

SWISSQUOTE

FINANCE AND TECHNOLOGY UNPACKED

COVID-19
Proliferation
of new
vaccines

TECH
THE BOT
REVOLUTION

LONDON VS AMSTERDAM
Showdown
between
financial centres

DOSSIER

DON'T SLEEP ON THIS \$500 BILLION BUSINESS

The leaders of "sleep tech"
are rising and shining



ISSN 2296-3278



► RESMED ► INSPIRE ► GARMIN ► CASPER ► PURPLE ► PHILIPS ► SLEEP NUMBER ►



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©Photograph: Laurent Ballesta/Gombessa Project



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TO
DIE**
007

ONLY IN CINEMAS

JAMES BOND'S CHOICE

On the trail of a mysterious villain, James Bond faces his latest mission in *No Time To Die* wearing the OMEGA Seamaster Diver 300M. This *007* timepiece comes ready for action with a lightweight titanium design and a high standard of Master Chronometer precision and anti-magnetism that can always be trusted.



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The era of “sleeping well”



By Marc Bürki,
CEO of Swissquote

It's a major trend. In the last few years, sleep has become a matter of public health – as well as a flourishing market. Sleep medicine, while still a young discipline, is constantly teaching us more about how important it is to get a restorative night's sleep. We now know that sleeping fewer than six hours per night increases the risk of various illnesses and diseases such as obesity, diabetes and high blood pressure. The powerful cult of people who sleep only a few hours per night is no longer stylish.

But a good night's sleep can be hard to come by: according to the Swiss Health Observatory, approximately one-third of the population has trouble sleeping to various degrees. So it's not surprising that many companies are investing in this **industry**, in sectors such as mattresses, smart gadgets, pharmaceutical products and medical devices. The US firm Frost & Sullivan, which evaluated the global sleep market at \$ 432 billion in 2019, estimated that it should reach \$ 585 billion in 2024.

A company such as Philips, for example, which now focuses ex-

clusively on the healthcare sector, generates nearly 15% of its revenue from its “Sleep & Respiratory Care” division. Smart watch makers such as Garmin are also getting involved – some Garmin watches are equipped with movement, pulse and oxygen saturation sensors. Competition is also intense in the sleep apnoea segment. This disorder increases the risk of high blood pressure, heart attacks, and stroke, and affects 150,000 people in Switzerland. To treat this problem without resorting to a bulky external device, the Belgian medtech company Nyxoah, listed on the Nasdaq, has developed a miniature implant that works using neurostimulation. We interviewed the company's CEO, **Olivier Taelman**.

p. 44

In addition to this feature, COVID **vaccines** are once again making headlines. We have an article on the pharma latecomers that will release their own vaccines starting this autumn, focusing on boosters and sales to developing countries. Encouraging progress in the fight against coronavirus!

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Enjoy!

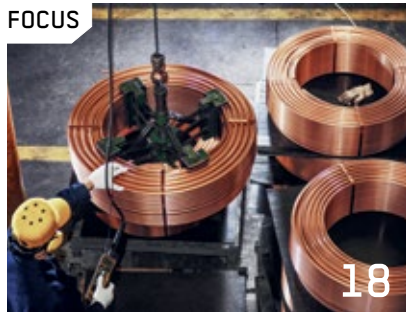


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In our previous edition, a photo of the ETH Zurich lobby (p. 46-47) was incorrectly attributed to the University of Oxford. Our apologies to our readers and to the institutions concerned for this error.

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SCANS



“Apple’s next, and I think Apple is, in many senses, worse [than Google]”

Joey Levin, CEO of US media company IAC, as quoted on CNBC in reference to the fourth anti-trust lawsuit against Google.

stock market
MOVEMENT ON THE SMI



Driven by the pandemic, Logitech's sales jumped 66% to \$1.31 billion over the months of April to June 2021. The performance opens the doors to the SMI.

LAURENT GILLERON / KEYSTONE

SIX, the Swiss stock exchange operator, has rebalanced its benchmark index that includes the top 20 Swiss companies with the largest capitalisation (SMI). Logitech will join the index on 20 September, a logical next step given the group's performance during the pandemic: its share price rose from approximately 65 Swiss francs in July 2020 to more than 110 Swiss francs a year later. Alas, this means that Swatch, which had been

part of the SMI since its creation in 1998, is no longer included. COVID caused the group some difficulty in 2020, with a net loss of 53 million Swiss francs for the first time in its history. However, its balance sheet remains healthy and the company turned a profit in the first half of 2021, primarily due to restructuring, with 136 shops closed in 2021 in addition to the 384 point of sale closures announced in 2020. — LOGN — UHR

automobile

PORSCHE ENTERS THE ULTRA-FAST BATTERY CHARGING MARKET

The German sports car manufacturer will invest tens of millions of Swiss francs in a new battery cell factory near Stuttgart. It will be constructed in partnership with German firm Customcells as part of a joint venture that is 83.75% controlled by Porsche. The duo aims to manufacture high-performance batteries that can be recharged to 80% in less than 15 minutes. The factory will be able to produce enough batteries for approximately 1,000 vehicles each year – a capacity of at least 100 MWh. Until production begins in 2024, the new V4Drive battery from Varta, another German manufacturer, will be used in the next Taycan, as well as in the upcoming electric Macan and Boxter models. — VOW3

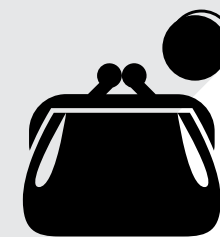


750 MILLION

The number of people living in extreme poverty (less than \$1.90 per day), according to the World Bank.

virtual
STADLER AND DEUTSCHE BAHN CREATE A TRAIN'S DIGITAL TWIN

Deutsche Bahn (DB) and Stadler are developing a digital facsimile of an entire train. One of the Swiss company's trains has been equipped with data recording and transmission technology, allowing a virtual double to be created. This data is processed in real time by an artificial intelligence system, offering a whole host of simulation possibilities. The tool will be used primarily to monitor the train's air conditioning, doors and axles, with the goal of knowing when to replace these components to avoid issues later on. According to Deutsche Bahn, this technology will be able to reduce the number of delays and issues, since it will be easier to predict any problems. The first digital twin is expected to be fully functional by the end of the year. The two companies hope to create digital versions of the entire fleet of DB vehicles. — SRAIL



43%

The percentage of cash transactions in Switzerland in 2020, compared to 70% in 2017, according to the SNB.

biotech
SOPHIA GENETICS HITS THE NASDAQ



Jurgi Camblong, co-founder and CEO of Sophia Genetics, whose headquarters are divided between Lausanne and Boston.

KEYSTONE/MARTIAL TREZZINI

Once more, a Swiss startup heads to New York instead of Zurich. Following in the footsteps of three Swiss biotechs (NLS Pharmaceuticals, Gain Therapeutics and Vectivbio) at the start of the year, Sophia Genetics has also chosen the Nasdaq for its IPO. Founded in 2011, Sophia Genetics first specialised in data processing for hospitals in order to improve diagnostic

accuracy, and then began to work with pharmaceutical companies to increase the efficacy of their treatments. Based in Lausanne, and in Boston since 2018, the biotech raised \$234 million in its IPO in late July, selling 13 million shares for \$18 apiece. The company already has 750 hospitals, laboratories and businesses as clients. — SOPH

RANKING

TOP 5 COMPANIES IN THE ESPORT MARKET
(in market share as of 1 July 2021)

1. ACTIVISION BLIZZARD
21.85%
2. MODERN TIMES GROUP
14.15%
3. TENCENT
11.04%
4. VALVE CORPORATION
8.03%
5. ELECTRONIC ARTS
3.78%

Source: Statista

TOP 5 MOST COMPETITIVE COUNTRIES IN 2021
(change compared to 2020)

1. SWITZERLAND (+2)
2. SWEDEN (+4)
3. DENMARK (-1)
4. NETHERLANDS (NO CHANGE)
5. SINGAPORE (-4)

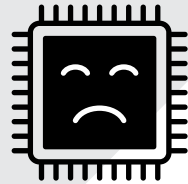
Source: International Institute for Management Development (IMD)

TOP 5 PC BRANDS (DESKTOP COMPUTERS, LAPTOPS AND TABLETS)
(by market share in the US in Q1 2021)

1. HP
21.1%
2. APPLE
19.5%
3. DELL
14.2%
4. LENOVO
13.7%
5. SAMSUNG
9.9%

Source: Canalys

SCANS



2023

According to Pat Gelsinger, CEO of Intel, the chip shortage will continue until 2023 – a year longer than his previous estimate.

Customers stroll through Google's first physical retail store in New York City on 17 June, 2021.



TIMOTHY A. CLARY / AFP

GAFAM

GOOGLE'S FIRST BRICK-AND-MORTAR STORE

Announced several years ago, the first Google store has opened its doors in the Chelsea neighbourhood of Manhattan, joining its competitors Apple, Microsoft, Samsung and even Amazon. The 465 m² shop will be used to present Google's growing hardware offering, as well as products from third-party partners, such as Pixel smartphones and Fitbit devices, a company Google acquired at the start of the year. Since 2016, Google has used the experience gained from running its pop-up shops to optimise the layout of the new store. The company even built a life-size model of the shop in a hangar in Mountain View, California, to test ideas. The new shop will mimic spaces from everyday life, such as a living room. It includes a space to play video games via Stadia and a soundproof room where people can test a range of Home and Nest products.

— GOOGL

KICKSTARTER



REINKSTONE

REINKSTONE R1

AN E-READER IN HD COLOUR

E-readers such as the Amazon Kindle go to great lengths to mimic the experience of reading on paper, but the resolution is limited. The Reinkstone R1 tablet from Wiwood Company is equipped with new display technology that offers a better resolution (2232x1680) than current colour e-readers (1872x1404). The Reinkstone R1 also has a battery life of 300 hours (or 100 days in standby mode), offers 64 GB of internal storage and is compatible with all e-paper formats thanks to its Android 11 operating system. It can be purchased with an (optional) stylus that produces a writing experience similar to writing on paper, according to the developers.

tobacco

PHILIP MORRIS PREPARES FOR POST-TOBACCO LIFE

Tobacco giant Philip Morris has announced its acquisition of two pharmaceutical companies for more than \$2 billion: Danish company Fertin Pharma, which specialises in manufacturing medical inhalers and chewing gum (\$820 million) and UK

group Vectura, which is also active in inhalers (\$1.45 billion). These acquisitions are part of the Lausanne-based company's diversification strategy. However, of the \$7.6 billion in revenue reported in Q1 2021, 72% still comes from cigarette sales. — PMI



According to the WHO, tobacco consumption causes more than 8 million deaths worldwide each year.

AP PHOTO / GERRY BROOME / KEYSTONE

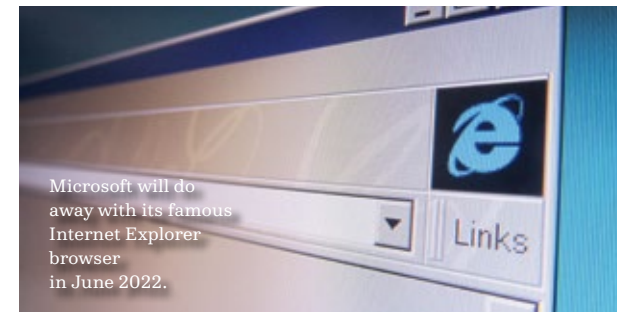


“The real challenge is vaccinating the rest of the world”

Leif Johansson, chairman of AstraZeneca, as quoted in *Les Echos*.

digital

R.I.P. INTERNET EXPLORER



Microsoft will do away with its famous Internet Explorer browser in June 2022.

CHRISTIAN COLEN

Microsoft has announced that its historic browser Internet Explorer will no longer be updated from June 2022. The browser, which many complained was slow, unreliable and insecure, will be retired next year after more than 25 years of service. Provided for the first time with Windows 95, Internet Explorer was for many the first and, for a long time, the only web browser available. And more than any other program, it remains subject to many weaknesses. It was a real bugbear for Microsoft, which has been encouraging users to switch to Edge for many years. The browser will see out its days with the few industrial machines that still need it to function.

— MSFT

FUNDS RAISED \$1,019,000

AVAILABLE NOVEMBER 2021

SCANS

chips
**INTEL SHAKES UP
 ITS BUSINESS MODEL**



An Intel semiconductor manufacturing facility dubbed D1D fab, in Hillsboro, Oregon.

INTEL CORPORATION

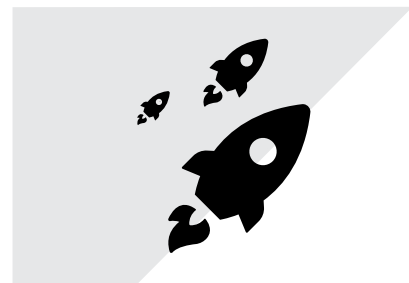
While up until this point, Intel only used its etching technologies on its own products, in late July, it announced it would share its skills with other chip manufacturers via a new service called Intel Foundry. Its future clients include Qualcomm - the US smartphone chip giant, which has thus far contracted out its chip manufacturing to TSMC - and Amazon Web Services (AWS). With the

launch of Intel Foundry Services, Intel is now in direct competition with the global foundry leader TSMC (Taiwan), which manufactures semiconductors for Apple, AMD and Nvidia. Intel has also unveiled an ambitious tech roadmap, planning to reach a 2 nm etching process by 2024. The company plans to invest \$20 billion into two chip factories in the United States. — INTC



**“It’s not
 up to me to
 make menus
 healthier”**

Chris Kempczinski,
 CEO of McDonald’s,
 as quoted in
 the *New York Times*.



\$1,000 BILLION

The valuation of Facebook exceeded \$1,000 billion in June, while Microsoft’s valuation was over \$2,000 billion.

IPO

**THE FIRST TURKISH COMPANY
 ON THE NASDAQ**

Specialising in e-commerce, Hepsiburada (“everything is here”) is the first Turkish company to be listed on the Nasdaq. Bolstered by the sector’s success since the start of the pandemic, the company was valued at \$3.9 billion at the time of the IPO. Like many similar companies, Hepsiburada is not just an e-commerce site. It also has its own logistics network, a

last-mile food delivery service, and its own online payment system. Plus, it has an airline ticket reservation service and international mail service (for incoming mail). While its primary market will continue to be Turkey, the funds raised will allow Hepsiburada to explore other markets in the Middle East, North Africa and the Balkans. — HEPS

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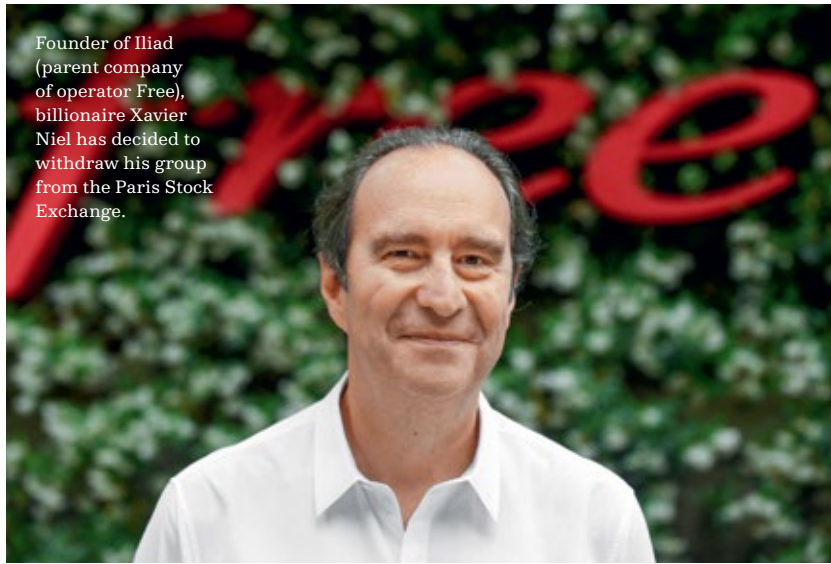
G R A F F
 TRIBAL



“We’re a brand of China and for China”

John Donahoe, CEO of Nike, defending his company’s business in China despite the country’s human rights violations.

telecoms
MORE COMPANIES GO PRIVATE



Founder of Iliad (parent company of operator Free), billionaire Xavier Niel has decided to withdraw his group from the Paris Stock Exchange.

ERIC PIERMONT / AFP

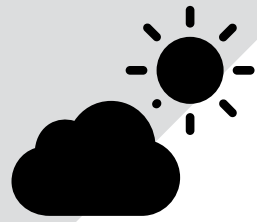
It has practically become a trend in Europe. In recent years, several companies active in the media-telecoms space have decided to go private. After German publishing house Axel Springer pulled its shares from the Frankfurt exchange in April 2020, and French telecoms group Altice and UK television company TalkTalk followed suit, telecoms group Iliad is next in line. The French group announced on 30 July that its majority stakeholder, Xavier Niel, was launching a simplified tender offer for

Iliad shares, opening the door to its delisting from the stock exchange. These types of transactions are rampant in the telecoms and media industry because these sectors are particularly low on the market and because low interest rates favour stock buybacks from companies which can take on debt at a lower cost. But in other industries, the IPO market is still in excellent shape. Between April and June of this year, 142 companies went public on European exchanges, according to the latest count from consulting firm EY.

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\$129 BILLION

The value of the Cloud infrastructures market in 2020, compared to \$97 billion in 2019, according to Synergy Research Group.

THE FLOP

Peloton derails

The home fitness giant took a turn for the worse in early May when it had to recall all of its Tread and Tread+ treadmills, which were deemed dangerous by the US Consumer Product Safety Commission (CPSC). A child died after an accident with one of Peloton’s treadmills, and several small children and pets have been injured as a result of being pulled under the treadmill. Peloton had no choice but to stop selling these two

models and recall them at its own expense. On the same day, a security breach of Peloton’s servers was revealed: the bug allowed anyone to access private data from user accounts directly from Peloton servers, even if those accounts were set to private. The brand, which has 3 million subscribers, took a hit to its image, but the share price was able to weather the storm and climbed back up to its early April price. — PTON

TRENDS



personality
ANDY JASSY

From behind the scenes to centre stage

Position
CEO

Age
53

Nationality
American

It's official: Jeff Bezos left Amazon in July and gave his power to Andy Jassy, his right-hand man for more than 20 years. Originally from Scarsdale, New York, Jassy was hired as Amazon's marketing director in 1997, three years after the company was created. He quickly became Jeff Bezos's confidant and second brain, according to the *New York Times*. But Jassy is more than

that. Most importantly, he is the architect of Amazon Web Services (AWS), which was launched in 2006 and is one of Amazon's greatest successes. He became the director of AWS in 2016. It is still the leading cloud provider and generates two-thirds of Amazon's profits. Jassy is also a father of two and a sports fan; he was a sports journalist at ABC Sports and Fox before joining Amazon. His net worth is estimated at \$400 million, far behind the \$200 billion of his former boss, but with his new job, he is expected to own more than 60,000 Amazon shares over the next decade. AMZN



country
ISRAËL

The startup nation sailing through the crisis

Population
9,216,900
(2020)

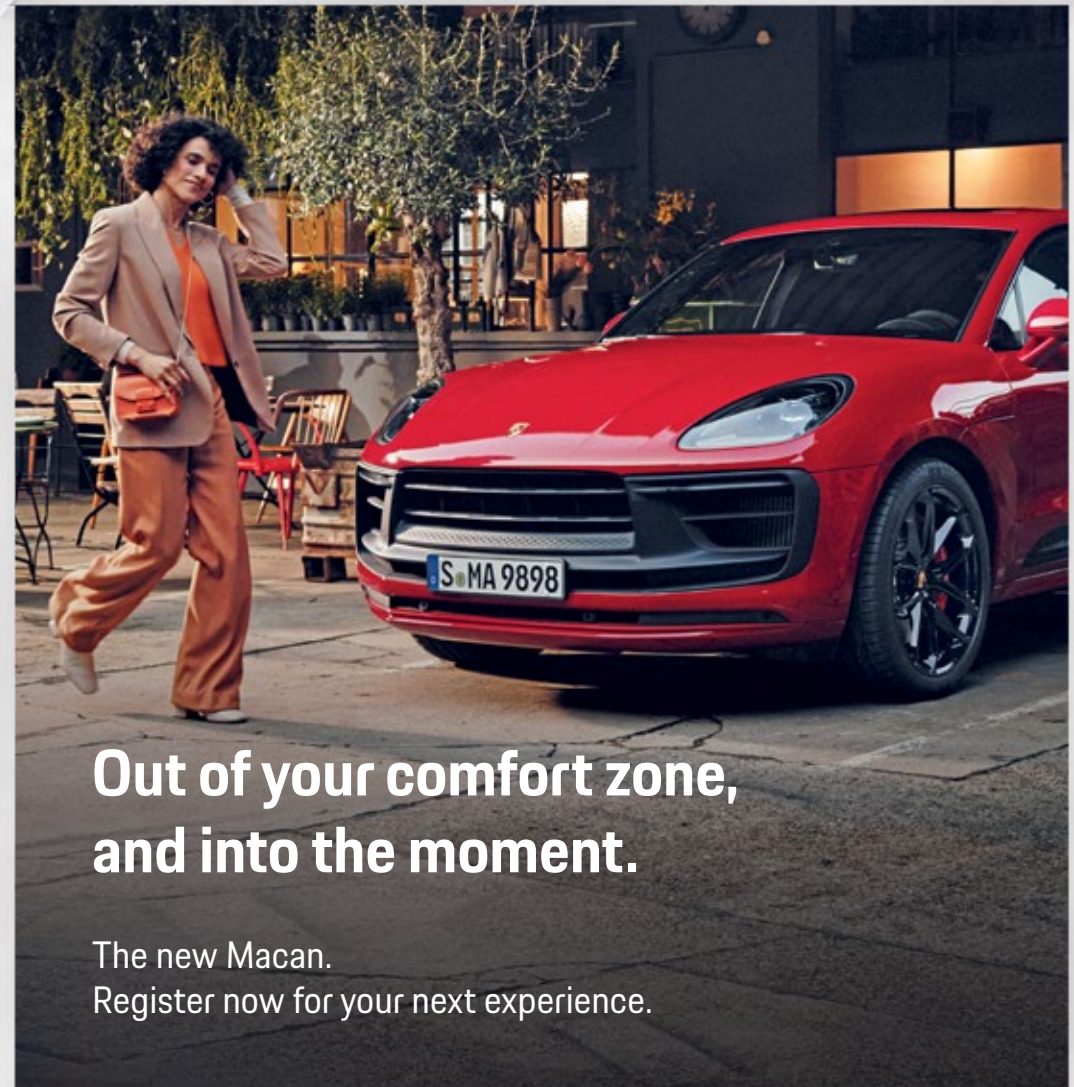
GDP per capita
\$43,610.52
(2020)

Growth
5%
(2021 projection)

Main economic sectors
tourism, financial services, military equipment, new technologies, gas.

Israel has enjoyed a certain economic stability since the start of the crisis. The government made quick and impactful decisions, such as its ambitious vaccination campaign. Even though its image as a country of innovation was tarnished by NSO's Pegasus spyware scandal, Israel has the highest proportion of scientists and technicians per capita in the world. It is also ranked third in the world for the most companies listed on the Nasdaq after the United States and China, and its central hub for cutting-edge technologies, the "Silicon Wadi", is considered the second most important tech region after

California's Silicon Valley. The country did suffer from the drop in tourism, one of its main sectors, but natural gas exports should soften the blow in 2021 (11 billion m³ expected in 2021, compared to 5.8 billion m³ in 2020). Israel will also benefit from the normalisation of diplomatic relations with the United Arab Emirates and Bahrain, which will create new markets for its products.



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ANALYSIS

THE VIEWPOINT OF SPECIALISTS

FOCUS

Copper: a champion of the green revolution

Prices for the red metal hit historic highs in May. As an excellent conductor of electricity, it will play a key role in the energy transition, which is set to increase demand for copper in the decades to come.

BY ANGÉLIQUE MOUNIER-KUHN

In Mendeleev's periodic table, which classifies elements based on their atomic number and chemical properties, copper is number 29, between nickel and zinc. But in scenarios from raw materials strategists, Doctor Copper – its nickname on the market due to its ability to anticipate big economic trends – is now the top metal with the most promising price outlook.

Goldman Sachs, which conducted a far-reaching study on copper in spring 2021, even considers the red metal to be “the new oil”. But why? “The critical role copper will play in achieving the Paris climate goals cannot be understated,” said the authors of the study. According to the study, “As the most cost-effective conductive material, copper sits at the heart of capturing, storing and transporting these new sources of energy.” A ductile material, copper is an excellent conductor of heat and electricity. It also resists corrosion and is easily recyclable.

After a decade of no interest from investors, this return to grace is being felt in the price. In March 2020, when COVID-19 was spreading across the planet, copper prices had reached a low of around \$4,600 per tonne on

For Goldman Sachs, copper is “the new petrol”

the London Metal Exchange (LME), one of the two benchmark indices for its valuation, along with the Chicago Mercantile Exchange (CME). In the context of a widespread increase in prices of raw materials driven by the post-pandemic recovery, the price of copper rebounded to reach a record \$10,725 in May. As a comparison, it had not exceeded \$10,000 since 2011.

The price of this traditionally volatile metal has since fallen back below this threshold.

“The gradual normalisation of growth indicators in China, which represents about half of all industrial metal consumption in the world, caused the price to dip. In addition, concerns about the spread of the Delta variant and its effects are weighing on the situation, particularly in Asia, where vaccination is moving slowly,” said Olivier Daguin, manager of the real assets division at OFI Asset Management in Paris.

But for Daguin, this correction does not contradict the predicted increase in copper prices in the medium and long term. “Global copper production has reached 20.6 million tonnes – 24.5 million if including recycling,” he said. Currently, the electric vehicle and recharging station sector uses several hundred thousand tonnes, as the amount of copper used (80 kg for one electric vehicle and 1 to 7 kg for an electric charging station) is



Thanks to the expected explosion in the electric car market, the price of copper is forecast to approach \$15,000 in 2025.

more than four times higher than the amount used for combustion engine vehicles (20 kg). “The forecast studies indicate that by 2030, demand in the electric vehicle sector alone, based on the expectation that these will account for 16% of vehicle sales, will represent 2.5 to 3 million tonnes of copper,” said Daguin.

But the timetable has sped up. The European Union, which planned to ban the sale of petrol, diesel and hybrid vehicles in 2040, announced in mid-July that it is now targeting 2035, which implies that the market share of electric vehicles will have already surpassed 50% in 2030.

Demand is also increasing exponentially for solar and wind power (between 1 and 5 tonnes of copper is needed for each turbine). In its recent report entitled “Net zero by 2050”, the International Energy Agency (IEA) estimates that solar and wind capacities are expected to increase 11- and 20-fold respectively by 2050 to reach a target of

90% of electricity generated from renewable energy sources (compared to 29% in 2020). In total, according to Goldman Sachs, the demand for copper as part of the energy transition will increase from 600% to 900% by 2030 – an increase in demand greater than that caused by China's economic boom during the 2000s.

On the supply side, the mining sector doesn't seem prepared to meet such an increase. The most recent investments that began at the start of the 2010s did not meet the desired demand. “Mining companies are much more careful these days,” said Daguin. “The price hike did not result in a boom in investments and they prefer to redistribute cash to their shareholders. What's more, the process of building a mine, from obtaining permits to actually mining, can take anywhere from six to eight years. In other words, any decision made today will only have an impact around 2030.” Over the past four years, only two new copper mines opened, according to the Internation-

al Copper Study Group (ICSG). Four other projects are in the pipeline in the Democratic Republic of the Congo, Chile, Peru and Russia, which should help increase production by 3.5% in 2021 and 3.7% in 2022.

Goldman Sachs, which believes that a sharp price increase is still necessary to stimulate supply to meet demand and counter the risk of rapidly depleting copper in storage, predicts that a tonne will be worth around \$15,000 by 2025. This is a great opportunity for investors. Those who wish to partake in the market have several ways to do so. First, they can go bull on the publicly listed mines by betting on their shares, particularly those of “pure players” such as Freeport-McMoRan (United States), Antofagasta (Chile) and Aurubis (Germany), which has an intensive recycling programme. They can also invest in mining companies via an ETF, such as Global X Copper Miners, or invest in futures contracts via a specialised ETF, such as the United States Copper Fund. ▲

INTERVIEW

Is green finance too good to be true?

There are green bonds. There are responsible funds. Some in the finance sector now claim to play a key role in fighting climate change. In a book out this spring, economist Alain Grandjean challenges that assertion. Interview

BY ANGÉLIQUE MOUNIER-KUHN

In *L'illusion de la finance verte* (The Illusion of Green Finance), published in May 2021 by Éditions de l'Atelier, Alain Grandjean and Julien Lefournier tell it like it is. They argue that “green finance” essentially boils down to a communication stunt. For some the book is visionary; for others, it is a political pamphlet. Whichever, the work has the merit of starting the conversation about a crucial issue: can green finance save the world? For *Swissquote Magazine*, the book's co-author Alain Grandjean, a doctor in environmental economics and president of the Nicolas Hulot Foundation, spells out his arguments and explains why he believes that sustainable finance cannot live up to its commitments or redirect capital flows towards sustainable activities.

The title of your book suggests that green finance is an “illusion”. How did you come up with such a bold statement?

The connection between sustainable finance and the climate only dates back a few years. We started talking about it in 2014, but a turning point came in 2015. That year, Mark Carney, at the time chairman of the Financial Stability Board, was the first to say in a now famous speech that climate change poses systemic risks to the financial system. So the green finance movement is recent and therefore cannot be blamed for not having radically changed things. However, let's face it. Assets in socially responsible investment (SRI) funds may be growing fast, but the world isn't changing. Greenhouse gas emissions (GHG) continue to increase, despite the development of green finance and despite commitments from companies.

We haven't seen any progress yet, but maybe it's just a question of time.

One of Mark Carney's key arguments is that markets are efficient and can therefore help to reduce climate change risks by being well-informed. The problem is, market efficiency is a myth. Many research studies have shown that if markets were efficient, there would be no bubbles and repeated financial crises. The basis of our thesis is to say that, if left to its own devices, i.e. without regulation, green finance will produce nothing. Information alone will never be enough to change behaviour in the sector.

You are particularly suspicious of green bonds, which are considered to be one of the major drivers financing the ecological transition. Why?

At this point, nobody knows exactly what green finance is. The movement has not only started recently, but it started without any clear definition. Green bonds are a perfect example of this. As they are not regulated, green bonds are “self-declared” by the issuers themselves and in essence no different from a traditional bond. In an attempt to clarify things, the European Union has created a “green taxonomy” to define what a green asset is and encourage investors to back them. But if all “green” bonds were to be screened through the European taxonomy, very few could hold on to that adjective.

In any case, the green taxonomy is not enough. Compare it with the energy transition. It's not about adding green energy into a brown energy

mix (fossil fuels). Brown assets must be removed to reduce GHGs. We would therefore also need a “brown taxonomy” to define which assets pollute and stop financing them. But as we can see, when an investor sells a brown asset, there is always another one ready to grant the investor a line of credit or buy the shares. Financial divestment (ed. note: campaigns to discourage investment in companies engaged in controversial activities) has no effect on reality.

You explain that green investment is by definition less profitable than a traditional investment. Where does the difference come from?

The very definition of green investing is that it must benefit the environment by reducing the carbon footprint. But that benefit necessarily comes at an additional cost. It costs more to produce the same goods more cleanly. This is a fundamental problem for finance. In his book *How to Avoid a Climate Disaster*, Bill Gates carefully explains the “green premium”, or the difference in cost between what is green and what is not.

Who could possibly fill this gap? In fair trade, consumers are willing to pay more for their products. But in finance, it is an illusion to think that the rule of risk/return trade-off can be circumvented for qualitative, moral or reputational reasons. “Non-financial” performance is always secondary to financial returns. Competition is so fierce in finance that not one of them can accept to offer lower returns to their clients, even if it involves saving the planet.

So should we throw all green finance out the window?

Of course, sincere professionals and projects benefit the climate. But they are only niches in the market. We hear that financial firms are deeply concerned about green issues, but not much is actually being done about it. For these niches to become mainstream, the entire economy must align with the objectives of the Paris Agreement. The illusion is to believe that this alignment will come from green finance alone. It can guide it, but not more. “Green” finance can only step up to the challenges once governments make the necessary decisions relating to regulations, bans and taxation. For the time being, these measures remain terribly inadequate, except for those required of the automotive industry. But we don't have a minute to lose, as the Intergovernmental Panel on Climate Change (IPCC) reminded us when it unveiled the first part of its new report in August. ▽



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ALAIN GRANDJEAN
DOCTOR IN ENVIRONMENTAL ECONOMICS AND
PRESIDENT OF THE NICOLAS HULOT FOUNDATION



GETTY IMAGE

HYDROGEN FROM HYPE BACK DOWN TO EARTH

After an incredible 2020, hydrogen stocks are falling on the market. But experts remain optimistic about the future. We take a closer look.

BY BERTRAND BEAUTÉ

“It’s a big success!” Damien Havard, founder and CEO of Hydrogène de France (HDF), can allow himself a smile. In June 2021, his company’s IPO won investors over. It raised €132 million compared to the €100 million initially expected. “We’re thrilled – with the funds raised, we’re going to accelerate our international development and finance the construction of our high-powered fuel cell factory near Bordeaux,” said Havard. But HDF’s success could be the end of an era. While there have been many IPOs in the hydrogen sector since early 2020, including IPOs from Danish company Green Hydrogen Systems, Israeli firm GenCell and French businesses Hopium and HRS (see opposite), it might appear that this magical time is coming to an end.

“The window for IPOs in the hydrogen sector is almost closed again,” said Xavier Regnard, an analyst for investment bank Bryan, Garnier & Co.

“In June 2021, for example, UK group Elcogen had to delay its IPO because there wasn’t enough demand. Six months earlier, it would have probably been a successful operation.” And for good reason: after dominating the stock exchange until early 2021, the hydrogen industry is now struggling. Between January and August 2021, experts in this technology, such as Nel ASA (Norway), ITM Power (UK), McPhy Energy (France) and Ballard Power Systems (Canada), all saw their share prices drop 50% to 60%.

There are several reasons for this. In 2020, driven by several announcements, particularly massive support programmes from governments, hydrogen became the trendy energy sector of the time (see *Swissquote Magazine*, September 2020 issue). As a result, a market frenzy seized the industry, causing stock prices to reach stratospheric heights. McPhy, ITM and Nel, for example, saw their prices increase by 850%, 540% and 230% respectively ▶

NEWCOMERS

HDF

THE ELECTRIC POWER PLANT

“A new sector requires new players,” Damien Havard likes to say. The founder and CEO of Hydrogène de France (HDF) hopes that his company will have a similar fate to that of Tesla. Its IPO in June 2021 was an “amazing success”, according to Euronext. A pioneer of electricity from hydrogen, HDF develops power plants that generate non-intermittent electricity from renewable energy and hydrogen, with the goal of reaching €100 million in revenue in 2025. The company, which intends to manufacture the key component of its power plants (high-powered fuel cells) itself, is finishing the construction of a power plant of this type in French Guiana. It will be commissioned in 2023.

FOUNDED: 2012

REGISTERED OFFICE: LORMONT (FR)

WORKFORCE: 25

REVENUE (2020): €1.9 MILLION

HOPIMUM

THE UNKNOWN ROAD

The comparison is flattering. Founded in 2018 by former pilot Olivier Lombard, French startup Hopium hopes to be the Tesla of hydrogen. To achieve that goal, the company unveiled an ambitious road map in October 2020: presenting its first prototype in 2021, beginning large-scale production in 2026, and achieving turnover of €1bn in 2030. The first step was a success: the “Hopium Mâchina” was presented on June 17, but the rest remains more uncertain. This hasn’t discouraged investors though: with an IPO in December 2020 and an issue price set at €1, shares now trade at around €30.

FOUNDED: 2019

REGISTERED OFFICE: PARIS (FR)

WORKFORCE: 6

REVENUE (2020): 0

GENCELL THE ISRAELI BATTERY

GenCell manufactures fuel cells that transform hydrogen in electricity, and the company raised \$61 million during its IPO on the Tel Aviv Stock Exchange. Up against well-established competitors such as Canadian group Ballard, GenCell has announced that it has developed a system to make fuel cell production less costly.

FOUNDED: 2011
REGISTERED OFFICE: PETAH TIKVA (IL)
WORKFORCE: 95
REVENUE (2019): \$367,000
GNCL

HRS A GRENOBLE STARTUP

In February 2021, Hydrogen Refueling Solutions (HRS) raised €97.3 million during its IPO on the Paris exchange. It was a big success for this small company that hopes to be the European leader in developing and producing refuelling stations for hydrogen vehicles. To date, HRS has installed 34 stations around the world, 32 of which are in Europe. The company, which has an order book of nine stations scheduled for delivery between now and mid-2022, expects to sell 100 of its stations by mid-2025.

FOUNDED: 2004
REGISTERED OFFICE: CHAMP-SUR-DRAC (FR)
WORKFORCE: 34
REVENUE (2020): €10.5 MILLION
ALHRS

GREEN HYDROGEN DANISH ELECTROLYSER

In June 2021, Green Hydrogen Systems had its IPO in Copenhagen. The small company designs and manufactures electrolyzers, which are machines that use an electric current to split water molecules in order to produce oxygen and hydrogen gas. While Green Hydrogen's technology is known to be extremely effective, the company is up against serious competition.

FOUNDED: 2007
REGISTERED OFFICE: KOLDING (DK)
WORKFORCE: 55
REVENUE (2020): DKK 12.226 MILLION
GREENH

in 2020. "There was a real hype around the industry," said Regnard of Bryan, Garnier & Co. "And it's not unfounded."

On paper, this colourless, odourless gas is very promising. Water electrolysis can produce hydrogen simply by splitting a water molecule using an electric current. If the electricity used is renewable, the hydrogen production is clean. And once it is created, the hydrogen can be stored and transported like gas or oil, then used as fuel for transportation (cars, lorries, trains, boats, etc.), homes and industries.

In electricity generation, hydrogen also solves the problem of the intermittent nature of renewable energy. "One of the disadvantages of wind and solar is that they do not produce energy constantly," said Havard, the CEO of HDF, which specialises in electricity from hydrogen. "By combining renewable energies with storage of a massive amount of energy in the form of hydrogen, our power plants solve this problem by generating renewable energy that is available 24 hours a day at a competitive price compared to fossil fuels." A real revolution is on the horizon, but it will take patience.

"In 2020, some investors thought that the hydrogen revolution was happening now, but in fact, implementing this industry will take time. It will still be two or three years before these industrial projects are operational. This led to a discrepancy between the industry reality and market reality, where the appreciation of the time required is different," said Regnard. "Also, the Nikola fiasco scared people." Presented as the Tesla of hydrogen, the US company is accused of misleading the markets by deliberately exaggerating the progress of its technology and the performance of its vehicles.

However, while the Nikola scandal put a damper on things, it hasn't jeopardised the entire industry.

"Hydrogen isn't a bubble. There's something real behind it – real demand, real industrial projects and real outlooks," said Regnard. "In the face of the climate emergency, we need to turn to green hydrogen. This technology will be revolutionary in transport, industry and energy."

Will the recent drop in prices cause investors to jump on the bandwagon? "It's still a bit early," said Regnard. "Yes, the correction was rather severe, but the valuations remain significant, considering the sector's phenomenal increase in 2020." Furthermore, the competitive environment has tightened up in the past year as new startups go public, but most importantly, giants such as Siemens Energy (Germany), Air Liquide (France) and Cummins (US) are investing heavily in green hydrogen.

"The valuations remain significant, considering the sector's phenomenal increase in 2020"

Xavier Regnard, analyst at Bryan, Garnier & Co.

"Last year, investors discovered the industry. Everyone benefited from the hype," said Regnard. "Now, investors need to be more discerning and choose the right company – the one that will succeed because it has the right technology, the right business model and the right industrial partners. It's a bit like the early days of the Internet. Pioneers at the time, such as Lycos, are not necessarily the leaders of today." ▽



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Aryzta's second chance

The European frozen bakery leader bit off more than it could chew, with a costly acquisition campaign in the United States that did not succeed. But it is now making a comeback under its new CEO. Read on for further details.

BY JULIE ZAUGG

For breakfast, you have a fresh croissant from the hotel buffet. Then, you take a walk around the city and make a quick stop at McDonald's for a burger. In the afternoon, you buy a chocolate éclair from a bakery and stop by the neighbourhood grocer to buy a quiche for dinner. It is very likely that each of these items includes bakery products made by Aryzta.

The Schlieren-based group, located in the Zurich canton, is a global leader in the industrial frozen bakery industry. Its breads, croissants, pastries, burger buns, cookies and muffins are sold to restaurants, hotels and shops that cannot make these foods themselves.

But the Swiss-Irish group, named after the Latin word for ear of wheat, has struggled. Turbulence began when the company was created in 2008, a result of the merger between ▶



Aryzta notably supplies burger buns to the American fast food chain McDonald's.

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IN FIGURES

20,000

The number of Aryzta employees around the world.

1,000

The number of Aryzta's products, including artisanal bread, muffins, canapés and croissants.

\$850 m

The total paid for the sale of the group's US activities to the company Lindsay Goldberg in March.

€ 1.9 bn

The revenue generated in the first nine months of the 2020/21 financial year.



PETER ENDIG / KEYSTONE / DPA

With a production capacity of 300,000 tonnes, the Aryzta plant in Eisleben, Germany, is one of the largest factories of frozen bakery products in Europe.

Hiestand, the company owned by Zurich baker Fredy Hiestand, and Irish giant IAWS. “The merger led to a hybrid company, half bakery group, half industrial conglomerate,” said analyst Jean-Philippe Bertschy, who covers the firm for Vontobel.

At the time led by an Irish management team, the company began an ambitious acquisition strategy, particularly in the United States. It acquired around 10 companies between 2010 and 2015. “Aryzta became a merger-acquisition machine, centrally managed, and swayed by financial objectives rather than the interests of its clients and shareholders,” said current CEO Urs Jordi, who took the reins of the company in November 2020.

The US acquisitions were extremely expensive and failed to produce results. “The offering provided by the companies Aryzta acquired in the United States was too sophis-

ticated and expensive compared to local demand,” said Andreas von Arx, an analyst at Baader Helvea. “The companies were also too dependent on a handful of clients in the fast food segment, such as McDonald’s and Subway, whose sales were down in the US.”

“Aryzta became a merger-acquisition machine, centrally managed”

Urs Jordi, CEO of Aryzta

There was also the fiasco of Cloverhill Bakery, a US company acquired in 2014. “In 2017, immigration officials conducted a raid on one of its factories in Chicago and discovered 800 employees without a work visa,” said Bertschy. Cloverhill Bakery had to fire those employees, causing chaos among its clients. One

of these clients, McKee Foods, is now demanding \$16 million from Aryzta.

The Swiss-Irish company has also made some mistakes in the European market. “In late 2015, it launched a product line in its own name, but its core business relied on supplying white-label goods,” said Bertschy. “This actually meant that Aryzta was competing with its own clients.”

Starting in 2016, fault lines began to appear. Aryzta’s profits began a slow decline, dropping from €3.79 billion in the 2016/2017 financial year to €2.93 billion in the 2019/2020 year. The company’s debt, which was used to finance its wave of acquisitions, became critical, nearing €3 billion at its highest. In late 2018, Aryzta had to implement an emergency capital increase worth €800 million.

The COVID-19 pandemic was the final blow. “Our restaurant segment was particularly badly affected, due to

the closure of restaurants and hotels for long periods of time,” said Jordi. “The retail segment also suffered, since people reduced the number of trips to the supermarket, only going once or twice a week and therefore purchasing less fresh bread.” At the peak of the pandemic in April, Aryzta’s share price was no higher than 30 cents (currently 1.16 Swiss francs).

“The new board members are all experts in the bakery sector”

Andreas von Arx, analyst at Baader Helvea

Starting in summer 2020, two of Aryzta’s main shareholders, Spanish group Cobas and Geneva firm Veraison Capital, which hold a 38% stake in the company, began an operation to take back control of the board of directors. Four of its seven members were replaced during an extraordinary annual meeting in September. “The new board members are all experts in the bakery sector,” said von Arx.

In November, CEO Kevin Toland announced his departure and was replaced by Urs Jordi, who was already Chairman of the board. A baker by trade, Jordi was CEO of Hiestand before it merged with IAWS. From 2010 to 2013, he led operations for Aryzta in Europe and Asia.

Right away, Jordi was faced with a new challenge: an acquisition proposal from the US fund Elliott, known for its aggressive approach. Strongly opposed to a sale, the new CEO was able to ensure that the offer was rejected in December. “Accepting such an offer would have been a terrible idea,” he said. “The price that was offered to us, \$872 million, was far too low. That would have been giving the company away.”

Shortly after, he began an ambitious restructuring. In March, Jordi announced that the group’s US operations – making up approximately 40% of its revenue – would be sold for \$850 million to venture capital firm Lindsay Goldberg. “This is essentially the same as the Elliott fund’s asking price for the entire company,” said Jordi.

The sale allowed Aryzta to gain €710 million in cash and significantly reduce its debt. The CEO now hopes to sell off business activities in Latin America, which would bring in an additional €80–€100 million.

“In the future, we’re going to focus on our operations in Europe and Asia,” he said. In the last financial year, Europe generated approximately 50% of Aryzta’s revenue and Asia generated 10%. In the European market, Aryzta dominates sales of frozen bakery products and artisanal bread in several countries, particularly due to the brands Coup de Pates in France, Pré-Pain in the Netherlands, Mette Munk in Denmark, Cuisine de France in Ireland and Fornetti in Hungary. The group’s factories are located in Switzerland, Germany, France and the United Kingdom.

Another big change is that Urs Jordi wants to simplify how the company functions: “We removed several intermediary layers in order to get closer to our clients, better understand their needs and be able to meet those needs more quickly. Each local unit was also granted more decision-making power.” This approach is called a “multi-local” model.

But analysts warn that it won’t be easy to win market share, particularly in Europe. “There’s a lot of competition,” said Bertschy. “German group Harry Brot and French group Bridor are serious competitors.”

Several clients, such as Coop, Migros and Lidl have also invested in in-house bakeries in recent years. “Some of our clients have now become our competitors,” said Jordi.

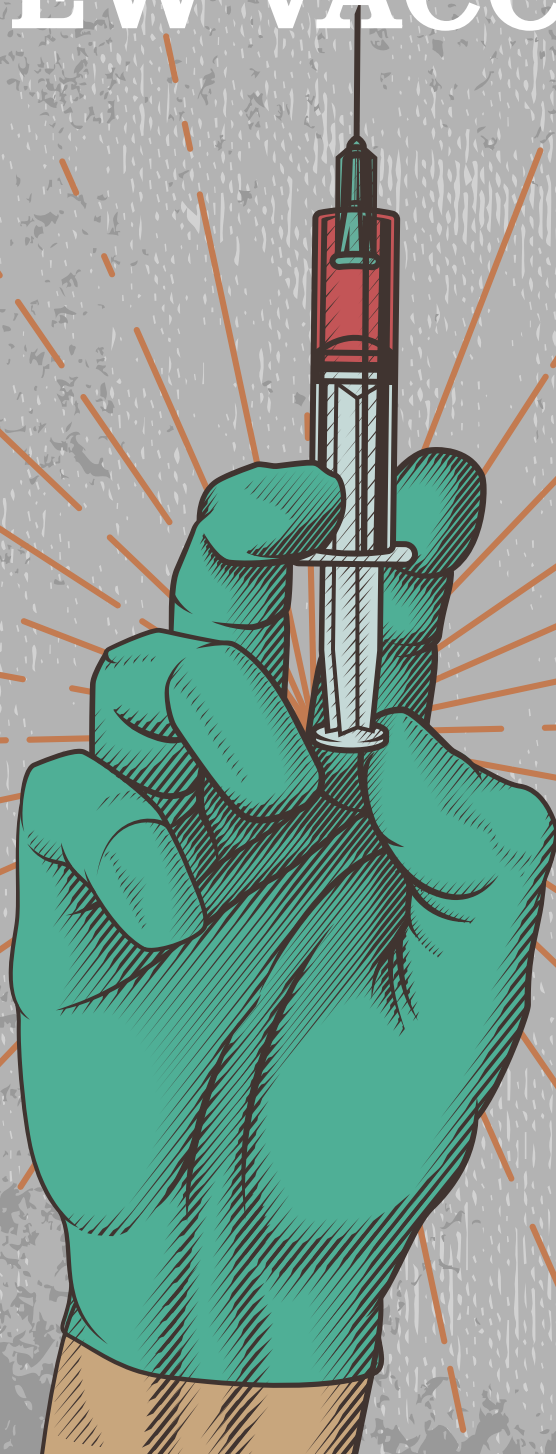
To combat these losses, the company is turning to fast food. “This segment is booming,” said the CEO. “During the pandemic, fast food chains gained a significant share of restaurant clientele.” And in a sign of its confidence in the sector, Aryzta has recently invested in a new production line in Poland for buns. ▽

ANALYST ADVICE

“AN UNDERVALUED SHARE”

For the time being, the changes have not yet resulted in improved revenue and profitability. But Andreas von Arx, an analyst at Baader Helvea, thinks that it’s only a matter of time. “The company has a dominant position in the European frozen bakery market, which should allow it to make economies of scale and fly above the competition,” he said. Asia is also looking promising, as the market recovered from the pandemic faster and remains under-served in bakery products. But Aryzta needs to continue to reduce its debt, which is made up primarily of €950 million in hybrid loans, according to the analyst. He recommends purchasing shares and believes the stock is currently undervalued. But he warns: “It is a ‘value’ investment perfect for people who are willing to wait a while.” — ARYX

COVID-19 A PROLIFERATION OF NEW VACCINES



Labs that were behind in the initial vaccine race will now release their coronavirus vaccines starting this autumn. They are counting on boosters and poorer countries to make their investment profitable.

BY BERTRAND BEAUTÉ

The wait is over: they are coming. If everything goes according to plan, COVID vaccines from French group Sanofi (in partnership with UK giant GSK), US company Novavax and French-Austrian company Valneva will receive their market authorisation by Christmas. While nearly a year behind the COVID vaccine pioneers, they will supplement the vaccine arsenal in the fight against coronavirus. Four vaccines are already approved by the European Medicines Agency – Pfizer/BioNTech, Moderna, AstraZeneca and Johnson & Johnson – and there are several others in use in the rest of the world, such as the Russian Sputnik V, and Chinese Sinopharm and Sinovac.

With so many vaccines already available, what is the purpose of this second wave of vaccines? “Subject to their approval and effectiveness, and especially regarding variants, companies like Sanofi and Novavax, will have a role to play, even though they’re a little late to the game, because the fight against COVID is not over,” said Pierre Corby, a health analyst at Union Bancaire Privée (UBP). Jean-Jacques Le Fur, a pharma industry analyst for investment bank Bryan, Garnier & Co., agrees: “In 2022 there will be many more people in the world who need to be vaccinated, particularly in developing countries. This is where newcomers can step in.”

Indeed, while vaccination campaigns are already well under way in Europe and the United States, with nearly 60% of the population having received at least one dose by late August, the situation is very different in the rest of the world. In poorer countries, less than 2% of the population has received their first dose, while the global rate is 30%. “Many of our first available doses will go to poor and middle-income countries,” said Stanley Erck, CEO of Novavax, during a teleconference on 14 June.

“In 2022, there will be many more people in the world who need to be vaccinated”

Jean-Jacques Le Fur, pharma industry analyst for investment bank Bryan, Garnier & Co.

Unlike the ground-breaking RNA vaccines from Moderna and Pfizer/BioNTech, the new vaccines have a strong advantage for use in poorer countries: they can be stored easily. “RNA vaccines require superfreezers, since they need to be stored at very low temperatures,” said Le Fur. “This requires significant logistics arrangements for both transportation and storage. Conversely, the Sanofi and Novavax formulas, which use

recombinant protein technology, can be stored in regular refrigerators between 2 and 8 degrees. This logistic benefit could be a determining factor for many countries, particularly the poorest ones.”

For late-breaking vaccine producers, the maths is simple: if it takes a global vaccination rate of around 70% to reach herd immunity, more than 10 billion doses will be needed in order to vaccinate the entire planet (with two injections per person) for the global population of 7.8 billion people. As of early August, “only” 4.2 billion doses have been administered in the world. The potential remaining market is enormous, especially as vaccination becomes increasingly available to adolescents and children. “We believe we can be beneficial because we need billions of doses to vaccinate the global population, so the additional doses from Sanofi will be useful,” confirmed Olivier Bogillot, president of Sanofi France, in a radio interview with France Inter in early July. But for newcomers, the competition is not just the RNA vaccines. Other products, such as the vaccines from AstraZeneca and Johnson & Johnson, but also Sinovac and Sinopharm, which were recently approved by the World Health Organization (WHO), and the Russian vaccine Sputnik V, can all be stored at more moderate temperatures and are already available for use in emerging countries. ▶

But the manufacturers of the new vaccines don't intend to only supply developing countries. They're also eyeing another promising market: third doses and boosters. "With the circulation of the variants, I think everyone will need a third dose to boost their immune systems," said Olivier Bogillot, president of Sanofi France, on France Inter. Encouraged for several months by labs such as Pfizer and Moderna, which would benefit from the additional revenue, the booster idea has begun to appeal to public health officials.

In late July, Israel announced that it would start giving third doses to people over 60 and Germany, France and the US are expected to do the same from September. The UK launched a clinical trial in May to study the immune response from an additional dose; the results are expected in September. The study analyses the effect of six vaccines – Oxford/AstraZeneca, Pfizer/BioNTech, Moderna, Novavax, Valneva and Johnson & Johnson – administered regardless of the type of vaccine that was initially given. Sanofi and GSK are expected to join a similar study soon.

“The end of the story is not yet written”

Frédéric Bizard, professor of health economics

“We've been in emergency mode thus far, that is, we're doing everything we can to speed up vaccination campaigns, particularly with vaccination centres,” said Le Fur. “But in the near future, or in coming years, if third doses or boosters are needed, they will no longer be given in these temporary centres. They will be given in pharmacies or by general practitioners. These locations don't have superfreezers. If the booster vaccine market grows, the latecomers will be able to gain market share because



A person being vaccinated against the coronavirus on 28 June, 2021, in Calcutta, India.

DIPA CHAKRABORTY/PACIFIC PRESS/NEWS.COM

their vaccines are easy to store.” The WHO has nonetheless denounced this rush for booster doses by rich countries. “We believe clearly that the data today does not indicate that boosters are needed,” said the WHO's chief scientist, Soumya Swaminathan, on 18 August, judging that from a “moral and ethical” perspective, it is also not good that rich countries give the third dose “when the rest of the world waits for its first injection”.

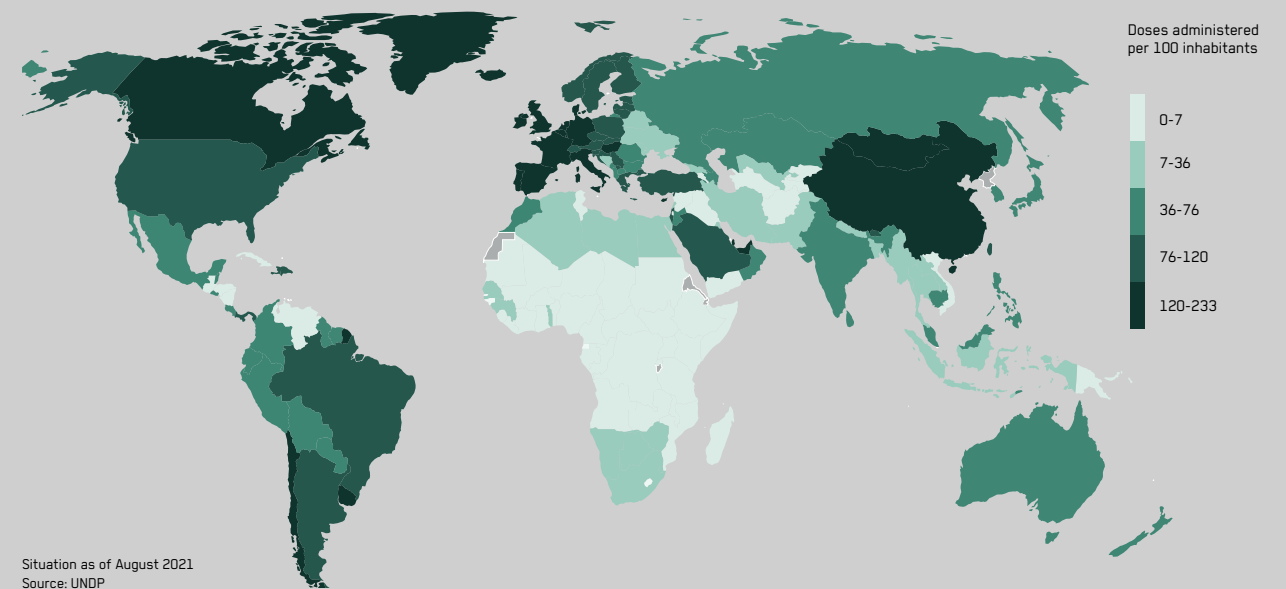
It remains to be seen how the pandemic will evolve. “So far, the first-generation vaccines are effective overall against the variants,” said Frédéric Bizard, professor of health economics at Paris Dauphine University. “But it's possible that a new variant could emerge and evade the current vaccines.” To counter this possibility, laboratories are already working on second-generation

vaccines. Moderna and CureVac, for example, are working on a “multivalent” RNA vaccine that would protect against several strains of the virus simultaneously. “The end of the story is not yet written,” said Bizard. “The big winner will be the company that is able to develop a one-dose vaccine that protects against all variants and can be stored easily. I think that these second-generation vaccines will arrive in 2022.”

In this race, a “technological war” has begun, according to Jean-Jacques Le Fur. “The vaccines that use adenovirus technology (AstraZeneca and Johnson & Johnson) will have a limited role due to their poor image linked to tolerance issues. Western countries no longer want them and are setting them aside to donate to developing countries,” explained the Bryan, Garnier & Co. analyst. “And recombinant protein vaccines (Sanofi and Novavax)

THE GLARING VACCINE INEQUALITY

Eight months after the first vaccines came on the scene, poor countries are still short of doses - a contrast from the richest countries, which the WHO considers “scandalous”.



Situation as of August 2021
Source: UNDP

still need to be tested.” In other words, the RNA technology used by Moderna and Pfizer/BioNTech was little-known a year ago, but now has a serious lead over its competitors in the fight against coronavirus. Sanofi is well aware of this. In early August, the French pharma giant announced its acquisition of US biotech Translate Bio for \$3.2 billion. The company specialises in messenger RNA, and Sanofi is partnering with it to conduct two mRNA vaccine clinical trials (one for COVID, the other for the seasonal flu).

To put it another way, the wave of new COVID vaccines is still ongoing, and it is unlikely that the newcomers will bring down prices. According to a *Financial Times* article from early April, Moderna and Pfizer/BioNTech took advantage of the summer to increase prices on vaccines sold to the European Union. ▲

THE VACCINE MARKET IS HEATING UP

In late July, Pfizer announced that it expects its COVID vaccine to generate \$33.5 billion in 2021, with a net margin of 30%. “It's the highest sales ever recorded for a medicine,” said Pierre Corby from Union Bancaire Privée (UBP). “Until now, the record was held by Humira – a medicine from Abbvie used to treat rheumatoid arthritis – which recorded \$18 billion in revenue at the height of sales.”

Moderna is also doing well. The primary competition for Pfizer/BioNTech, the US company is forecasting \$19.5 billion. Adding the revenue from Johnson & Johnson (\$2.5 billion expected) in 2021 and other players, the total revenue for the coronavirus vaccine will exceed \$60 billion this year. As a comparison, the global vaccine market (excluding travel and military vaccines) was worth

only \$33 billion before the pandemic in 2019, barely 2% of the global pharmaceutical market, according to the WHO.

“Before the pandemic, vaccines weren't very high on the priority list,” said Frédéric Bizard, professor of health economics. “Four companies (GSK, Merck, Pfizer and Sanofi) shared 90% of the market. But COVID completely changed the game and opened the door to a new era of biotech and messenger RNA.” Now just one question remains: is this incredible growth in the vaccine market here to stay? “Until the end of 2022, and probably in 2023, there will be significant demand for coronavirus vaccines,” said Corby. “But beyond that, it is still too early to know if this demand will be sustainable and at what level it could be maintained.”

DOSSIER

THE \$500 BILLION BUSINESS OF SLEEP

Sleep is becoming a major concern as our society grows ever more tired. Now a myriad of tech companies are launching apps and connected objects that promise to bring us more restful nights.

BY BERTRAND BEAUTÉ

- 40.** There is no such thing as a miracle pill
- 42.** Infographic: the subtle mechanics of sleep
- 44.** Interview with Olivier Taelman, CEO of medtech Nyxoah
- 48.** Companies that want to put us to sleep

Matteo Franceschetti, CEO of the New York-based startup Eight Sleep, which develops connected mattresses, told the US news site TechCrunch in an interview, "Our potential market is by definition much larger than that of connected fitness companies like Peloton. Everyone sleeps, right?" As such, he highlights the potential of the sleep business. Sleeping is not a leisure activity, but a need, and human beings spend an average of one-third of their lives asleep. So everyone needs some help for a good night's rest. That's 7.6 billion potential customers! ▶

Dossier prepared by:
Bertrand Beauté and
Stanislas Cavalier

However, the sleep market has long been in a haze, amounting to a mattress change once every 10 to 15 years. Why? “In a world that worships performance and professional success, sleep has often been overlooked, thought of as a waste of time,” says José Haba-Rubio, licensed physician with the Center for Investigation and Research in Sleep (CIRS) at Lausanne University Hospital. The HypnoLaus study conducted in Lausanne estimated that people in French-speaking Switzerland sleep on average slightly less than seven hours per night, that is 1.5 hours less than 100 years ago.

“Most have a sleep debt and live feeling that they are constantly chasing after rest to try and catch up,” says Raphaël Heinzer, director of the CIRS and co-author of the book *Je rêve de dormir* (I dream of sleeping). This sleep debt was long ignored and even given value. CEOs like Tim Cook, the boss of Apple, and Bob Iger, the head of Disney, would never miss the chance to vaunt their short nights as the reason for their success.

That was a mistake. “We sometimes get the impression that we save time and perform better by sleeping less, but it’s the opposite,” Raphaël Heinzer adds. Lack of sleep increases the risk of disease: obesity, diabetes, and hypertension. Several scientific studies report that people who sleep less than five hours a night are twice as likely to develop cardiovascular diseases and increase their risk of being overweight by 50%. A study published in the journal *Sleep* in 2015 also showed that sleep-deprived people have four times the chances of catching a cold than others who enjoy adequate nights of rest.

Sleep quality is by no means irrelevant. It is a real public health issue. An Australian study, which caught a great deal of attention when it was published in 2018 in *Sleep*, showed that the global “sleep deprivation epidemic”, as the authors’ put it,

comes at an astronomical cost: \$45.21 billion a year in Australia alone, due to illnesses, accidents, but also due to lower productivity and absenteeism at work. The authors assert that “these costs justify a substantial investment in preventive measures to address the problem through education and regulation.”

Countless applications such as Sleep Cycle, Sleep Better, Réveil Bonjour, Calm or iRonfle

The message seems to be getting through. Some governments have launched awareness campaigns, while a number of organisations have instituted nap rooms. And the general public is hearing it too. “For years, sleep has been neglected, but

today we are experiencing a paradigm shift,” says Dr Maxime Elbaz, an expert in connected objects at the Sleep and Vigilance Centre, part of Hôtel-Dieu Hospital (AP-HP) in Paris. “People are increasingly aware that they don’t feel good if they don’t sleep well.”

Dr Katerina Espa Cervena, director of the Cenas Sleep Centre in Geneva, agrees, “Before, patients would come to us to ask us how to reduce their sleep time. Now, we never get that type of request. Thanks to media coverage of the issue of sleep, much more value is attached to getting enough rest.”

This realisation is even more striking in our hyper-connected Western countries, where people tend to sleep more and more poorly. The Swiss Health Survey 2017 published in February 2019 reported that nearly 30% of the Swiss suffered from sleep disorders in 2017, as opposed to 25% in 2015. After campaigns urging the population to eat better and move more, the time for sleeping well

has come. According to consulting firm Frost & Sullivan’s study, the global sleep market, estimated at \$432 billion in 2019, is expected to be \$585 billion by 2024. In an article on the sleep market, US firm McKinsey gauged in 2017 that “there’s little doubt that the sleep-health economy will offer robust investment opportunities,” as, “based on the growing awareness of the mental, physical, and economic costs of sleep insufficiency, consumers are increasingly seeking out new solutions.”

What more is needed to attract the tech industry, which is always on the lookout for new high-potential markets? Launched in 2014, US firm Casper began by shaking up the entire bedding industry by infringing on the segment of mattress sale and delivery (see also p. 53). Before then, customers would test and buy these products in stores. Now Casper has opened the floodgates of one-click online purchases with the option of returning the mattress free of charge within 100 days. ▶

The main sleep disorders

INSOMNIA

The most common sleep disorder, insomnia is defined as trouble falling asleep, waking up at night without falling back asleep and/or waking up too early in the morning. Studies estimate that it affects 15% to 20% of the population, and 9% suffer from severe insomnia. It is more common in women and increases with age.

OBSTRUCTIVE SLEEP APNOEA

Sleep apnoea involves recurrent episodes of obstructed breathing during the night. Sleep becomes fragmented because each apnoea causes a micro-arousal of which the patient is not necessarily aware. Fifty per cent of men and 25% of women over age 40 suffer from sleep apnoea.

RESTLESS LEGS SYNDROME

Restless legs syndrome (RLS) is a chronic disorder characterised by an uncontrollable urge to move the legs, combined with unpleasant sensations in the lower limbs. It occurs mainly at night.

HYPERMOMNIA

Even though they get a long, uninterrupted night’s sleep, people who suffer from hypersomnia are always tired and complain of feeling overly sleepy during the day. They often feel the need to take long naps and have trouble waking up.

PARASOMNIA

Known as sleepwalking, parasomnia is the act of walking, talking or engaging in any other form of complex activity while asleep. This disorder can cause significant problems for live-in partners, especially when the patient unconsciously initiates sexual relations. A sleep debt, poor sleep habits and the consumption of stimulants (caffeine, alcohol) can bring on such episodes.

But the revolution has not stopped at the mere sales channel. Dozens of startups have cropped up, riding the promise of giving us a better night's sleep with new technology. Countless applications, such as Sleep Cycle, Sleep Better, Réveil Bonjour, Calm or iRonfle, offer to analyse your sleep cycle, wake you up "at the right time", or reduce your snoring.

As far as hardware goes, the unlisted New York-based startup Eight Sleep, for example, sells connected mattresses that can monitor sleep and make recommendations via a special app. French startup Moona has created a pillow that adjusts its temperature, and sound giant Bose makes Sleepbuds to help you fall asleep faster (see p. 80). Not to mention, of course, dawn simulators, connected headbands and smartwatches, all of which now have a sleep tracking function. The list is long.

This new "sleep tech" industry is booming. "Sleep has become a gold mine for startups, because people sleep badly and they want to sleep better," says Maxime Elbaz, developer of the Apple Watch app, iSommeil, which measures sleep time and snoring. A Global Market Insights report estimates that the global sleep tech market will reach \$40.6 billion by 2027, up from \$12.5 billion in 2020, coming out to an annual growth rate of 17.8%.

And tech giants do not intend to leave the pieces of that pie to ambitious startups. In the spring of 2021, Google launched its second-generation personal assistant Nest Hub. This new iteration by the giant from Mountain View can now track your sleep via radar. Every morning the device displays a summary of the user's sleep and tips on how to improve it. Google has been looking into our sleep quality for several years. Back in 2019, the ubiquitous search engine bought Fitbit for \$2.1 billion. Among other things, its connected bracelets can be used to track sleep. In

this niche, Fitbit competes with the Apple Watch, which also has a sleep tracking feature, as do bracelets by Samsung, Huawei and even Garmin. In 2017, Apple bought the startup Beddit, which also sells a sleep monitor. "The sleep tech market is currently made up of lots of startups. But the market will self-regulate. Some will disappear and others will be bought out," says Maxime Elbaz. "In the end, only GAFAM will be left."

"Some connected objects for the consumer market are getting scientific validation"

Dr Maxime Elbaz, connected objects expert at the Sleep and Vigilance Centre at Hôtel-Dieu Hospital in Paris.

But do these connected gadgets really help people sleep better? "All technology that improves comfort, such as bedding that regulates

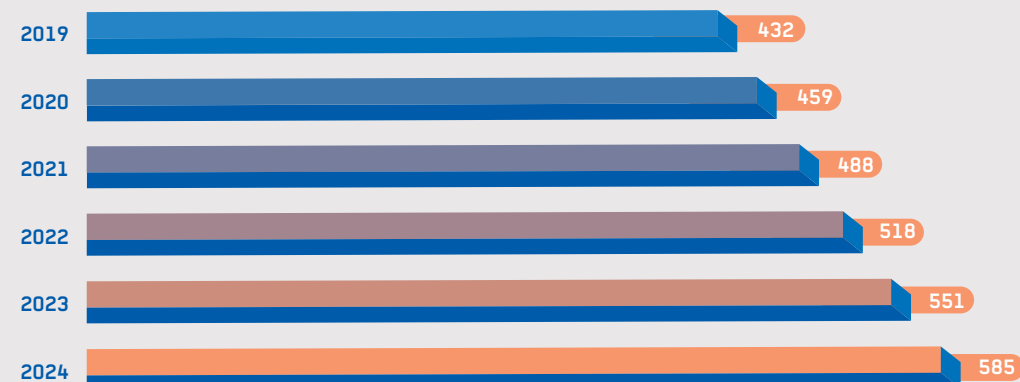
temperature and mattresses that adjust position, are very good," José Haba-Rubio says. "And if people feel that they sleep better with a dawn simulator, eye mask or ear plugs, they should do it! What people feel is very important in trying to get more sleep. If they feel better with whatever object, then that's positive."

However, the utility of gadgets used to track sleep, such as connected watches, bedside radars, and mattresses or pillows with sensors, is less clear. The first generation of these devices emerged about 10 years ago and only tracked sleepers' movements. "But movement is not a reliable indicator of how a person sleeps," Raphaël Heinzer says. "For example, insomniacs don't move much."

But the latest models are proving much more efficient by integrating physiological measurements, including heart rate and oxygen saturation, along with artificial intelligence. The investment bank Bryan, Garnier & Co. states that "recent advancements in data acquisition opened the door to

Steady growth

Forecast revenue of the sleep economy (in billions of dollars).*



Source: Statista

* Very diverse, the sleep market is made up of all sleep-related products, services and applications - from mattresses to sleep apnoea treatment machines, including connected objects.

a big data revolution in sleep." This opinion is shared by Maxime Elbaz, an expert in connected objects with the Sleep and Vigilance Centre at Hôtel-Dieu Hospital in Paris. "I strongly believe in self-measuring sleep over short periods to assess sleep quality. This helps people realise they have a health problem and can push them to see a doctor."

Philippe Koller, founder of the Swiss startup Netsensing, agrees. "There is a real need to provide more widespread screening for sleep disorders, because that's where the challenge lies. It can take three to six months to get an appointment with a sleep centre in Switzerland and up to two years in the UK! So we need to find a quick and easy way to detect conditions like sleep apnoea." And there are two contrasting approaches to doing that. On one hand, startups like Netsensing in Switzerland and Dream in France are developing medically approved solutions. "We have compared our solution with devices used in hospitals," Koller says. "And the results show that our detectors perform just as well. We will therefore

launch a clinical study in 2022 to get scientific validation." On the other hand are consumer trackers offering many promises but usually without proof. "Tech companies tend to sell B2C products, and then do the clinical trials afterwards," Maxime Elbaz says, amused. "Some connected objects for the consumer market are getting scientific validation. One is Fitbit, which has produced studies showing that its bracelets are effective, and Finnish company Oura, that markets a connected ring. Meanwhile, Apple does a lot of marketing but they haven't published anything, nor has Samsung."

But as these technologies become mainstream, doctors' offices are filling up with patients anxious about what their sleep apps are saying. "We're getting more patients who come to see us because their smartwatch or app has reported that they're sleeping poorly," says Dr Katerina Espa Cervena. The problem is that not all of these devices are reliable. Raphaël Heinzer therefore advises people who feel well not to use them. "What is the point

of tracking people's sleep if they get enough rest and don't feel drowsy during the day?" asks the head of the CIRS at Lausanne University Hospital. "There is none. Using these devices could even be harmful if users on a quest for the perfect night's sleep start to focus too much on it. To the point of disrupting it. This condition is called orthosomnia."

The name of this disorder was coined in 2017, just as smart sleep tracking devices poured onto the market. In a *Journal of Clinical Sleep Medicine* study, the researchers who came up with the term explained that they based the word "orthosomnia" on its similarity to orthorexia, the unhealthy obsession with healthy eating. Data recorded by sleep tracking devices causes orthosomniacs to become obsessed with sleep. They give it excessive importance and want to sleep well at all costs to optimise their days. The result? They don't get any sleep! "New sleep measurement technologies can be interesting," says Dr Cervena. "But the important thing is not the device, but how you use it." ▽



ISTOCK

THERE IS NO SUCH THING AS A MIRACLE PILL

While sleeping pills are mostly taken by older people, young people choose other substances like melatonin and CBD – with no guarantee of success.

BY BERTRAND BEAUTÉ

“We should not cast aspersions on sleeping pills. In the short term, they are a quick way of relieving sleeping problems,” explained Dr Katerina Espa Cervena, head of Cenas, a private sleep centre in Geneva. “But they are not effective over the long term and in Europe, we do use them a lot.” According to the Swiss Federal Office of Public Health (OFSP), 7.4% of Swiss people have taken at least one sleeping pill or tranquiliser in the past 30 days. And 2.1% of those over the age of 15 have been taking them every day for at least three months. In total, 200,000 to 400,000 people in Switzerland have problems with their use of sleeping pills. Many of these are older people. According to a study carried out by Unisanté and published in the *BMJ Open* medical journal in 2020,

15.9% of Swiss people aged 65–69 have at least one prescription for benzodiazepines, which include the drugs Xanax and Temesta, among others. This figure increases sharply with age, rising to 18.4% among those aged 70–74, 22.5% among 75–80 year-olds, and over 25% for those 80 and older.

“Sleep quality declines with age. Older people are more affected by insomnia and their sleep is lighter and more fragmented. This partly explains why those over 70 take more sleeping pills,” explained Katerina Espa Cervena. “But I think that young people are also more reluctant to take this type of medication, which has had a bad press.” As a result, sleeping pill purchases declined by 9.4% in Switzerland between 2013 and 2018.

Instead, young people with sleeping problems turn to products marketed as being natural, such as melatonin, CBD or herbal remedies. “There are many products available, such as trace elements, vitamins and minerals, but we have no proof that they help with sleep. This is particularly true for CBD, which has not been proven to have a positive impact,” explained José Haba-Rubio, licensed physician at the Center for Investigation and Research in Sleep (CIRS) at Lausanne University Hospital (CHUV). “Some herbal remedies have a relaxing effect, which can help in mild cases of insomnia.”

Things are different with melatonin. Presented as the sleep hormone, this molecule plays a genuine role in the quality of our sleep. “Melatonin is released by the pineal gland in the

The global market for medical sleep aids amounted to \$78.7 billion in 2019

brain and it regulates our sleep-wake cycle,” explained Raphaël Heinzer, head of the CIRS. “We use it for patients whose sleep cycle is disrupted, especially those who wake too early and cannot get back to sleep.” But beware, self-medicating with melatonin is not a good idea. “The quality of the melatonin is very important, but the products sold online are of poor quality,” said Heinzer. “The time at which you take it is also particularly important. If you take melatonin at the wrong time, it can make the problem worse.”

Alcohol is, of course, another “miracle” treatment. It’s well known that we fall asleep faster after a drink. As a result, self-medication using alcohol is widespread among insomniacs (used by around 30% of sufferers). But while ethanol has a powerful sedative effect, it then disrupts your sleep cycle, reducing the length of your periods of deep sleep.

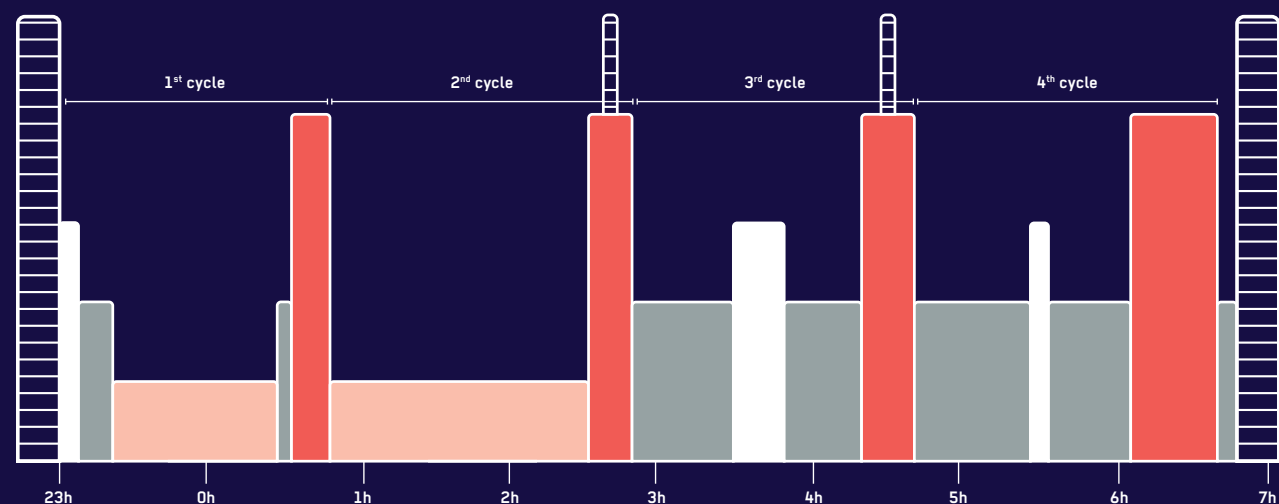
What about cannabis? A study published in the *Journal of Addictive Diseases* in 2016 showed that insomnia was a problem for nearly four in 10 daily users of cannabis, compared with one in 10 among occasional users. These results corroborate several other studies showing a link between sleep disorders in young people and the consumption of drugs and/or alcohol.

If you have sleeping problems, it’s important that you see your doctor rather than risking self-medication: “People need to realise that we can help them,” said José Haba-Rubio. “Sleeping problems can be treated. Solutions are available.” For insomnia, cognitive behavioural therapy for insomnia (CBT-I) has spectacular results: “Sleep improves for 80%–85% of our patients,” said Katerina Espa Cervena. “Over the long term, it’s much better than sleeping pills.” Sleep apnoea can be treated by machines that pump oxygen into the airway, and, increasingly, by revolutionary implants (see also p. 44 and 52). Melatonin and light therapy offer good results for sleep cycle issues. The global market for medical sleep aids amounted to \$78.7 billion in 2019, and is set to reach \$162.5 billion in 2030. ▲

THE SUBTLE MECHANICS OF SLEEP

SLEEP CYCLES

Sleep stages alternate in cycles during the night. Deep sleep, the most important phase for recovery, mainly takes place in the first part of the night.



Wakefulness

Chart showing the stages of sleep, recorded on a subject by electroencephalogram

1. FALLING ASLEEP

As you fall asleep, your eyes close. This light sleep only lasts a few minutes. The body can still pick up external stimuli such as noise and light, and you can be woken up easily.

2. LIGHT SLOW SLEEP

You go into a deeper sleep but can still wake up relatively easily. Your breathing and heart rate slow. This stage accounts for 50% to 60% of total sleep time and lasts longer and longer throughout the night.

3. DEEP SLOW SLEEP

Your breathing and heart rate are regular, and the body doesn't move. Your brain becomes insensitive to external stimuli. This is the time in the sleep cycle when you recover the most from cumulative physical fatigue. This stage takes up 10% to 20% of sleep time.

4. PARADOXICAL SLEEP

This is a phase of intense cerebral activity, with rapid eye movements, also called REM, under the eyelids. This stage is when you dream. Your pulse and breathing are irregular. Paradoxical sleep lasts for 20% to 25% of total sleep time.

IN NUMBERS



30 YEARS

Time spent sleeping by the age of 90, i.e. one-third of our life.



30%

Percentage of the Swiss population suffering from mild (22.9%) or severe (16.3%) sleep disorders.



7.4%

Percentage of the Swiss who have taken at least one sleeping pill in the past 30 days.



111.6

In decibels, the noise level of the snores from Jenny Chapman, a British woman, measured in 2009 - a record high. As a comparison, a chainsaw produces levels of 110 db.



11 DAYS AND 25 MINUTES

The longest amount of time a human has gone without sleep without stimulants. Randy Gardner set the record in 1964.



150,000

Number of people with sleep apnoea in Switzerland.

HOW LONG?

Although it varies from person to person, the amount of sleep an average adult needs is 7 to 9 hours per night, while a newborn can sleep up to 17 hours per day.



0 TO 1 YR

12-17 hours



1 TO 2 YRS

11-14 hours



3 TO 5 YRS

10-13 hours



6 TO 13 YRS

9-11 hours



14 TO 17 YRS

8-10 hours



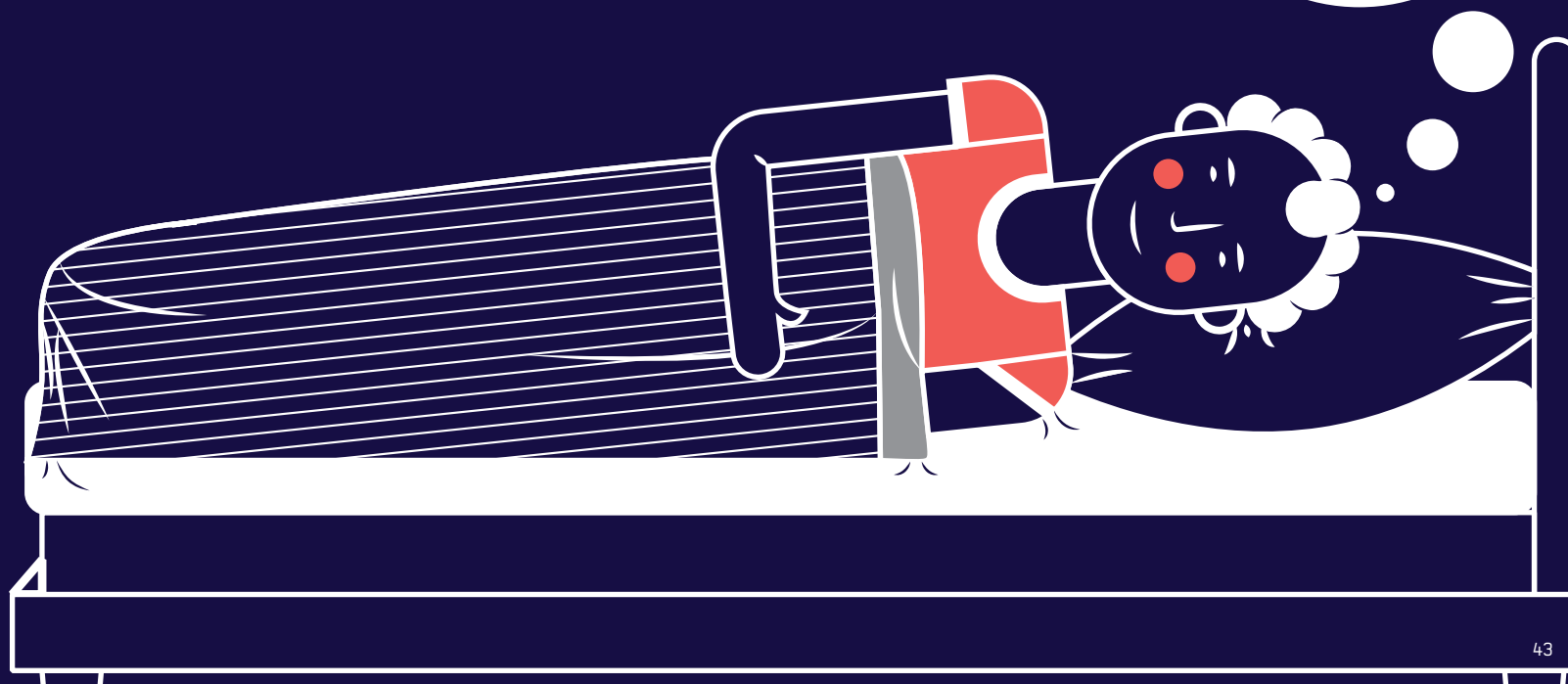
ADULTS

7-9 hours



ELDERLY

6-7 hours



INTERVIEW

“We want to become a world leader”

Specialising in the treatment of obstructive sleep apnoea, the Belgian medtech startup Nyxoah made a stunning entry on the Nasdaq in July of this year. We interview its CEO, Olivier Taelman.

BY BERTRAND BEAUTÉ

Nyxoh is spearheading European sleep tech, living 2021 on American time. In January, Nyxoah's Genio system designed to treat obstructive sleep apnoea was implanted in an American patient for the first time as part of the DREAM clinical study. This step should pave the company's way into the American market. In February, Nyxoah signed an exclusive licence agreement with Vanderbilt

THE NEUROSTIMULATION EXPERT

Born in Sint-Truiden in Flemish-speaking Belgium in 1971, Olivier Taelman was hired as head of Nyxoah in November 2019. He has vast experience in pharmaceuticals and medtech with an MBA from the Wharton School (University of Pennsylvania). Taelman began his career at Eli Lilly in 1996. After working for at Sanofi, he moved on to Minneapolis-based Medtronic from 2004 to 2013, where he expanded his knowledge of neurostimulation devices.

Nyxoah's IPOs on Euronext Brussels in September 2020 and on the Nasdaq in July 2021 were not firsts for Taelman. In 2014, while heading the European operations for Nevro, a California-based startup specialised in spinal cord neuro-modulation, he helped lead the company's IPO on the Nasdaq. Today, Nevro's capitalisation is \$3.6 billion! And with Nyxoah, Taelman intends to repeat that success on the stock exchange.

Why is Obstructive Sleep Apnoea (OSA) a public health problem?

In people with OSA, the muscles in the pharynx relax too much, causing the upper airway to close partially or completely during sleep. This leads to repeated, involuntary respiratory arrest that impairs the patient's sleep and quality of life. The brain lacks oxygen during these asphyxiation episodes, forcing the heart to pump more blood. In the short term, this leads to snoring, chronic fatigue and discomfort. In the longer term, OSA damages the brain and heart. Patients double their risk of stroke and have five times greater chances of developing cardiovascular disease. Treating OSA can therefore really make a difference for public health.

How widespread is the disorder?

Worldwide, more than 900 million people aged 30 to 69 suffer from OSA. But not all of them need to be treated. People who have less than 15 apnoeas per night have a mild form, which does not require medical attention. However, patients who develop moderate (15 to 30 respiratory arrests per night) and severe (more than 30) forms should get treatment. That comes out to 400 million people, but only 20% of them are actually being treated.

Why such a low percentage?

To be diagnosed, patients must go to a specialised centre where they spend the night, and their sleep is monitored. But not everyone has access to these facilities, which are also often overcrowded (ed. note: in Switzerland it can often take over six months to get an appointment). Therefore patients mainly go to see their general practitioner. Their doctor notes several symptoms, such as snoring, chronic fatigue and high blood pressure. But they don't necessarily make the connection with obstructive sleep apnoea. They treat the symptoms rather than the cause. They prescribe a change in bed position to limit snoring, a healthier lifestyle, or even medication to lower blood pressure. But all that does not solve the cause of the problem. Only 15% of patients are correctly diagnosed. This generates a huge additional cost for health systems, due to the unnecessary tests and treatments prescribed during this period of medical limbo.

“Only 15% of patients are correctly diagnosed”

Tech companies sell connected objects, such as smartwatches, that track people's sleep. Some manufacturers claim that their products can detect sleep apnoea. Could that help to fight the under-diagnosis of this condition?

Many companies are investing money in sleep, because it's a huge market. The problem is that very few consumer products have been scientifically proven to diagnose sleep apnoea. Most have not been ▶

Olivier Taelman, CEO of Nyxoah (centre) on the first day of his company's listing on the Brussels Stock Exchange, in September 2020. Since July 2021, the company has also been listed on the Nasdaq.



clinically studied at all. Medicine is based on facts, not assumptions or marketing slogans.

Today, the best way to diagnose sleep apnoea is to go to a sleep centre and undergo a polysomnographic recording (PSG). Having said that, I think it's very positive that tech companies are interested in sleep. They'll bring a lot of innovation to the market.

Currently, the most effective treatment for sleep apnoea is CPAP (Continuous Positive Airway Pressure) therapy. What is the point of developing a new therapy like Nyxoah's if CPAP machines are effective enough?

CPAP therapy requires patients to wear a mask all night. The mask delivers pressurised air into the patient's mouth or nose to keep the upper airway open and thus limit the number of apnoea events. The treatment works very well but is not easy for patients. Wearing a mask hooked up to a machine

via a tube is unpleasant and limits movement in bed. Plus, it impacts their partners. As a result, 50% of patients who use CPAP machines end up stopping their treatment. That means we need to find alternative solutions for them.

"Our device operates as simply as a smartphone"

We have therefore developed a system, Genio, which stimulates the hypoglossal nerve. Basically, it's a tiny implant surgically placed under the patient's chin. During an apnoea event, the device stimulates the hypoglossal nerve, which controls the tongue, thus keeping the upper airway open during sleep. Clinical studies have shown the effectiveness of our system, which received

the European CE Mark in 2019. Genio is already on the market and covered by health systems in Germany, Switzerland and Spain. Other countries – such as Belgium, France, the United Kingdom and the Netherlands – are expected to follow. In the United States, we have just launched a clinical study that we expect to complete by the end of 2022. We plan for market launch in mid-2023.

You are entering the market at a time when the US company Inspire Medical, the world leader in this type of device (see also p. 52), has been selling nerve stimulators to treat sleep apnoea for several years...

We have great respect for Inspire Medical. But they're number one worldwide because they were the only ones in this segment. Today, we come to the market with ambition. We believe that we are capable of challenging them and becoming a world leader in the treatment of OSA. Our system has several

advantages over theirs, especially because it is less invasive. Our treatment requires only one incision to implant it in the patient's neck, as opposed to three (at the hip, ribs and neck) for the Inspire system. And the effectiveness of the devices is similar. In addition, all of Genio's software and the battery remain outside the patient. That means we don't need to re-operate to update the software or recharge the battery. In this respect, our device operates as simply as a smartphone. Its easy implantation and use are our main advantages over the competition.

And in terms of cost for health insurance companies?

Genio is priced similarly to the Inspire device, i.e. about €20,000 for the implant plus the cost of the operation. That is more expensive than CPAP machines, but the cost is the same after five years of using implants or CPAPs. Genio is designed to work for 10 years, so it is less expensive for patients than CPAP machines over its entire life cycle.

You've just signed an exclusive licensing agreement with Vanderbilt University in the United States to use their neurostimulation technology. How is it different from yours?

Hypoglossal nerve stimulation, whether with Inspire's mechanism or ours, works in 70% of apnoea patients. But for the remaining 30%, it doesn't work. However, Vanderbilt University has developed a technology that stimulates another nerve, the ansa cervicalis. And the initial tests are very encouraging. The agreement will allow us to use this technology to develop a new implant for patients who do not respond to current neurostimulation. It opens new horizons for us and strengthens our development pipeline.

Even though Nyxoah was already listed on Euronext Brussels, you chose to launch an IPO on the Nasdaq in July. What is the advantage of being listed on both markets?

There is more liquidity on the Nasdaq and by going public we wanted to attract American institutional investors. The funds raised (€85 million) during our IPO on Euronext Brussels in September 2020 should carry us through to the commercialisation of Genio on the US market, which is scheduled for mid-2023. The \$97.8 million raised on the Nasdaq in July will cover our development thereafter. ▽

FOUNDED
2009

REGISTERED OFFICE
MONT-SAINT-GUIBERT
(BE)

WORKFORCE
100

REVENUE (2020)
€ 69'000

NYXH

Nyxoah the Belgian gem

"For a small company with 100 employees, we are very global," smiles Olivier Taelman, Nyxoah's CEO. Founded in 2009 by serial entrepreneur Robert Taub, Nyxoah is headquartered in Mont-Saint-Guibert, Belgium. It also has a manufacturing site in Tel Aviv, Israel, where it conducts most of its R&D. With teams in Australia, Germany and the United States, the company has just completed the construction of a second production site in Liège, Belgium.

Nyxoah has created a tiny implant called Genio that uses neurostimulation to keep the upper airway open during sleep. Priced at nearly €20,000 per patient plus the cost of implantation surgery, the system

is designed to treat moderate to severe obstructive sleep apnoea (OSA) more effectively. The device won the 2014 "New Product Innovation Leadership Award" from the consulting firm Frost & Sullivan.

"Thanks to its discreet form factor and easy implantation, Nyxoah's Genio has the potential to disrupt the way we treat sleep apnoea," the investment bank Bryan, Garnier & Co. said in a white paper. Nyxoah's potential market is estimated at 400 million people worldwide who suffer from moderate to severe OSA. Most analysts recommend buying shares, which currently trade at around €26, almost 50% higher than its IPO price (€17) on the Brussels Stock Exchange in September 2020.

Companies that want to put us to sleep

A plethora of companies share the lucrative sleep market and interest in the sector is growing from a number of tech firms. Here is our selection.

BY BERTRAND BEAUTÉ



Garmin Now tracking sleep

Best known to most for its GPS navigators used by athletes, Garmin is now interested in sleep. Since 2018, the US manufacturer headquartered in Switzerland has been producing several smartwatches that can monitor their wearers' sleep by measuring parameters such as activity, heart rate and blood oxygen saturation. Garmin says that this data is used to track the amount of time the user spends in each stage of sleep.

In the niche market of connected sleep tracking watches, Garmin competes with the American giants Fitbit (owned by Google) and Apple, the Korean conglomerate Samsung and the Chinese group Huawei, as well as

smaller players such as the Finnish firm Polar and French company Withings. The consulting firm Counterpoint estimates that the smartwatch market, which grew by 35% in the first quarter of 2021, is predominantly held by Apple, with 33.5% of the global market. Garmin comes in sixth, but its sales are growing.

Also active in the aviation, marine and automotive sectors, the company's sales increased by 11.5% in 2020 compared to the previous year. Most analysts recommend holding the share, which has risen almost 40% since 1 January.

FOUNDED
1989

HEADQUARTERS
SCHAFFHAUSEN
(CH)

EMPLOYEES
16,000

REVENUE (2021)
\$4.19 BN

GRMN

PARAMOUNT BED FOCUSING ON HOSPITALS

Founded in 1947 as Kimura Shindai Seisakujo, Paramount Bed Holdings develops and sells hospital beds as well as products designed for the elderly. And that segment is likely to grow as the population ages.

FOUNDED: 1982
HEADQUARTERS: TOKYO (JP)
EMPLOYEES: 3,614
REVENUE (2020): \$821.92 M

7817

CULP CASPER'S SUPPLIER

The relatively unknown US company Culp produces fabric for most American mattress manufacturers. Its customers include Casper and Tempur Sealy (see also p. 53 and 55).

FOUNDED: 1972
HEADQUARTERS: HIGH POINT (US)
EMPLOYEES: 1,430
REVENUE (2021): \$299.7 M

CULP

LIVANOVA THE NEUROSTIMULATOR

Mainly active in treating cardiovascular diseases, the UK company LivaNova made a big entry onto the sleep market in 2017 when it bought the American manufacturer ImThera Medical. This promising firm develops an implant that stimulates the hypoglossal nerve to treat sleep apnoea. The first clinical trial of the device, which competes with similar implants from the US company Inspire and Belgian startup Nyxoah (see also p. 52 and 44), was approved by the US Food and Drug Administration (FDA) in June 2021.

FOUNDED: 1987
HEADQUARTERS: LONDON (UK)
EMPLOYEES: 3,000
REVENUE (2020): \$934 M

LIVN

ResMed #1 in apnoea

If you fall asleep and stop breathing for 10 to 30 seconds or even more, it is called sleep apnoea. Named Obstructive Sleep Apnoea (OSA) by scientists, it is one of the most common sleep disorders. According to a study published in The Lancet Respiratory Medicine in 2019, nearly 936 million people age 30 to 69 suffer from OSA worldwide, 425 million of whom have moderate or severe forms that require treatment. The Swiss Lung League estimates that in Switzerland alone nearly 150,000 people stop breathing briefly at night, many of whom are neither treated or diagnosed.

As common as it is, there is nothing trivial about the condition. In the short term, sleep apnoea causes chronic fatigue, sleepiness and headaches. In the long term, it increases the risk of high blood pressure, heart attack and stroke. These days, patients with sleep apnoea are mainly treated with Continuous Positive Airway Pressure (CPAP) therapy. Set

on the bedside table, CPAP machines work with masks worn during the night that deliver pressurised air.

The Australian company ResMed, world leader in the sector, holds 48% of the global market for CPAP machines and 50% of the market for the masks used with them, says RBC Capital Markets bank. One man's loss is another man's gain, and ResMed is benefiting from the setbacks of its main competitor, Dutch company Philips, which had to massively recall its machines in June this year (see also p. 55). Specialising in respiratory devices, ResMed has also benefited from the pandemic, with sales up 8% in its 2021 reporting year ended 30 June 2021 compared with the same period last year. Most analysts recommend holding the share, which has already climbed nearly 30% since January and August 2021.

FOUNDED
1989
HEADQUARTERS
SAN DIEGO (US)
EMPLOYEES
7,500
REVENUE (2021)
\$3.2 BN
RMD

Sleep Number Innovating beds

After smartphones, smartwatches and smartcars, make room for smart beds. The US bed maker Sleep Number styles itself as a leader in sleep health and innovation with its new smart bed. Built with sensors, the bed adjusts mattress temperature, responds to body movements, and measures heart rate and sleep duration. Collected data is sent to a dedicated application, which provides sleep advice.

Smart bed sales, estimated by Grand View Research at \$2.17 billion in 2019, remain low for now, but are starting to take off. Last July, Sleep Number announced record earnings for the first six months of the year, up 39% from the same period a year earlier.

"Robust consumer demand for Sleep Number 360 smart beds exceeded our expectations, while near-term supply constraints limited delivered net sales in June and July," Shelly Ibach, Sleep Number's CEO, said in a statement.

But the US company is not alone in the segment. Many others are eyeing the spot of smart mattresses that are supposed to improve sleep and boost margins, including startups like the US-based Eight Sleep and Ultimate Smart Bed, as well as more firmly rooted bed specialists such as French firms Bultex and Maliterie. Most analysts recommend holding shares.

FOUNDED
1987
HEADQUARTERS
MINNEAPOLIS (US)
EMPLOYEES
4,800
REVENUE (2020)
\$1.857 BN
SNBR

VIVOS

THE SLEEP RETAINER

Nearly one billion patients suffer from sleep apnoea worldwide, but less than 80% of cases have been diagnosed. The problem is that sleep centres, in countries where they exist, are often overcrowded, and it can take up to a year to get an appointment. That observation led Vivos Therapeutics to launch VivoScore in January 2021. The device is a connected ring that detects sleep apnoea by measuring parameters such as heart rate and blood oxygen saturation. Unlike Google's Fitbit or Apple Watch, which have similar functions, the VivoScore actually has FDA clearance. On top of that, Vivos Therapeutics markets oral devices to treat various sleep-disorder breathing issues, such as snoring and mild to moderate apnoea.

FOUNDED: 2016
HEADQUARTERS: COLORADO (US)
EMPLOYEES: 100
REVENUE (2020): \$13.07 M
VIVOS

EVE SLEEP

THE BRITISH STARLET

With Purple and Casper, Eve Sleep is one of the three bed-in-a-box, home delivery mattress startups that has broken out into IPO territory. Eve is British but has followed a path similar to that of its American competitors. Revenue has risen every year (up 6% in 2020), but the extremely competitive market has made it difficult to clear a profit. In 2020, the company posted losses of £2.4 million.

FOUNDED: 2014
HEADQUARTERS: LONDON (UK)
EMPLOYEES: 50
REVENUE (2020): €25.2 M
EVE

Inspire The American implant

FOUNDED
2007

HEADQUARTERS
MINNEAPOLIS (US)

EMPLOYEES
341

REVENUE (2020)
\$115.4 M

INSPIRE

"No Mask. No hose. Just sleep." The slogan alone of the US company Inspire Medical offers hope for many patients with OSA. The disorder causes the pharynx to close while a person is asleep, and breathing stops for 10 to 30 seconds at a time. Until now, sleep apnoea has mainly been treated using CPAP machines that

deliver pressurised air (see p. 50). However, patients have to wear a mask all night, and people don't like it for reasons of comfort or appearance. Founded in 2007, Inspire Medical has developed an implant to solve that problem.

The system, comprised of a sensor inserted between the ribs and a nerve stimulator placed under the collar bone, is surgically implanted into the body. When the sensor detects sleep apnoea, the nerve stimulator produces a low-intensity electrical current that activates the hypoglossal nerve, which controls tongue movement. And the person starts breathing normally again.

The US Food and Drug Administration (FDA) approved the device in 2014, and Inspire's sales have since soared. After a record-breaking second quarter, Inspire raised its guidance in August. The company now expects sales of \$210 million to \$213 million in 2021, i.e. an increase of 82% to 85% compared to 2020. Most analysts recommend buying shares, as Inspire keeps its healthy lead over the competition, essentially the Belgian firm Nyxoah and the UK company LivaNova (see also p. 44 and 49).



Casper The mattress troublemaker

FOUNDED
2014

HEADQUARTERS
NEW YORK (US)

EMPLOYEES
634

REVENUE (2020)
\$497 M

CASPER

The mattress industry had fallen asleep on its laurels. But now there's Casper, which has shaken it awake. Created in 2014, this New York-based startup has jolted the bedding industry into the age of e-commerce. The company's mattresses were originally ordered online and delivered by bike throughout the Big Apple in rolled and compressed form. Customers had a 100-night trial period within which they could return it free of charge if they were not satisfied. No store and no sales people, which meant that the company could slash prices and take over the New York market. An enormous success. Just one month after business began, Casper's sales had already hit \$1 million and after two years \$100 million.

And the long-standing mattress makers felt the threat. In October 2018, the undisputed mattress leader in the United States, Mattress Firm, filed for bankruptcy. It recovered the following month, but at a huge sacrifice. Of its 3,000 stores owned, 660 were closed. Casper, which has since moved into other markets (including Canada, the United Kingdom, Germany, Switzerland and France), posted sales of \$497 million in 2020.

But the company continues to operate at a loss, to the tune of \$89.5 million last year. How did that happen? The market is terribly competitive. Casper's initial, easily imitable strategy has been copied by a multitude of startups such as Leesa, Purple, Tuft & Needle and Yogabed in the United States, Eve Sleep and Simba in the United Kingdom, and Tediber in France. This steeper competition has forced Casper to spend massively on marketing (investing more than \$650 million since its creation) and reinvent itself.

While the company originally sold only a limited number of products, it has expanded its product range to include lamps and accessories to improve sleep, and even pet mattresses. In parallel, Casper has opened brick-and-mortar stores – 70 so far – and signed partnerships with traditional vendors such as Mattress Warehouse in June 2021. Most analysts approve of this change in strategy and recommend buying the stock, which is trading at around \$5 in August, half its IPO price of \$12 in February 2020.

FISHER & PAYKEL THE BREATHING EXPERT

The coronavirus pandemic has distorted the performance of Fisher & Paykel Healthcare. The New Zealand-based company specialises in respiratory apparatuses. One of them is for high-flow oxygen therapy, which has become one of the main first-line treatments for COVID-19 patients. As a result, its revenue soared 56% to NZD 1.97 billion for its financial year ended February 2021. Apart from the pandemic, Fisher & Paykel is known for its sleep apnoea treatments, including CPAP machines that deliver air through the nose as patients sleep. The company also develops cloud-based software that allows sleep disorder patients to monitor their sleep and share their data with their doctor.

FOUNDED: 1934

HEADQUARTERS: AUCKLAND (NZ)

EMPLOYEES: 5,788

REVENUE (2021): \$1.38 BN

FISHER & PAYKEL

COMPUMEDICS MEDICAL DIAGNOSTICS

Listed on the Australian Securities Exchange since 2000, Compumedics designs and manufactures sleep disorder diagnostics machines, including polysomnography devices. The company's products are mainly sold to hospitals. The company confirms it is the market leader in Australia, Japan and China, and number three in the United States.

FOUNDED: 1987

HEADQUARTERS: VICTORIA (AU)

EMPLOYEES: 130

REVENUE (2020): \$25.7 M

COMPUMEDICS

Purple Student surpasses the teacher

Purple Innovation doesn't describe itself as a mattress vendor or bedding specialist. No, the US company prefers to say that it is "the world's first comfort tech company". This somewhat pompous tag poorly masks the fact that Purple has duplicated the model of its main competitor, Casper. Founded in 2015, a year after Casper, Purple develops and sells "direct-to-consumer" mattresses and bedding products online, in other words, without intermediaries. To stand out from its competitors, Purple boasts its proprietary Hyper-Elastic Polymer technology, which is supposed to provide more comfort than traditional mattresses.

The strategy works since the student has finally surpassed the pioneer, seizing 4% of the mattress market in the United States in 2019, 1% more than Casper (3%), but behind older companies like Sleep Number (8%) and Tempur Sealy (30%). In 2020, Purple generated revenue of \$648.5 million, up 51.4% year on year. Most importantly, unlike Casper, the company is profitable, with \$10.9 million in profits posted in 2020. The company intends to continue its strong growth, forecasting revenue of between \$2 billion and \$2.5 billion over the next 3 to 5 years, compared with less than \$650 million in 2020. This outlook appeals to analysts, and most recommend buying shares.

FOUNDED
2015HEADQUARTERS
LEHI (US)EMPLOYEES
1,600REVENUE (2020)
\$648.5 M

PRPL



Philips The health giant

Philips' sleep division is in an industrial nightmare. In June 2021, the Dutch firm announced that it was recalling 3 to 4 million breathing devices, due to health risks. The action mainly concerned CPAP (Continuous Positive Airway Pressure) devices worn by patients at night to prevent sleep apnoea. The FDA stated that 61 incidents and 25 injuries have been caused by the machines, but no fatalities. In addition to the economic cost – Philips has set aside a €500 million provision – the case comes at a bad time for the group, which has recently redirected its strategy towards medical care.

In March, the company sold its domestic appliances business to the Chinese investment company Hillhouse Capital for €3.7 billion. After the sales in recent years of the music, electronics and lighting divisions, this operation completed its shift in strategy, which now focuses solely on "health and wellness", according to the expression of Frans van Houten, the group's boss since 2011.

In this new structure, sleep is a key area for Philips. In 2020, the Sleep and Respiratory Care business accounted for nearly 14% of the group's revenue. Currently the world's second-largest in sleep apnoea treatment, with a 42% market share according to the Canadian bank RBC Capital Markets, Philips could see the world leader in the sector, the US-based ResMed, widen its gap following the recall of defective devices (see also p. 50). Additionally, startups such as the Belgian company Nyxoah and the US firm Inspire, which are attempting to revolutionise sleep apnoea therapy, could take advantage of the opportunity to gain market share (see also p. 44 and 52).

But on a larger scale, the pandemic has confirmed that the former tech giant made the right move in shifting to healthcare. Most analysts recommend buying shares, which lost 15% in value between January and August 2021, mainly due to the product recall.

FOUNDED
1891HEADQUARTERS
AMSTERDAM (NL)EMPLOYEES
81,592REVENUE (2020)
€ 19.535 BN

PHIA

TEMPUR SEALY THE BEDDING GIANT

Formed when Tempur-Pedic bought out its largest competitor Sealy in 2012, the US mattress and bedding manufacturer Tempur Sealy is by all measures the industry leader in the United States, with over 30% market share, far ahead of newcomers like Casper and Purple Innovation.

FOUNDED: 2012

HEADQUARTERS: LEXINGTON (US)

EMPLOYEES: 7,400

REVENUE (2020): \$3.677 BN

TPX

SOMNOMED AUSTRALIA'S SLEEP APNOEA THERAPIST

The Australian company SomnoMed develops treatments for obstructive sleep apnea. While most patients suffering from the disorder are treated with CPAP machines that deliver air to their respiratory tract, SomnoMed focuses on an alternative technology: the mandibular oral device. This small oral appliance is placed in the mouth to keep the lower jaw forward during the night. SomnoMed says that the technology has "enormous potential" because it is as effective as CPAP machines, but its market penetration rate remains low (less than 10% in most countries).

FOUNDED: 2004

HEADQUARTERS: SYDNEY (AU)

EMPLOYEES: 60

REVENUE (2020): \$41.98 M

SOM

An archive photo of a call centre. This vision of a myriad of employees assigned to the same task is increasingly only in the history books.

THE SILENT BOT REVOLUTION

More and more companies are automating repetitive tasks that tie up their workforce. A handful of tech companies are leading this booming industry.

BY JULIE ZAUGG

DEFINITION

A bot is an autonomous computer program designed to complete repetitive tasks. This type of software robot is particularly useful for situations that require rapid completion of tasks. For example, Google has long used bots, called web crawlers, to analyse and rank content suggested to its users.

HAROLD M. LAMBERT / GETTY IMAGES

The customer service team for UK mobile telephone operator O₂ doesn't look like a typical call centre. Instead of a noisy hub full of headset-wearing employees, there are only a few people working in tandem with bots.

Each customer request – whether a SIM card exchange, mobile number transfer or phone unlock – is first routed to a human, who then tasks the bot with processing the request. The company uses 160 bots, which can handle 400,000 to 500,000 requests per month.

O₂ is one of the many companies that have adopted what is called robotic process automation, or RPA. “This approach uses software to complete repetitive tasks with a pre-defined number of steps. These tasks make up a significant portion of the work that the back office or customer service team handles,” said Craig LeClair, automation specialist at Forrester Research.

The bot will observe how a human completes a task – for example, open a database, copy information from the database, then paste it into a form – and then replicate that task exactly. The bot can also be pre-programmed to complete a task at regular intervals without human supervision, such as produce a report each night.

“The majority of our clients are in the finance industry,” said Eric Tyree, head of research at the UK firm Blue Prism (see also p. 59), one of the main RPA providers. “Our solutions allow clients to automate creating a bank account, approving a payment, granting a mortgage or even producing an analyst report.”

The London-based company also supports companies in various other industries such as manufacturing, telecoms and healthcare. “Every company has an enormous amount

of administrative tasks that can be completed by bots,” said Tyree. For example, a food company uses bots to manage its supply chain, generate invoices and do its accounting. During the pandemic, hospitals in the UK used bots to arrange appointments with patients, share data on COVID-19 patients and automate the distribution of protective equipment.

US group UiPath, which is Blue Prism's main competitor, has many government clients. “We provide solutions to approximately 50 US federal agencies and have started to generate interest in Europe,” said UiPath's head of strategy Vargha Moayed. UiPath also has many private clients, including the insurer American Fidelity, which uses RPA to review reimbursement requests from its policyholders. The bots can scan 9,000 emails in just 3 seconds, whereas the same task would take 45 hours of work for a human employee to complete.

The COVID-19 pandemic further accelerated this trend

The RPA market is currently dominated by UiPath, Blue Prism and California firm Automation Anywhere, according to Jason English, analyst at US company Intellyx. “Microsoft and IBM are also trying to join the market, particularly by adding RPA tools to their existing offers,” he said.

This is because the market is booming. It is already worth \$2 billion and could reach \$30 billion in the next three to five years, according to consulting firm Gartner. “We're at the very beginning of this adventure,” said Moayed. “The addressable market is worth \$65 billion.”

The COVID-19 pandemic further accelerated this trend. “Many companies began using bots to combat the worker shortage during lockdown,” said LeClair of Forrester Research. Hospital groups realised the importance of automating administrative tasks in order to free up healthcare workers so that they could spend more time with patients.

Automation for dummies

Companies that adopt RPA generally benefit from it, particularly financially. Described as a type of “automation for dummies”, since using RPA tools does not require previous programming knowledge, the bots can be implemented at a relatively low-cost. “Since bots just replicate what employees do, they don't touch the company's underlying digital infrastructures,” said Tyree of Blue Prism. “The return on investment is phenomenal.”

At O₂, the ROI has increased 650% over three years. Savings come primarily from the hours of work freed up when employees are no longer bogged down by administrative tasks. In the United States, Ernst & Young saved 800,000 hours of work in 18 months after starting to use RPA tools. “A bot costs \$15,000 maximum per year in maintenance fees and can replace two or three full-time employees,” said LeClair.

The quality and speed also improves, since robots do not take breaks, get tired, or make mistakes. “Banks that use our bots are now able to approve a loan in less than two minutes, compared to more than two weeks previously,” said Tyree.

Employees also rediscover love for their jobs. “We're automating the most mundane tasks, leaving the more interesting work – that stimulates intellect or has a relational component – for humans to do,” said Moayed at UiPath.

The rise of bots have caused some to fear the rise of a dystopian society where most jobs are replaced by machines. “RPA tools will replace 16% of workers in the United States over the next decade,” estimated LeClair, who published a book about these fears, entitled *Invisible Robots in the Quiet of the Night*. “For back office work, 60%-70% of jobs are at risk.”

“In fact, automation rarely leads to redundancies”

Eric Tyree, head of research at Blue Prism

The outsourcing industry, which specialises in customer service and data entry work in India and the Philippines, will also be significantly impacted, according to LeClair. “In the long term, there will only be a small elite group of digital workers concentrated in the Western world,” he thinks.

For Leslie Willcocks, an automation expert at the London School of Economics, these predictions are too doom and gloom. “RPA can only potentially replace 5% of jobs,” he said. “In the majority of cases, bots become virtual assistants for workers, allowing them to increase productivity or focus on more interesting tasks.”

“In fact, automation rarely leads to redundancies,” confirmed Eric Tyree. As an example, Zurich Insurance chose to provide complimentary training to the 1,000 employees whose jobs were replaced by bots and moved them to other departments within the company.

Furthermore, bots used as RPA tools are still too much of a work-in-progress to be considered a real threat. “They don't know how to manage variations,” said Intellyx's Jason English. “All it takes is a change in font or for a new type of form to be submitted, and these bots can no longer function.” They also struggle to extract data from a document filled out by hand or from an oral conversation.

New generation in the works

But a new generation of bots, currently in development, should be able to handle this type of work. “We have started to produce RPA tools that are equipped with certain artificial intelligence functionalities, such as machine learning, artificial vision and natural language processing,” said Moayed from UiPath.

A bot used by an insurance company could analyse the circumstances of an accident, the profile of the policyholder, and the people involved in the accident, in order to determine the reimbursement amount. This “smart” RPA could also detect anomalies in a process, make inventory predictions or generate a chatbot capable of handling a client request from beginning to end.

A Canadian startup called Ross combined RPA tools with IBM's Watson supercomputer in order to develop a virtual lawyer that can analyse 10,000 pages of text in one second to extract legal arguments that human lawyers can then use to build their case. This is just the beginning of the bot market. ▽

UIPATH

THE MARKET LEADER

Created in 2005 in Bucharest, Romania, UiPath only began working with RPA in 2012. The company now holds a 32% market share, which is more than its three primary competitors combined. It also completed a noteworthy IPO in April on the New York Stock Exchange, raising \$1.3 billion. The company is now valued at \$36 billion. Analysts recommend investing in UiPath, even though the share price is high. As the leading player in the RPA market, the company will benefit from the strong growth expected in this segment. In the short term, it will benefit from the labour shortage caused by the pandemic.

FOUNDED: 2005

HEADQUARTERS: NEW YORK (US)

EMPLOYEES: 2,863

REVENUE (2021): \$607.6 M

✓ PATH

BLUE PRISM

STAGGERING GROWTH

Created 20 years ago, Blue Prism was a pioneer in the RPA field. The company stands out from the rest due to its emphasis on providing cloud-based solutions that can be deployed at a company level, rather than at each individual work station. Valued at \$1.05 billion, it holds a 10% market share. In 2020, revenue grew 46%. In the first half of 2021, it increased again by 21%. These growth rates are the reason that most analysts recommend purchasing shares, noting that they are currently slightly undervalued.

FOUNDED: 2001

HEADQUARTERS: WARRINGTON (UK)

EMPLOYEES: 1,000

REVENUE (2021): €141.4 M

✓ PRSM



Since Brexit, billions of euros in trades have left London and moved to Amsterdam. But London still has many advantages. We take a look at four of the main battlegrounds.

BY ANGÉLIQUE MOUNIER-KUHN

In this competition, a battle between London and Frankfurt, or even London and Paris, might have seemed more likely. But Amsterdam won the first round, harkening back to the Golden Age when the Dutch East India Company completely transformed the port city from a global commerce hub to the first stock market of the modern era.

The Dutch economic capital was the biggest winner of the migration of European stock trading, which was caused by Britain's exit from the single market. From 1 January 2021, €6.3 billion in daily trades instantly left London and moved to Europe, particularly Amsterdam. The Dutch city quickly became the most active market in Europe for stock trades, with nearly one-quarter of total trade volumes.

But in fact, it's not Amsterdam's traditional market, operated by Euronext, that benefited from the migration. The modest increase in volume (between 2% and 3%) that

Euronext saw at the start of the year quickly returned to normal levels. The big winners of the trading migration are actually alternative markets, such as US-based CBOE and UK exchange Turquoise, a subsidiary of the London Stock Exchange. Both located in London, the two companies predicted the reshuffling of the cards that would follow Brexit and opened subsidiaries in Amsterdam, due to its central location, the common use of English and its high-quality internet infrastructure.

"Before 2021, the London market was subject to the same rules as every other European market. Since Brexit, it has become a non-EU entity. The MiFID II regulation (ed. note: the directive that governs European financial instruments markets since 2018) requires that European investors can only trade European shares on European exchanges, or on non-EU exchanges that have obtained stock market equivalence, which is not the case for London," said Antoine Pertriaux, an expert in market activity and head of research ▶

LONDON VS AMSTERDAM

A SHOWDOWN BETWEEN FINANCIAL CENTRES

Inside the Amsterdam Stock Exchange, in the Netherlands, 7 April, 2021. Founded in 1602, this financial centre is one of the oldest in the world.

for the Paris consulting firm Ad-
amantia. As lengthy as it is, the
Brexit agreement negotiated with
the EU says virtually nothing about
the future of UK financial services,
a sector that makes up 7% of the
national economy.

The issue of stock market equiva-
lence was at the heart of the compe-
tition's second round – which was in
many ways a rematch following the
events of the spring. Thanks to the
Swiss stock rush, London was able
to catch up to Amsterdam in June
(€8.9 and €8.8 billion, respectively,
in daily volume over the month).
Since Brussels let Swiss market
equivalence expire in June 2019,
Swiss stocks could no longer be
traded on European exchanges,
including in the United Kingdom.
But now with Brexit, London and
Bern hurried to normalise their
market relationship, which allowed
London to regain 30% of trades of
Swiss large caps, according to the
Financial Times. This brings some
strength back to London, though
not to pre-Brexit levels.

It is unlikely that London traders
will regain the lost volume. Given its
ambition to build a continent-wide
capital market, the European Union
(EU) does not seem amenable to
granting equivalence to a country
that turned its back on the Union
and is now a rival.

Derivatives: the lifeblood of the struggle

The third round will be fought over
the derivatives market, which is worth
hundreds of thousands of billions of
euros, with no common measurement
compared to the stock market. Like
European shares, swap trading in
euros – instruments that are used to
hedge against price or exchange fluc-
tuations – has left London and moved
to Amsterdam, Paris and New York.
But in this no-holds-barred game, the
fiercest battle is being waged over
clearing houses, which are little known
yet essential to the derivatives market.

They are the interface between the
seller and buyer and assume counter-
party risk in order to guarantee that
trades function smoothly.

With its powerful clearing houses,
London is the historic stronghold for
derivatives. Brussels granted tempo-
rary equivalence for derivatives until
June 2022, in order to guarantee the
flow of trades on euro-based deriva-
tives during the complexities of Brexit.
But past that date, nothing has been
decided. London is ready to fight tooth
and nail to keep its clearing activities
that the EU would rather see trans-
ferred to the continent, due to their
systemic importance.

**With its powerful
clearing houses,
London is the
historic stronghold
for derivatives**

But the EU is up against two obsta-
cles. Firstly, the Frankfurt exchange,
with its subsidiary Eurex Clearing,
is a long way from having enough
capacity to be a real alternative to
London. Secondly, European finance
players do not want to see clearing
activities split, with some in London
and some in Europe, because they
believe it would lead to reduced ef-
ficiency and increased costs. “There
seems to be no short-term solution
and the current situation could well
continue,” said Pertriaux.

A fourth round, crucial in terms of im-
age for both London and Amsterdam,
is under way on the primary market.
For the time being, SPACs (special
purpose acquisition companies), which
are popular investment vehicles that
are floated on the exchange to raise
capital to acquire a company, are

advantageous for Amsterdam. As of
19 July, 15 SPACs were introduced
on the various Euronext markets,
of which 10 were on the sole Dutch
exchange, which is attractive due to
the fact that its regulatory frame-
work is similar to that of the United
States. “Many other IPOs are being
prepared for the second half of 2021.
Euronext is therefore well positioned
to develop a sustainable SPAC market
in Europe,” said a spokesperson for
the pan-European operator. As for tra-
ditional IPOs, Amsterdam already had
four remarkable transactions this year,
including Polish company InPost, the
European leader of package delivery in
automatic lockers, which raised nearly
€3 billion. But the biggest movement is
expected in September, with the IPO of
Universal Music Group. This subsidiary
of the Vivendi group, with operational
headquarters in California and its reg-
istered office in the Netherlands, could
reach \$40 billion in valuation.

London, on the other hand, is actively
courting tech companies. The IPO
fiascos of food delivery platform
Deliveroo and semi-conductor special-
ist Alphawave caused the market to
cool this spring. However, London can
take pride in having hosted nearly
50 IPOs between January and June,
which is five times more than in the
first half of 2020. But beyond this
catch-up effect, which is due to Brexit
and the COVID-19 pandemic, the un-
derlying trend is showing a slowdown.
Since 2008, the number of IPOs on the
UK exchange fell by 40%, according
to the *Financial Times*, and London's
share of IPOs on the global market
has not exceeded 5% in recent years.

In order to attract more SPACs and
fast-growing companies, UK author-
ities are currently working to relax
certain listing rules. They are aiming
to reduce the percentage of free float
shares (which can be traded at all
times on the market) and allow multi-
ple voting shares.

This reform is part of a larger plan to
re-examine all of the rules that dictate

how the London exchange functions.
In leaving the EU, the UK regained its
regulatory freedom. It now, according
to Rishi Sunak, Chancellor of the
Exchequer, wants to “hone” the City
of London's international competitive
edge by taking advantage of this
new-found latitude. “London wants to
maintain a robust regulatory frame-
work while loosening rules that it be-
lieves to be ineffective. The authorities
have opted for a pragmatic approach,
which challenges the rules inherited
from Europe (MiFID II) one by one,” said
Adamantia's Pertriaux. For example,
UK regulators are hoping to elim-
inate the limits imposed by Brussels
on the development of dark pools,
which are trading platforms that are
authorised but criticised in Europe for
their lack of transparency. Dark pools
allow the processing of large sale or
purchase orders from institutional
investors without generating price
discrepancies. Subject to review from
the UK financial industry this summer,
the various proposed developments

should result in concrete suggestions
by the end of the year.

**Given the lack of
tangible progress in
discussions with
Brussels, London is
already looking
elsewhere**

In time, the further UK reforms stray
from the European regulatory frame-
work, the fewer opportunities its
financial services will have to regain
access to European markets. But
given the lack of tangible progress in
discussions with Brussels, London is
already looking elsewhere. “The UK
wants to expand its activities and be
more open to international markets,
as it has with Switzerland. It hopes to
build closer ties with Singapore, New
York and even China. It also aims to

take up a position in two very promis-
ing niches: fintech and green finance,”
said Vincent Fromentin, a lecturer
at the European University Centre
in Nancy.

For the time being, the consequenc-
es of the divorce with the EU are far
from devastating, as was predicted
by doomsayers. “All the predictions in
terms of employment and business
activity overestimated the real ef-
fects,” said Fromentin. In an otherwise
rather gloomy study, the UK thinktank
New Financial estimates that Brexit
led to only 7,400 job transfers from
London to Europe – just a drop in the
ocean compared to the 1.1 million
employees in the UK finance industry.
And in the latest edition of the Global
Financial Centres Index, a ranking
that evaluates the competitiveness
of the largest financial centres in the
world, London was still ranked second,
far ahead of Frankfurt, the highest
ranking European centre, in 9th, and
Amsterdam a distant 28th. ▲



A pedestrian
walks in front of
the London Stock
Exchange logo on 29
December, 2020, just
hours before the UK
financial centre loses
access to the single
European market on
31 December.

A good time to invest

To take advantage of the favourable stock markets climate, the Lombard loan is ideal. Jürg Schwab, Head of Trading at Swissquote, explains why.

The stock market remains bullish. What fundamentals are driving the market upwards?

First, given the ongoing uncertainty related to the pandemic, central banks are acting as guarantors by injecting liquidity into the economy. Second, interest rates will remain historically low for a few more years. This means that companies profit from cheap money to expand their business. And stock market indices are reaching all time highs.

Which asset classes should investors focus on?

Fixed-income products, such as bonds with their very low profitability, are clearly not the best choice at the moment. And it is not the best idea to keep cash amid high inflation risks. These days, stocks are definitely the most popular asset class. Some sectors that have been hit hard by the pandemic still have strong rebound potential. Investors who want to diversify their portfolio can also look into cryptocurrencies, which are on the rise.

Why are Lombard loans a useful instrument?

Lombard loans provide investors with liquidity without having to sell their shares (ed. note: see inset below). Given the current strong stock market growth and high dividend yields, equity investors come out winners all round. ▽



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HEAD TRADING
SWISSQUOTE BANK

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*See offer conditions

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PORTRAIT

SWISSQUOTE SEPTEMBER 2021

TIGER GLOBAL AN ALPHA PREDATOR IN SILICON VALLEY

Showering tech startups with billions, the venture capital firm is now accused of raising valuations in the industry.

BY ANGÉLIQUE MOUNIER-KUHN

In the animal kingdom, tigers are considered an “alpha predator”. This solitary mammal carefully guards its territory and is at the very top of the food chain in its ecosystem. The hyper-competitive venture capital world also has an alpha predator: Tiger Global Management, a New York investment fund whose competitors are increasingly concerned about its

voracious appetite. Its favourite prey are young tech startups that are at an early stage of development but are already bound for IPOs in the digital, software, financial and consumer spaces. Silicon Valley, which is home to two-thirds of Tiger Global Management’s investments, is the firm’s preferred hunting ground. The investment group’s second favourite market is India, and the rest of its funds are split between China and the rest of the world.

This cut-throat venture capital fund is located on 57th Street, the wealthiest in Manhattan, and is quite an established player in the financial arena. Airbnb, LinkedIn, Facebook, Netflix, Square, Peloton Interactive, Uber, Alibaba – since its creation in 2004 (the company Tiger Global was created in 2001 and its venture capital arm in 2004), it has provided financial support to almost all of these unicorns (a company valued at more than \$1 billion), all of which then went on to disrupt economic sectors or had wildly successful IPOs.

This year has been no exception. Tiger Global Management held stakes in the most highly anticipated companies preparing for their IPOs on Wall Street, such as online game creator Roblox, meal delivery platform Olo, and rideshare app Didi Chuxing (the Chinese Uber).

Since the start of 2021, while venture capital generated record fundraising and sank unprecedented sums into startups, Tiger Global Management multiplied its stakes in companies with astonishing speed and eagerness. The database Crunchbase compiled the New York firm’s incredible numbers: from January to early June, Tiger Global had already invested in 118 companies, compared to the 69 deals it made in the entirety of 2020 and 54 in 2019. The sums involved were also on an entirely new level: from January to June, Tiger Global was either the leader or co-leader in fundraising

rounds that totalled \$10.5 billion, which is double the amount the firm spent in the whole of 2020.

Its website is exceedingly simple, it never gives interviews, it makes no public appearances with partners, and there are few photos available

But it’s difficult to find more details about the investment company itself, which has always been notoriously secretive: its website is exceedingly simple, it never gives interviews, it makes no public appearances with partners, and there are few photos available. This explains why Tiger Global is still relatively unknown to the general public, despite the buzz and exasperation it causes, according to authoritative sources, over its unbridled activity. Instinctive, fast-moving and able to drop hundreds of millions of dollars into startups without blinking an eye, Tiger Global is accused by its competitors of contributing to the stratospheric rise in tech startup valuations.

The New York fund also has a reputation for expediting due diligence procedures before its purchases and then refraining from getting involved in managing the companies in its portfolio. This is virtually sacrilegious for venture capitalists, whose supposed added value lies precisely in their ability to conduct methodical analyses and advise budding

managers on how to develop their companies.

Nevertheless, investors continue to seek out Tiger Global. A few months ago, the firm closed its 13th round of fundraising, the largest to date at \$6.75 billion, nearly double what it initially expected. It was hoping to raise \$10 billion for its next fund.

It’s impossible not to be amazed at its spectacular portfolio. In 2020, Tiger Global topped the list of best-performing hedge funds, ahead of legendary funds Millennium, Citadel and D.E. Shaw. It’s just another feather in the cap of Chase Coleman, the founder of Tiger Global. Originally from the New York elite, Coleman was only 25 years old in 2001 when he created the company with \$25 million from his mentor, Julian Robertson, another legendary veteran in the hedge fund industry.

At the time, dot-com companies were in free-fall. But it seemed that Coleman was immune to bad luck. The initial \$25 million was fruitful, and Tiger Global reported in July 2021 that it has \$79 billion in assets under management, split fairly evenly between a hedge fund plus long stock fund, and a venture capital fund. The first two strategies have brought investors a net annual yield of more than 20% since their launch. The venture capital side generated an average of 26% net per year, far above industry standards (7.2% per year over the last 20 years, according to Cambridge Associates). Tiger Global is simply not on the same playing field as traditional funds, according to Everett Randle, a principal at Founders Fund, in a recent post. In his detailed analysis, Randle explained the five qualities that make the New York firm so successful: aggressiveness, speed, ability to pay high prices, minimal involvement in companies, and above all, unlimited energy in rolling out its capital. The tiger is certainly still on the prowl in Silicon Valley. ▲

SWISS STARTUPS IN THIS EDITION

BY GRÉGOIRE NICOLET



HEMOTUNE

NANOPARTICLES TO FIGHT SEPTICAEMIA

To top its list of the “30 spin-offs from 2021 to follow” in the Germany-Austria-Switzerland (DACH) region, *Forbes-Autriche* magazine chose Hemotune. This startup is developing a method to treat septicaemia, a blood infection. According to a study in *The Lancet*, 49 million people suffer from septicaemia each year and 11 million die from it. Until now, pharmaceutical companies have failed to find a remedy for the disease, since the problem is not only the infection but also the damage caused to the immune system as a result. Instead of treating septicaemia with medicine, the ETH Zurich spin-off developed a procedure that uses magnetic nanoparticles to identify and separate the toxins present in blood, similar to dialysis. While still in the development phase, the startup has already raised more than 10 million Swiss francs: “We’re going to begin the clinical evaluation of our technology in 2023 and we should be able to obtain market authorisations in Europe in 2024,” predicted the CEO and co-founder Lukas Langenegger.



Number of employees
18
Founded
2017

ECOROBOTIX

PRECISION WEEDING



This company, which specialises in weeding robots for the agriculture industry, raised \$14.7 million in June during a round of financing led by Swisscom Ventures, which brings the total amount raised to \$28.3 million. Ecorobotix offers a solution – combining a camera and artificial intelligence – that can target weeds to the centimetre and therefore reduce the amount of pesticides used by up to 95%. The company first designed a completely autonomous vehicle powered by solar energy (AVD), but it’s the tow-behind model, which came out in late 2020 (ARA), that’s been the most successful this year. Ecorobotix has sold approximately 10 of these robots in Switzerland and France. In a global market estimated at approximately \$3 billion with no competition in the high-precision sector, Ecorobotix is receiving lots of orders and is seeking new partners in order to increase production: “We will continue to produce our robots in Europe, as France and Germany are the markets we’re targeting in the short term, but Eastern Europe and South America are also some of our medium-term goals,” said co-founder Aurélien Demaurex.

Number of employees
35
Founded
2014

AKTIIA

A BRACELET THAT MONITORS BLOOD PRESSURE



Dubbed the silent killer by the WHO, high blood pressure is often diagnosed too late. Neuchâtel-based startup Aktiia hopes to combat this with its bracelet that continuously monitors blood pressure throughout the day, unlike the traditional inflatable arm band that only takes sporadic measurements. Initially developed at the Swiss Center for Electronics and Microtechnology (CSEM, see latest issue), the bracelet is the first device of its kind to be CE certified as a medical device. Using optical sensors to measure blood pressure, it analyses the signals generated by the change in artery diameter occurring with each heartbeat. Data collected is transmitted to a smartphone and can be viewed in a dedicated app. Launched early this year in the UK, then in Switzerland, Germany, Austria, France and Ireland, the bracelet is currently sold at just over 200 Swiss francs. For now, data collected is limited to blood pressure, but CEO Michael Kisch wants to take full advantage of its potential: “We’re going to partner with doctors to have them test our technology in monitoring cardiovascular diseases.”

Number of employees
29
Founded
2018

TO READ, TO DOWNLOAD



Center Street,
2021
CHF 20.-

WOKE, INC.

INSIDE CORPORATE AMERICA'S
SOCIAL JUSTICE SCAM

By Vivek Ramaswamy

A new force is at work at the highest level of American capitalism. As the virtues of our time (social justice and racial equality) are displayed in practically every consumer product, "wokeism" is a type of capitalism that claims to be enlightened and progressive. But in reality, it just increases market share and shrinks the remaining spaces that uphold freedom of speech. This is the theory of Vivek Ramaswamy, a former corporate America prodigy, in this divisive and refreshing book that goes against conventional discourse.



Little, Brown and
Company, 2020
CHF 25.-

BILLION DOLLAR LOSER

THE EPIC RISE AND SPECTACULAR
FALL OF ADAM NEUMANN AND
WEWORK

By Reeves Wiedeman

With his startup WeWork, which tried to revolutionise the co-working industry and, more widely, the corporate world, Adam Neumann was a prime example of successful "disruptive" entrepreneurship and brought the promise of a \$47 billion IPO. But the IPO never happened, killed by poor management scandals and catastrophic financial results... In *Billion Dollar Loser*, Reeves Wiedeman, author and regular contributor to *New York Magazine*, describes the crazy story of the fall of WeWork and its eccentric ex-CEO Adam Neumann. It is an enlightening read given that the company announced in March 2021 that it was preparing a new IPO via a SPAC in which the company would be acquired for \$9 billion.



Google Play,
CHF 1.-

BUOY

THE ULTIMATE BATTERY
MANAGER

Android mobile phones have a pre-installed battery saver function, but it sorely lacks any configuration options. Buoy aims to fix that, by offering literally dozens of options to configure mobile phone battery behaviour and prolong battery life.

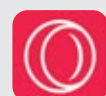


App Store,
Free,
in-app purchases

FLOW BY MOLESKINE STUDIO

DRAW LIKE A PRO

Designed by the creators of Moleskine Studio, Flow includes every possible tool imaginable for professional or amateur artists to let their creativity run wild. The app includes digital coloured pencils, paintbrushes, rubbers, rulers and even markers in a modern, intuitive interface.



App Store,
Google Play,
Free

OPERA GX

THE BROWSER FOR GAMERS

This new browser from Opera is perfect for gamers. Why? A polished aesthetic inspired by the video game world, CPU and RAM usage limiters to ensure users can game and browse the internet at the same time, and pre-installed tabs for Twitch and Discord.



Google Play,
Free

PHI METRONOME

THE VIRTUAL METRONOME

Phi Metronome is a quirky app that redefines the metronome in a way musicians will appreciate: sound, appearance and rhythm can all be configured in a simple and intuitive way. Curious users can even try using tempos of fractions of pi or irrational numbers.

Themes Trading

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AUTO

Range Rover goes green

Plug-in hybridisation is powerful in itself but makes the Velar more virtuous. When used wisely, the technology significantly reduces fuel consumption and delivers fabulous performance.

BY RAPHAËL LEUBA

Are large SUVs outdated? Given the state of the environment, little doubt they are. They're heavy, not very aerodynamic, not necessarily spacious, and they're believed by many to be pompous and superfluous – not just by cargo bike enthusiasts. And then there's the Velar... The vehicle doesn't escape the anti-4x4 clichés, but its design and technical prowess – especially this plug-in hybrid version – deserve a drop of indulgence, if not admiration.

Larger than the Evoque compact SUV and less ostentatious than

the Range Rover Classic or Sport, the Velar is also sexier than the Discovery family car. Is it a middle ground or paltry compromise? That's a question of opinion. But one thing is certain: the Velar is a very pleasant vehicle to live with and drive. Of course, without air suspension – and therefore variable ground clearance – the Velar P400e's water crossing capabilities do not lead the range, but it can still handle 53 cm of water. Its 2-tonne tow capacity may seem to be barely enough, as might the 513-litre boot. But the boot conceals a key advantage: a



RANGE ROVER VELAR P400E

MOTOR:

4-CYL. 1997 CM³ + ELECTRIC ENGINE, 17.1 KWH BATTERY

POWER:

404 HP, 640 NM AT 1,500 RPM

ACCELERATION:

0 TO 100 KM/H IN 5.4 S

PRICE:

FROM CHF 83,300.-

17.1 kWh lithium-ion battery. And the interior is like Byzantium. All space and luxury with heated and cooled seats, adaptive cruise control with stop and go, head-up display with extended menu, panoramic sunroof, surround camera system, and so on and so forth. From the driver's seat, redesigned last year, touch controls are everywhere, including for the overhead lights. Another panel below the adjustable tilt central monitor is for climate-control functions and for selecting off-road (sport, comfort, sand, snow, gravel) and drive modes (hybrid or electric). The entire apparatus brings a lot of class to the cabin, which is made in plush materials, except for the strange faux leather that details the dashboard. The aluminium can be replaced with wood veneer for that oh-so-British touch.

Intuitive handling

The gentle, precise controls, as well as the assiduous and discreet driving aids, quickly dispel any initial jitters due to the sheer size of the car (4.80 metres long and 1.93 metres wide). Its massive weight of 2.2 tonnes almost

goes unnoticed thanks to supple body movements and phenomenal 640 Nm of torque achieved through the combination of the 4-cylinder turbocharged engine and the electric motor. Both are coupled with the 8-speed automatic transmission.


In and around cities, the 100% electric EV drive mode works wonders

The traditional front and rear differential remains mechanical and delivers, together with the controlled damping, smooth handling and great balance between agility and comfort. In comfort mode, the Velar is a little sluggish when braking, but the feeling on board is pure well-being. In and around cities, the 100% electric EV drive mode works wonders, and the 143 horsepower of the wound rotor also manages

to tackle secondary roads for a few dozen kilometres. Although the announced 53 km range is a theoretical "best case", actual range should be enough to satisfy many commuters. When plugged into a household outlet, the battery recharges in eight hours, equal to a good night's sleep.


When the 300 horsepower of the 2.0-litre internal combustion engine kicks in, the Velar plug-in hybrid catapults into action but remains smooth and almost silent. You'd think it was always running on electric power if you didn't check the tachometer. The 3.0-litre six-cylinder engine of the "standard" Velar P400, priced 1,700 Swiss francs less, is definitely not any silkier. And though the two versions deliver equivalent performance, things are different at the pump. Over the course of the test, the Velar P400e made do of 7 litres of unleaded and about one battery charge for every 100 km in mixed use, while the P400 guzzles 10.5 litres (WLTP) despite weighing 150 kg less. Let the number crunching – and soul-searching – begin. ▲

THE ALTERNATIVES



JAGUAR F-PACE P400E

Technically similar to the Velar, though slightly shorter (4.75 m) with a sportier look. Hybrid engine and transmission shared with the plug-in models of the Jaguar-Land Rover entity (404 hp and 640 Nm). 0 to 100 km/h in 5.3 seconds and top speed of 240 km/h (Velar P400e: 209 km/h). Combined WLTP fuel consumption of 5.1 l/100 km for both models. From CHF 81,600.-



JEEP WRANGLER UNLIMITED 4XE

Off-road icon converted into a plug-in hybrid, more of a rival to the Land Rover Defender 110 P400e. Weighing 2.25 tonnes, 4.88 metres long, 4-cyl. 2.0-l turbo petrol engine and electric motor with an 8-speed transmission. Mechanical all-wheel drive and solid rigid axles. 381 hp and 631 Nm total, 0 to 100 km/h in 6.5 s., 17 kW battery, combined fuel consumption of 6.1 l/100 km (WLTP). From CHF 76,490.-

TRAVEL

In the Hong Kong of rebels and artists

Famous for its glass towers and financial district, the port city is home to pockets of creativity right in its centre. Take a stroll through the Tai Ping Shan and Sham Shui Po districts, on either side of the fragrant bay.

BY JULIE ZAUGG, IN HONG KONG
(TEXT AND PHOTOGRAPHY)

CHINA

SHAM SHUI PO

TAI PING SHAN

HONG KONG



Nestled between a park full of banyan trees and the business district, Tai Ping Shan is an oasis in the heart of Hong Kong. Its small, ten-storey buildings contrast with the soaring glass towers that occupy the rest of the small area. In its narrow streets, antique shops selling Chinese vases, jade bracelets and mugs printed with vintage Mao drawings intermingle with small stores catering to hipsters.

“There are a lot of folk traditions in this neighbourhood,” says Jenny Lam, who serves matcha lattes and longan teas at Halfway Coffee, a café with a light wood decor. Also known as Poho, Tai Ping Shan features some of Hong Kong’s cultural treasures. One impressive example is Man Mo Temple, with a façade adorned with ceramic figurines and ceilings with gigantic incense spirals.

At Yuan Poo Tang, a small shop filled with aged Oolong and Pu-erh tea cakes, the tea ceremony takes the spotlight. “These varieties, which can sell for up to HKD 1 million (CHF 118,000) apiece, have an incredible diversity of flavours,” says owner J. J. Wang. “To appreciate them, you have to taste them side by side, as you would wine.”

Not far from there, the store Select 18 focuses on another kind of tradition, with a tinge of nostalgia. You can browse posters paying tribute to the golden age of Hong Kong cinema, second-hand film cameras, cantopop vinyls and vintage clocks with Dalida on the face.

Tai Ping Shan is also where British troops lived during the colonial era, bringing West and East together in a happy mishmash. The scent of Chinese medicinal herbs and fried rice blend with freshly ground coffee served in modern spots such as Frantzén’s Kitchen, a Michelin-starred ▶

In the shadow of the skyscrapers, the Tai Ping Shan district unfolds its peaceful alleys where hipsters crowd.



restaurant with inventive Nordic cuisine, Craftissimo and Blue Supreme, offering a wide range of craft beers, and the Man Mo Café, opened by a Swiss chef who offers fusion dim sum with ratatouille or truffle brie.

This intermix of styles has created a real neighbourhood spirit among the artists, academics, architects and chefs who live there. "Tai Ping Shan is like a small village, everyone knows each other, says hello to each other and visits each other," says Mathieu Payet, the manager of La Guinguette, a shop that sells French wines and artisanal products, and occasionally hosts impromptu concerts right on the street.

Nowhere is this more apparent than at the Mount Zero bookshop. Located at the end of a cul-de-sac, the small space is packed with books from floor to ceiling. Outside, above the front door, reads a sign, "Ideas are bulletproof". You can find an eclectic mix, including Aldous Huxley's *Brave New World*, a book by Hannah Arendt and another by Václav Havel. Upstairs, two young women sit on stools, immersed in reading.

"We want to provide both a platform for local authors and a space where members from the local



Yuan Yuan Tang offers a selection of the best Chinese teas.

community can meet and discuss ideas," says Ellen Lai, one of six booksellers who take turns running the store. The bookshop regularly holds public readings with local luminaries, such as pro-democracy activist Margaret Ng and poet Bei Dao, whose writings inspired the students at Tiananmen Square.

On the other side of Hong Kong Bay, deep in Kowloon, sits the district of Sham Shui Po, the rebellious little cousin of Tai Ping Shan. Exit the

metro and your senses are overpowered by Apliu Street Market, which sells electronic accessories, neon lights and pungent durians. But if you get lost in the alleys veering away from the market, it's a whole different atmosphere.

GETTING THERE

Flights with stopover available from Zurich and Geneva. Return tickets starting at CHF 1,000.

WHERE TO STAY

The Pottinger

A 10-minute walk from Tai Ping Shan, The Pottinger is a lovely hotel in a historic building overlooking Hong Kong's main shopping street. You can also find several bars and restaurants. Double rooms starting at CHF 83.

sino-hotels.com/en/hk/the-pottinger-hong-kong

E Hotel

Located in the heart of Sham Shui Po, this modern hotel has small, tastefully decorated rooms. The panoramic terrace offers a fantastic view of all of Kowloon. Double rooms starting at CHF 50.

e-hotel.hk

On Tai Nan Street, you predominantly see trendy cafés, art galleries, record stores and gourmet burger restaurants. Yu Chau Street is lined with small shops selling bins full of multicolour beads, lace of various sizes and glitter. Ki Lung Street is where vendors sell fabrics in all colours and materials.

Tai Ping Shan brings West and East together in a happy mishmash

You can grab a bite at one of the many traditional restaurants serving steamed dim sum in large bamboo baskets, traditional baked goods like egg tart, or char siu, a kind of marinated roast pork. Braver ones can try snake soup or grilled eel. And the truly fearless can venture into the

Pei Ho covered market, where live frogs and turtles are sold.

In the past couple of years, Sham Shui Po has become a haven for young Hong Kongers dispirited by the authoritarian direction taken by their government following the 2019 protest movement. "The neighbourhood is full of dreamers who have chosen to gather here to recreate a more humane community life," sighs Ronald Lam, watering the tropical plants sold in his shop, Infactmint.

The Parallel Space art gallery on Tai Nam Street is one of the few places that still dares to exhibit dissident artists. Just opposite, the Book Punch bookshop is located on the upper floor of a decrepit building. It holds evening events to discuss democracy and lets its customers read political works censored by public libraries. "Art and culture have become the last bastions where one can still express a form of protest," says Kim Lam, founder of Parallel Space. "It's our job to protect them." ▲

WHERE TO GO



Teakha

This small café specialises in all kinds of hot and cold teas. It also offers homemade cakes and scones, which you can eat on stools set out around a park full of lush tropical vegetation. On weekends, it offers tasty brunches.



Rapha

This store is heaven for cycling lovers, selling cycling clothes as well as bikes and books on the topic. It also features a café with original concoctions, such as espresso with lime and sparkling water.



Oldish

Filled with vintage furniture and old film posters, Oldish serves fusion dishes like duck Wellington or truffle eggs benedict paired with local craft beers.



White Noise Records

Fans of Hong Kong music all know this place where you can find a fine selection of vinyls in all genres, with a preference for indie rock. The owner's cats sometimes come for a visit.



Openground

This two-floor establishment is a bookshop, design boutique, café and exhibition space showing young local artists. It also holds workshops with master craftsmen and lectures.



A Parisian atmosphere at La Guinguette, a shop that offers wines, cheeses and other artisanal dishes.



A local haunt of alternative music, the White Noise Records shop will appeal to vinyl fans.

BOUTIQUE



PING PONG SHOW

French brand Nedj is bringing a breath of fresh air to ping pong, with its four new tables that look like UFOs. With a colourful, fresh look, the tables are a game-changer with their novel design. Perfectly suited to stylish rooms, each of the models was designed and made in Auvergne and is easy to assemble and disassemble without any tools.

nedj.fr
From CHF 2,600.-



BATMOBILE DESK CLOCK

Swiss startup Kross Studio has created a luxury high-tech desk clock designed for fans of Batman. A faithful reproduction of Tim Burton's iconic Batmobile, this limited edition (with only 100 made) has 512 components and marks the passing of time with a tailor-made clock movement. It also has a 30-day power reserve, which is an exceptional technical feat for this type of object.

kross-studio.ch
CHF 27,500.-



LUXURY PRETZELS

Bretzel & Gretel is a new brand from Julie Ordon, who hopes it will become the Ladurée of pretzels. The Geneva-based actress and model reinterprets the Alsace speciality with Swiss chocolate-covered pretzels topped with hazelnuts, sea salt from the Alps, coconut and rose. These luxury snacks are elegantly packaged and available exclusively at Bon Génie and Alpina Gstaad.

bretzelandgretel.com
From CHF 19.80

SUSTAINABLE TRUNKS

With its Riviera-inspired name, the Romandy startup Rivea invites you to make the most of your holidays with its 100% environmentally-responsible swimming trunks. The suits and packaging are made entirely in Europe using waste collected from oceans. One Swiss franc from every purchase is donated to the Oceaneye association.

rivea.co
CHF 125.-



ETHICAL SUITS

Lyon studio Patte Blanche has created a suit made from 100% recycled polyester – the work of a stylist who has also designed clothing for YSL and Balmain. The young brand focuses on transparency, providing lots of information about the fabric composition, manufacturing processes and carbon footprint. Available in three colours, the suit can be altered free of charge upon request.

patteblanche-atelier.com
CHF 705.-



A SPEAKER THAT LOOKS LIKE A BOOK

The “bookshelf” speaker truly lives up to its name. The Beosound Emerge by Bang & Olufsen is a wireless smart speaker shaped like a slightly open book. The class D built-in amplifier (three ranges: 60W woofer, 30W mid-range and 30W tweeter) provides surprisingly powerful audio for its size.

bang-olufsen.com/fr
From CHF 649.-

PIZZA EXPRESS

Reaching temperatures of up to 400°C, this mini pizza oven can cook a Margherita in a wood-fired style in just two minutes. With various cooking modes, the Smart Oven Pizzaiolo works for all types of pizza: thick crust, thin crust, deep dish and frozen.

sageappliances.com
CHF 899.-



TRIED AND TESTED

SLEEPING WHILE LISTENING TO THE RAIN ALL NIGHT

BY GÉRARD DUCLOS

As more and more people have trouble sleeping, “sleep tech” has become more widespread. Our reporter tested the second version of Sleepbuds from Bose, a pioneer in the sector.

In the growing “sleep tech” industry, noise-cancelling devices are everywhere. The concept: a digital, modernised version of Quies ear plugs in the form of small, comfortable earbuds that play music or ambient noise to help people fall asleep.

Bose had already invested in the industry in 2018 with its Sleepbuds, which were small Bluetooth headphones. But these were taken off the market due to serious battery issues. Not discouraged, the audio specialist has come back swinging with an improved second version.

Sold for 299 Swiss francs, the speakers are decidedly high-end and rely heavily on the US brand's reputation for superior sound quality. Housed in an elegant recharging case, the earbuds are sleek, with rounded lines and no sharp angles. The designers focused particularly closely on the shape of the earbuds, which are available in three different sizes in order to be compatible with any ear size.

The configuration process was fairly simple: everything is set up via the official Bose mobile app in just a few minutes. The earbuds come pre-loaded with various sounds and ambient music, which can be modified using the app.

The app offers three categories of sound: noise reduction, nature sounds and calm atmospheres

Settled in comfortably under the covers, it was time to test them out. The earbuds are quite comfortable and nestle easily in your ear. The app offers three categories of sound: noise reduction, nature sounds and calm atmospheres.

In terms of noise reduction, the earbuds offer impressive performance. Irritating ambient noises easily dis-

appear even at a low volume, without overall hearing being affected.

As for making it easier to fall asleep, that's a bit of a different story. Some of the chosen sounds are a little strange, such as the ones that imitate being inside an aeroplane or in a room full of computer servers whirring at full power...

The nature sounds, with their campfires, birdsong, alpine peaks and autumnal rain, seem more conducive to sleep.

While I generally don't have trouble sleeping, I did find it hard to nod off with the permanent background noise in my ear, regardless of the sound I chose.

Maybe I needed to get used to the continuous and rather unusual sensation of having earbuds in my ears throughout the night. Or maybe these are best used in a particularly noisy environment where you absolutely need a device such as this. ▀

 Swiss DOTS

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