies in the event of heightened geopolitical tensions by developing new mines," continues Kenny Zhu of Global X ETFs. "Dependence is, however, more critical when it comes to conversion and enrichment."

Uranium prices on the rise again

After falling out of favour following the Fukushima disaster in 2011, uranium has regained its prestige, with its current price higher than it was before the accident.

SOURCE: CAMECO

The enrichment opportunity

In order to be used as fuel in nuclear reactors, uranium must be converted and enriched (see inset). This lucrative market is shared by four companies: Russia's Rosatom, China's CNNC, France's Orano and the Anglo-German-Dutch Urenco. But the world leader is undoubtedly Rosatom, which owns 38.5% of global enrichment capacity, followed by CNNC (24.2%). Together, the two state-owned entities therefore control 62.7% of global enriched uranium production capacity, "creating untenable risks to US energy and national security", according to the CSIS. In 2022, 30% of the enriched uranium imported by the United States came from Russia. This figure rises to around 25% for the European Union.

"Western countries need to invest in expanding their conversion and enrichment capacities – these are nuclear fuel processing activities whose prices reached record highs in early 2025," Zhu emphasises. In August 2024, the US law, Prohibiting Russian Uranium Imports Act, came into force with the aim of banning all imports of uranium from Russia by January 2028. At the same time, $2.72 billion has been allocated to developing enrichment capabilities on US soil. In Europe, Orano announced in March 2025 its intention to increase its enrichment capacity at its Georges-Besse II plant in Tricastin, in France's Rhône Valley, by 30% by 2030. ◢

© CAMECO / DR

← Because of its yellow colour, uranium is known in the industry as 'yellowcake'. It is a metal concentrate that must be further enriched to become fuel.

← Operated by Cameco, the Cigar Lake underground mine, located in northern Saskatchewan, Canada, has the highest uranium content in the world.

The uranium cycle

1 EXTRACTION
Uranium is extracted from mineral deposits in the form of uranium oxide. This uranium ore must be crushed, ground and then processed into a concentrate, producing a yellow powder commonly known as 'yellowcake'.

2 CONVERSION
The yellowcake is then converted into uranium hexafluoride (UF_6) through several chemical treatments and passes through high-temperature furnaces.

3 ENRICHMENT
UF_6 mainly contains two forms of uranium: U-238 (more than 99%) and U-235 (less than 1%). In order to use uranium as fuel, the proportion of U-235 must be increased – this is known as enrichment – to reach a level of 3 to 5% U-235 for civilian use and 90% for military use. Enrichment is carried out using a gas centrifugation process.

4 FUEL PRODUCTION
The enriched uranium hexafluoride is then converted into uranium oxide (UO_2), a black powder that is pressed into small cylindrical pellets. These pellets are then stacked in long tubes (4 metres) called 'fuel rods'.

5 USE
The fuel rods are placed in the reactor core, where nuclear fission of the uranium releases energy, producing heat that is used to generate electricity.

6 REPROCESSING AND STORAGE
After use, spent fuel is reprocessed to recover valuable materials (uranium and plutonium) in some countries. Other highly radioactive fission products are vitrified and stored.

8 atomic companies

Dominated by state-owned giants, the nuclear industry is witnessing the emergence of startups that intend to transform the sector. Here is our selection. BY BERTRAND BEAUTÉ

Commissioned in 1983 by Cameco, the Blind River plant in Ontario is the largest uranium refinery in the world. ↙

Cameco
Canada's uranium powerhouse

It wasn't so long ago: in the first quarter of 2017, Canadian mining company Cameco posted a net loss of $18 million, following a 2016 that was already in the red with a deficit of $62 million.

The company is benefitting from the resurgence of nuclear energy and the surge in uranium prices

The company, whose shares were worth only about $10, was facing strong headwinds: the early closure of nuclear reactors and the termination of its contract with Japanese electricity company TEPCO (the operator of the Fukushima Daiichi nuclear power plant) caused its sales to plummet, while falling uranium prices eroded its margins. At the time, few people believed that Cameco had a bright future ahead of it. Today, everything has changed. Almost all analysts who follow the stock recommend buying Cameco shares, which have already risen 70% in value over the past year. The company is benefitting from the resurgence of nuclear energy and the surge in uranium prices. In addition, Cameco has taken advantage of the crisis to diversify its activities. Formerly a uranium producer, the firm has acquired 49% of Westinghouse Electric Company in November 2023. The American power plant manufacturer is well positioned to participate in the nuclear revival in the United States. The company is in discussions with the US authorities to build 10 large reactors on US soil, according to Dan Sumner, interim CEO of Westinghouse, in the *Financial Times* in June 2025.

FOUNDED: 1988 **HEADQUARTERS:** SASKATOON (CA)
EMPLOYEES: 4,900 **REVENUE 2024:** $3.13 BN
→TSX: CCO →NYSE: CCJ

Uranium Energy
The American miner

The revival of uranium production on American soil is being driven, among others, by Uranium Energy. The company, which began buying up uranium mines and deposits in 2017, when prices for the mineral hit rock bottom at $20 per pound (spot price), has been on an acquisition spree ever since. Reno Creek and North Reno Creek in the United States in 2017, Diabase in Canada in 2018, Uranium One in the United States in 2021, UEX and Roughrider in Canada in 2022 and, finally, Sweetwater in the United States in 2024.

Uranium prices have tripled since 2017

The timing proves perfect, as uranium prices have tripled since 2017 to reach an average of $60 per pound in June. All analysts following the stock recommend buying the share, which is up 22% since the beginning of the year (as of 20 August), convinced that the US policy of breaking its dependence on Russia for uranium will boost the company's sales.

↖ The New York Stock Exchange (NYSE) during Uranium Energy's IPO.

FOUNDED: 2003 **HEADQUARTERS:** CORPUS CHRISTI (US)
EMPLOYEES: 100 **REVENUE 2024:** $224,000 →NYSE: UEC

↑ On 23 May 2025, Oklo CEO Jacob DeWitte (second from right in the picture) was received at the White House during the signing by Donald Trump of five executive orders aimed at facilitating the development of nuclear energy.

Oklo
Sam Altman's other venture

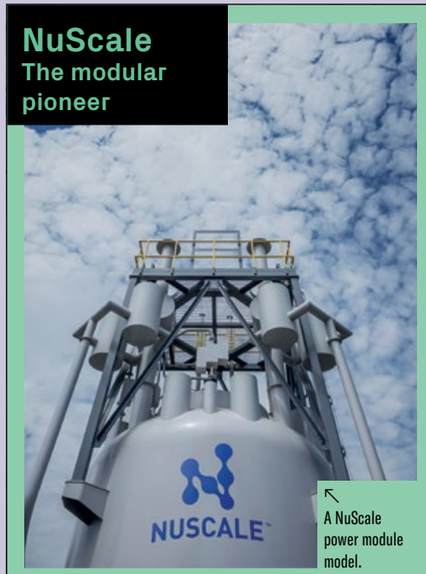
Artificial intelligence companies are rushing to embrace nuclear power. They are well placed to know that their data centres consume phenomenal amounts of electricity. Alphabet has announced its support for Kairos Power, Amazon has invested $334 million in X-energy and Energy Northwest, and signed a memorandum of understanding with Dominion Energy, four startups developing small nuclear reactors (see p. 51). As for Sam Altman, CEO of OpenAI, he personally invested in Oklo in 2015, taking over as chairman of the company. Founded in 2013 by MIT alumni, Oklo is developing an SMR called Aurora, which is scheduled to go on sale in 2027 or 2028. In 2023, the company made a sensational debut on the stock market via a SPAC, with its share price rising from less than $10 to over $60 today.

The company made a sensational debut on the stock market via a SPAC, with its share price rising from less than $10 to over $60 today

However, the outlook remains uncertain. In April 2025, Sam Altman stepped down as chairman and, for the time being, the company has no site on which to build its SMR. In January 2022, it was denied a construction permit in Idaho by the Nuclear Regulatory Commission (NRC), due in particular to a lack of information on accident risks and the planned response in such circumstances.

FOUNDED: 2013 **HEADQUARTERS:** SANTA CLARA (US)
EMPLOYEES: 100 **REVENUE 2024:** 0 →NYSE: OKLO

NuScale
The modular pioneer



↖ A NuScale power module model.

NuScale was founded in 2007 at the University of Oregon to develop and market mini nuclear reactors. Its product is currently one of the most advanced on the market.

The company now expects to secure firm orders from its customers by the end of 2025

In May 2025, the design of its second reactor model, with a capacity of 77 MWe, was approved by the United States Nuclear Regulatory Commission (NRC). The American company is the only SMR developer in the United States to have two designs approved by the NRC. The company now expects to secure firm orders from its customers by the end of 2025, with its first SMRs expected to come online in 2030. Analysts view the stock, which has risen 85% since the beginning of the year (as of 20 August), as a risky but potentially lucrative investment. Half recommend buying the stock, while the other half recommend holding it.

FOUNDED: 2007 **HEADQUARTERS:** TIGARD (US)
EMPLOYEES: 300 **REVENUE 2024:** $37 M →NYSE: SMR

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NexGen Energy
The Canadian explorer

This is a newcomer to the field of uranium exploration and production. Founded in 2011, Canadian company NexGen Energy is developing the Rook 1 project in the Athabasca Basin in southwestern Saskatchewan, Canada. Specifically, the project involves building an underground uranium mine, a processing plant with an average capacity of 1,400 tonnes of ore per day, an underground tailings management facility and water treatment infrastructure. Authorisation from the Canadian Nuclear Safety Commission (CCSN) in the form of a licence is required for the project to proceed. According to the company, the CNSC's decision could be made by 2026. Analysts following the company are confident about the outcome of this review, with all recommending buying the stock, which is currently trading at around the 9 Canadian dollar mark.

Analysts following the company are confident

FOUNDED: 2011 **HEADQUARTERS:** VANCOUVER (CA)
EMPLOYEES: 150 **REVENUE 2024:** 0 →TSE: NXE

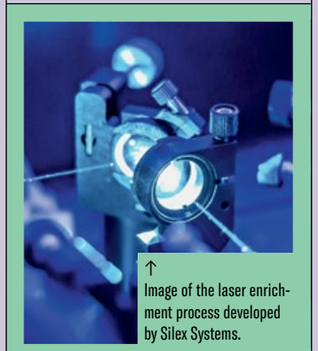
↖ Sample boxes containing uranium, collected from the Rook 1 site in April 2024.

Silex Systems
The future of enrichment

Natural uranium cannot be used to power nuclear power plants. It must first undergo several processing steps, including a crucial stage: enrichment. Currently, this process is carried out by centrifugation – a complex and costly method. According to Silex Systems, enrichment accounts for 30% of the cost of nuclear fuel and around 5% of the total cost of electricity generated by nuclear energy.

The company is developing a promising method to replace centrifugation

The company is developing a promising method to replace centrifugation: separation of isotopes by laser excitation (or SILEX process). Although the method is still under development, the company believes it will reduce enrichment costs. The only analyst tracking the stock recommends buying.



↑ Image of the laser enrichment process developed by Silex Systems.

FOUNDED: 1988 **HEADQUARTERS:** NEW SOUTH WALES (AU) **EMPLOYEES:** 38
REVENUE 2024: AUD 12.91 M →ASX: SLX

Uranium processing plant owned by Inkai, which is in turn 40% owned by Cameco and 60% owned by Kazatomprom. ↙

Kazatomprom
Kazakhstan's discreet market leader

Buoyed by rising uranium prices, the world's leading producer of this mineral is performing well. In 2024, Kazatomprom saw its revenue jump 26% compared to 2023.

The company exports to almost all countries that use nuclear energy

Operating 14 mines, the Kazakh company extracted 12,286 tonnes of uranium in 2024 and estimates its exploitable reserves at 564,300 tonnes. This bodes well for its future, given the global revival of nuclear power. Building on its position as a world leader, Kazatomprom exports to almost all countries that use nuclear energy, from Russia to the United States, Canada, Switzerland, France, South Korea, Spain, China and Japan. Kazatomprom is 75% owned by the Republic of Kazakhstan and has been listed on the London Stock Exchange (LSE) and the Astana International Exchange since November 2018.

FOUNDED: 1997 **HEADQUARTERS:** ASTANA (KZ)
EMPLOYEES: 21,500 **REVENUE 2024:** $3.86 BN →LON: KAP

KEPCO
Korea's global champion

The battle to win contracts to build new nuclear power plants has begun. While Chinese companies China General Nuclear Power Group (CGN) and China National Nuclear Corporation (CNNC) build almost exclusively on their home turf, other players are targeting exports. The world leader Rosatom, for example, is currently building power plants in Turkey (Akkuyu), Egypt (El Dabaa) and Hungary (Paksi atomerőmű). And in June 2025, the Russian state-owned company – which is not listed on the stock exchange – won the contract to build the first power plant in Kazakhstan, much to the dismay of China's CNNC, France's EDF and South Korea's Korea Hydro & Nuclear Power (KHNP), a subsidiary of KEPCO. Yet, the latter still has some aces to conquer international markets.

KEPCO is highlighting its ability to meet its construction costs and deadlines in its bids

After building four reactors in the United Arab Emirates, KEPCO is highlighting its ability to meet its construction costs and deadlines in its bids. This represents a challenge to its French (EDF) and American (Westinghouse) competitors, which have amassed delays and cost overruns on their latest projects. These arguments convinced the Czech Republic: in July 2024, Prague chose KEPCO to build new reactors, dealing another blow to EDF, which had also submitted a bid. However, the competition is steeper against Rosatom. The Russian company is the only one to offer its customers a complete package: reactor construction, fuel supply, plant operation and waste management. The icing on the cake is that Moscow also provides financing for countries that cannot afford to buy a plant. This option is attractive to poor countries such as Burkina Faso, which signed an agreement with Rosatom in June 2025 to build a plant, but it comes with hidden costs. Turkey, which financed its Akkuyu plant in this way, has committed to purchasing part of the electricity produced for 15 years at a fixed amount above the market price.

FOUNDED: 1898 **HEADQUARTERS:** NAJU (KR)
EMPLOYEES: 23,400 **REVENUE 2024:** APPROX. $70 BN →KRX: 015760 NYSE: KEP

↗ Built by South Korea's KEPCO, the Barakah nuclear power plant in the United Arab Emirates, the first in the Middle East, was commissioned in August 2020.

Nuclear waste: burden or opportunity?

Management of highly radioactive nuclear waste remains a challenge. Optimists hope that new-generation power plants will enable its recycling. Failing that, the recommended solution is storage in underground rock formations.

BY BERTRAND BEAUTÉ

Nuclear waste management has not always posed a problem in Switzerland. According to the official inventory of submerged radioactive waste published by the International Atomic Energy Agency (IAEA) in 1999, the country simply dumped 7,470 drums of radioactive waste (5,321 tonnes) between 1969 and 1982. This was common practice at the time, with around 15 countries (including France, Germany, the USSR, the United States, Italy, Sweden and Japan) doing the same, notably by dumping their highly radioactive waste in the Pacific and Atlantic oceans, as well as in the Baltic Sea.

When the practice became unacceptable and was finally banned worldwide in 1993, Bern decided to outsource the problem. Until the 1990s, Switzerland exported some of its radioactive waste to specialised storage and reprocessing centres in Sellafield in the United Kingdom and La Hague in France.

> **"Nuclear power plants produce mountains of radioactive waste"**
> Greenpeace Switzerland

Only in 2001 did the Swiss government finally tackle the nuclear waste issue head-on with the opening of the Zwilag site (short for the German word *Zwischenlager*, meaning interim storage facility). This site, based in Würenlingen in the canton of Aargau, enables waste to be reprocessed and stored locally. The highly radioactive waste sent to La Hague and Sellafield has even been repatriated to Switzerland – something that was not originally planned.

End of the story? Certainly not. Zwilag is only an interim storage facility, and the Federal Nuclear Energy Act stipulates that all radioactive waste – some of which will remain radioactive for thousands of years – must be placed in deep geological repositories, currently considered the safest means of storage. The problem is that no such site exists in Switzerland.

After half a century of research and two referendum rejections, Nagra (Nationale Genossenschaft für die Lagerung radioaktiver Abfälle) presented its plans for a future underground storage facility in November 2024 – the project will cost CHF 12 billion. The site, which is planned for the Nördlich Lägern location in Zurich Unterland, is designed to accommodate 2,500 m³ of high-level waste – equivalent to an Olympic swimming pool – and 100,000 m³ of low- and medium-level waste. This is sufficient to accommodate all of Switzerland's waste, since according to the Federal Department of the Environment, Transport, Energy and Communications (DETEC), some 83,000 m³ of radioactive waste will be produced over the lifetime of Switzerland's nuclear power plants. If new reactors are built, however, new solutions will probably need to be found. In the meantime, the people will probably have to vote on the site's creation. But not before 2030, as the Federal Council and Parliament must first approve the project.

Other nuclear-powered countries face the same problems as Switzerland, with only Finland having taken a decisive step forward: the test phase of its deep geological repository at its Onkalo ('hidden cave' in Finnish) site was successfully completed in March 2025, paving the way for the final storage of highly radioactive waste to begin in 2026. The advent of these underground repositories, planned around the world, proves beneficial for construction companies. In June 2025, for example, the Swiss company Implenia signed a contract worth several hundred million Swiss francs for the construction of the first underground section of a deep geological repository in Forsmark, Sweden. In any case, for Greenpeace Switzerland, the issue of radioactive waste provides reason →

↑ Boxes each containing one metre of rock samples from various deep boreholes, photographed on 2 November 2021 in Wuerenlingen, Aargau. Before choosing the Nördlich Lägern site in the Zurich Unterland for deep storage of radioactive waste, the National Cooperative for the Geologic Disposal of Radioactive Waste (Nagra) analysed the geological composition of numerous regions.

© GAETAN BALLY, KEYSTONE

↑
Low- and medium-level radioactive waste photographed in March 2025 at the Zwilag temporary storage facility in Würenlingen, in the canton of Aargau.

enough to abandon nuclear energy for good. “Nuclear power plants produce mountains of radioactive waste for which there is no satisfactory solution for long-term storage,” writes the environmental organisation in its manifesto entitled ‘Nuclear Power Has No Future.

> **“Nuclear power is the only industry where all waste is catalogued and managed, with 100% traceability”**
>
> **Dominique Casaï,** founder of Uram, an independent investment advisory firm specialising in natural resources

The experts we consulted are more measured: “The issue of waste must be taken seriously. The public and private sectors must develop solutions for the sustainable management of waste,” emphasises Kenny Zhu, research analyst at Global X ETFs. “But we also need to consider the amount of waste generated in relation to the energy produced. From this perspective, nuclear power does not produce that much waste compared to other industries.”

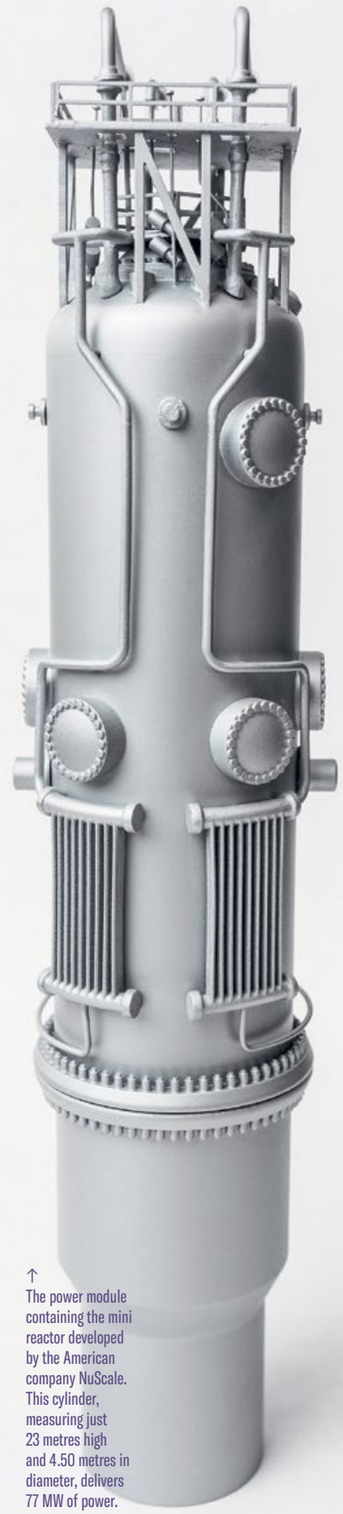
The French Nuclear Energy Society (Sfen) estimates, for example, that 2 kg of radioactive waste is produced in France per year per capita (two-thirds from nuclear power plants and one-third from other sectors such as medicine), while toxic industrial waste represents the equivalent of more than 100 kg per capita each year.

Recycle rather than bury

“Nuclear power is the only industry where all waste is catalogued and managed, with 100% traceability,” adds Dominique Casaï, founder of Uram, an independent investment advisory firm specialising in natural resources. The specialist adds: “It’s fortunate we haven’t started permanently storing waste in deep geological layers, because waste is the fuel of the future.”

Indeed, the prospect of recycling certain types of highly radioactive waste is no longer utopian. The nuclear reactors of the future, known as ‘fast neutron reactors’ or ‘fourth-generation reactors’, which could be deployed on an industrial scale by 2040-2050, should make it possible to reuse some of the spent fuel from current nuclear power plants. Why? According to the IAEA, fast neutron reactors are capable of extracting 60 to 70 times more energy than current models from the same amount of natural uranium. In other words, sufficient energy would remain in the spent fuel to run fourth-generation reactors. “For every kilogram of waste at the outset, around 30 grams of waste would remain at the end, which would stay radioactive for 200 to 300 years,” explained Mikhail Chudakov, deputy director-general and head of the IAEA’s Nuclear Energy Department, in 2023. On paper, this would significantly reduce the amount of radioactive waste.

Currently, only five fast neutron reactor prototypes are in operation worldwide: three in Russia, one in India and one in China. Projects are also under development in the United States, Japan, the United Kingdom and the European Union. In 2024, Moscow began fuelling one of its reactors with experimental fuel assemblies made partly from waste from other power plants. However, before they can be used on an industrial scale, fourth-generation reactors will have to prove themselves, particularly in terms of safety. In 1997, France was forced to shut down its fast neutron reactor, Superphénix, after two nuclear incidents rated level 2 on the INES scale. ◢



↑
The power module containing the mini reactor developed by the American company NuScale. This cylinder, measuring just 23 metres high and 4.50 metres in diameter, delivers 77 MW of power.

Mini reactors, big business?

Touted as simpler to construct and significantly cheaper than their gigantic predecessors, small nuclear reactors are raising hopes within the industry. BY BERTRAND BEAUTÉ

Long the preserve of state giants, nuclear power is now entering startup mode. Dozens of innovative small businesses have embarked on a race against time to market the first small modular reactor (SMR) by 2030. According to the IAEA, more than 80 projects are under development worldwide (see *Swissquote Magazine*, May 2022). “SMRs represent a fascinating sector, with substantial money set to be invested in the coming years,” says Marc Elliott of Union Bancaire Privée (UBP). “There remains a long way to go before these mini-reactors can be produced on an industrial scale, but generating electricity with SMRs would be fantastic.”

Why all the hype? While current reactors are gigantic machines with phenomenal power (the Flamanville 3 reactor delivers 1,650 megawatts), SMRs, as their name suggests, are small structures offering only 50 to 300 megawatts of power. “Conventional reactors involve huge, extremely expensive construction projects, which are often subject to delays and cost overruns,” says Kenny Zhu, research analyst at Global X ETFs. “SMRs, on the other hand, would not be built on site, but in factories. This industrialisation, coupled with mass production, should in theory drastically reduce costs.”

Other advantages put forward by their promoters include that mini-reactors are safer than large ones and generate less waste. Their small size and limited power output make them ideal for powering isolated sites or energy-intensive factories. This detail has not escaped the attention of big tech companies, whose data centres require a large and continuous supply of electricity. In 2024, Amazon invested $500 million in X-energy, a startup pioneering the development of SMRs. Google has shown similar interest, investing in Kairos Power, another gem in the sector.

For individual investors, however, buying shares in SMR specialists such as NuScale remains risky. “This is a new technology that has yet to prove itself,” continues Zhu. “It’s too early to tell whether SMRs will deliver on their promises in terms of cost and safety.” Furthermore, with 80 projects in the pipeline, including some led by giants such as EDF and Rosatom, it is difficult to determine at this stage which company will win the race. ◢

CREDIT

Deferred payment: an attractive but controversial solution

‘Buy now, pay later’ payment solutions are increasingly offered to customers of e-commerce portals. But this fast-growing industry encourages excessive debt. BY JULIE ZAUGG, LONDON

“Book your dream holiday and pay for it in monthly instalments, with no interest! Choose 10 nights in a hotel and a flight to the Maldives for £1,000. You only pay a deposit of £100 and the rest in five instalments of £180 each.” This message, featured on online travel agency Lastminute.com’s website, will resonate with regular online shoppers. ‘Buy Now, Pay Later’ (BNPL) offers now appear almost universally at checkout for goods, travel and even car services.

“This trend exploded during the pandemic, when people were confined to their homes, forced to shop online, and cash usage began declining dramatically,” observes Livia Pancotto, a finance lecturer at the University of Strathclyde in Scotland. Between 2019 and 2023, the amounts handled by platforms offering BNPL products increased sixfold, she notes. Globally, the market was worth $492.8 billion at the end of 2024, according to a ResearchAndMarkets report.

“Australia was the pioneer, followed by Sweden, then the United Kingdom and the United States,” she explains. In the United Kingdom, 20% of adults used one of these products last year, according to consulting firm RSM. In the United States, 28% of people surveyed by Morgan Stanley Alphawise in May had an outstanding BNPL balance.

“The standard offer requires the customer to pay 25% of the total amount immediately, with the balance paid in three instalments over four to six weeks,” explains Ed deHaan, professor of finance at Stanford University, who has studied these products. “If payments are made on time, there are no financial penalties or interest. However, if payments are late, the fees can be substantial.”

Users of these products tend to be young – under 35 – with low incomes and limited education, Pancotto observes. “They often struggle to access other forms of credit,” she adds. Women are also over-represented. BNPL offers prove attractive because they provide easy access. “These loans are automatically offered at checkout and the approval process is frictionless,” explains Erin Sims, associate director at RSM.

Unlike traditional loans, BNPL loans require no credit checks. “Their approval rate reaches 70%,” states Nadine Chabrier, public policy officer at the NGO Center for Responsible Lending.

> **“If payments are made on time, there are no financial penalties or interest. However, if payments are late, the fees can be substantial”**
> **Ed deHaan**, professor of finance at Stanford University

They are also not reported to official credit agencies and therefore have no impact on users’ credit scores, which proves essential in many countries as it determines access to various forms of financing. Originally used mainly for major purchases such as furniture or electronic goods, “loans are now used to finance everyday purchases such as supermarket shopping or electricity bills,” deHaan notes.

For sellers of goods and services, offering deferred payment options presents clear advantages. Consumers who take advantage of these options “make more purchases for higher amounts,” Sims observes. The average basket size is 10% higher when financed with BNPL credit, according to an Imperial College London study.

The market is dominated by five companies: California-based Affirm and Block (which owns Afterpay and Clearpay), Sweden’s Klarna, Australia’s Zip and Minneapolis-based Sezzle. Additionally, a multitude of regional players exists, such as Riverty, which operates in Germany, Austria, the Netherlands, Belgium and Scandinavia, Alma in France, Zilch in the United Kingdom, Tabby in the Middle East and Kredivo in Southeast Asia.

In Switzerland, where the BNPL market was worth $1.89 billion in 2024 according to ResearchAndMarkets, consumers have access to Klarna. Traditional financial players are also attempting to break into the deferred payment market, including PayPal, ApplePay, JPMorgan, Santander, Monzo, Visa, Mastercard and Twint.

BNPL platforms generate revenue from fees charged to users for late payments and from fees paid by e-commerce sites that use their services. At Afterpay, these fees amount to 6% of the transaction value. To boost revenues, some platforms, including Klarna and Afterpay, have started offering traditional financial services such as bank accounts, longer-term loans with interest and fund management.

In Asia, BNPL providers are often integrated into super apps such as Grab, Gojek and WeChat. This gives them access to an entire ecosystem of meal delivery, on-demand taxis, e-commerce and travel booking services. →

FOUR COMPANIES TO WATCH

BLOCK
The Swiss Army knife of payment solutions

Founded by Jack Dorsey, Block offers various payment solutions, a virtual wallet (Cash App), a bitcoin mining system (Proto) and a music streaming platform (Tidal). The company entered the BNPL market following the acquisition of Australian company Afterpay in 2022. It now offers BNPL services in Australia, the United States, Canada and New Zealand, while another solution, Clearpay, is available in the United Kingdom, France, Italy and Spain. A large majority of analysts recommend buying the stock.

FOUNDED: 2009
HEADQUARTERS: OAKLAND, US
EMPLOYEES: 11,372
REVENUE 2024: $24.1 BN
→**NYSE :** XYZ **ASX :** XYZ

AFFIRM
The American giant

Created by PayPal co-founder Max Levchin, Affirm focuses on the US market. In 2024, its BNPL solution, which has 22 million users, processed $26.6 billion in transactions. It owes its growth to numerous partnerships with Amazon, Walmart, Booking.com and Apple Pay. It has also deployed artificial intelligence tools to assess the creditworthiness of its customers and offer them personalised payment plans. A majority of analysts have issued a buy recommendation on the stock.

FOUNDED: 2012
HEADQUARTERS: SAN FRANCISCO, US
EMPLOYEES: 2,000
REVENUE 2024: $2.3 BN
→**NASDAQ :** AFRM

© MAGNUS HJALMARSON NEIDEMAN, AFP

← Sebastian Siemiatkowski, founder and CEO of Swedish company Klarna, pictured here in 2021.

THE RACHEL BLACK SYNDROME

However, the growth of this new form of credit has a darker side. "It is happening at the expense of people who are already financially vulnerable," argues public policy officer Nadine Chabrier. "BNPL users generally already carry high levels of debt, with several credit cards that have reached their limits, consumer loans and overdrawn bank accounts."

In the United Kingdom, 22% of short-term credit holders have missed a payment and 10% have been subject to legal proceedings, according to the NGO the Centre for Financial Capability and the non-profit Citizens Advice. In the first quarter of 2025, Klarna had to absorb $136 million in impairment charges related to customers who had defaulted on their debt (up 17% year-on-year).

Rachel Black exemplifies this trend. She held a good position as a manager at a primary school in Australia and earned a decent living. But she was a big spender. "Every month, I would spend my entire salary and then max out my credit cards, sometimes on non-essential items such as business class tickets to London," recalls the 61-year-old. Yet, she needed more.

Then she discovered BNPL loans. "I took out several loans with various platforms," she says. "I used them for everything – to pay for petrol, buy food, place orders on Uber Eats. They never checked my credit rating." On the contrary, every time she paid off a purchase, the platform offered her a new loan for a higher amount. "I would receive text messages saying things like, 'It's the weekend, do you want some money to enjoy the nice weather?'" she recalls. "I never said no."

Soon, she was unable to keep up with her payments. "I had over 30,000 Australian dollars in debt," she says. "I didn't dare open the door or answer the phone for fear it was a debt collector." She ended up declaring bankruptcy and selling her house. She moved into a beach hut that a friend had lent her. Her mental health suffered and she had to take sick leave. "It took me two years to pay everything back," she says.

BNPL platforms exploit their customers' lack of knowledge, argues Claire Tacon, a financial advisor for the Australian NGO Consumer Action Law Centre: "People often don't even realise they're getting into debt. As there is no interest, they do not perceive BNPL offers as credit and are often unaware that there are fees to pay if they are late."

Some experts fear that if the BNPL industry continues to grow, it could eventually lead to a credit bubble, posing a systemic risk to the markets

They frequently end up juggling multiple debts with different repayment dates, losing sight of their overall financial situation. Tacon also criticises the superficial checks carried out by these platforms. "I dealt with an unemployed woman who was able to take out a number of these loans," she says. "Another was under the control of an abusive partner who forced her into debt." In the Netherlands, the market regulator has identified nearly 600,000 BNPL transactions carried out by minors, in violation of the law.

Added to this is an invisible carry-over effect. "As these loans are repaid by direct debit and the amounts are relatively small, they are often the first to be repaid, to the detriment of other obligations such as a mortgage or credit card bill," Professor Ed deHaan explains. Some experts fear that if the BNPL industry continues to grow, it could eventually lead to a credit bubble, posing a systemic risk to the markets.

These fears have prompted a wave of legislation. Australia was the first to react, announcing in May 2023 that it wanted to amend its credit law, which was passed by parliament in November 2024. "BNPL platforms must now verify that their customers are creditworthy and inform them of any potential fees they may incur," explains Tacon. "They must also obtain a licence, just like credit card providers, and offer a dispute resolution mechanism."

In October 2023, the European Union also revised its Consumer Credit Directive, imposing similar obligations on BNPL platforms, which will come into effect in November 2026. The UK, for its part, put forward new rules in May to improve consumer protection and subject deferred payment solutions to market surveillance authorities.

The US, on the other hand, has taken the opposite approach. "In 2024, BNPL lending platforms were subject to the same rules as credit card providers," says deHaan. But the body responsible for enforcing these rules, the Consumer Financial Protection Bureau, has lost almost all of its funding since Donald Trump came to power. In May, it announced that it would stop enforcing the safeguards put in place against BNPL platforms. ◢

ZIP
The Australian up-and-comer

Founded in Australia, the first country to enthusiastically adopt BNPL solutions, Zip is now also available in the United States and New Zealand. The company offers several virtual wallets that allow users to pay for online purchases and in physical stores on a deferred basis. It has 6 million active users and processed a transaction volume of 10.1 billion Australian dollars in its 2024 fiscal year, up 14%. Analysts who follow the stock have almost all issued a buy recommendation.

FOUNDED: 2013
HEADQUARTERS: SYDNEY, AUSTRALIA AND NEW YORK, US
EMPLOYEES: 934
REVENUE 2024: A$868 M
→ASX: ZIP

KLARNA
The pioneer in deferred payment

Swedish company Klarna plans to list on the New York Stock Exchange by the end of the year. With 100 million active users and a transaction volume of $105 billion in 2024 (+14%), it is the largest BNPL platform. In recent months, the firm has begun to expand its range of banking services in the United States (in a pilot phase) and now offers current and savings accounts, as well as debit cards.

FOUNDED: 2005
HEADQUARTERS: STOCKHOLM, SWEDEN
EMPLOYEES: 3,400
REVENUE 2024: $2.81 BN

Fiskars

A BRAND A STORY

The art of cutting

As Finland's oldest company, Fiskars has built a solid international reputation through its iconic orange scissors, which have combined design and technology for nearly 60 years.

BY BLANDINE GUIGNIER

KEY DATES

1649
A metal foundry is opened in the Finnish village of Fiskars.

1915
The company is listed on the Helsinki Stock Exchange.

1967
The famous orange scissors are launched on the market.

© FISKARS

Whether at the bottom of a sewing box, in a school bag or a tool kit, it's impossible not to have encountered these scissors at least once in your lifetime. The Fiskars pair has sold over a billion units worldwide since its launch in 1967. Its success is based on a "highly accomplished combination of quality and function," states Camille Blin, a professor at the École cantonale d'art de Lausanne (ECAL). "These scissors, on the one hand, draw on centuries of expertise in metallurgy, offering high-performance steel for the blades. On the other hand, they utilise plastic, which, since the 1960s, has made possible the manufacture of ergonomic shapes, ensuring cutting comfort." The work of the scissors' inventor, Finnish designer Olof Bäckström, is reminiscent of other renowned designs from the 1960s, such as the S-shaped chairs by Danish designer Verner Panton, which mirrored the body's curves.

The instantly recognisable colour was registered as a trademark in Finland, the United States and Canada

The orange colour is another signature characteristic of these scissors. Yet, its origin is almost accidental: when the prototype was being manufactured, green, black and red had been ordered, but as some leftover orange pigment remained in the machine, an employee decided to create a model in this colour as well. Ultimately, this was the version that was selected. The instantly recognisable colour was registered as a trademark in Finland, the United States and Canada. Currently, the 10 or so versions of the scissors available – for fabric, finger nails, young children or left-handed users, non-stick, etc. – all feature the same distinctive hue.

From blast furnace to global success

The invention of these scissors also enabled the company to expand, having previously been primarily regional in scope. The adventure began in 1649 when a Dutch merchant obtained permission from the Queen of Sweden to establish a metal foundry in the village of Fiskars, in Finnish territory. The Swedish kingdom dominated the area at the time and sent its iron there, which was forged in the blast furnace fuelled by wood from the surrounding forests. With the arrival of the Julin family in the early 19th century, the blast furnace experienced its first major expansion. It began producing knives, forks and shears in 1832. Like other large 'paternalistic' industrialists of the era, the family built a school and a hospital for the workers and committed itself to improving local agriculture, notably by manufacturing more than a million ploughs.

Fiskars became a limited company in 1883 and was listed on the Helsinki Stock Exchange in 1915. Hit hard by the stock market crash of 1929, the company experienced a second boom after the Second World War with the mass production of numerous items, including its famous scissors.

Given the success of these and other products such as axes and snow shovels, the factory soon outgrew the small village of Fiskars. In the 1980s, it decided to relocate 10 kilometres away to Billnäs. Professor and Lausanne-based industrial designer Camille Blin visited the Finnish factory and observed its rigorous quality control processes. "These are high-performance tools, comparable to those made by the family-owned Swiss company PB Swiss Tools."

One hundred kilometres away in Espoo, a hub for tech startups in Greater Helsinki, designers and engineers continue to develop new designs at the company's headquarters. For example, they are developing a compact gardening kit for people living in small spaces and scissors made from recycled and recyclable materials.

Despite its strong ties to its home region, Fiskars now generates less than 10% of its sales in Finland. Its primary export market is the United States, where its orange scissors regularly appear on school supply lists. A factory has been operating there since 1977. The company also acquired knife manufacturer Gerber in 1987. Together, the two brands generate 50% of their net sales in the United States.

North America has been the main driver of growth: "Net sales increased by 3% in the first quarter of 2025, thanks particularly to distribution gains in the United States and successful campaigns in Europe, especially in Germany," CEO Nathalie Ahlström stated last April. However, she expressed concern about the "unpredictable operating environment" since the announcement of US tariffs. "We continue to take proactive measures to mitigate cost pressures and preserve margin resilience."

A Nordic design conglomerate

Renewing its commitment to bold design, which began in 1967, the Fiskars Group has expanded in recent decades by acquiring several Nordic tableware companies. These include Danish porcelain manufacturer Royal Copenhagen in 2012 and Finnish glassware manufacturer Iittala in 2007, renowned for its collaborations with the celebrated designer Alvar Aalto. "With these brands, we are entering a much more decorative market, quite different from the functionality of Fiskars and its scissors," observes Blin. "But this demonstrates the group's interest in design and its heritage."

The conglomerate as a whole achieved net sales of €163.5 million through Fiskars' traditional activities (+4.8%) and €127.1 million through its new tableware division called Vita (+0.9%) in the first quarter of 2025. In total, more than 7,000 people work for this manufacturer of household goods, which operates in over 100 countries.

Meanwhile, the former blast furnace site, built in the 17th century and abandoned in the 1980s, is experiencing a renaissance. The village of Fiskars has become a destination dedicated to art and craftsmanship. The 200,000 international and local tourists who visit annually can, naturally, purchase the famous orange scissors.

◢ → FSKRS

TRUCK

The e-truck battle commences

Tesla is expected to launch industrial production of its electric heavy-duty truck, the Semi, in early 2026. The American manufacturer intends to capture a substantial share of this market, which has so far been dominated by established players such as Volvo Trucks. BY BERTRAND BEAUTÉ

↑↗ On the left, the Tesla Semi, whose industrial production is expected to begin in 2026. It will meet the Volvo FH Aero Electric (right), which is scheduled to go on sale in the second half of 2026.

© TESLA / VOLVO

This could spell the end of one of the longest-running stories to hit the heavy goods vehicle sector in almost a decade. In a video posted on YouTube in May, Tesla announced that industrial production of its electric truck, the Semi, will begin in 2026. Finally! Unveiled in 2017, the Semi was initially scheduled to enter production in 2019. Unfortunately, the first models did not roll off the production line until 2022, and only a handful of privileged customers, such as PepsiCo, have since taken delivery of their Semi trucks. In total, fewer than 200 units have been manufactured to date.

"Unlike the car market, where the transition to electric has encouraged the emergence of new players (Tesla, BYD), the heavy goods vehicle sector remains dominated in Europe and North America by long-standing players (Volvo Trucks, Renault Trucks, Mercedes, MAN, Daimler Truck)," observes Ben James, investment specialist at Baillie Gifford. New entrants, pure players in electric vehicles (Tesla, Nikola, Volta Trucks) have so far encountered a brick wall. Tesla intends to disrupt this dynamic with its Semi.

"Unlike the car industry, the electric truck sector is a nascent market that is just taking off"

Ben James, investment specialist at Baillie Gifford.

In its video, the American manufacturer announces a production capacity of 50,000 units annually at its new factory, which is due to be completed by the end of 2025. This represents a very ambitious target that would immediately place Tesla among the global heavy goods vehicle giants. By comparison, Sweden's Volvo Trucks – the leader in the e-truck segment (16 tonnes and above) with a market share of 47% in Europe and 40% in North America – sold only 1,970 electric →

trucks on the Old Continent in 2024 out of a total of 56,331 vehicles registered under the Volvo brand.

"Unlike the car industry, the electric truck sector is a nascent market that is just taking off," continues James. In 2024, electric trucks accounted for only 1.3% of registrations in Europe, Volvo Trucks figures indicate, while the market share of electric vehicles approaches 20% in several European countries (19.3% in Switzerland in 2024). Current buyers of electric trucks are mainly companies that have committed to achieving carbon neutrality in the coming years, such as Amazon, which has established a target date of 2040. In Switzerland, the Feldschlösschen brewery, based in Rheinfelden in the canton of Aargau, operates around 20 electric trucks from Renault Trucks out of a total fleet of around 120 vehicles as of 2021.

"Incentives to purchase electric trucks are needed for the market to grow"

Madeline Ruid, research analyst at Global X.

There are several reasons for this slow start. "The car and truck sectors are two very different markets. A private car will travel an average of 15,000 kilometres annually and only 20 to 100 kilometres daily. Transport companies, on the other hand, are obliged to keep their heavy goods vehicles on the road as much as possible because their income depends on it. A heavy goods vehicle can cover 1,000 km in a day," points out Clément Chamboulive, portfolio manager at Robeco. "The issues of range and recharging time are therefore completely different."

↑ An electric truck manufactured by Renault Truck and operated by Swiss brewery Feldschlossen.

© FELDSCHLOESSCHEN / MILENCE

Tesla is promising significantly in this area. The American manufacturer's website indicates the Semi has a range of 800 kilometres on a single charge and can recover up to 70% of its range in 30 minutes through Tesla Megachargers – chargers specifically designed for the Semi, the first public version of which Tesla installed in the United States in early 2025. Will that suffice to convince buyers? "Tesla has proven its expertise in the car sector, but the truck industry is different," states Ben James. "For instance, manufacturers need to have a highly developed service network, which new entrants to this market do not possess."

Particularly as the established players have not remained idle while Tesla racked up delays. The first electric models, which appeared in Europe in 2020, had a range of only 250 to 300 kilometres. However, since then, their performance has continued to improve. In early 2025, Mercedes-Benz Trucks, for example, launched the eActros 600, a 44-tonne electric truck with a range of 500 kilometres. In January 2025, Amazon ordered more than 200 units of this model, the largest order for electric trucks ever placed by the American company.

In the same category, Volvo Trucks unveiled its new FH Aero Electric in the spring, with a range of 600 kilometres and commercialisation scheduled for the second half of 2026. Renault Trucks (a subsidiary of Volvo Trucks) will market its own new tractor from the E-Tech T range in early 2026. Several companies that had ordered Semis in 2017 have since turned to the competition due to delays. Walmart and UPS, in particular, have purchased Daimler Truck's eCascadia to transport their goods.

For transport companies, however, electric vehicles remain significantly more expensive to operate than fuel-powered vehicles. The purchase cost of an electric truck is currently two to three times higher than that of a diesel truck, representing between 250,000 and 400,000 euros per unit for the largest tonnages, compared with 100,000 to 150,000 euros for their polluting equivalents. Even though the running costs of electric vehicles (electricity and maintenance) are lower than those of fuel models, owning an electric truck remains 20% to 30% more expensive than owning a diesel model over the lifetime of the heavy goods vehicle.

However, "for electric trucks to reach mass adoption, the total cost of owning an electric truck must be able to compete with the cost of owning a traditional diesel truck," the International Energy Agency (IEA) writes in its "Global EV Outlook 2025" report. "Commercial vehicle owners and operators are typ- →

A glaring lack of fast charging systems

A study by McKinsey published in September 2024 indicates more than 300,000 charging stations (public and private) for electric trucks will be needed in Europe by 2030 to electrify road freight transport. We are far from this target, with just over 10,000 stations currently in operation. The electric trucks currently on our roads – there are nearly 1,000 in Switzerland, an RTS article reports – are mostly confined to urban and suburban routes, allowing them to recharge at their owners' warehouses. For electric long-distance transport to develop, fast charging stations, known as megawatt stations (1,000 kW compared to 350 kW for cars), will need to be installed along roadsides. Creating this infrastructure presents a challenge. McKinsey estimates it will require €40 billion in investment in Europe by 2040. In 2023, major manufacturers TRATON (MAN, Scania, International Motors and Volkswagen Truck & Bus), Daimler Truck (Mercedes-Benz Trucks, Freightliner, RIZON, etc.) and Volvo Group (Mack, Renault Trucks and Volvo Trucks) created the Milence joint venture to install 1,700 charging stations across Europe by 2027. In Switzerland, 180 fast charging points for trucks, spread across 15 stations, will be needed by 2030, a study carried out in 2023 by the consulting firm EBP for the Swiss Road Transport Association (ASTAG), auto-suisse and the energy group BKW (which commissioned the study) indicates.

ically more sensitive to the total cost of ownership (TCO) than personal car buyers."

The purchase cost of an electric truck is currently two to three times higher than that of a diesel truck, representing between 250,000 and 400,000 euros per unit for the largest tonnages

The Semi is not going to alter the dynamic in this regard. While Tesla announced in 2017 that prices would range from $150,000 to $180,000 depending on the version chosen, the American manufacturer has reportedly increased its prices significantly, specialist media outlet Electrek reported in an April 2025 article. This information, i.e. the surge in costs, has been confirmed by the manufacturer but has reportedly prompted American transport company Ryder to reduce its order from 42 to 18 Tesla Semis.

"The crux of the problem is economic," states Madeline Ruid, research analyst at Global X. "The freight industry is very competitive. Currently, electric trucks remain more expensive than their diesel counterparts and, on top of that, they are less flexible with lower range and longer charging times. Owning them can therefore be a competitive disadvantage for the companies that use them. Their much higher operating costs are a barrier to their adoption. Incentives to purchase electric trucks are needed for the market to grow."

This view is shared by Roger Alm, president of Volvo Trucks: "To accelerate the transition to zero-emission transport, it is not enough to have electric trucks ready. Our analysis indicates we will need 40,000 fast-charging stations on European roads, for a potential total of 400,000 electric trucks by 2030. We also need more effective economic policies that make electric trucks profitable for all transport companies," the CEO emphasised in a statement published in March 2025.

Volvo Trucks CEO Roger Alm, pictured here in 2023 in front of one of the company's electric trucks, believes that more economic support policies for the use of e-trucks are needed to boost sales. ↓

GOVERNMENT INCENTIVES

Adopted in May 2024 by the European Union, the regulation on CO_2 emissions for heavy-duty vehicles establishes ambitious targets: greenhouse gas emissions from heavy-duty trucks (over 16 tonnes) must be reduced by 15% by 2025 for all new vehicles sold by manufacturers, compared to 2019 levels. This will rise to 45% in 2030 and 90% in 2040. Other countries, notably China, have taken similar measures to encourage the transition to electric heavy-duty vehicles. In Switzerland, for example, electric trucks are exempt from the heavy vehicle tax (RPLP) until 2029.

Due to these government incentives, experts expect sales to accelerate in the coming years. According to the firm, Markets and Markets, the global market for electric trucks, which was worth $5.2 billion in 2024, is expected to reach $32.1 billion in 2032, representing annual growth of 29.5%. "The electric truck market will accelerate in the coming years," confirms Clément Chamboulive. "It is entirely possible that the sector will grow by 15 to 20% annually until 2030."

The result: "For investors, truck electrification is a very interesting market," states Ben James. "It's an industry that needs to be decarbonised, where everything remains to be done." Madeline Ruid shares this view: "It's a long-term investment, but one with substantial potential. →

Hydrogen: a long-term alternative?

With greater autonomy and much shorter recharging times, the advantages of hydrogen over traditional batteries are clear. But infrastructure development is stalling.

It's a challenging period for hydrogen-powered trucks. While Daimler Truck had been testing its hydrogen-powered heavy-duty truck, the Mercedes-Benz GenH2, since 2024, the company announced in July that it was postponing its commercial launch, originally planned for 2027, until the beginning of the next decade. "The risk that there will be no infrastructure for hydrogen trucks remains. It depends on the political will to make it happen," stated Andreas Gorbach, member of the Daimler Holding board of management and responsible for truck technology, explaining the delay. Promising on paper, hydrogen-powered electric trucks are divisive. Advantages over battery-powered heavy goods vehicles include a recharge time and range similar to diesel vehicles, and more space for goods. "The heavier a vehicle is, the more the limitations of traditional lithium-ion batteries become apparent," Christian Bach, director of the Automotive Powertrain Technologies laboratory at Empa, told *Swissquote Magazine* in 2020. "To drive a 40-tonne truck over several hundred kilometres, you need several tonnes of batteries, which reduce the space available on board for transporting goods."

Experts divided

As a result, many believe that hydrogen will become the fuel of choice for heavy goods vehicles travelling long distances. "Hydrogen has a higher energy density than batteries," states Ben James, head of Investment at Baillie Gifford. "The lack of refuelling infrastructure is a problem, but it's an interesting sector in the long term. It will be credible in about 10 years." This view is shared by Madeline Ruid, research analyst at Global X: "Hydrogen has a role to play in the electrification of mobility. This technology allows for long ranges and offers very short recharging times compared to battery-powered vehicles. But it is hampered by the lack of refuelling stations."

Clément Chamboulive, portfolio manager at Robeco, is not convinced: "Hydrogen currently makes little sense, either economically or ecologically. More than 90% of hydrogen is not green, meaning it is produced from fossil fuels. It is therefore not a low-carbon energy source. Furthermore, the infrastructure is almost non-existent, which makes these trucks virtually unusable." The XCient Fuel Cell, developed by Hyundai, remains the only hydrogen-powered truck in commercial production to date (see *Swissquote Magazine*, September 2020). Nevertheless, Andreas Gorbach continues to believe in this technology: "[...] The opportunity to create value for customers and shareholders with hydrogen trucks is incomparably greater than the risks," stated the head of truck technology at Daimler.

↑ The Mercedes-Benz GenH2 hydrogen-powered truck, pictured here in Berlin in 2023, won't be hitting our roads anytime soon. The manufacturer has postponed a possible commercial launch until the next decade.

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↑
Chinese electric car giant BYD also sells electric trucks. Here, the car park of a BYD factory in Huai, eastern China, in August 2024.

Technology continues to advance, battery prices are falling and the adoption of electric trucks is increasing. In the long term, this sector could therefore represent an opportunity." However, the New York-based Global X analyst identifies one risk: "Policies supporting the energy transition can change, as we have seen recently in the United States." Until 2025, sales of electric trucks in the United States were supported by a tax credit of up to $40,000. The situation has since changed.

It remains to be seen who will be the winners of this energy transition. Will it be the established players or new entrants such as Tesla with its Semi? "The winner may emerge from China," suggests Marc Elliott, investment specialist in Energy Transition at Union Bancaire Privée (UBP). And with good reason: IEA figures indicate more than 80% of electric trucks sold worldwide in 2024 were in China. "What BYD is doing in China is very interesting," states Ben James of Baillie Gifford. "It already has an extensive range of electric trucks." Other Chinese companies, such as startup Windrose Technology, are currently quietly testing their e-trucks in Europe in the hope of soon becoming major players.

"Investors should consider the entire value chain, not just truck manufacturers," emphasises Clément Chamboulive, portfolio manager at Robeco. "Battery manufacturers and companies that produce charging stations, for example, are also interesting." The reason is that charging infrastructure has not been able to keep pace so far (see inset on p. 61). "With their huge batteries, trucks require charging stations capable of delivering 1,000 kilowatts for fast charging, compared with 350 kW for car charging stations," continues Chamboulive. "However, these megawatt charging stations are sorely lacking at the moment." Manufacturers of truck charging stations include Swiss company ABB and German company Siemens. Another area of investment is autonomous driving. "The trucks of the future will be electric and autonomous," emphasises Chamboulive. This is a field in which Tesla seems to have a head start over the established players. ◢

Swiss startups in this edition

BY GRÉGOIRE NICOLET

Jua

Environmental AI for brokers

NUMBER OF EMPLOYEES
15

HEAD OFFICE
ZURICH

FOUNDED
2022

Predicting real-time changes in weather, and solar and wind energy production, as well as estimating their impact on markets. That is the challenge undertaken by Zurich-based startup Jua, which has developed artificial intelligence capable of learning the fundamental laws of physics from massive amounts of raw data.

Its tool – the Earth Intelligence Platform – uses machine learning and can simulate the interactions between weather, energy production and financial markets. This enables it to anticipate fluctuations in production, climate risks and tensions in electricity grids. The platform is initially aimed at energy brokers, but it could also prove useful for markets exposed to weather risks, such as insurance.

According to Jua, its tool is faster and more accurate than traditional methods, such as those used by the European Centre for Medium-Range Weather Forecasts (ECMWF) or the AI platforms of digital giants. After an initial fundraising round of $16 million in 2024, the startup has just completed another highly successful Series A round raising $11 million. Marvin Gabler, its new CEO, is delighted: “We will be able to accelerate commercialisation in the energy sector and extend the model to agriculture and logistics.”

PeriVision

Easy glaucoma screening

NUMBER OF EMPLOYEES
13

HEAD OFFICE
ÉPALINGES

FOUNDED
2022

Founded in 2022, Swiss startup PeriVision has developed a system that combines artificial intelligence and a virtual reality headset for screening and monitoring eye diseases. The result of a research project conducted at the University of Bern and the University Hospital Bern/Inselspital – Switzerland’s largest ophthalmology clinic – the startup is now based at the Biopôle in Épalinges, near Lausanne.

Its first product, VisionOne, is a VR headset designed to perform visual field tests, a key examination in the diagnosis of glaucoma. Thanks to proprietary technology, it can quickly and accurately assess peripheral vision sensitivity, offering a mobile alternative to traditional devices (which are often bulky and expensive), while ensuring comparable reliability outside hospital settings.

CEO Patrick Kessel says: “Our system allows a 30% increase in the number of patients treated per day, and thanks to AI, there is a considerable time saving (-65%) in making a diagnosis compared to current technologies.”

Clinical studies were launched in 2020 and a first patent was filed in 2022. The technology has since obtained CE marking and authorisation from the Food and Drug Administration. Following a successful launch in Europe in October 2024, it has also signed a collaboration agreement for a clinical trial integrating its solution into ophthalmological protocols developed by Genentech (a US division of Roche).

R E A D

Co-Intelligence:
Living and Working with AI

BY ETHAN MOLLICK
PENGUIN PUBLISHING GROUP

In this book, Ethan Mollick explores the most effective and responsible ways to work with generative artificial intelligence (AI). A professor at Wharton, he is one of the most prominent popularisers of AI. He presents this technology as an "imperfect collaborator" capable of supporting human productivity, provided we remain critical and active. His book proposes four rules to follow: invite AI to the table (experiment with what it can do), be the human in the loop (don't delegate without oversight), treat AI like a person (assign it a role or personality to better guide it with clear guidelines), and constantly evaluate its contributions. The author also addresses the risks: bias, misinformation, "button syndrome" (use without hindsight), and difficult alignment with human values. He insists that AI is neither reliable nor neutral, but that it can become a powerful lever for learning and innovation if we understand its limitations (also available in French and German).

CHF 31.10 PAPER EDITION
CHF 11.90 DIGITAL EDITION

L I S T E N

Unchained
Crypto-sceptics in the spotlight

A self-proclaimed 'no-coiner', independent journalist Laura Shin first built a solid following on Twitter. Then, in 2016, she launched a bi-weekly podcast offering a neutral perspective on all things cryptocurrency. With nearly 900 episodes, it has become one of the longest-running and most popular podcasts on the subject. Shin spends an hour speaking with industry players about how crypto assets and blockchains will change the way money is earned, spent and invested, and how Web 3.0 (the decentralised web) will disrupt the world.

HTTPS://PODCASTS.APPLE.COM/US/PODCAST/UNCHAINED/ID1123922160

F O L L O W

Anthony Pompliano

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Entrepreneur, investor, and lifelong learner.
Daily writing: pompletter.com / Daily show: pompdesk.com
Podcast: pompyoutube.com / My first book: pompbook.com

X (TWITTER) **7,983** FOLLOWING **1.8M** FOLLOWERS

Anthony Pompliano has a reputation as a fervent supporter of Bitcoin. He publishes in-depth information on the latest technological developments and macroeconomic trends in the cryptocurrency space. He was chosen by X to host the social network's first economic news programme, *From the Desk of Anthony Pompliano*, which has been broadcast every weekday since February (available on YouTube). He has 1.8 million followers on X, 265,000 subscribers to his newsletter, and his podcast Pomp Podcast has been downloaded over 100 million times.

D O W N L O A D

Video Summarizer
AI for video summarisation

This summary generator transforms lengthy videos into clear, accessible summaries within seconds by identifying key moments and condensing essential information. Users can choose between paragraph or bullet-point formats to suit their summary preferences. The tool adapts to various applications – online courses, meetings, conferences, or webinars – while supporting multiple languages. The interface remains straightforward: simply paste a video link and let the tool handle the rest. Beyond summarisation, the app enables targeted searches for specific keywords or topics within videos. Note that the service transitions to paid usage after the free daily limit of 60 minutes.

APP STORE, GOOGLE PLAY, FREE, IN-APP PURCHASES

AUTO

ALPINE A290 GT PERFORMANCE

The elevated “5”

The Renault R5 E-Tech earns its stripes by becoming the Alpine A290. More than just enhanced power, this transformation makes the legendary sports brand more accessible. BY RAPHAËL LEUBA

The 2025 Car of the Year has earned its title. Cleverly updated, the Renault 5's appealing trapezoidal silhouette, which dates back to 1972, is instantly captivating. The interior is equally impressive, combining elements of the past – cubic shapes and textures – with a range of cutting-edge technology. While less welcoming than the new R4, especially in the rear seats, the R5 still offers five useful doors.

The same applies to the Alpine A290, the sporty derivative that no longer wishes to be called Renault. To distinguish itself from the R5, the Alpine features fewer vintage colours, skirts and wheel arch extensions, additional headlights, deflectors in the bumper and 19-inch wheels. Inside, the imposing centre console – absent in the R5 – features R-N-D selection buttons instead of the steering wheel-mounted selector. The highlight, the steering wheel with a capital 'A' logo, appears to have been inherited from a World Rally Championship car with its satellite buttons, notably the red OV booster and the blue regenerative braking control knob. Nestled in a majestic bucket seat, and raised by the battery beneath the floor, the 'pilot' has a clear view of the road and can easily exit the car.

The first model to be produced by the Dieppe-based manufacturer, the Alpine A290 features a multi-link rear axle for precise handling. With 160 kW in the GT Performance version (130 kW in the GT), which we tested, the A290 delivers 300 Nm of torque to the road without overworking the front end and accelerates effectively, in line with the advertised 0-100 km/h time of 6.4 seconds. Behind the wheel, you can take on corners with gusto. The 3.99-metre city car weighs 1,479 kg (excluding driver), but it is genuinely agile and brakes decisively with its Brembo calipers.

Like the car, the battery is now manufactured in France

When you're not pushing it through its paces, the Alpine A290 can be transformed into a music room through the high-fidelity audio system from Parisian specialist Devialet, priced at 750 Swiss francs. It's yet another French touch in a world adorned with blue, white and red details. Other discoveries include a telemetry system integrated into the touchscreen and around 20 assistance functions.

Like the car and its synchronous front motor, which does not contain any magnets and therefore no rare earths, the battery is now manufactured in France. It is produced in a new factory belonging to the Sino-Japanese group AESC. With a rated capacity of 52 kWh (55 kW gross), this pack of Li-NMC cells promises a range of 380 km – to be considered as a theoretical maximum. During cool days in March, our average over a variety of routes was 22 kWh/100 km, allowing for a range of just over 240 km. This was despite the beneficial effect of a heat pump. Regarding charging, the maximum power can be considered barely adequate: 11 kW in alternating current and 100 kW in direct current.

While awaiting the Peugeot E-208 GTI and Lancia Ypsilon HF, Stellantis' half-sisters, the A290 GT Performance can compete directly with the Smart #1 and Mini Cooper SE in the B-segment electric hot hatch market. Well positioned compared to its competitors but expensive in absolute terms (40,900 Swiss francs without options, or a thousand more than a standard Tesla 3), it performs its charm offensive with aplomb. At the risk, perhaps, of diluting the DNA of the more authentic Alpine A110. Vain? Yes. And equally exciting. ◢

MOTOR
SYNCHRONOUS FRONT MOTOR

POWER AND TORQUE
218 HP (160 KW), 300 NM

BATTERY
NMC 400V LITHIUM-ION BATTERY, NET CAPACITY 52 KWH

MAXIMUM CHARGING POWER
AC 11 KW, DC 100 KW

PERFORMANCE
0-100 KM/H IN 6.4 SECONDS, TOP SPEED 170 KM/H

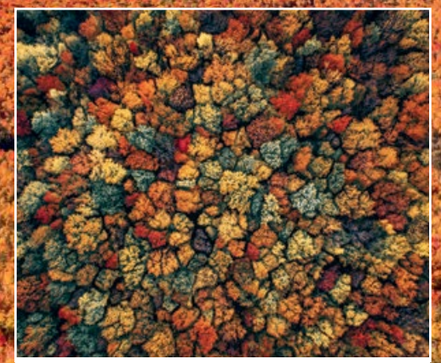
PRICE
CHF 40,900.– (TEST CAR, ALL OPTIONS , CHF 44,700.–)

T R A V E L

DREAMLIKE WALKS DRAPED IN AUTUMN COLOURS

Many forested landscapes take on a dreamlike quality when adorned with red, orange and yellow. Below, a selection of panoramas from North America, Europe and Asia. BY JULIE ZAUGG

The days are getting shorter, the air cooler and the shops are filling up with pumpkins. Autumn has arrived. This sometimes unloved season nevertheless provides wonderful travel opportunities. The hordes of tourists have disappeared, hotels are offering attractive deals and the temperature is ideal for long walks. Above all, the trees are dressed in their finest colours. Here is an overview of the most spectacular autumn destinations.



UNITED STATES

New England

As soon as the summer heat subsides, the vast forests of New England transform into a multicoloured tapestry stretching as far as the eye can see. The White Mountains of New Hampshire, the Green Mountains of Vermont and Acadia National Park in Maine are among the best places to visit. Numerous promontories offer panoramic views of the surrounding valleys, while the region is dotted with small towns that combine New England charm with apple orchards and harvest festivals.

When to go: mid-September to mid-October
An exceptional hotel: Omni Mount Washington Hotel & Spa, Bretton Woods
Nearest airport: Boston or Montreal

ENGLAND

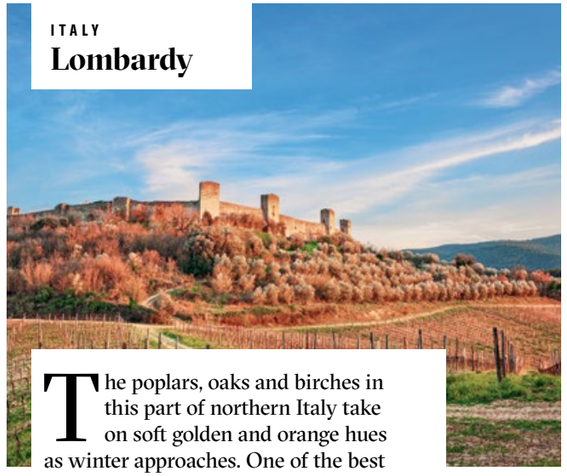
Lake District

In autumn, this mountainous, lake-strewn area in north-west England is transformed as its shores are bathed in shades of red, orange and yellow, reflected in the lakes' calm waters. Multiple walking trails allow you to explore the lakes or venture into the surrounding mountains. Don't miss the morning mists, which give these landscapes a mystical air. The region is also home to the house of English poet William Wordsworth.

When to go: late October to early November
An exceptional hotel: Storrs Hall, Bowness-on-Windermere
Nearest airport: Manchester

ITALY

Lombardy



The poplars, oaks and birches in this part of northern Italy take on soft golden and orange hues as winter approaches. One of the best ways to visit the region is to follow the Via Francigena, a trail that follows the route taken by Sigeric, Archbishop of Canterbury, in 990 to reach Rome. Lombardy is home to a 140 km section of the trail, between Lomellina and Lodigiano. Along the way, you will pass rice fields, vineyards and abbeys. Another option is to take the Monti Lariani trail, along a ridge with breathtaking views of Lake Como, between Cernobbio and Sorico.

When to go: mid-October to mid-November
An exceptional hotel: Grand Hotel Tremezzo, Via Statale, Tremezzina
Nearest airport: Milan

FRANCE

Loire Valley

When the rows of vines covering the hillsides of the Loire Valley lose their green hue, they take on golden, brown and orange tones. This time of the year is also the grape harvest season, bringing a lively atmosphere to this famous wine-growing region. No exploration of the area would be complete without a visit to its majestic châteaux, including Chambord and Chenonceau. Several road trips allow you to visit the main sites at your own pace, such as the route between Chinon and Bouchemaine (145 km) or between Tours and Saint Florent le Vieil (170 km).

When to go: late October to mid-November
An exceptional hotel: Fleur de Loire, 26 Quai Villebois Mareuil, Blois
Nearest airport: Tours

CHINA

Jiuzhaigou Valley

Located in the north of Sichuan province, this unique landscape is home to dozens of lakes whose colours range from sparkling turquoise to deep midnight blue, into which vertiginous waterfalls plunge. They are surrounded by forests and, in autumn, the warm colours of the trees offer a striking contrast to the water. The park, which lies between 2,000 and 4,500 metres above sea level, is one of the few opportunities to experience Tibetan culture, thanks to the nine traditional villages it houses. Pandas and monkeys can also be found here.

When to go: late October to mid-November
An exceptional hotel: Rissai Valley, a Ritz-Carlton Reserve, 7VV7+RH5 Zhongcha Valley, Zhangzha Town, Jiuzhaigou County, Sichuan
Nearest airport: Chengdu or Jiuzhai Huanglong

SLOVAKIA AND POLAND

The Tatra Mountains

Straddling Slovakia and Poland, this biosphere reserve is recognised by UNESCO. It covers 740 km² of beech and spruce forests which, as soon as summer draws to a close, take on golden hues, interspersed with deep blue mountain lakes and surrounded by snow-capped peaks. It is an excellent place for hiking, with the chance to spot marmots and chamois. After exertions, several thermal baths await to soothe any aching muscles.

When to go: late September to mid-October
An exceptional hotel: Grand Hotel Kempinski High Tatras, Vysoké Tatry, Slovakia
Nearest airport: Krakow

FINLAND

Lapland

Autumn is one of the eight seasons recognised by the indigenous Sami people who live in Finland, north of the Arctic Circle. The leaves of the silver birch trees turn golden during this period, while the ground is covered with blueberries and cranberries and the rowan trees produce scarlet berries. This contrasts with the green of the fir trees that cover the tundra and the many glistening lakes. At night, the sky takes on green and red hues, with the first northern lights. The region is easy to explore by bike, on foot or by canoe.

When to go: late August to mid-September
An exceptional hotel: Star Arctic Hotel, Saariselkä, Finland
Nearest airport: Rovaniemi

JAPAN

Nara

In Japan, autumn colours have their own name: Kouyou. The phenomenon can be observed throughout the country, but the large park in the centre of Nara, the former imperial capital, provides a particularly beautiful setting. Here, you will find flamboyant Japanese maples and several deer roaming freely in this green space. The park is also home to several temples with bold architecture, including Todaiji and Kasugataisha, as well as the Isuien Japanese garden, which is ablaze with colour in autumn. A tea house offers refreshments while you admire this domesticated natural setting.

When to go: mid-November to early December
An exceptional hotel: Fufu, 1184-1 Takabatakecho, Nara
Nearest airport: Osaka or Kyoto

CANADA

Algonquin Provincial Park

This gigantic green space covering 7,653 km² is home to no fewer than 24 species of deciduous trees, including red oaks, birches and the famous sugar maples, which are used to make the syrup of the same name. In autumn, the landscape transforms into a colourful firework display, so much so that the park's website provides daily updates on the percentage of leaves that have 'turned' for each tree species. Some viewpoints are accessible by car, but the best ways to explore the park are on foot or by canoe.

When to go: mid-September to mid-October
An exceptional hotel: Bartlett Lodge, ON-60 KM 23.7, Algonquin Park
Nearest airport: Toronto

Stay on the offensive, consider Lombard loans

Market volatility has not deterred global equities from performing well in recent months. Carl-Johan Munch-Jensen, Head of Trading at Swissquote, explains why diversification and access to liquidity are fundamental to peace of mind.

Markets have experienced periods of high volatility this year. How do you analyse the situation?
Yes, the year has witnessed some highly volatile periods, particularly in April when the announcement of new US tariffs triggered historic movements. But after this dip, markets recovered strongly and the year as a whole remains positive for global equities so far. However, we are seeing a shift in focus: US 'exceptionalism' is losing ground to European markets and companies. That said, geopolitical and political uncertainty remains elevated, making the outlook more difficult to assess. Finally, the sharp decline in the dollar in the first half of the year eroded real returns for European investors exposed to US assets.

In this context, what is the right approach for investors?
With markets having rebounded strongly, now is an opportune time to review your portfolio. Every investor should ask themselves: "What would happen if there were another correction?" It is important to assess whether you are overly exposed to a particular stock or sector and to increase diversification if necessary. Doing this now will ensure you are well prepared for whatever lies ahead.

Which investment themes do you see as promising for the future?
Several trends offer interesting avenues. Rising geopolitical tensions are leading to increased spending on defence and infrastructure, particularly in Europe. The other major theme is the rise of artificial intelligence: companies that manage to achieve significant productivity gains in this area represent attractive opportunities. To seize these opportunities, it is crucial to have liquidity. Swissquote's Lombard loan is an effective solution, as it allows you to borrow against your existing investments without having to sell your long-term positions. This means that investors can remain exposed to their long-term positions while seizing new opportunities in the shorter term. ◢

Carl-Johan Munch-Jensen
Head of Trading
at Swissquote

Special offer: 0% interest Lombard loan

Looking to unlock liquidity for investments without touching your equity portfolio? With a Lombard loan, it's possible – through a quick online application. And it's even free at Swissquote right now.

A Lombard loan is granted against the pledge of assets (shares, bonds or investment funds). The advantage for borrowers is that they can increase their purchasing power for investment purposes without having to sell assets from their portfolio. The offer is also valid for small amounts.*

Swissquote is offering an exceptional interest rate of 0% until 31 March 2026 for Lombard loans in CHF.

The offer is valid for all new loans granted until 30 November 2025.*

swissquote.com/lombard

*See offer conditions.

boutique

A sustainable speaker

With MYND, Teufel offers an eco-friendly portable Bluetooth speaker designed to be repaired with a simple Allen key and recycled through its sustainable materials. 3D diagrams, circuit board plans, component lists and firmware are made available to experienced DIY enthusiasts in open source format by the German brand. The speaker features a Class D amplifier, a mid-bass driver, two tweeters and two passive woofers that optimise bass performance.

teufel.ch
CHF 289.–

Home health monitoring

French brand Withings is launching BeamO, a 4-in-1 device that combines a thermometer, oximeter, ECG and stethoscope for comprehensive home monitoring of heart and lung health. In less than a minute, it captures essential vital data that can be shared with a doctor in real time. Clinically validated, this connected device provides reliable and accurate readings and automatically syncs with the Withings app, which allows users to set alerts to help them develop healthier lifestyle habits.

withings.com
CHF 269.95

The floating bag

Carried by the current of the Rhine, many Basel residents used the Wickelfisch this summer to return home after work. This ingenious swimming bag keeps personal belongings dry while swimming and ensures that its owner stays visible to boats. Handmade from recycled polyester, the waterproof floating bag is available in several sizes and is part of an eco-friendly initiative: the Swiss label offsets its CO_2 emissions via ClimatePartner by supporting a Plastic Bank project against plastic pollution.

www.wickelfisch.ch
From CHF 19.90

The water bottle that filters

Social media stars in their own right, water bottles are all the rage: Stanley Cup, Bink, Owala... But LifeStraw goes one step further. In addition to its stylish design, it eliminates bacteria, parasites, microplastics and unpleasant odours. This insulated, portable water purifier can be filled anywhere – a fountain, river or sink – and is safe to drink from thanks to its microfilm membrane and carbon filter. B Corp certified and carbon neutral, the brand provides one day of clean water to a child for every purchase.

eu.lifestraw.com
CHF 64.90

A discreet coach on your wrist

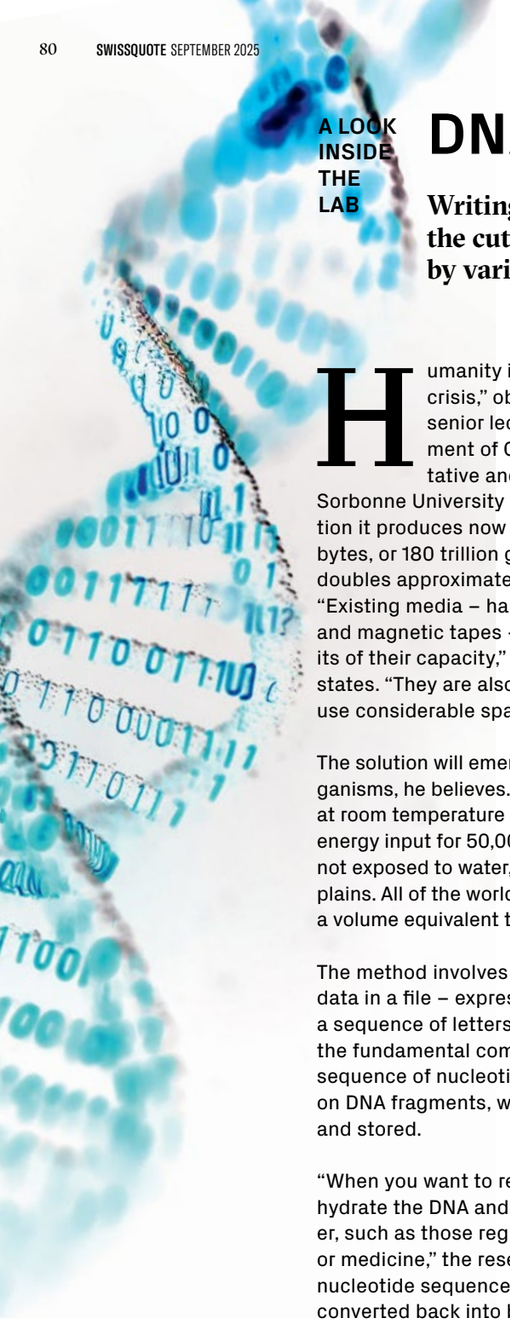
Founded in 2012, Boston-based startup Whoop designs display-free, waterproof and discreet health sensors. Connected to an app and available on a subscription basis, these stylish wristbands monitor heart rate, HRV, stress and sleep to calculate a recovery score and adjust the recommended level of exercise. The latest models also include advanced medical features: on-demand ECG, arrhythmia detection, hormone tracking and blood pressure estimation.

whoop.com
From CHF 185.–
per year

Jogging stroller

A stroller designed for jogging? That's the concept developed by Swedish equipment manufacturer Thule with the Glide 3, a sporty version of its iconic all-terrain model, which has won an IF design award. Designed to facilitate running, the stroller combines a lightweight aerodynamic frame, a fixed 16-inch wheel, two large 18-inch rear wheels and a rotating handbrake for precise control on descents. A reclining seat, adjustable leg rest and ventilated canopy ensure your baby's comfort while you run.

thule.com
CHF 749.–



A LOOK INSIDE THE LAB

DNA for data storage

Writing and storing data on DNA: this is the cutting-edge solution being explored by various laboratories. BY JULIE ZAUGG

Humanity is experiencing a "data crisis," observes Pierre Crozet, senior lecturer in the Department of Computational, Quantitative and Synthetic Biology at Sorbonne University in Paris. All the information it produces now occupies 180 zettabytes, or 180 trillion gigabytes, a figure that doubles approximately every three years. "Existing media – hard drives, flash drives and magnetic tapes – are reaching the limits of their capacity," the molecular biologist states. "They are also energy-intensive and use considerable space."

The solution will emerge from living organisms, he believes. "DNA can be stored at room temperature without any external energy input for 50,000 years, provided it is not exposed to water, light or oxygen," he explains. All of the world's data could fit within a volume equivalent to a chocolate bar.

The method involves converting the binary data in a file – expressed as 0s and 1s – into a sequence of letters A, C, T and G, which are the fundamental components of DNA. This sequence of nucleotides is then synthesised on DNA fragments, which are dehydrated and stored.

"When you want to retrieve the file, you rehydrate the DNA and read it with a sequencer, such as those regularly used in biology or medicine," the researcher explains. The nucleotide sequence obtained can then be converted back into binary data.

This operation was first performed in 2012 by George Church, a renowned geneticist at Harvard University. Several other projects have since utilised it to store books (*War and Peace*), short film *Le Voyage dans la Lune*, episodes of Netflix series, and songs by Deep Purple and Miles Davis. ETH Zurich, the American agency IARPA, and the University of Washington, in association with Microsoft, are conducting research in this field.

However, the technique developed by Church remains of limited practical application in the real world. "The information is written on small fragments of DNA containing around 200 nucleotide bases, which makes them difficult to handle," Crozet explains. Furthermore, the DNA is obtained through a chemical synthesis process that requires petroleum and petroleum-based solvents, which is environmentally problematic.

The Sorbonne professor has developed a solution that allows data to be stored on large double-stranded DNA molecules containing more than 30,000 nucleotides. "They can be integrated into a bacterium that will produce thousands of copies with an extremely low error rate," he explains. "They can also be organised to form a DNA-based hard drive." To generate this inert material, he took inspiration from nature, employing synthetic biology. "The raw materials are sugar, bacteria and an aqueous solvent," he notes.

Less harmful to the environment, this solution, called DNA Drive, is also significantly less expensive. And the savings are substantial, according to Crozet: "Biological DNA synthesis will reduce the costs of writing information on DNA to $1 per terabyte, compared to $1 billion per terabyte if chemical synthesis is used."

A startup called Biomemory was launched in 2021. "We have created a credit card format that allows DNA to be stored on a chip with a lifespan of 150 years," Crozet states. "It will be integrated into a machine capable of storing 1 exabyte, which will encode and decode the information autonomously." The launch is scheduled for 2030. ◢

150 YEARS

AUDEMARS PIGUET

Le Brassus

AUDEMARS PIGUET BOUTIQUES : CRANS-MONTANA | GENEVA | ZURICH

ROYAL OAK