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INVESTMENTS
Tesla and
the dreamer's
paradox

MARKETING
The pink tax
syndrome

DOSSIER



RECYCLING COMPANIES ARE COMING ROUND

How the circular economy
is transforming business models

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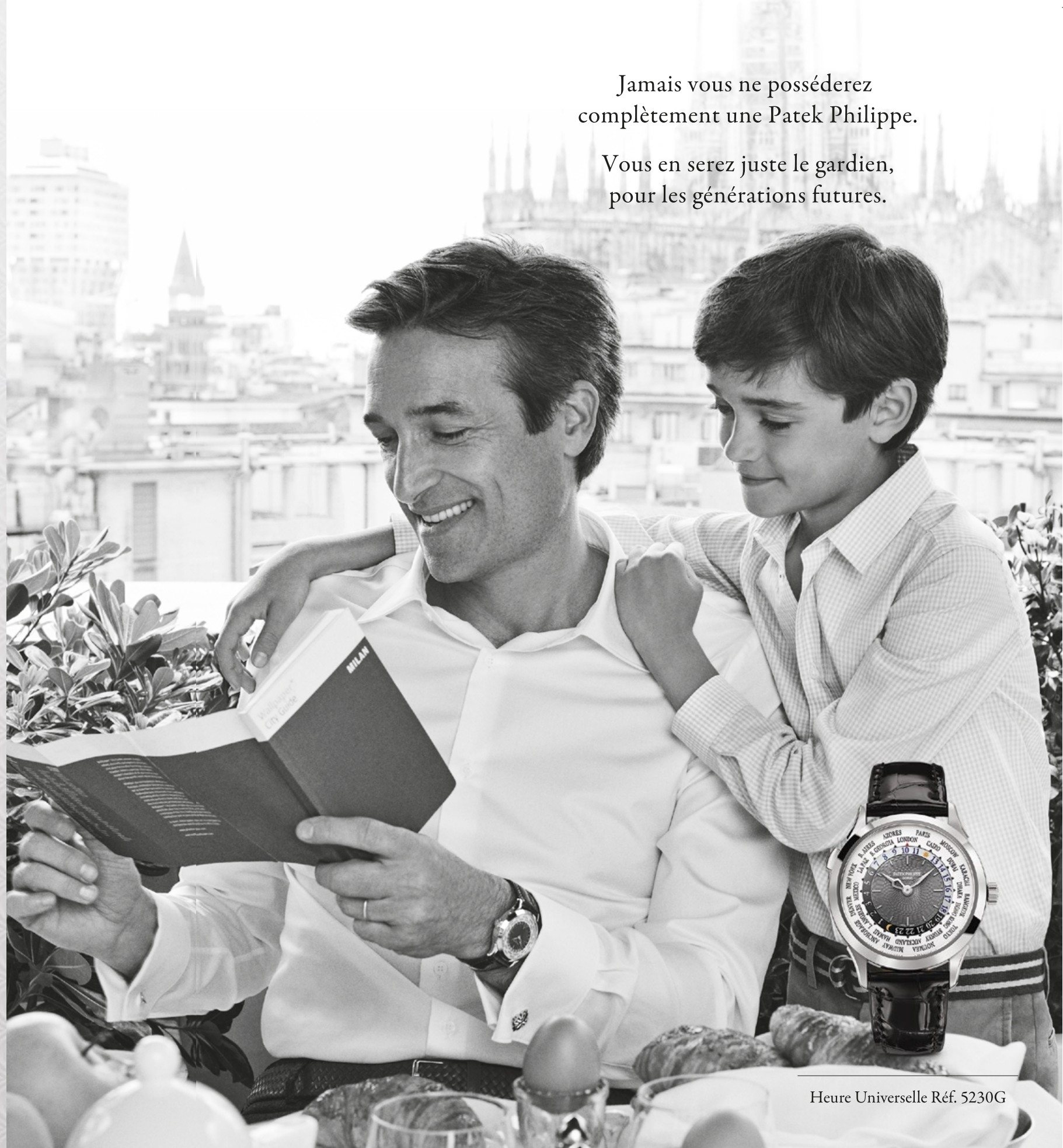
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Towards a world without waste



By Marc Bürki,
CEO of Swissquote

As we were preparing this issue's special feature on the **circular economy**, three big-name companies announced (almost in sync) that they would be taking steps to become more sustainable: between 16 and 20 January, McDonald's, Coca-Cola and Evian unveiled, one after another, very ambitious goals in terms of waste management. Coca-Cola plans to recycle a bottle or can for every one it sells worldwide by 2030. McDonald's announced that all of its packaging will be made from renewable sources by 2025. Evian (owned by Danone) announced a similar goal, saying that it will use only recycled plastic to produce its bottles by 2025.

p. 34

What are we to make of these laudable efforts? It appears that preserving natural resources and reducing pollution are becoming important issues when it comes to the reputations of large companies. McDonald's made no secret about it: in a press release, the company said that its decision was in response to growing demand from its customers.

The circular economy is about more than just recycled packaging though. It applies to all goods, the idea being to create an ecosystem where each object is either repaired or transformed. In such a system, the notion of waste in the traditional sense becomes obsolete.

This model offers plenty of economic benefits, which you can read about

in the **examples** provided as part of our special feature. A growing number of companies are choosing to rent goods long-term rather than sell them (Philips, Michelin); other companies are building a loyal customer base by offering repairs (SEB) and still others are forming networks to make sure nothing goes to waste (Statoil, Novo Nordisk).

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For now, these virtuous business models are still few and far between – but things can change fast! Will companies that decide to stick to the ownership model be driven to extinction by the rental economy? Will consumers refuse to accept practices they consider unacceptable? Several examples have left their mark on consumers recently: Epson and Apple were both suspected of intentionally limiting the life of their products, and H&M was accused of burning tonnes of unsold clothes.

In addition to the circular economy, we also decided to cover another popular topic in this issue: cryptocurrencies. Virtual currencies such as ether, ripple and litecoin – and, of course, bitcoin – can now be traded on Swissquote's platform. We have been receiving thousands of requests each week for new account openings. We felt that this exceptional situation deserves an exceptional response. Paolo Buzzi, co-founder and CTO of Swissquote, will tell you **more** about it in this issue.

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Happy reading!

DOSSIER

RECYCLING COMPANIES ARE COMING ROUND



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SCANS



\$136 BN

The total spent by insurance companies globally to pay for damage caused by natural and man-made disasters in 2017, up 110% from the previous year, according to Swiss reinsurer Swiss Re. This is the third highest amount ever recorded.



“We’re opening a new store in China every 15 hours”

Howard Schultz, CEO of US coffee chain Starbucks, at the grand opening of the biggest Starbucks in the world in Shanghai

robotics

ABB PARTNERS WITH KAWASAKI



Demonstration of an ABB robot at a tech trade show in Tokyo.

Zurich’s ABB and Japanese industrial group Kawasaki are partnering to develop collaborative robots, dubbed “cobots”. The two companies will share expertise and promote the benefits of cobots, which are currently used in the industry to assist human workers and automate certain tasks. ABB and Kawasaki will both continue to manufacture

and promote their own robots independently, but they will work together on technical aspects and awareness campaigns aimed at NGOs, politicians and the general public regarding the advantages of this robotics technology. The first result of the collaboration was a two-armed robot that was presented in Tokyo at the end of 2017. — ABBN — 7012



“We’re watching the Trump administration’s actions very closely and are preparing to take every step necessary, including legal action”

Rose Marcario, CEO of Patagonia, following US President Trump’s order to decrease the size of two natural national monuments

agriculture

MERGERS CONTINUE IN THE SEEDS MARKET



SYNGENTA

When will the concentration of the global seeds market end? Syngenta announced in November that it acquired Dutch subsidiary Nidera Seeds from Chinese cereal giant Cofco for an undisclosed amount. This transaction, which must still be approved by the competition authorities, will increase the Basel-based multinational’s position in South America, where Nidera is active. This merger is just one of the many acquisitions of the past few years from the industry’s top three: Syngenta, Monsanto and DowDuPont. The trio controls 55% of the market, according to *Le Temps*, and this market share could bump up to 59% if the merger between Monsanto and Bayer is approved.

— SYNN — MON — DWDP

pharma

ZUR ROSE IS PLAYING ITS CARDS RIGHT IN EUROPE

Zur Rose is hungry for more. The Thurgau-based group specialises in mail-order prescription sales and is increasing its presence in Germany. The company, located in Frauenfeld (TG), recently completed back-to-back acquisitions of Eurapon, a local prescription distribution service provider, and Vitalsana, a Dutch online pharmacy that is mainly active in Germany. In due time, Zur Rose, founded in 1993 and headed by Walter Oberhänsli, is targeting all of Europe, where only 4% of prescriptions are sold via mail-order, according to *Le Matin Dimanche*. “For us, Europe is uncharted territory,” said the CEO according to remarks reported by the Swiss daily.

— ROSE



ZUR ROSE

RANKING

THE TOP FIVE SEMI-CONDUCTOR SELLERS
(in global market share)

1. INTEL	15.7%
2. SAMSUNG	11.7%
3. QUALCOMM	4.5%
4. SK HYNIX	4.3%
5. BROADCOM	3.8%

Source: Gartner, 2017

TOP FIVE US COMPANIES WITH THE MOST MONEY IN OFFSHORE ACCOUNTS
(in billions)

1. APPLE	\$200.1
2. PFIZER	\$193.6
3. MICROSOFT	\$124
4. GENERAL ELECTRIC	\$104
5. IBM	\$68.1

Source: Oxfam, 2017

TOP FIVE VIDEO GAME CONSOLES SOLD IN 2017
(in millions)

1. PLAYSTATION 4	13.8
2. NINTENDO SWITCH	8.5
3. XBOX ONE	4.6
4. NINTENDO 3DS	4.3
5. PLAYSTATION VITA	0.6

Source: VGChartz

SCANS



\$155.5 BN

The value of “green” bonds issued globally in 2017, a 78%-increase compared to last year, according to Climate Bond Initiative. Popular with investors, “green bonds” allow investors to place their money in environmental projects.



At King's Cross station in London, platform 9¾ – a reference to the *Harry Potter* series – has become a major tourist attraction.

SHUTTERSTOCK

environment

MICROSOFT WANTS TO SAVE THE WORLD WITH ARTIFICIAL INTELLIGENCE

“AI for Earth”: this is Microsoft's new programme, which seeks to “better understand and tackle the world's climate issues” with the help of technology. At the One Planet Summit in Paris last December, the IT company announced it would expand the project, investing \$50 million over the next five years. The

funds will “democratise” access to AI and its abilities, putting the technology in the hands of individuals and organisations who are working to protect the environment. While it is certainly a worthwhile initiative, it is also an inexpensive greenwashing technique for the Redmond-based company. — MSFT



Bill Gates' speech during the One Planet Summit held in Paris last December.

LUDOVIC MARIN / AFP



“We don't need to be in Switzerland to do business. We're very mobile and can work wherever”

Gérard Delsad, managing director of oil trading group Vitol, quoted in *L'Agefi* following an announcement from Swiss Federal Councillor Simonetta Sommaruga that she intends to further regulate the industry

video games

WILL HARRY POTTER BE AS POPULAR AS POKÉMON GO?

Soon, meals with friends may be interrupted by a Basilisk, a Dementor or a Niffler. Following the incredible success of *Pokémon Go* – a mobile augmented reality game where players attempt to capture the most fantastical creatures – Niantic is adapting *Harry Potter* in the same vein in partnership with Warner Bros. Very few details have been made public as of yet, but the game's objective will be to “explore neighbourhoods and cities in the real world to uncover mysterious artefacts, cast spells and encounter legendary characters and animals from the *Harry Potter* universe along the way.” The release date has not yet been announced. — TWX



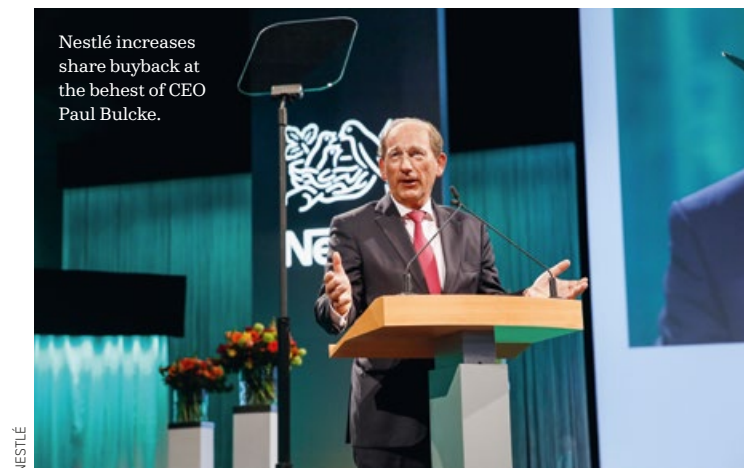
“We don't want to compete with our rivals in terms of resolution and pixels. When people play *Mario Kart*, they're no longer focused on the graphics”

Bernd Fakesch, general manager for Switzerland, Germany and Austria at video game company Nintendo, in the daily *Le Temps*

food

NESTLÉ IS BETTING ON NUTRITIONAL HEALTH

Nestlé increases share buyback at the behest of CEO Paul Bulcke.

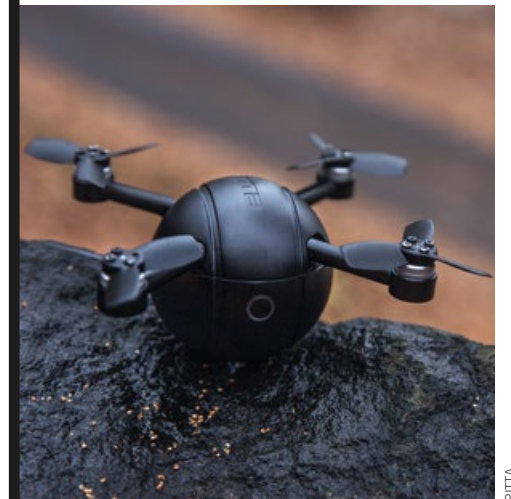


NESTLÉ

Nestlé announced the acquisition of Quebec-based firm Atrium, the global leader for science-based health products, for a price of \$2.3 billion. The acquisition “is proof of Nestlé's desire to increase its growth in mainstream health products, in keeping with its focus on the fast-growing

food and drink segments,” said the Vevey-based group (VD) in a press release. Atrium's flagship brand, Garden of Life, is the best-selling natural supplement brand in the United States. In 2017, Atrium sales were expected to reach close to \$700 million. — NESN

KICKSTARTER



PITTA

PITTA

The transformative autonomous mini-drone

It resembles the golden snitch that Quidditch players would try to catch in *Harry Potter*. But this one is black. And it is very real. Pitta is a spherical mini-drone weighing 200 g and measures only 17 cm in diameter. It can be transformed into an action cam or a home security webcam. There are three detachable modules and a charging station. The drone can fly piloted by an app, but can also be programmed to follow a target autonomously. Autonomous flight can last up to 15 minutes in drone mode and an hour and a half in action cam mode. There are no time limits in surveillance camera mode, as Pitta will periodically land on the charging station. The camera films in 4K with 30 images per second.

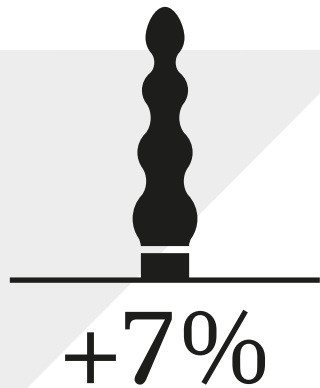
FUNDS RAISED
\$537,000

AVAILABILITY
APRIL 2018



“By making these changes, I expect the time people spend on Facebook and some measures of engagement will go down [...]. I also expect the time you do spend on Facebook will be more valuable”

Mark Zuckerberg,
CEO of Facebook



Annual growth of the global sex toys market until 2020, worth up to \$30 billion according to Technavio. The industry was hit hard by e-commerce, which recently destroyed an important market player: German company Beate Uhse, which opened the first sex shop in the world in 1962, went bankrupt.

finance

GOLDMAN SACHS REFUSES TO CHOOSE BETWEEN PARIS AND FRANKFURT



Goldman Sachs CEO Lloyd Blankfein during Donald Trump's visit with Chinese president Xi Jinping last November in Beijing.

The consequences of Brexit are becoming increasingly apparent. Goldman Sachs CEO Lloyd Blankfein confirmed in an interview with *Le Figaro* that the US investment bank is planning to relocate some of its employees to continental Europe before the UK leaves the EU in March 2019. “Brexit has forced us to decentralise our business,” he said. The bank will have two European hubs:

Paris and Frankfurt. The number of employees involved was not disclosed. Goldman Sachs is not the only company to do this. Bank of America decided to open a new hub in Dublin, Ireland. UBS, which employs 5,000 people in London, has stated that one-fifth of employees could be relocated elsewhere. Note, however, that this number was eventually reduced.

— GS — BAC — UBSG

IPO

SMCP WANTS TO BREAK INTO THE READY-TO-WEAR MARKET

The prêt-à-porter company SMCP, which owns “accessible” luxury brands such as Sandro, Maje and Claudie Pierlot, went public on Euronext Paris this autumn. The company raised €127 million and its capitalisation is now at €1.44 billion with a share price that has fallen slightly since the IPO. SMCP's majority shareholder, Chinese conglomerate Shan-

dong Ruyi, was hoping to value the company at €2 billion. It purchased SMCP in March 2016 from US investment fund KKR for €1.3 billion. With turnover of €900 million, SMCP is still far from competing with industry giants such as Inditex and LVMH, but it hopes to make a name for itself by focusing on Asia's emerging middle class.

streaming

THE MUSIC WAR ESCALATES



VALENTIN WOLF / KEYSTONE

The music streaming market is booming, but listening platforms are losing profits and seeking solutions. Apple spent \$400 million to acquire Shazam, a music recognition app. According to experts, the objective is to redirect users to Apple Music, but also to take advantage of the massive amounts of data generated by the app about

music lovers' tastes. We also can't forget the French platform Deezer, which unveiled a service similar to Shazam only a few days after Apple's announcement. Spotify has partnered with Chinese media giant Tencent in order to increase their joint catalogue and strengthen their negotiating power with major players. — AAPL

aviation

THE PILATUS JET IS READY TO CONQUER THE SKY

Pilatus' challenge was a success. The Nidwalden aviation company, which has until now specialised in propeller training devices, has created its first jet engine that is certified by European and American aviation authorities. The PC-24, a ten-passenger business jet, is unique in that it can land on grass and unpaved runways. This feature makes Pilatus a worthy rival against industry leaders Embraer from Brazil and Cessna from the US. Given that the industry is doing rather poorly due to the numerous second-hand jets on the market, Pilatus' success is even more impressive. The Stans-based company (NW) had a very successful launch of its new jet, which sold at \$9 million and already has close to 100 orders.



PILATUS

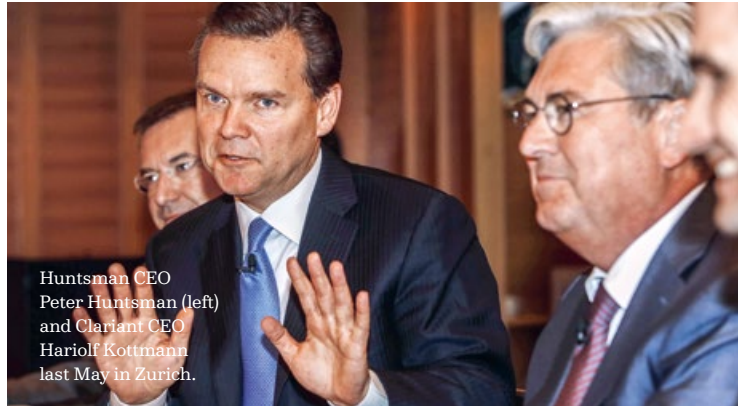
The Pilatus PC-24: the only jet in the world that can take off and land on unpaved surfaces like grass and gravel.



\$209 BN

The total of online advertising spending globally in 2017, according to Magna Global. For the first time, online spending exceeded television spending, which totalled \$178 billion.

In 2022, digital advertising is expected to reach \$348 billion, while TV adspend is expected to remain stagnant.

*chemistry*CLARIANT IS STRUGGLING WITH
ONE OF ITS SHAREHOLDERS

Huntsman CEO
Peter Huntsman (left)
and Clariant CEO
Hariolf Kottmann
last May in Zurich.

SIGGI BUCHER / KEYSTONE

Clariant has a thorn in its side by the name of White Tale. As the majority shareholder of the Basel-based chemicals company, the US hedge fund raised its percentage to 20% and derailed a 20 billion merger transaction with Huntsman, a manufacturer and distributor of chemical products located in Texas. Clariant was expecting synergies from the merger. White Tale asked the Board of Directors for an independent strategic investigation of Clariant

and three seats on the Board of Directors, which was refused. The hedge fund's intentions are unclear: Clariant's Board of Directors accuses White Tale of wanting to dismantle Clariant, while the fund claims to want to preserve its independence. Whatever the case may be, management has stated that it is working on a new strategy to "create value" and claims to be open to acquisitions. The results are promising.

— CLN — HUN

THE FLOP

"Golden Arches" creates bad buzz in China

McDonald's changed its company name in China after the franchise was acquired by a local conglomerate. The US fast food chain replaced the Mandarin transliteration it had previously used until now ("Maidanglao") with "Jingongmen", which translates to "Golden Arches". The new name received harsh criticism from Chinese social media users, who thought it was uncool. McDonald's had to immedi-

ately make sure that restaurants would keep the previous name. Like McDonald's, an increasing number of foreign companies have forgone transliteration for more original variations of the brand name. BMW went for "Baoma", which means "prized horse", whereas Coca-Cola chose "Kekoukele", which translates to "delicious happiness". Microsoft chose "Lingyin", meaning "leading elite". — MCD



\$10,000

The price that one tonne of copper could reach in the next five to 10 years, compared to \$7,000 currently. This is a result of the boom of electric vehicles, according to an analyst from SP Angel quoted by financial company IG. Copper is used to produce electric vehicles, and finding new mines is becoming difficult.

*sharing economy*UBER AND AIRBNB ARE FACING
EVER-INCREASING REGULATIONS

UBER

This is the end of the blessed run with no regulations. Close to 10 years after they burst onto the market, the pioneers of the sharing economy – Uber and Airbnb – are now facing ever-increasing regulations everywhere they operate. In Paris, where it is now illegal to rent an apartment on Airbnb for more than 120 nights, the number of reservations dropped 11.8% in Q4 2017, according to Paris city hall. The California-based rental platform was disappointed. As always, what happened in Paris served as an example for other French cities. As for Uber, it is now subject to the same regulations as taxis in Europe, according to a decision from the Court of Justice of the European Union. This could result in serious problems for the ride-sharing company in Europe.

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TRENDS



the figure

JOHAN LUNDGREN

A travel pro at the helm of EasyJet

EasyJet has found a new CEO to replace Carolyn McCall – travel-industry veteran Johan Lundgren. Lundgren was formerly deputy CEO at German travel company TUI, where he worked for 12 years. Lundgren first studied music and then shifted towards economics, graduating from the International Institute for Management Development (IMD) in Lausanne. The Swedish national will definitely have his hands full trying to live up to his predecessor, Carolyn McCall. In her time at the low-cost airline from 2010 through 2017, the number of passengers grew by 60% (to 80.2 million in 2017), turnover by nearly 70% (to €5 billion) and earnings before tax by 65% (to €408 million). The company's stock, too, went sky-high at first, but has been oscillating for the past five years. For Lundgren, three major challenges lie ahead. The first is putting the shine back into the image of the airline, which is known more for its orange logo than its punctuality or its customer service. The second involves surviving in an increasingly competitive environment in which every airline is offering low-cost options. The third and biggest thorn in the recently-hired CEO's side, however, is Brexit. Based out of Luton in northern London, EasyJet is hoping to do some damage control by opening a branch in Austria, but everyone is still in the dark as to the specific after-effects of Brexit. It's a good thing that Lundgren is accustomed to flying blind. — EJ

Position
CEO of EasyJet

Age
50

Nationality
Swedish



the country

GERMANY

Crisis? What crisis?

"The German economy is very healthy," said Clemens Fuest, president of the Ifo Institute for Economic Research in Munich, in a December press release. Ifo raised its growth outlook for 2018 from 2% to 2.6%, a record high since 2011. "Many industries are flourishing, including construction, manufactured products and distribution," according to Ifo. Unemployment is at its lowest and is expected to drop below 5% in the next two years. This should make the rest of Europe quite jealous... The powerful German economy is even

more impressive, given that the country is going through a profound political crisis. What made the economy so successful? Protected traditional industries, massive investments in new technologies, all-out robotisation and a migration push all had stimulating effects on the economy. That's on the one hand. On the other hand, this apparent success masks a growing impoverishment of the population. Since Angela Merkel took power in 2005, the number of people living under the poverty line has doubled. Full employment was reached by expanding pre-

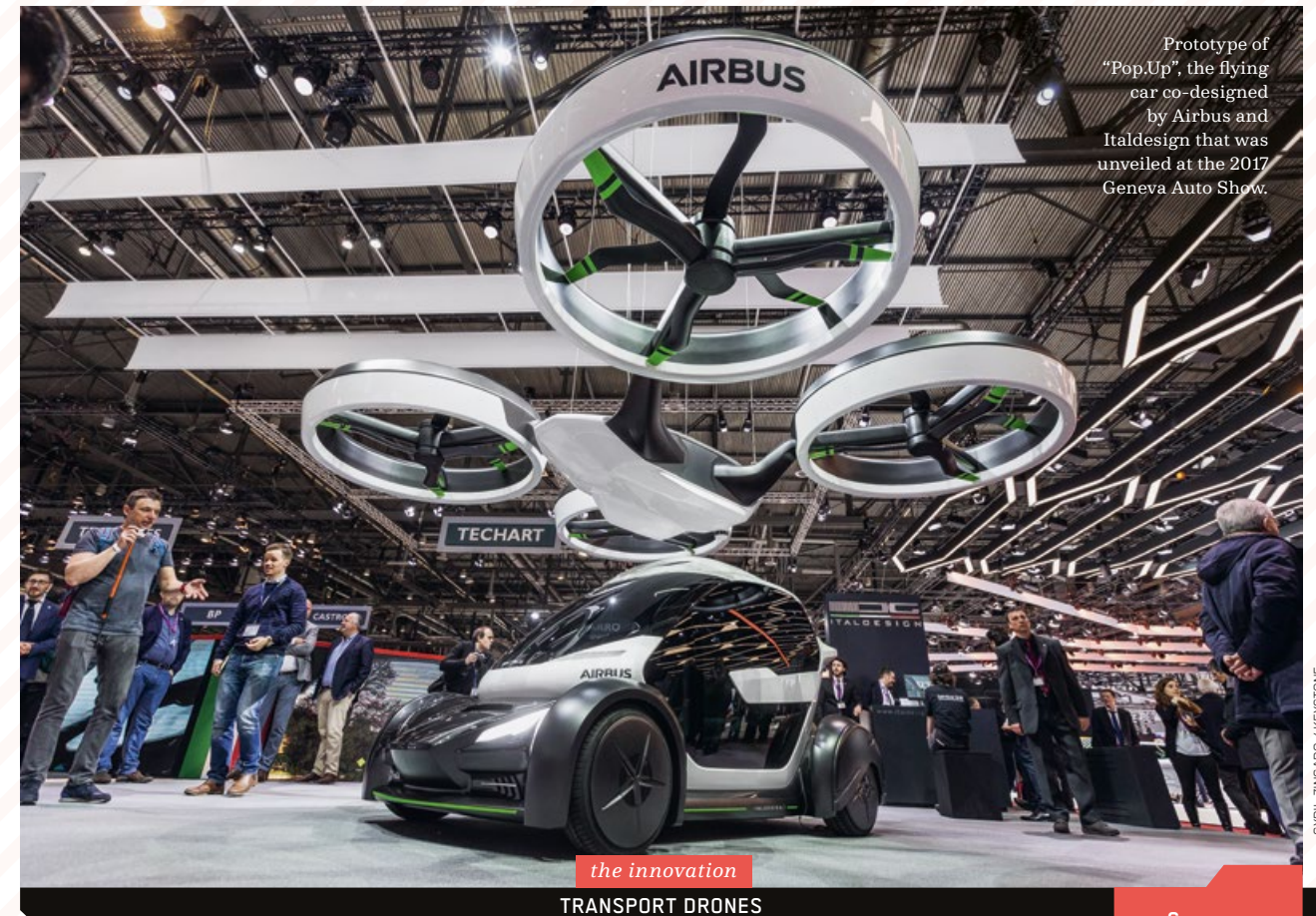
carious jobs, held mostly by women. The number of "working poor" and poor seniors has skyrocketed.

Population
83 million

Per capita GDP in 2016
\$41,936

Growth in 2016
1.9%

Main economic industries
Machines, automobiles, electronics, pharma, finance



Prototype of "Pop.Up", the flying car co-designed by Airbus and Italdesign that was unveiled at the 2017 Geneva Auto Show.

the innovation

TRANSPORT DRONES

Company
Airbus

Launch
2020

Projected cost
Not shared

"Hey, flying taxi!"

Will the city skies of the future be filled with flying cars, like in *Metropolis* or *Blade Runner*? Airbus and other transport players think so. The European company is working on a self-driving electric aircraft that can take off vertically and transport passengers in an urban environment. Dubbed "Vahana" (after a vehicle that carries Hindu deities in Indian mythology), this taxi drone is being developed by A3, the California subsidiary of Airbus. Testing is already underway

and the aircraft manufacturer has stated it would like to start production as early as 2020. On-demand ride service Uber is also interested. It has entered into a partnership with NASA. Boeing, in turn, recently acquired Aurora Flight Sciences, a company specialised in self-flying planes that has a Research & Development centre in Lucerne, Switzerland. It remains to be seen if these projects will go from science fiction to reality. In *Le Monde*, researcher Carlo Ratti from MIT in

Boston highlights the obstacles that he considers to be deal-breakers for interurban drone transport: unacceptable noise (propellers create noise and wind), increased security risks (no one wants a mini helicopter to fall on their head) and hacking threats. The engineer believes that the future of transport could very well remain on the ground.

— AIR

The Spyder probe, Datacolor's bestseller used to calibrate the colours of screens.

Datacolor shows its Swiss colours

The astute Lucerne-based company is one of the top colour management specialists in the world

BY MARIE MAURISSE

The Swiss stock exchange holds many little-known companies with thrilling prospects. Datacolor is a perfect example. In Switzerland, there is relatively little information on the Lucerne-based company. Photographers, however, know it well; Datacolor makes the Spyder range of instruments that calibrate camera lenses and computer screens so that the colours of the photographed images are as close as possible to what they are in real life.

One of the best examples is Hugo Boss, whose researchers use the Datacolor 800 spectrophotometer to ensure that each piece of fabric used to make a suit is exactly the same colour. This tool makes colour matching much faster and far more accurate than visual assessments, which were used in the industry for quite a long time. Since the German brand offers customisable suits to fit customers' needs, Hugo Boss must assess colours each time a new order comes in.

12%-market-share in the global colour management market and sells its products in more than 100 countries. In the latest annual report, published in October, Werner Dubach, chairman of the Board since 1981, was quite pleased with the rise in sales. In his opinion, sales were boosted by low interest rates, which encouraged household and company consumption. With this success, he also announced increased dividends at 15 Swiss francs per share, compared with 13 Swiss francs the previous year. This good news affects him as well, as he personally holds almost 62% of shares. As he holds so many shares, there are less available on the market, but this makes for good company stability.

"Datacolor has an American heart, a Swiss soul and an international vision," according to its website. This is a perfect summary of the company. It was founded in the United States, but its headquarters is in Lucerne and it has been listed >

Datacolor offers colour management training to shop employees

In this industry, Datacolor's revenue is constantly growing. The company holds an approximate

IN FIGURES

1 M

Number of people in the world using Datacolor's Spyder sensors

72.8 M

In dollars, 2016/2017 turnover, up 5% over a year

382

Number of employees across 25 countries

36

Number of active patents

15

In Swiss francs, the dividend per share in 2016/2017

YANNICK MEYER

on the Swiss stock exchange since 1998. Current business activity has been particularly prosperous in the East. Asia-Pacific is now its main market, making up more than 38% of sales. It's only logical that Asia is Datacolor's primary target: the company's biggest factory is in the Suzhou Industrial Park (SIP) in China.

The sales boom in Asia is enough to make up for the sluggish US market, which still makes up 27% of sales – but which dropped three points in the last financial year. To meet its objectives, Datacolor is focused on research and development, particularly in the decorative paint and high-quality photography markets. These two markets are still smaller than textiles, but are expected to develop in the years to come, as they are an important aspect of two strong trends among consumers. In the paint market, for example, Datacolor offers its products to retail spaces and specialised shops in order to help customers choose the most precise colour possible and to fill

the shelves with products adapted to customer needs. Datacolor offers colour management training

to shop employees and sells the "ColorReaderPRO": software installed on a smartphone that can detect the exact colour reference based on a customer's preferences.

In the photography industry, Datacolor refreshed its range of "Spyder" products, which can calibrate cameras, computer screens and enhance the spectrum of colours for printers. The future seems bright for Datacolor, as it dominates a market with little competition. US company HunterLab or German company BYK-Gardner also produce spectrophotometers, but they are not as diversified. X-Rite, the world leader, is three times larger than Datacolor but less established in the textile industry than its Swiss main competitor. This could very well change. But the Lucerne-based company is fighting back by breaking into the automotive market: Audi now uses portable Datacolor 45G CT instruments to analyse the tone variations in the interior of its vehicles. ▲ ▽ DCN



The SpyderCube allows photographers to control the white balance for file calibration.

BOB FOSBURY

ANALYST ADVICE

"A GREAT OPPORTUNITY"

René Weber of Vontobel is one of the few analysts in Switzerland who follows Datacolor shares. Despite some difficulties, the expert believes that the company's investments in Research & Development herald intriguing innovations in the future. "Over the last financial year, Datacolor increased its Research & Development spending by 20%. This explains why the profit margin before taxes, interest and amortisation is lower. It's a costly strategy, but it provides a good base for the company's future growth."

This decision is bolstered by solid financial health, as Datacolor has no debt. "That's

even more remarkable considering that Datacolor suffered a drop in US sales," said Weber. It even has enough capital for acquisitions, but potential companies that could be acquired in this market are rare. That said, Datacolor's business is not risk-free, especially in emerging countries where it decided to open satellites to develop direct sales. "The most recent satellite opened in Turkey, which is a politically unstable country," said Weber. The Zurich-based analyst believes shares are currently at the "correct price" but could still be a great opportunity. One thing to note is that there is not a substantial amount of shares available on the market.

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As predicted for years, mobile payments are progressively becoming a credible successor to credit cards and cash. Fierce competition pits various players against one another in this market.

BY BERTRAND BEAUTÉ

When Julian goes into a shop in Stockholm, where he lives, he never stops to wonder whether he has cash: "Most of the time, I pay with the Swish app on my smartphone. And for bigger purchases, I use my credit card. Honestly, I rarely carry cash."

In Sweden, cash payments fell to less than 15% of all merchant transactions in 2016, compared with 40% in 2010. Credit cards and mobile payments have taken over. Sixty percent of Swedes use the Swish app, which allows users to pay in most shops with their smartphone. This number will only continue to grow.

Will mobile payments beat out cash and credit cards to become the universal payment method? "Sweden and Denmark are the exception in Europe," says Grégoire de Streel, co-founder of Belgian investment fund BelCube. "Swedes and Danes are very tech savvy and quickly adopted these new tools. But other European countries are

much less advanced." According to a Deloitte study published in November, a mere 17% of the Swiss population occasionally pay via their smartphones, which is slightly higher than the European average (15%).

"Banks and governments will promote smartphones as a payment method"

Grégoire de Streel, co-founder of BelCube

That said, experts all agree: cash-free payments are inevitable, especially because the technology already exists. Near Field Communication (NFC) chips, which are now in all mobiles, make it possible to pay for purchases by holding a smartphone close to a payment terminal. As a result, "we're all going to end up paying with our

mobiles," says Richard-Maxime Beaudoux, analyst at Bryan, Garnier & Co. "It's not a question of 'if', but 'when'. In my opinion, it's going to take longer than we think."

That's because widespread use of mobile payments is up against various difficulties. "Consumers have used cash since time immemorial, and credit cards for the past 30 years," says de Streel. "It won't be easy to change their habits, especially if they think that mobile payments don't provide an added benefit over using cash. Why would you take out your mobile at the register when you can just take out your card? In the end, I think the change isn't going to come from consumers, but from banks and governments who will promote smartphones as a payment method." The Swedish example is telling. In the late 2000s, a wave of bank robberies spurred seven banks to develop the Swish app and drastically reduce the number of ATMs in the country. As a result, the number of robberies went ➤



WILL BANK CARDS DISAPPEAR?

As of 13 January 2018, the new Payment Services Directive (DSP2) came into effect in the European Union. It will revolutionise the world of mobile payments. Currently, services like Apple Pay and Samsung Pay must go through a credit institution in order to use smartphones to make mobile payments. Over the next 18 months

– the time for European banks to comply with the directive – this regulation will no longer apply. "DSP2 will allow for telephone numbers to be linked to a bank account," says Richard-Maxime Beaudoux, analyst at Bryan, Garnier & Co. "Companies such as Google and Apple won't have to go through intermediaries." An advantage is that there will

no longer be fees associated with card use, which will give a competitive advantage to mobile payments. Furthermore, money transfers will be faster: currently merchants have to wait two days before receiving money from a payment via bank card, while mobile payments are immediate and come directly from the bank account.

from 110 in 2008 to seven in 2015, according to the Swedish Bankers' Association. "For governments, cash is also a threat, because it's the hardest form of payment to trace," says de Streel. "Governments are very interested in cashless payments in order to reduce fraud." As for credit cards, banks no longer encourage them, as they are expensive to issue and banks must pay a commission to intermediaries (Visa, Mastercard, American Express).



"GAFA aren't developing these services to make a profit. They're doing it to collect more information about their users"

So the road to mobile payments is opening, and many companies are interested. In Switzerland, around 40 banks – including UBS, Credit Suisse and Raiffeisen – came

together to develop the Twint app, which eliminates bank-card fees (see interview with the company's CEO, p. 25). But the Swiss start-up is facing competition from new players on the market, who until now weren't even part of the finance industry.

In 2011, Google launched Wallet, its mobile wallet, in the US and was followed by Apple in 2014 and Samsung in 2015. Even telecoms companies are getting in on the action. In November, Orange launched Orange Bank in France and announced upcoming launches in Spain and Belgium. But the most advanced companies are in China. Alipay (a subsidiary of Alibaba) and WeChat Pay (owned by Tencent) have more than one billion users. These two platforms processed \$2.9 trillion in mobile transactions in 2016, which was more than any other platform in the world, according to the 39th Statistical Report on Internet Development in China, published in January 2017.

"GAFA (Google, Apple, Facebook, Amazon) and BATX (Baidu, Alibaba, Tencent, Xiaomi) aren't developing these services to make a profit –

mobile payments don't bring in revenue. They're doing it to collect more information about their users," says Richard-Maxime Beaudoux. "Consumer banking data is

extremely valuable, because it provides information about the daily lives of consumers." It remains to be seen what will win out. "People won't abandon traditional banks, especially because the market newcomers don't offer certain services such as mortgages," says Stéphane Beyazian, analyst at Raymond James. "But they will increasingly use several platforms, similar to how we have several accounts today. Traditional banks will be used for significant transactions, while non-conventional players will serve as a wallet."

McKinsey doesn't agree and is warning traditional banks. In a report published in October, the firm stated that internet giants are investing an increasing amount in financial-transaction management. As they get involved with payments, that could open the door to other more profitable services, such as loans and insurance.

"No one wants an app that only makes payments, because that's no different from a credit card," says de Streel. "Mobile payments will be accepted only if they are one aspect in an overall experience." In China, WeChat has become a complete ecosystem where users can do almost anything without ever leaving the app: chat with friends, purchase tickets, pay an electric bill, pay the bill at a restaurant, and even take out a loan or obtain an insurance policy. "Everyone will fight to become the WeChat of the Western hemisphere," predicts Grégoire de Streel. "In time, we'll probably see a super-platform emerge." ▲

"SWISS PEOPLE ARE STILL VERY ATTACHED TO CASH"

Swiss payment service Twint is targeting one million users by 2019. Interview with Thierry Kneissler, CEO of Twint.

The result of the merger between Twint and Paymit, the new Swiss mobile-payment system was successfully launched in spring 2017. It is supported by around 40 banks, including UBS, Credit Suisse, Raiffeisen and PostFinance. CEO Thierry Kneissler invited *Swissquote Magazine* to the company's Bern office to go over what the company has done over the year. The CEO is confident and believes that one day, everyone will pay via smartphones. But in the conquest of this growing market, Twint is up against giants Apple Pay and Samsung Pay.

In countries such as Sweden and Denmark, 50% of the population uses mobile payments. But it is much less widespread in Switzerland. Why is that?

They started earlier than we did! In Sweden, the Swish app was launched in 2012 and in Denmark, Mobile Pay has been available since 2013. But we just started with the new version of Twint, which has been available since April 2017. That said, there's also a cultural difference at play. In Sweden and Denmark, people are more used to electronic payments. The Swedish and Danish governments are even considering officially doing away with cash, which would be

impossible here: Swiss people are very attached to cash. But we'll get there eventually. I'm convinced that one day, everyone in the world, including in Switzerland, will pay with their smartphones.

How long will that take?

At the end of 2017, Twint had more than 600,000 users but that number is rising quickly, with 40,000 to 50,000 new downloads per month. Our goal is to have one million users by 2019. As for merchants, there are more than 50,000 Twint points of payment throughout Switzerland. Clearly, we need to increase that number, but that means our clients can pay with Twint when purchasing from many brands, such as Coop or Digitec. Twint also allows users to make peer-to-peer transfers and online payments.

Aren't you concerned by the competition from Apple and Samsung, since their apps are available in Switzerland and offer the same services as Twint?

No. Like with the credit-card market, several players will share the market. Twint is focused specifically on Switzerland, by forging close relationships with merchants. End clients don't want to install 10 or

20 payment applications on their smartphone, and then have to change the app depending on the shop they're in. In Switzerland, Twint has the most payment terminals installed. In my opinion, I think that people won't make the switch to mobile payments unless the apps offer an added value. Our app already includes shop loyalty cards, such as Coop's Supercard and savings coupons.

For merchants, what is the advantage of using Twint?

Our system directly links customers' smartphones to their bank accounts (ed. note: as long as the account is with one of the 40 partner institutions). As a result, merchants avoid the fees associated with bank cards, which is not the case with competitor apps such as Apple Pay. Furthermore, our app can be a great mobile marketing tool for merchants. Not all brands have the means to develop a platform such as the Supercard to increase customer loyalty. Twint gives them the opportunity to do so.

When do you expect to be profitable?

We're not releasing that information. Currently we're not making a profit, since we're investing a lot to perfect the system. ▲

ANALYSIS

THE VIEWPOINT OF SPECIALISTS

INVESTOR INTERVIEW

Education's slow shift to digital

It's time for new technology to revolutionise education. But schools need funding and teachers need the skills to do this.

BY JASMINE LECKER

In the wake of biotech, medtech, cleantech and fintech, now is the moment for education technology, or edtech. The EdTechXGlobal research platform believes this new and popular industry will expand 17% to \$252 billion by 2020. Citibank says the edtech market presents "a significant opportunity for investors with a greater risk appetite". The market is definitely not for the faint of heart. As the founder of J.Gold Associates, a US-based analysis and consulting firm specialising in new technology, Jack E. Gold explains the roadblocks that stand in the way of an edtech boom.

The term "edtech" is becoming increasingly popular. What does it mean exactly?

It's a very broad field that encompasses all online technologies and systems devoted to education. From a commercial standpoint, the most lucrative segments in edtech are learning programmes and classroom management tools.

What do these learning programmes involve?

One example is from the British publishing

company Pearson, which designs multimedia online platforms for classes. If classrooms are equipped with tablets or computers, teachers can use these tools to teach the class instead of using books. Content is far more versatile. Students can delve into the subject matter interactively with videos and pictures.

Are these learning programmes already in use?

Yes. All academic publishers have gotten on board. Pearson is one of the biggest, but there are others like Macmillan (editor's note: a subsidiary of the Stuttgart-based Holtzbrinck Publishing Group).

What about classroom management systems?

Classroom management systems are fully integrated platforms used to manage all class settings and monitor the specific activity of each student. Teachers can use them to communicate with parents, store documents, and check attendance rates and progress.

Microsoft and Google have developed similar tools. Teachers used to do this work themselves, but it's increasingly difficult to keep up due to rising student numbers in each class. Furthermore, the budget allocated to schools in the US is results-based. Classroom management systems are designed to improve performance.

A report from the research platform EdTechXGlobal and Ibis Capital stated that the global education market is worth \$5 trillion, but only 2% of it has gone digital. To what extent can education be digitalised and how fast?

Education can be 100% digital, but it won't likely happen overnight. Digital expansion in this field will take time. There are two main roadblocks. First of all, the majority of schools barely have enough money to run themselves as it is, making it a real challenge for them to invest in new education systems. Secondly, many teachers aren't comfortable with the technology and haven't been trained to use it.

Even the finest learning tools are worthless if teachers don't know how to use them. That said, even if the education industry were digitalised to 5% in 10 years, revenue would still be colossal.

Schools' ability to adopt new education technology is heavily dependent on public authorities. Which countries and cities are the most progressive?

Singapore and Hong Kong are at the forefront in this field. As far as Europe goes, Scandinavian countries are ahead. But it's hard to single out countries because education is largely dependent on local decisions and circumstances. ▲



JACK E. GOLD
FOUNDER
J.GOLD ASSOCIATES



ISTOCKPHOTO

HYDROGEN: THE PLAN B OF ELECTRIC VEHICLES

Transport experts are divided on fuel cell technology. While some have no interest, others believe it could be a future solution. Here is a closer look.

BY BERTRAND BEAUTÉ

Energy Observer, a mastless catamaran powered by hydrogen and renewable energy, set off last July for a six-year trip around the world.

Will hydrogen become the fuel of the future? Experts have very different opinions on the subject. When asked about it in 2015, Elon Musk said the technology was “incredibly stupid”. For Tesla’s visionary CEO, there’s no future for hydrogen as a transport solution because hydrogen production consumes a lot of energy. But other industry leaders fully support

it. “We believe that hydrogen can play an absolutely essential role in the future energy transition,” said Henri Poupart-Lafarge, CEO of Alstom, in December 2017.

In January 2017, thirteen companies including Alstom, Toyota, Honda, Hyundai, BMW and Daimler came together in Davos to create the Hydrogen Council. The goal of the initiative is to fast track the

development of this energy, especially in transportation, by means of a €1.4-billion-investment every year. There are already a few hydrogen-powered cars on the market through dealerships, such as the Toyota Mirai launched at the end of 2015, the Hyundai ix35, on the market since 2015, and the Honda Clarity, available since 2016. Under the bonnet of all of these models is a fuel cell. Upon contact with oxy- >

INVESTING IN HYDROGEN

Auto manufacturers developing hydrogen cars, such as Toyota, Hyundai and Honda, aren’t necessarily good companies to invest in, since there’s no guarantee that this technology will be used widely in the consumer vehicle market. “I recommend investing in Toyota, but for other reasons than the fact that it is developing hydrogen-powered vehicles,” said Peter Harrop, chairman of the market research firm IDTechEX. “The railway industry, which includes companies such as Alstom, seem more promising.” However, the hydrogen industry isn’t just involved in transportation and many companies could benefit from technological developments in hydrogen. First among them are traditional hydrogen producers such as Air Liquide and Linde. However, these companies could be outpaced in hydrogen production by energy giants such as Total, EDF, Dutch Shell and Statoil, which are all becoming more interested. Hydrogen storage specialists such as McPhy could also benefit from the renewable energy boom: “Wind turbines and solar panels do not produce energy in a stable, regular way,” said Pascal Mauberger, CEO of McPhy. “As a result, excess energy needs to be stored during production peaks. Converting the excess energy into hydrogen would be a solution to this problem.” The gas produced could then be injected directly into the existing natural gas network, or reconverted into electricity during consumption peaks, or even used to supply filling stations.

NUMBERS

20%

Percentage of diesel trains that will be replaced by hydrogen models by 2050, or approximately 28,000 locomotives

400 million

Number of cars that could run on hydrogen in 2050

x 10

Expected increase in global hydrogen consumption by 2050, reaching 546 million tonnes

\$2.5 trillion

Expected turnover from hydrogen in 2050

30 million

Number of jobs that could be created by the hydrogen sector by 2050

6

gigatonnes

Annual drop in CO₂ emissions as a result of hydrogen by 2050 compared to current technologies

Source: Hydrogen Council, McKinsey, November 2017

gen, the fuel cell converts the gas in the fuel tank to electricity and the exhaust is nothing but water vapour. In short, this ultra-clean motor could leave our old cars, with their combustion engines and dirty emissions, in the dust.

According to the Hydrogen Council study, building the necessary infrastructure would require an investment of \$20 to \$25 billion yearly until 2030

Compared to other eco-friendly vehicles, the advantages of hydrogen power are incredible. "Recharging the battery takes the same amount of time as filling a petrol tank: only three to five minutes, compared to the hours it takes to recharge a battery powered vehicle," said Pascal Mauberger, president of the French Association for Hydrogen and Fuel Cells (AFHYPAC). "Furthermore, the range of hydrogen vehicles is quite comparable to gas and even diesel vehicles. Fully charged, hydrogen cars can travel anywhere from 600 to 800 km before needing to be recharged. This is two or three times better than battery powered cars. Toyota even unveiled a prototype with a range of 1,000 km. As you can see, hydrogen offers consumers the same freedom as combustion engines, but without the pollution."

ONLY ONE FILLING STATION IN SWITZERLAND

"Companies at the forefront of this technology are Hyundai, Honda, Toyota, Ballard and Hydrogenics," said Peter Harrop, chairman of the market research firm IDTechEX. According to the Hydrogen Council, these manufacturers could capture a gigantic market. Indeed, a report published in November 2017 estimated that worldwide,

more than 400 million cars, 15 to 20 million trucks and 5 million buses powered by fuel cells will be on the road by 2050.

But not all experts believe this. IHS Markit analyst Toru Hatano doesn't think fuel cell vehicles will be mass-produced. "Volume will remain limited, since for consumers, there's no valid reason to buy a hydrogen-powered car. Despite its advantages, the technology does have some deal breakers."

"The biggest problem with fuel cells is the cost of storing hydrogen," explained Hans-Rudolf Hagemann, who has worked on this topic for 20 years at the University of Geneva. "Since the gas is unstable, it must be compressed in the car's fuel tank at approximately 700 bars of pressure. This requires very expensive materials. Other less expensive technologies are being studied, such as storage in hydrogen sponges (ed. note: metals that trap hydrogen). But we might have

to completely reinvent how cars are designed in order to use them."

In the meantime, the price of hydrogen cars is prohibitively expensive. The Toyota Mirai, whose name means "future" in Japanese, costs 65,000 Swiss francs, whereas Swiss consumers spend on average 40,000 Swiss francs on a new car. This doesn't dissuade Mauberger, who is also CEO of McPhy Energy, a company that develops hydrogen storage solutions: "It's completely

normal for an innovative model that is not widely distributed and carries all of the development costs to be expensive. But when volume increases, the price will drop. In the beginning, hybrid motors were expensive. But then they were everywhere. I trust Toyota, the pioneer of hybrid cars, to repeat its success."

But to do so, Toyota will have to overcome other obstacles, and particularly the lack of infrastructure. "There are very few – only ▶

ROB LEVER / AFP



At CES, the major consumer electronics show held in Las Vegas in January, Hyundai introduced the Nexo – an SUV that offers a glimpse of the next generation of hydrogen-fuel-cell vehicles.

Alstom's Coradia iLint, the only train in the world powered by a hydrogen fuel-cell, will be in circulation in Germany by 2021.



a few hundred – hydrogen filling stations in the world,” said Peter Harrop of IDTechEX. “That’s definitely not enough to make these cars feasible for individuals and it’s certainly too expensive to develop infrastructure.” According to the Hydrogen Council study, building the necessary infrastructure would require an investment of \$20 to \$25 billion yearly until 2030. Switzerland has only one hydro-

gen pump in the country, opened in 2016 by the Coop in Hunzenschwil (AG), compared to more than 3,000 petrol stations. “It’s a bit like the chicken-and-egg conundrum,” said Mauberger. “If there’s no distribution network, we won’t see a boom in hydrogen cars. But if there are no cars, there’s no need to develop a network...”

To rectify this, some countries have

taken the bull by the horns and built a large amount of recharging stations. “Germany, Japan and California actively promote this technology,” said Hatano of IHS Markit. “But I don’t think it will lead to radical change. Hydrogen will never outpace battery-powered electric cars.” For the time being, Toyota has only produced a few thousand of its Mirai model and has set modest objectives: 30,000 vehicles sold by 2020.

HYDROGEN TRAINS ARE ON TRACK

In the short term, building hydrogen-powered transport systems could very well start with industries other than mass consumer cars. “Captive fleets, such as buses, trucks and taxis, are easier starting points,” said Pascal Mauberger. In Paris, a company by the name of Hype has put around 40 hydrogen-powered taxis on the streets. Backed by industrial group Air Liquide, the start-up aims to have a fleet of 200 vehicles by 2020. Closer to home, Geneva-based SME Aaqius entered into a partnership with the Dubai airport in November 2017. It will provide hydrogen technology to all the vehicles on the tarmac, including aeroplane tractors, buses, tankers and forklifts.

For the past several months, similar announcements have cropped up in all industries. A hydrogen-powered ship, 100% energy self-powered, is currently sailing around the world. More concretely, Alstom, whose railway subsidiary is now controlled by Germany’s Siemens as of late September 2017, unveiled a new fuel-cell-powered train in 2017 named Coradia iLint. The train is already a big success: Germany purchased 14 of the fuel-cell locomotives to replace its diesel counterparts for €200 million.

“I think fuel cells are a better fit for the train industry than road

vehicles,” said Harrop, “for two reasons: one – they save a lot of money because it’s no longer necessary to provide electricity to the rails with expensive overhead lines, and two – they can be used immediately, as there’s no

need to wait for a gas distribution network to be built.” Trains are not a niche market, either. In Europe, 25% of trains still run on diesel, which works out to 1,500 trains in Italy, 3,000 in the UK and 4,000 in Germany. ▲



A hydrogen reservoir from a Toyota prototype.

IS HYDROGEN TRULY CLEAN?

Vehicles powered by hydrogen (actually dihydrogen H₂) only emit water vapour. But the gas doesn’t naturally exist in its pure state, so it must be produced. That’s the major issue. Currently, 95% of hydrogen is produced from fossil fuels (petrol, natural gas and carbon), which are inexpensive but cause pollution.

According to figures from *Auto Moto* magazine, producing enough hydrogen to power a car emits 100 g of CO₂ per kilometre, which is the same amount to power a diesel engine. Companies such as Alstom and Toyota are well aware of the problem and want to use “green hydrogen” produced by water electrolysis.

From a technical standpoint, this solution is possible but it requires large amounts of electricity, which could come from renewable energy. The hydrogen available at the Coop station in Hunzenschwil (AG) is produced via electrolysis at the IBAarau hydroelectric plant in Aarau, which results in zero emissions.

DOSSIER

THE WORLD'S NOT FLAT, IT'S CIRCULAR

The circular economy is still in its early stages, but it's getting more and more attention from governments and the private sector. And for good reason: it offers numerous benefits from both an environmental and an economic standpoint.

BY BERTRAND BEAUTÉ AND LUDOVIC CHAPPEX



Dossier prepared by
Bertrand Beauté,
Ludovic Chappex
and Martin Longet

- 40. Three examples of the virtuous economy
- 44. Climeworks: the Swiss company recycling CO₂
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- 50. Western trash no longer China's treasure
- 56. Interview with Gunter Pauli, blue economy guru

Take, make, consume, dispose – that's the old business model. Today it's all about preserving resources by developing the "circular economy". The concept has become very popular lately, almost like a fad. Numerous conferences from Davos and Brussels all the way to Beijing have been organised to address the issue. But what exactly is the circular economy? "The circular economy goes far beyond just recycling," says Adrian Deboutière, project manager at Institut de l'Économie Circulaire in Paris. "It's all about transforming the economy into an ecosystem >

ECO-LINGO

CREATING A WORLD WITHOUT WASTE

LINEAR ECONOMY

This model currently reigns supreme all over the world. Raw materials are used to create consumer goods, but once these goods have been used, they end up in landfills or incinerated. New raw materials are then used to manufacture the same product, and the process continues.

RECYCLING

Rather than being dumped or incinerated, waste is converted back into raw materials that can be reinjected into the production cycle to manufacture new products

CIRCULAR ECONOMY

Products nearing the end of their life are always repaired or reused, becoming a resource for a number of sectors. The circular economy therefore restricts the overuse of non-renewable resources.

BLUE ECONOMY

The blue economy takes the circular economy a step further, using local resources and emulating nature's processes to manufacture goods (biomimicry). This model enables the ecosystem to adapt according to its needs while moving towards a zero-waste objective.

where nothing is lost; where the very concept of waste no longer exists. Products nearing the end of their life are repaired, reused or transformed into something else. This is the end of traditional recycling as we know it. Almost a form of failure when there's no longer a solution."

So it's a green utopia, then? Not really. According to a 2015 study by the consulting firm Accenture, if the circular economy is fully put in place, it could generate \$4.5 trillion in additional revenue worldwide by 2030. But measuring the impact of such a radical paradigm shift is very difficult, so that figure should be taken with a grain of salt. Currently, only 9% of the resources needed to keep the economy running are reused in some way, according to the Circularity Gap Report, a study presented and published at the Davos Forum in January. The rest – roughly 85 billion tonnes – is taken from nature.

But things are getting better. In 1993, Patagonia was the first clothing brand to use a waste product as a raw material, producing a fleece jacket made from plastic bottles. Since then, the California-based company has been collecting PET bottles, unusable manufacturing waste and worn-out clothing to develop its products. Others are following suit: brands like Adidas and H&M have also launched lines of clothing made from waste.

"Just a few years ago, people would give us funny looks whenever we'd mention the circular economy," said Nicolas Hulot in June last year. The former television presenter and current French Minister of Ecological and Solidarity Transition added: "Today, the concept is gaining traction and starting to have a much bigger positive impact." In the political sphere, the European Commission presented its package of measures on the circular economy in December 2017.

In the private sector, more and more companies are showing support for

a global change. McDonald's, Evian and Coca-Cola all kicked off 2018 with ambitious announcements. The fast-food giant wants to recycle packaging at all of its 37,000 restaurants by 2025. For now, they're only 10% of the way to reaching that goal. Coca-Cola said that it will recycle one can for each beverage sold by 2030. Evian (owned by Danone) will only use recycled plastic in its bottles by 2025. And these companies aren't alone in making an effort to become more sustainable.

"Things are really starting to change. People are getting back into good habits"

Adrian Deboutière, project manager at Institut de l'Économie Circulaire

"The circular economy isn't just a buzzword," says Alexandre Affre, director of the Industrial Affairs department of BusinessEurope, an association that represents European companies. "We're seeing a very strong dynamic right now."

"This isn't just greenwashing or marketing," says Adrian Deboutière of the Institut de l'Économie Circulaire. "Things are really starting to change. People are getting back into good habits and making an effort to reduce waste. Scarcity means that >

60%
The proportion of waste produced in the European Union that is neither recycled nor reused

Source: The Ellen MacArthur Foundation

To educate its customers about recycling, Coca-Cola commissioned this sculpture from artist Porky Hefer. Named "Elliot", this work consists of 4,200 empty Coca-Cola crates, weighs 27 tonnes and is 18 metres high (Cape Town, South Africa).



JOHN HICKEY-FRY

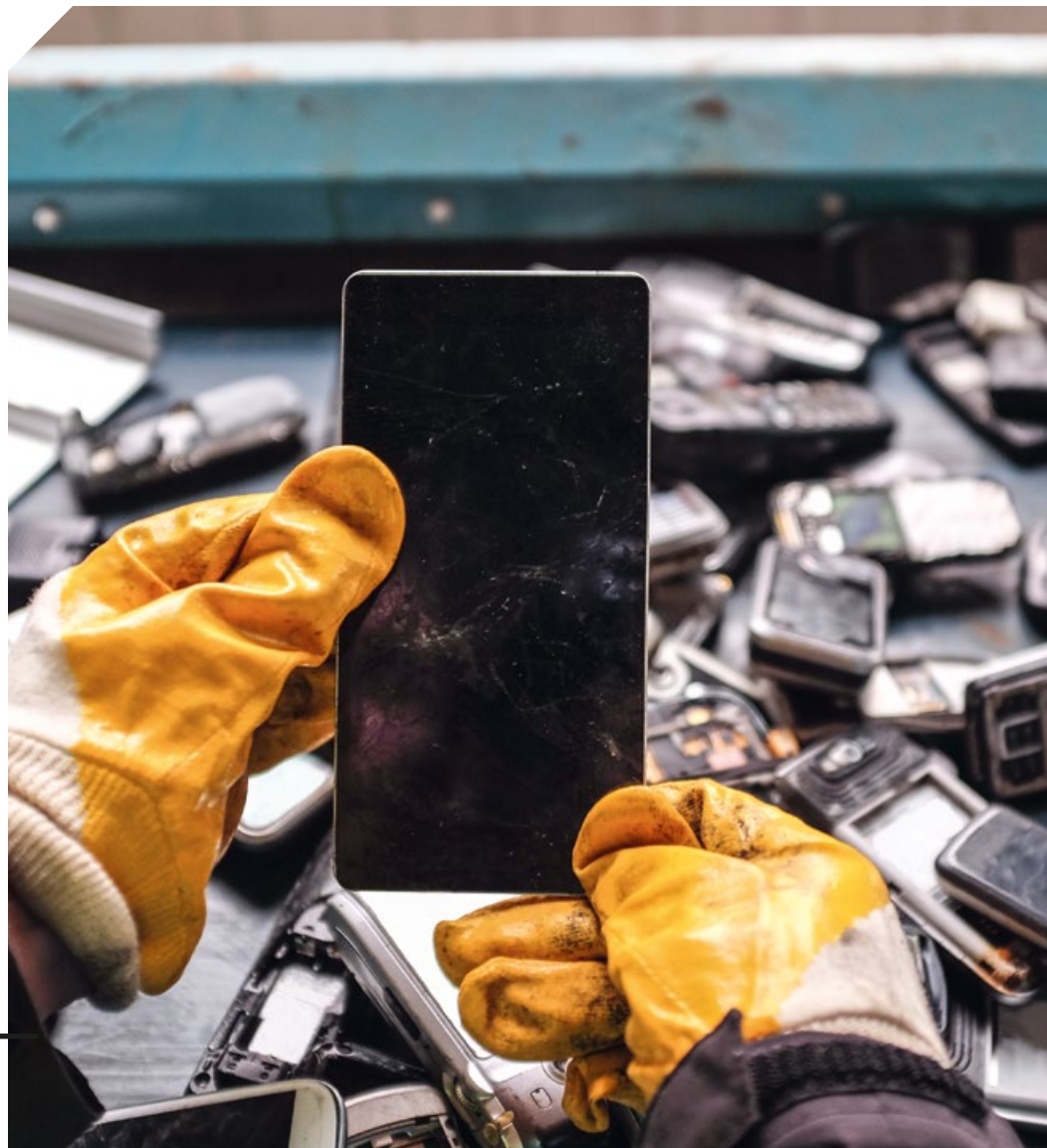
companies have a financial incentive to reduce their consumption of energy and raw materials.”

Because the situation is becoming urgent. According to the Circularity Gap Report, extraction of the planet’s underground resources jumped twelvefold between 1900 and 2015, and is forecast to double again by 2050. With such intensive extraction, raw materials are becoming scarcer and prices are going up – not to mention the disastrous environmental and climate-related consequences.

“Our planet’s resources are not unlimited. But that’s not the only reason why people are starting to pay more attention,” says Alma Dufour of the association Friends of the Earth. “In 2010, when China decided to limit its rare-earth exports, which are highly coveted in the high-tech sector, the price of some of those chemical elements shot up 2,000%. That caused a huge shock worldwide, like the one caused by OPEC’s unilateral decision to increase oil prices in the 1970s. Countries like Germany and Japan decided that, for economic reasons, they would re-

duce their dependence on rare-earth imports. One solution was to try to use those resources more efficiently, and reuse them where possible.”

The circular economy can be summed up by the 4R strategy: reduce, reuse, remake, recycle. In order for it to work, manufacturers need to be thinking about the entire life cycle of a product as early as the initial design phase. This is called ecodesign. Michelin, for instance, developed lorry tyres whose outer tread can be replaced twice and whose frame can be reused (a process called “retreading”).



In 2016, 44.7 million tonnes of e-waste were generated worldwide.

ISTOCK

SWITZERLAND: A MOUNTAIN OF WASTE

“Switzerland is the world champion of recycling.” We hear that phrase all the time, but it’s not entirely true. Figures from Eurostat show that Switzerland recycled 52.7% of its urban waste in 2015. That’s pretty good – but it’s far behind Germany’s 66.1%, the best in Europe. Switzerland performs well when it comes to recycling glass bottles (93%), aluminium (91%), PET packag-

ing (83%), paper (81%) and batteries (70%). But the country recycles only 10% of its plastics, versus roughly 50% in Germany. Plus, Switzerland is the third-biggest waste producer in Europe, generating 720 kg per capita in 2016. Norway (754 kg) and Denmark (777 kg) top the list. Germany and Luxembourg fare much better, both generating about 620 kg per capita each year.

Thanks to this technology, a tyre can last up to 660,000 km, versus 120,000 km for lower-end models. According to a 2016 study by Ernst & Young, this technology consumes 70% less material, which is great news because rubber is a scarce material.

The challenge for companies turning to the circular economy is to reinvent their business model

The main challenge for companies turning to the circular economy is to reinvent their business model so that they can maintain their revenue while selling less. Michelin’s re-treaded tyres have a longer life, but are more expensive. While their price per kilometre is more or less in line with that of a normal tyre, the purchase price is too high for transport companies, who are more focused on the short term. Between 2010 and

2015, the retreading market in the European Union fell 20%, according to the Ernst & Young study.

To avoid this problem, companies need to completely change their business model and transition from an ownership model to a services model. The idea is to sell the use of an object, rather than the object itself. Michelin has developed a rental service for its tyres, where users pay for each kilometre travelled (see page 42). This model is spreading to all sectors. Belgian company Tale Me, for instance, rents clothing for pregnant women and for children under the age of six. “This system is really appealing,” says Adrian Deboutière. “The company retains ownership of the object it has produced. So it has an incentive to make it last as long as possible to maximise profits. Plus, the rental system ensures predictable returns over the long term.”

And yet, while this model is growing in business-to-business (B2B) markets, it is having a tougher time winning over the general public (B2C). “People are aware that this is important, but we haven’t seen much change yet,” says Alma Dufour. “In

B2C, consumption is even becoming more and more linear. Over the past 10 years, the lifespan of electronic appliances has been steadily declining. We’re still incentivising people to replace them.”

The prime example, of course, is Apple. The brand has been taken to court in several countries for having intentionally reduced the life of its products and is doing everything it can to make its products impossible to repair, or repairable at exorbitant prices. “There’s a major problem in terms of information. Companies don’t want to share the design of their devices for trade-secrecy reasons. But this makes them very hard to repair,” says Dufour. “Patents are a nuisance for the circular economy.”

And yet, according to a 2015 study by McKinsey, the circular-economy model has halved the cost of producing mobile phones, by collecting old devices. They are disassembled, and their materials are reused – including rare metals, which are becoming extremely valuable. ▲

80%

The proportion of electronic waste that is not recycled on the global level

Source: UN

Three examples of the virtuous economy

Several companies have moved beyond the circular economy by transforming their business model. We take a closer look at three landmark strategies.

BY BERTRAND BEAUTÉ

1 Repairs to build client loyalty

Some companies are doing the exact opposite of programmed obsolescence and extending the lifespan of their products by improving “repairability”

While legal action was taken against companies such as Epson and Apple, who were accused of purposefully shortening the lifespan of their products to sell the latest models, other companies are doing the opposite. SEB, the world leader in small household appliances, is aiming to extend the lifespan of its products. How? With massive investments in “repairability”. In this age of overconsumption, it’s a risky bet but not completely absurd from a financial standpoint. “Every product that we can repair is a sale that isn’t going to our competition,” said Alain Pautrot, director of after-sales service as quoted in *Le Figaro*.

Concretely, SEB is designing its new products so that they can be easily repaired. The company is committed to offering replacement parts for 10 years after the products are sold. This “product repairable for 10 years” guarantee applies to all the group’s brands (SEB, Rowenta, Moulinex, Calor, Krups and Tefal) sold in all countries since 2017.

But in order for this model to work, repairs cannot be more expensive than buying a new model. SEB has established a clear price policy: replacement parts cannot be sold for more than half of what a new product would cost. The replacement

parts for 40,000 models are stored at a location in Faucogney-et-la-Mer (France) where 1,500 packages are sent out to 60 countries every day. Once the stock is all shipped out, SEB creates parts on demand using 3D printers. For the company, which made 500,000 repairs in 2016, this strategy increases client loyalty and satisfaction.

Other companies have developed similar business models. Caterpillar and Renault have established “re-manufacturing” programmes. The companies recycle used parts and offer to repair clients’ products to like-new condition (with the same guarantees). After collecting 120 unusable motors, Renault was able to rebuild 100 motors in perfect condition that were then sold for less than a new motor.

COMPANIES TO WATCH

SEB

SK

RENAULT

RNO

CATERPILLAR

CAT

2 Leasing, not buying: subscriptions are the future

By selling functionality rather than a product, companies can extend the lifespan of their equipment

Sell light, not light bulbs. It might seem crazy, but it's a visionary idea. Philips has offered this to its clients. The Dutch company owns the lights and its B2B clients sign a lease that includes the installation, maintenance and removal of the lights when the contract is up. There are many advantages to this model.

Take the National Union of Students (NUS) in the UK, for example. In 2014, the NUS signed a contract with Philips for the 785 lights in its London offices. The union didn't have to make a hefty payment to install the lights, as the contract included a fixed monthly payment over 15 years. During the 15-year period, if NUS goes over its expected energy usage, Philips compensates the union, which encourages the lighting company to provide the most energy-efficient service possible.

"This type of solution is far more efficient from both an environmental and economic perspective," said Adrian Deboutière, project manager at the Institut de l'Économie Circulaire. "In the past, turnover for light bulb companies was solely based on

sales. So in a way, it was in brands' best interest to make products with a short lifespan in order to maximise profits. But with this model, margins tend to increase the longer the light bulbs last. Furthermore, Philips is looking to make easily repairable and recyclable products, because this cost is passed on to them when a contract is up." An advantage for Philips is that the leasing system tends to create loyal clients and results in stable long-term revenue.

This strategy is used in several fields. Michelin, for example, allows its key clients (fleets of trucks and aeroplanes) to pay a subscription by kilometre rather than purchase tyres. Xerox now sells quantities of printed pages rather than printers.

COMPANIES TO WATCH

PHILIPS

— PHI1

MICHELIN

— ML

XEROX

— XRX

3 One person's trash is another's treasure

In Kalundborg, Denmark, approximately 15 companies are part of the first industrial symbiosis experiment, where companies reuse other companies' waste. The model is now used around the world.

Kalundborg is a small Danish city on the coast of the North Sea with 50,000 residents. Here, experts from around the world come to see for themselves the first example of eco-friendly industrial symbiosis. It's not a new phenomenon; it all started in the 1950s. At the time, the Danish government decided to establish large companies in the city since the port remains ice-free all year. The first were an oil refinery (Statoil), a coal-fired power plant (Asnaevaerket), a plaster manufacturing factory (Gyproc) and a pharmaceutical company (Novo Nordisk). In short, it was a boring industrial area, full of smoky chimneys and contradictions.

Gyproc, for example, imported massive amounts of gypsum (a type of rock) from Spain in order to make its plaster panels. At the same time, the coal plant next door was generating large amounts of gypsum – a waste that was very costly to get rid of. Furthermore, Novo Nordisk had a boiler to produce the water vapour it needed for its processes, while the electric power plant was emitting vapour into the atmosphere.

In the 1970s, the four companies came together all of a sudden and

began discussing "waste" exchanges. Other companies slowly began joining the group and signed agreements with each other. The yeast mud produced by Novo Nordisk is used to feed pigs at a neighbouring farm; the flying cinders from the coal plant act as raw materials for a cement manufacturer and the sulphur from the oil refinery is used by a sulphuric acid manufacturer. Today, Kalundborg's symbiosis includes approximately 15 companies that exchange water, energy and materials with the idea that one person's trash is another's treasure.

Presented as a prime example, Kalundborg has been a model for several industrial areas. In South Korea, 197 industrial symbiosis projects were carried out between 2005 and 2014. The symbiosis reduced CO₂ emissions by 6.48 million tonnes and generated \$1.68 million in additional profits by reducing necessary resources, according to a study by the Global Green Growth Institute. ▲

COMPANIES TO WATCH

NOVO NORDISK

— NOV0*B

STATOIL

— STL

SAINT-GOBAIN

— SGO

MONEY IS IN THE AIR

Climeworks, a start-up, aims to capture 1% of global CO₂ emissions by 2025. We visit the roof of the Hinwil incineration plant, where the young company has implemented the world's first commercial solution to capture atmospheric CO₂.

BY MARTIN LONGET

The weather is horrendous in early January: sheets of icy water slam the few pedestrians that dare to venture outside. Even the Zurich countryside, which is usually rather bucolic, is plunged into grey, morose gloom.

"The weather is great today, they're more efficient when it's cold and humid," said Daniel Egger, head of Marketing & Sales at Climeworks AG. "They" are 18 huge ventilators that go by the name of DAC-18 (Direct Air Capture), installed on the roof of the Hinwil incineration plant since May 2017 in three rows of six. The ventilators take in ambient air to extract the CO₂.

This setup, the first of its kind in the world, is the result of several years of research and prototypes, and the start-up's first commercial application. "Carbon dioxide is taken in by the ventilators, and then reconditioned and used by a neighbouring farm as fertiliser," said Egger, pointing at a big greenhouse a few hundred metres away. Each ventilator can capture up to 2.5 tonnes of CO₂ per day, which

is delivered directly to the consumer during the day and stored in liquid form at night. The concept is simple: the ventilator takes in ambient air through a filter made of porous materials (granulates) that retains the CO₂ and releases purified air into the atmosphere. The filter is then heated to 100 degrees and the collected CO₂ becomes concentrated.

"All estimates are predicting a huge increase in carbon dioxide needs in the coming years"

Daniel Egger, head of Marketing & Sales at Climeworks

Capturing carbon dioxide in the atmosphere and reselling it seems obvious, but it has never actually been done before. "The technology has existed for a long time," said Louis Uzor, from Marketing & Sales at Climeworks. "It is often used to purify CO₂ produced by humans in confined spaces, such as in submarines, but until now it wasn't advanced enough to capture the gas in a useful way." ▶

The Hinwil incineration plant, capped by Climeworks CO₂ ventilators (4 January 2018).

Christoph Gebald and Jan Wurzbacher, two engineers and alumni from ETH, founded Climeworks in 2009 with the belief that capturing carbon dioxide could be economically viable. Private investors got involved, including the Zurich Cantonal Bank, and after several prototypes and proofs of concept, the Hinwil installation is the first commercial agreement for the start-up, which has since become an SME with approximately 50 employees. Choosing to set up the installation on the roof of an incineration plant was deliberate: "We need a heat source of 100 degrees to heat the filters and collect the CO₂," said Uzor. "At Hinwil, we can directly use the heat that the plant produces naturally." Furthermore, Climeworks' first client, Gebrüder Meier Primanatura (a farm that purchases the carbon gas) is nearby, which facilitates the delivery of the final product.

Now that Climeworks has proven that its technology is effective, the company hopes to install new CO₂ extraction platforms in Switzerland and around the world.

Largely unknown to the public, carbon dioxide is a raw material that has several industrial prospects, such as in agrifood – for example in making carbonated drinks – as well as in pharma or synthetic fuel manufacturing. "All estimates are predicting a huge increase in carbon dioxide needs in the coming years," said Egger, whose enthusiasm is certainly not dampened by the freezing rain. This outlook would facilitate reselling the carbon dioxide collected from the air. The price for captured CO₂ is significantly higher than market price, which is currently dominated by the gas and petrol industry, and CO₂ is a by-product of petrol. "We expect to reduce our CO₂ production costs two- or threefold starting with the next generation of reactors," said

Uzor. The technology is already particularly appealing to regions that don't have access to a local CO₂ production, such as Japan.

But reselling atmospheric carbon dioxide isn't the only advantage of Climeworks' technology. "Our core business and our mission is to help reduce carbon dioxide in the atmosphere," said Egger. "The captured CO₂ doesn't necessarily have to be sold. It can also be stored permanently in the ground," such as in Iceland, where Climeworks is currently launching a new fleet of ventilators. "We believe that a huge market will develop with CO₂ extraction for permanent storage in the coming years, as countries continue their environmental commitments with new legislation," said Egger. In the short term, Climeworks isn't expecting individual usage, such as solar panels installed on homeowners' roofs: "Our technology is primarily geared towards industrial use, but at the same time, we are considering possible solutions for individuals."

"Switzerland has a particularly favourable framework for developing CO₂ extraction technologies"

Wendy Lee Queen, professor at EPFL

Wendy Lee Queen, a professor at EPFL (École polytechnique fédérale de Lausanne) and an expert in functional inorganic materials, agrees: "The CO₂ extraction industry needs appropriate legislation to grow and become profitable." The engineer, who works on filters made of extremely porous material that she hopes can be used in cars in the near future, is rather optimistic about the industry's evolution: "Countries now understand the



Christoph Gebald and Jan Wurzbacher, leaders and co-founders of Climeworks.

gravity of the climate change situation, which should lead to profound legislative changes, such as a requirement for factories to have carbon-neutral emissions." Forced to limit their impact on the environment, industries that create pollution should be equipped with CO₂ sensors like the ones Climeworks offers. The company's pioneer status should guarantee it a top spot in the market in the future: "Switzerland has a particularly favourable framework for developing CO₂ extraction technologies," said Queen. "Public authorities are very aware of the problems associated with climate change and atmospheric pollution and are actively encouraging companies to develop solutions. Technologically speaking, Switzerland is at the forefront of CO₂ extraction research and

companies like Climeworks are particularly well-positioned to benefit from this future market, which I believe will be very promising."

Already, new start-ups are breaking into the market and developing their own prototypes. Examples include Global Thermostat in the US and Carbon Engineering in Canada, of which Bill Gates is an investor. "We're thrilled that competition is growing, because we don't want to be the only company around. This market needs new players in order to progress," said Egger. "Our industry is like the automobile industry in the 1910s; the technology is functional and ready to go, though still slightly rudimentary, but the concrete prospects are still limited. We're on the brink of a new era." ▲

TINA STURZENEGGER

SWISS START-UPS COUNTING ON THE ENVIRONMENTAL REVOLUTION

TYRE RECYCLING SOLUTIONS

The second life of tyres

Two billion tyres are thrown away every year and processed in often deplorable conditions. With this in mind, Staffan Ahlgren and Pierre Kladny founded Tyre Recycling Solutions in Gland (VD), a start-up aiming to make recycling tyres profitable. The idea is that a machine will cut the tyre into three flat pieces, which are then treated using innovative techniques to extract various components such as steel wires, synthetic fibres and rubber powder.

AQUAMA

Home-made detergents

Why purchase expensive detergents that are bad for the environment when you could make them yourself? This novel idea is what drives Aquama, an Aubonne-based start-up that gives both consumers and companies the chance to produce their own detergents and disinfectants with only salt, water and electricity. Founded in 2013, the company already has several clients, including Swiss communes, Geneva Airport and companies such as EasyJet.

PLUS MAT

Recycled solar panels

In line with the circular economy and sustainable development, Plus MAT, a Vaud start-up from EPFL, builds solar panels from silicon waste. Silicon is the main component of photovoltaic cells. Thanks to a new technology developed by Plus MAT, up to 90% of silicon waste produced when solar panels are cut can be recovered and used to make new cells. An advantage is that the recovered silicon is much less expensive than silicon made from sand.

Nespresso takes its coffee...green!



NESPRESSO

Nestlé's subsidiary is trying hard to make sure its capsules are recycled. But do capsules do more harm than good?

BY BERTRAND BEAUTÉ

Are there anything else with your coffee? Some cream? Or maybe a heaping mountain of waste? Individual coffee capsules were first released by Nespresso in 1986 – and they completely changed the way we drink coffee. “They were a big hit,” says Professor Sylvain Allard, who specialises in packaging at the School of Design at Université du Québec à Montréal (UQAM). “In just a few years, Nespresso and other companies, such as Keurig in the US, were able to offer high-quality coffee to a much larger group

of consumers worldwide. It was a stroke of marketing genius. But the success of coffee capsules comes at a hefty cost: their environmental impact is catastrophic.”

According to France 2, over nine billion aluminium capsules are sold worldwide each year. That's nearly 40,000 tonnes of aluminium – or four Eiffel Towers! “It's absurd,” says Sylvain Allard, whose feelings are shared by most independent experts. “In today's world we're trying so hard to reduce the amount of packaging we use – but these com-

panies are producing packaging for every single cup of coffee!”

But Nestlé has heard it all before. In response, the company underscores its environmental policy: “We use aluminium for our capsules because it's the best material for protecting the freshness, taste and quality of our coffee products,” says Fridolin Landolt, Market Operations manager at Nespresso. “But it's also a material that can be recycled over and over again. The aluminium from used capsules is recycled and reused. And we are always trying to get more and more of our customers to participate in our recycling programme. In doing so, we are stepping up our contribution to the circular economy.”

In Switzerland, for instance, the company collects used capsules at 2,700 collection points throughout the country. The capsules are sent to a factory operated by Barec in Moudon (canton of Vaud), where the aluminium and coffee grounds are separated. The metal is then sent to foundries in neighbouring countries, where it is melted down and used to make other products, such as bicycle frames and car parts. The coffee grounds are sent to a biogas plant in Henniez (Vaud), where they are transformed into biogas and then electricity. Lastly, the digestate – a by-product of biogas – is spread on the surrounding fields.

“Nespresso supports and promotes the recycling of both aluminium

and coffee grounds to improve its environmental performance,” says Landolt. But Sylvain Allard remains sceptical: “They're making an effort to recycle, which is admirable. But that's only the tip of the iceberg. In reality, most people don't bring in their capsules. The majority end up in the bin and are not recycled.” According to figures provided by Nespresso, half of all capsules sold in Switzerland are recycled. That figure is much less in other countries though (the Swiss company has remained somewhat vague on this point). While Nespresso capsules are sold in 62 countries worldwide, only 39 of those countries have a dedicated recycling system.

In 2016, Hamburg banned coffee capsules from its administration

But are capsules really better for the environment than filter coffee machines and Italian moka pots? “The Nespresso system optimises the amount of water, coffee and energy needed to make each cup,” says Fridolin Landolt. “It makes efficient use of resources.”

The firm Quantis was hired by Nespresso to analyse the impact of several different coffee-preparation methods. The study – published in

November 2017 – estimates that coffee cultivation and preparation have a bigger impact on the environment than packaging. Quantis concluded that capsules are the most eco-friendly choice, because too much coffee is often dosed when using filters. It's not the first time Nespresso has teamed up with Quantis. The Nestlé subsidiary also commissioned a report from the company in 2011 – the conclusions were the same.

“I don't think too much coffee is dosed using a moka pot,” says Allard. “And let's be serious, any system that generates packaging on an industrial scale is not a step in the right direction.” That's also the opinion in Hamburg. In 2016, Germany's second biggest city banned coffee capsules and plastic bottles from its administration, saying they produce too much waste.

The answer to such a dilemma may just lie in an alternative option. Since 2015, the Italian coffee roaster Lavazza has been selling compostable and biodegradable capsules, the Zurich firm Mycoffeestar has been selling refillable stainless-steel capsules (which are compatible with Nespresso machines), and many small companies have been offering biodegradable models, such as Carasso in Geneva. For now, the global market is dominated by the aluminium products of Nestlé, the only listed company in the sector...followed closely by the Dutch company Jacobs Douwe Egberts, which offers capsules in aluminium or plastic depending on the brand (Senseo, Tassimo, L'OR, Keurig). ▴



Western trash no longer China's treasure

The number one waste importer in the world unexpectedly decided to ban "foreign garbage". An upended global recycling industry has to think fast.

BY MARTIN LONGET AND BERTRAND BEAUTÉ

Thousands of containers congesting ports, and the plastic bottles they carry – carefully separated by households for recycling – incinerated along with tonnes of other waste. This is the scenario Europe could be facing in the coming months. Why? Because China has decided to refuse two dozen kinds of waste as of March 2018 (see inset p. 52). It's a real wake-up call for recyclers all over the world. ▶

A sorting centre in Hefei City, Anhui Province, China.

"We knew that China was going to pass new laws on the matter, but this ban announced all of a sudden to the WTO in July of 2017 took everyone by surprise," says Simon Ellin, CEO of The Recycling Association. "This decision will have serious consequences for the UK and Europe. We are going to have a waste crisis." This is also the case in the US, where China's ban will have a "devastating impact" according to Robin Wiener, president of the Institute of Scrap Recycling Industries (ISRI).

For years, China has been buying waste in mass from the West in order to recycle it, thereby acquiring raw materials for its factories.

The EU sold 8.2 million tonnes of cardboard and 2.6 million tonnes of plastic to the Middle Kingdom in 2015. "If China is no longer an option, tonnage is set to plummet," highlights Pascal Genneviève, president of the paper recycling branch of FEDEREC, the French federation for recycling companies.

Manufacturers are desperate. Suez, for one, sells 50,000 tonnes of waste to China every year. Like its peers, the Paris-based company will have to find other solutions, but they certainly won't be easy in the current climate. "Europe doesn't have the recycling capacity to absorb the remaining amounts it won't be able to export," explains

Genneviève. We are soliciting other foreign markets such as Turkey, India and Indonesia, but their infrastructure and needs cannot begin to offset China's decision."



"I think China's decision is perfectly reasonable. European companies have had a bad habit of sending their poorly separated plastic to them for years"

Werner Annaert, director of Go4Circle

But what are the consequences? For reusable waste, prices are plummeting and quantities are piling up in the Western world without buyers. "The situation is critical," says Simon Ellin. "Part of the waste will have to be incinerated to reduce the excessive stock," he maintains. This may seem counter-intuitive in an era when recycling is believed to be a means of preserving the planet's resources. "It's a shame – we are taking a huge step backwards," claims Genneviève. "By pulling out on waste imports, China is actually leaving behind significant quantities of waste that come mainly from the products it exports! In a way, it made sense to return these resources back to their origin for recycling."

MUCH STRICTER STANDARDS

In 2015, China imported nearly 50 million tonnes of waste of all kinds, mainly from the US, Europe and Japan. But that figure is about to fall through the floor. In July 2017, the Chinese government announced to the World Trade Organization (WTO) that it planned to ban 24 types of recyclable waste which were regularly imported as of then. The problem is "primary recycling". There are two stages in the recycling process. In the first stage, waste is separated and recovered or discarded. In the second stage, materials are washed and crushed. Additionally, plastics are melted down. China's ban involves mostly waste materials that have only been through the

first stage. The ban will enter into force on 1 March 2018, and will include eight kinds of plastic, such as PET and PVC, as well as cardboard and textiles like wool and cotton. For waste that has been through stage two, the Chinese government has set very strict rules: only batches of plastic, cardboard and papers with impurities weighing less than 0.5% of the total weight will be accepted, whereas the European standard for paper is 1.5%. "The thresholds China set were not as harsh as we feared," the Bureau of International Recycling emphasises, "but they are a far cry from what industry players consider to be feasible or acceptable."

But now that China is worried about protecting its environment, it no longer wants to be the world's dumping ground or the West's answer for any and everything it doesn't want. The reason China is banning foreign garbage is allegedly due to abuse by certain service providers. The government explained in its filing with the WTO "that large amounts of dirty wastes or even hazardous wastes are mixed" in the rubbish being shipped to China. Frankly, western recyclers are going to have to clean up their garbage if they want China to change its tune.

"I think China's decision is perfectly reasonable. European companies have had a bad habit of sending their poorly separated plastic to

them for years. I've always supported finding solutions here," says Werner Annaert, director of Go4Circle, Belgian Federation of Enterprises of the Circular Economy. "We can look at China's decision as a problem because it's going to make things difficult for one or two years, but I prefer to see it as an opportunity to improve the European recycling channel. I think there are a lot of companies like Van Werven, Suez and Veolia (see opposite) that have understood the importance of expanding their recycling capacities here."

Just three months after the notice from China, in October of 2017, Veolia CEO Antoine Frérot announced an ambitious programme. The ▶



Ferrying manufactured goods from China to the rest of the world, cargo ships sail back from Europe and the United States laden with waste.

COMPANIES TO WATCH

A look at the key players in waste management

VEOLIA

Leader of the pack

Veolia is the world leader in water and waste management and is looking to take advantage of growth in markets linked to recycling. The company processed 45 million tonnes of waste worldwide in 2016 (all categories combined) and wants to boost its revenue from recycled plastics fivefold by 2025. Veolia shares rose by over 35% in 2017. Analysts at Goldman Sachs lowered their recommendation mid-January from "buy" to "hold", saying they felt that the stock's value had reached its limit.

HEADQUARTERS: PARIS (FR)

EMPLOYEES: 163,000

REVENUE (2016): €24.39 BN

VIE

SUEZ

The other French giant

Suez is number two worldwide in water and waste management, behind Veolia. The company wants to up its processing of plastic waste to 600,000 tonnes by 2020, versus 400,000 currently. The key for Suez will be to take advantage of growing demand for recycled plastics. Each year, European countries produce roughly 50 million tonnes of plastic waste, only 25% of which is recycled in Europe. Suez is expanding its operations in metals recycling and announced in January that it will build a plant in Ghent's port area (Belgium) for processing up to 12,000 tonnes of non-ferrous metals (aluminium, copper, lead, etc.). After falling in recent months, the stock could pick up again.

HEADQUARTERS: PARIS (FR)

EMPLOYEES: 83,900

REVENUE (2016): €15.32 BN

SEV

company – number one worldwide in water and waste management – plans on boosting its plastic recycling revenue fivefold to €1 billion by 2025. The bulk of the initiative (worth €600 million) will take place in continental Europe, where Veolia will increase production capacity at its three pre-existing sites and open two new plants.



“The ban is history in the making. Europe will be impelled to increase their local processing capacities”

Simon Ellin,
CEO of The Recycling Association

Septèmes-les-Vallons, near Marseille (2017). Many parts of Europe are facing a lack of resources in managing their waste.



During the same period, the Suez Group announced in November that it has signed a joint-venture agreement with LyondellBasell to manufacture high-quality recycled plastics at the Sittard-Geleen site in the Netherlands.

According to Werner Annaert this is good news, but now the challenge will be to make the factories profitable. “The current demand for recycled

plastic in Europe is too low. Companies that manufacture consumer goods prefer new packaging because the currently weak oil prices make it cheaper,” he points out.

But there are a few good initiatives out there; Renault’s new cars and Coca-Cola’s plastic bottles, for example, are made out of 36% and 34% recycled materials, respectively.

“Some companies are making efforts, but it’s not enough,” Annaert argues. “We don’t have time to wait 50 years. Lawmakers need to intervene to increase the use of recycled materials by manufacturers. But things aren’t headed in that direction. Everyone’s talking about the circular economy, and the European Commission even set ambitious waste sorting goals in its most recent report, but it has no plans

whatsoever to support the use of recycled materials.”

On the bright side, China’s brutal ban could whip Western governments into shape. Logically, it wouldn’t make sense to tell their citizens to make more effort to separate plastics and cardboard when these materials may end up being incinerated anyway for lack of viable recycling avenues. “In that

respect, we see the ban as history in the making,” asserts Simon Ellin, CEO of The Recycling Association. “European recycling companies will be impelled to increase their local processing capacities, the sector will have to change the way it uses plastic and authorities will have to find a way to promote the use of recycled materials. If that happens, we will definitely see China’s decision as a good thing in 10 years.”▲

GEM CO

China’s rising star

After launching in 2001, Gem Co is on its way to becoming a major player in the recycling industry. The company has invested more than ¥10 billion over the past decade to build 16 recycling plants where over three million tonnes of waste are processed each year. And Gem Co does not intend to stop there. It wants to become the biggest recycling company in China – and eventually the biggest in the world!

HEADQUARTERS: SHENZHEN (CN)

EMPLOYEES: 6,000

REVENUE (2016): ¥7.782 BN

002340

RENEWI

A leader in Europe

Renewi – unlike heavyweights such as Veolia – has focused its operations solely on recycling, and its business is mainly concentrated in Europe. The company recycled over 14 million tonnes of waste in 2017 (plastic, paper, glass, etc.), making it one of Europe’s leading recyclers. Analysts recommend holding on to the stock, as its valuation appears to be good.

HEADQUARTERS: MILTON KEYNES (UK)

EMPLOYEES: 7,000

REVENUE (2017): €779 M

RWI

BIFFA

UK company on the rise

Biffa is number two in waste management in the United Kingdom, behind Veolia. The company suffered from worries over Brexit when it went public at the end of 2016. The stock has rebounded since then, and analysts still recommend it as a “buy”. Why? Because Biffa will likely benefit from the weak infrastructure in the UK, where more waste is currently produced than can be processed.

HEADQUARTERS: HIGH WYCOMBE (UK)

EMPLOYEES: 7,500

REVENUE (2016): €830.3 M

BIFF

“Less pollution is still pollution”

Often introduced as the Steve Jobs of sustainable development, Gunter Pauli advocates for completely clean industrial manufacturing

BY LUDOVIC CHAPPEX

When we told Gunter Pauli that we were going to feature the circular economy in this issue and asked for an interview, he instantly agreed, a testament to his spontaneous, frank nature. Fresh off a plane from Cape Town to Abu Dhabi, the blue economy guru (see inset opposite) explains his radical vision of an economy in line with nature.

How is the blue economy different from the circular economy?

The goal of the circular economy isn't a radical paradigm shift. Instead, it develops progressively. It's an economy that adapts to and adds to the existing model. We'll still re-use and recycle, of course, but fundamentally there isn't a huge conceptual change. The problem is that if we change things only slightly, we're not going to achieve the sustainability that the planet really needs. Conversely, the blue economy is a complete departure from the

existing model we have today. As an example, we can make paper from stone rather than cellulose, as we do today, since it's absurd to cut down billions of trees when our forests are so essential to our future.

“Large companies function like the communist party did in the 1960s”

Isn't the development of the circular economy already a step in the right direction?

It's important to understand that less pollution is still pollution. In other words, doing less harm is still doing harm. And yet companies today are announcing that they've reduced their pollution

and they want to be recognised for it. From an ethical perspective, this is questionable.

What's stopping companies from being part of the blue economy?

Large companies are very risk averse. They function like the communist party did in the 1960s. Everything is planned, controlled, audited, etc. But it's not a total loss. I've seen some encouraging work being done so far. Italian coffee company Lavazza uses capsules made from thistle polymers. The capsules are biodegradable in soil, warm water and seawater. So Lavazza has found a commercially effective way to create an alternative to aluminium capsules. Nespresso still uses aluminium because the touch and colours are important for their marketing strategy (see article on p. 48). The problem isn't the capsule but the fact that aluminium is difficult

A BLUE ECONOMY THEORIST

Belgian national Gunter Pauli invented the blue economy concept – a model that maximises the potential of local resources and the recycling of organic waste into various goods. Pauli, 61, is an entrepreneur and die-hard ecologist who has founded several companies. He also established the Zero Emissions Research and Initiatives (ZERI) foundation in Japan back in 1994 and the first World Congress on the Blue Economy in Madrid in 2013. Gunter Pauli has authored around 20 works on the economy and, perhaps more surprisingly, 365 children's fables now translated into dozens of languages. He continually receives invitations to speak all over the world. Pauli holds a degree in Economics from the University of Antwerp (formerly Loyola University) and an MBA from INSEAD in Fontainebleau.

to recycle. Of course, Nespresso recycles part of its aluminium capsules, but we need more than that for a sustainable economy.

Do you consider Lavazza to be part of the blue economy?

I don't think so. Entrepreneurship plays quite a significant part in

this. Let's go back to the example of paper made of stones: after 20 years of research, Chinese company Lung Meng developed a technique that creates paper from stone dust mixed with polyethylene. This process doesn't use water or cellulose, and the resulting paper can be recycled forever! It's an ex-

traordinary advance. Considering that billions of tonnes of stones come out of Chinese mines every year, you don't have to be a successful businessman to understand that this is a very financially viable concept. Last year, Lung Meng produced one billion tonnes of paper. Of course, traditional paper producers around the world will lobby against it, saying that it's not really paper so that the product doesn't destroy their market... So as you can see, politics isn't the right way to counter these tactics. Instead, the right approach is for companies to find a way to break into the market.

Can you give an example?

In terms of the stone paper, China is a clear prospect for Lung Meng, since the country has very little water. The Chinese government has taken advantage of the opportunity, declaring that every school in the country will use this paper starting next year. By 2038, all paper used in China will be produced this way.

So is China a leading example of the right thing to do?

Need and crisis situations often give rise to innovation. China has little water and a lot of pollution. Currently, the Chinese political class is very much aware of the efforts being made. Did you know that the budget for environmental education in China quadrupled last year?

How are things in Europe and the United States?

Since there are thousands of lobbyists in Brussels and Washington, it's tough to overhaul the current systems. Europe and the United States are falling behind when it comes to the blue economy. ▲

“CRYPTOCURRENCIES ARE HERE TO STAY”

The frenzy around virtual currencies shows no signs of dying down, to the point where Swissquote Bank is hardly able to keep up with the onslaught of requests to open accounts. Interview with Paolo Buzzi, Chief Technology Officer and company co-founder.

Speculative bubble or finance revolution? The debate between cryptocurrency supporters and naysayers has just gotten started. Paolo Buzzi, Swissquote Bank's CTO, thinks virtual currencies are here for the long haul. Here is a closer look.

According to a recent survey conducted in Great Britain, two-thirds of millennials plan on investing in cryptocurrencies in 2018. Did you ever imagine this kind of tidal wave?

When we started work on this project in 2016, we realised that there was major interest simply by listening to people. But it is true that the general passion for it far surpassed our expectations. It remains to be seen whether this trend will last long-term. Given that the market for cryptocurrencies is very volatile, with high highs and low lows, some people panic and quickly liquidate their positions. Others, on the contrary, love it and see it as a chance to do a little shopping...

When it comes to cryptocurrency, we read and hear all manner of things. Some economists speak

highly of their potential and their advantages, while others say it's a bubble. What do you think?

I think that cryptocurrencies are here to stay. What is happening is rather incredible. We can look at what's been happening as a form of rebellion against the establishment, owing to the fact that cryptocurrencies cannot be manipulated by a centralised authority. Rules created with bitcoin are intended to be public and transparent. These rules are written in the algorithm and cannot be modified. Here, the central banks, who usually issue money, are replaced by the algorithm itself. It's a really interesting concept.

Actually, do you think that traditional frames of reference are still valid when it comes to cryptocurrencies? Or, to put it another way: do economists really know what they're talking about?

For people who learned and applied economics during the previous century, they had to understand how bitcoin worked when it came on the scene... And this isn't an easy thing, as the technology behind cryptocur-

rencies is relatively hard to learn. This is the first roadblock. In addition, given that the fortunes of bitcoin are not linked to the real economy, but solely to the law of supply and demand, the rules of logical thought based on economic fundamentals don't apply. For this reason, lots of people – whether rightly or wrongly – do not recommend investing in cryptocurrencies. As it stands, it must be said that people who invested in bitcoin a year ago, when its value was \$400, can be satisfied with their investment today. And that's leaving aside the early adopter geeks who bought bitcoin five years ago...

Do Swissquote clients invest more for speculation or to keep their cryptocurrencies long-term?

We still don't have enough perspective, but it seems that lots of people are choosing to hold on to their positions. These investors consider bitcoin to be a new class of assets that is decorrelated from the markets. Certainly, there are also clients who are interested in short-term gains more than anything. They're having a grand old

time, as cryptocurrencies lend themselves well to technical analysis. Moreover, these assets are traded 24/7.

Personally, would you invest in cryptocurrencies?

Yes, in all the kinds available on our site, with a preference for bitcoin and ethereum.

What is your opinion when it comes to ripple, which has been marketed as the “currency of banks” and which has caused quite a stir?

The ripple network (RippleNet) allows very quick interbank transactions, and for this reason, we're interested in following its development. As for the currency itself, its proprietary non-open-source format disturbs me, but that's a purely personal opinion. This cryptocurrency seems less transparent to me than the others, but it has garnered quite a following.

Of the cryptocurrencies offered by Swissquote (bitcoin, bitcoin cash, ethereum, litecoin, ripple), which are the most promising?

It remains to be seen which of the currencies will dominate. That's the big question. Currently, bitcoin still has many advantages: it's a well-established currency, one that has been well audited since 2009 and which is secure. We can't say the same for the countless other cryptocurrencies that pop up nearly every day. The main disadvantages of bitcoin remain the limited supply and length of

transaction time. Other currencies, including ethereum, are far quicker.

Do you plan to offer new cryptocurrencies soon?

Absolutely. We want to expand our offerings to up to about 10 cryptocurrencies. It will depend on two factors: what our clients ask for and what will be possible from a legal point of view. In principle, FINMA [ed. note: the Swiss federal authority responsible for monitoring the financial markets] plans to classify all cryptocurrencies on the same level as bitcoin.

Currently, Swissquote clients invest and withdraw their profits in euros or dollars. Will “wallets” for storing cryptocurrencies be available in the future?

We do not currently allow to send or receive bitcoins because of the risk of money laundering. To offer such a service, the origin of cryptocurrencies must be traced. Tools exist for this and it is probable that we will offer such a service soon [provided FINMA authorises it]. However, for the moment, our clients aren't asking for it. They use cryptocurrencies for investment.

Will the possibility of regulations or future bans threaten the launch of cryptocurrencies?

There are, in fact, a lot of unknowns when it comes to regulations. It remains difficult to measure their impact. But I think regulators will find it difficult to directly oppose the cryptocurrency movement. Many

people will see it as an attack on their freedom. What we're observing is that approaches will vary noticeably depending on the country. Japan has shown itself to be the most liberal, recognising cryptocurrencies as legal tender for payments, and even creating its own cryptocurrency. At the other extreme, China has more or less announced its intention to leave cryptocurrency in an orderly fashion and then return when rules have been put in place. As for France, it is pushing for a debate on cryptos during the next G20 summit.

If the global economy crashed, could cryptocurrencies become a safe investment?

Anything is possible. Bitcoin could very well play such a role. This ultra-risky asset could turn into a safe investment. We have witnessed it recently in Zimbabwe, where locals trying to protect themselves against hyperinflation and finding it difficult to obtain US dollars have turned to bitcoin. ▲



PAOLO BUZZI
CHIEF TECHNOLOGY OFFICER
SWISSQUOTE BANK

CRYPTOCURRENCIES: CAN YOU TALK THE TALK?

Having trouble keeping up with the latest cryptocurrency lingo? Here's a crash course.

ALL-IN

Investing all your money in a single, highly promising currency. An extremely risky move, but sometimes undertaken by investors on the forums: many people have claimed to have gone "all-in on ether" recently.

ALTCOIN

Abbreviation for "alternative coin". This term refers to any cryptocurrency other than bitcoin. There are roughly 1,500 to date.

ATH

The highest value ever reached by a cryptocurrency. Buying at the ATH (all-time high) is a bad idea, with potentially disastrous consequences. Case in point: the widespread drop in prices in January after the ATH in December.

DIP

Drop in price after a sharp increase. A dip is often a great time to buy. Just remember: BTFD (*buy the f***ing dip*).

DUMP

Sharp drop in the value of a cryptocurrency. Dumps are frequent in this highly volatile market.

FIAT

Refers to standard paper money (dollar, euro, etc.).

FOMO

Acronym for *fear of missing out*. This form of anxiety is common nowadays and has been known to drive people to make impulsive investment decisions, particularly buying high.

FORK

The fork is a change in the rules governing a cryptocurrency. A minor, backward-compatible change is called a *soft fork*. A major change that's not compatible with older software is called a hard fork. For instance, bitcoin cash is a result of a hard fork of bitcoin.

FUD

Acronym for *fear, uncertainty and doubt*. This famous rhetorical

technique consists of spreading negative information about a product to influence other people. This form of propaganda is particularly common on cryptocurrency forums.

HOLD

This term is commonly used by traders. It refers to a strategy where the investor holds a position – in this case, a cryptocurrency – for a long time without worrying about short-term price fluctuations. "Holders" need to be calm and patient, unlike "scalpers" (see below). The variant "Hodl" is also widely used. This term first appeared in a hilarious message posted by an irate – and much inebriated – investor on an online forum in 2013. He made the typo (hodl) while writing an angry message after the sudden drop in the price of bitcoin.

ICO

Abbreviation for *initial coin offering*. This method of raising

funds, similar to an IPO, is used when a new cryptocurrency is launched. In an ICO, investors are issued digital tokens.

LAMBO

This term has become an internet meme. Many cryptocurrency fans like to say – some more jokingly than others – that they'll buy a Lamborghini once they strike it rich.

PANIC SELL

An impulsive decision to sell your cryptocurrency after a sharp drop in price. The big correction in January, after the strong performance at the end of December, caused a major panic sell. This symptom is more common in new investors, and is hardly ever a good decision.

PUMP

The opposite of dump. This term describes a sudden substantial (and, unfortunately, often short-lived) rise in the price of a cryptocurrency.

REFILL

Buying a new quantity of a cryptocurrency that you already own, because you believe it is undervalued. Careful investors watch for dumps and dips in order to refill.

SCALPING

The art of the speculator, referred to here as the *scalper*. This technique consists of buying and selling a cryptocurrency over short periods of time, to take advantage of price fluctuations. The best, of course, is when you can sell high and buy low.

SHITCOIN

Refers to an altcoin considered to be worthless. Although products like this abound in the cryptosphere, there is no solid consensus. A shitcoin to some may seem like a promising investment to others.

TO THE MOON

Another meme. This expression refers to the supposed potential

of a cryptocurrency, whose value you hope will appreciate soon. In recent years, the value of some altcoins has increased by tens of thousands of percentage points. That's why investors' expectations are sometimes so high... "I went all-in on Ripple, and I hope it goes to the moon."

WHALES

There are many theories about whales circulating on the forums – sometimes even conspiracy theories. Whales are investors with a lot of capital whose orders can have a big impact on prices. ▲



Tesla and the dreamer's paradox

Despite being plagued by a series of production delays and cash-flow problems, this car manufacturer is still managing to entice the market.

BY JEAN-CHRISTOPHE PIOT AND BERTRAND BEAUTÉ



At its plant in Fremont, California, Tesla is manufacturing the Model 3, which should enable the company to break into the mass market.

the capital intensity of the Tesla model will produce a lower return on investment vis-à-vis the top car manufacturers,” wrote Philippe Houchois in a note published in November. The analyst from Jefferies – a global investment bank – recommends selling your positions in Tesla, as the pessimistic price target values the stock at \$240, versus its current value of \$350.

The car manufacturer's value is based more on belief than economic logic. Some people even talk about it like a religion

How can this difference be explained? In a report published in early January, the digital innovation analysis firm Faber Novel gave one possible explanation: in addition to pure economic data, “Tesla is all about a vision. The company isn't just a commercial venture – it's a philosophy. With its vision for a better world, Tesla attracts, captivates and involves all of its stakeholders: investors, customers, employees, the media and believers alike. This ambitious vision is the engine driving the Tesla adventure.”

In other words, the car manufacturer's value is based more on belief than economic logic. Some people even talk about it like a ▶

The troublemaker of the car industry is starting to make a habit of this. On Wednesday 3 January, Elon Musk announced further production delays for Tesla's Model 3 electric car – a car that is considered crucial to the company's future. The news would have caused any other car manufacturer's share

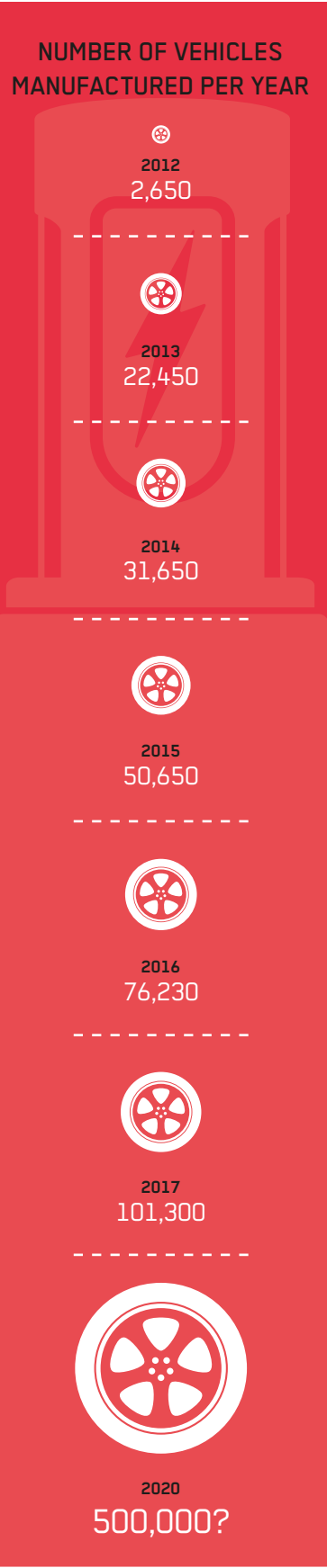
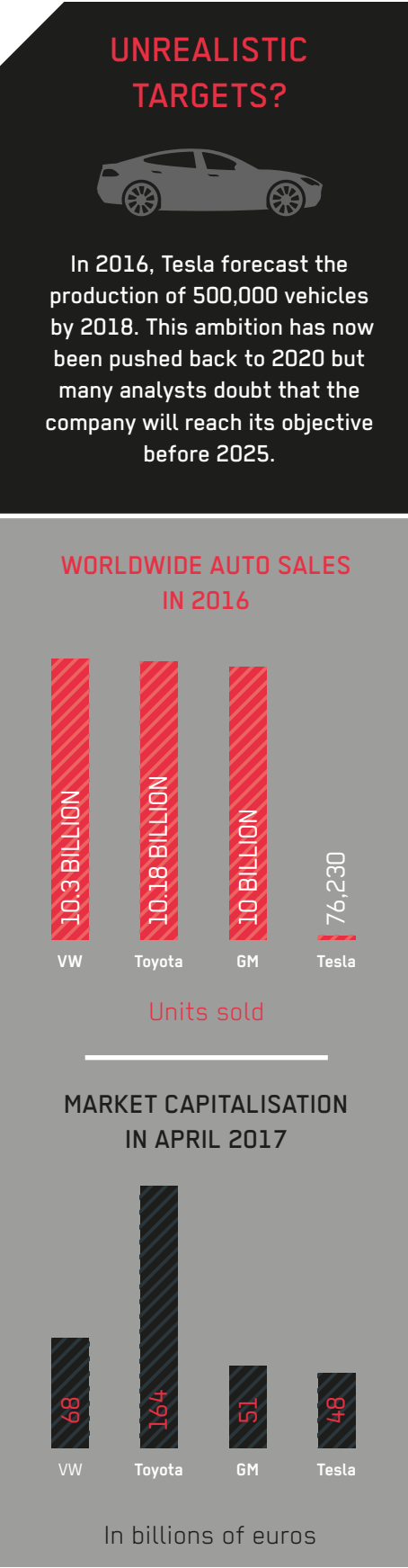
price to plummet... but not Tesla. On Wall Street, the company's stock only shed 2% in the wake of the press conference and then rebounded to normal levels.

The California-based company is creating a curious paradoxical effect on the stock market.

Despite successive delays, a sustained lack of profitability and the fact that the company is haemorrhaging cash, Tesla is still highly favoured by investors. Its market capitalisation stands at more than \$50 billion. Tesla is also more highly sought after than renowned car manufacturers like Ford and

Renault, who are in-profit and produce 6.4 and 3 million cars every year respectively, compared to Tesla's output of 76'230 cars in 2016.

And the repeated warnings issued by analysts do not seem to dampen the enthusiasm for the brand. “In the long term, we still think that



Elon Musk revealed the second-generation Tesla Roadster in January. The \$200,000 car should be in circulation by 2020.

religion. Some of Tesla’s most ardent supporters, such as Adam Jonas, analyst for Morgan Stanley, believe that Elon Musk’s company “is not just a car manufacturer” but a concept that will really establish itself on the market, in the same way that the iPhone turned the GSM market upside down.

The sceptics, on the other hand, claim that all the car manufacturers are now getting into the electric vehicle market and that Tesla’s window of opportunity has closed.

How, then, can the Palo Alto-based company continue to survive amidst the deluge of new electric models produced by prestigious car companies such as Mercedes, VW, Audi, Volvo and BMW? And which of these manufacturers represents serious competition for Tesla?

Faced with this challenge, Tesla seems to prefer to remove any doubts. In April 2017, Elon Musk decided to send a daring tweet to his 12 million followers: “Tesla’s stock is obviously high based on

past and present, but low if you believe in Tesla’s future.” Nevertheless, as Christopher Nicolas Dembik – head of macroeconomic analysis at Saxo Bank – points out, “appetite for a certain stock is often accompanied by a poor understanding of the risks”.

And there are certainly risks. In its 15-year history, Tesla has never made a profit and has been bailed out eight times in the last seven years by its shareholders. In 2015 and 2016, the company made losses

of \$888 million and \$675 million respectively. The accounting situation does not appear to be sorting itself out: production of the Model 3, in Musk’s own words, is “a nightmare” and analysts are sceptical about the objectives announced by the company (see infographic on p. 64). They believe that Tesla will be forced to recapitalise or borrow to increase its production.

“Appetite for a certain stock is often accompanied by a poor understanding of the risks”

Christopher Nicolas Dembik of Saxo Bank

Rather than focusing on this problem, Tesla’s CEO prefers to increase the number of projects. In addition to announcing the delays hitting the production of the Model 3, Musk also presented a prototype for a futuristic lorry. This is an expensive distraction for the company and its CEO, who, in addition to wanting to revolutionise the automotive sector, aims to go to Mars (SpaceX) and construct a futuristic high-speed train (Hyperloop) that would run between New York and Washington. Watch out for overconfidence though... “When investors expect significant growth, a high valuation is not out of the ordinary,” explains Yann Olivier, portfolio manager at Aesope. “But when companies are happy to sell a dream that is disconnected from all economic reality, then we are talking about a bubble.” ▲



The pink tax syndrome

Women pay more than men for certain comparable products. Widely criticised, this “tax” isn’t actually a price increase just for women, but rather a result of gendered marketing.

BY JASMINE LECKER

Coop City in Lausanne. In the supermarket, the “men’s razors” and “women’s hair removal” aisles are a few metres apart from each other. The men’s aisle is blue, green, yellow and orange. The women’s aisle is entirely pink. Both aisles have disposable razors, but not for the same price. The “Bic Twin Lady” pack for women includes 10 two-blade razors for 4.45 Swiss francs. In the men’s aisle, the “Bic Comfort 2”, a pack of 15 two-blade razors, costs 4.95 Swiss francs. That’s a much better deal. What’s the difference between the two razors? “Nothing,” says a salesperson. “It’s all packaging.”

Can a product be more expensive if it comes in a pink package? The pink tax is irking female consumers everywhere from Paris to New York. They don’t understand why they should have to pay more than men for comparable goods and services just because they have X chromosomes. Social media is full of examples of unequal prices, complete with photos and hashtags to support the outrage.

Several studies have confirmed the phenomenon. The authoritative

study was conducted by the City of New York at the end of 2015. The Department of Consumer Affairs compared close to 800 products from 35 categories and concluded that women pay on average 7% more than men for comparable products. Personal hygiene, apparel, health products and children’s toys are the areas in which the pink tax is particularly high. More recently, Germany’s Federal Anti-Discrimination Agency published an investigation in 2017 on products and services. The report determined that price disparities are highest in hairstyling and dry-cleaning.

THE MANUFACTURER’S FAULT

We asked Coop and Bic where the price difference came from for disposable razors. Coop blamed the manufacturer. “The sale price is set relative to the purchase price that we pay to the supplier,” said Ramón Gander, spokesman for Coop. He declined to give further details. Bic justified the prices, saying they were a result of differences in the products, and stated it does not set or encourage price differences between men’s and women’s razors with comparable features. “The ‘Bic Comfort 2’ (for men) has

a moisturising strip, which the ‘Bic Twin Lady’ doesn’t have. Therefore, our recommended sales price for the ‘Bic Comfort 2’ is higher than the price for the ‘Twin Lady’,” said Benjamin Durant, in an email from the French group. In our email, however, we noted that the “Bic Comfort 2” was sold at a lower price than the “Twin Lady”, not at a higher price... Furthermore, in addition to being less expensive, men’s disposable razors are also higher quality compared to women’s razors.

“Gender disparity can favour women or men, depending on the product”

Beyond this specific example, it is very difficult to show evidence of the pink tax. It all depends on the products in question. “Gender disparity can favour women or men, depending on the product,” according to a report from the French government. In Switzerland, where no studies have been conducted on the subject, the Price Surveillance ▶

authority criticised the fact that women's apparel is subject to higher customs duties than men's apparel. This bizarre disparity is due to the fact that back in the day, men's clothing was made from heavier fabrics than women's (as a result, packages of women's clothing were taxed more, as they contained more articles of clothing). "With the Federal Council's recent decision to get rid of all customs duties on industrial products, this problem will finally be resolved," said Beat Niederhauser, a deputy of the Price Surveillance authority. "As for other potential disparities between comparable products for men and women, such as razors for example, it is up to market competition."

SEGMENTATION

The pink tax is a hot topic because it is a part of the fight for gender equality. While the true extent of the pink tax remains debatable, "segmentation", the type of marketing that the tax comes from, is well-known. "The idea is that the more a product seems to fit the needs of consumers, it can be sold for more money," said Elisabeth Tissier-Desbordes, professor of marketing at the École supérieure de commerce (ESC) business school in Paris and an expert on the subject. "For example, glue used for shoes can be sold at a higher price than standard glue,

because it meets a specific need." The same principle applies for pink products targeting women: female

consumers believe the products were designed specifically for them and are willing to pay a higher price, even if women could find practically the same products in the men's aisle, but in a different colour.

"If women want to pay more for pink products, that's their own fault. Instead of complaining, they simply need to buy products made for men." This retort comes up every time the pink tax is discussed. But it's not quite as simple as that, according to Tissier-Desbordes: "When we purchase products, we place a certain amount of trust in the merchant. We can't spend all our time comparing every product, otherwise we would go crazy. Women see a pink

razor, think it's made for them and purchase it, without realising that they paid too much for it. Marketing is largely based on consumer spontaneity and ignorance."

A VICIOUS CIRCLE

Pink has been associated with women and blue with men as a result of decades of gender marketing. This is similar to the idea that women need a different shampoo for each hair type and colour, as well as conditioners and hair lotions. These inventions, which are also available for men, were hammered home so much that they have since been internalised. It's a vicious circle. "The more we differentiate based on gender, the more demand there is for gendered products and demand creates supply," said Tissier-Desbordes.

"Look at toy catalogues; I've never seen so much gender marketing. It's more effective than ever"

Elisabeth Tissier-Desbordes, professor of marketing at the École supérieure de commerce in Paris

Bic, with its pens for women and pink razors, is one of the biggest offenders when it comes to gender marketing. But all cosmetics brands, including Nivea, Korres and Vichy, divide up their products "for men" and "for women", which is then continued by distributors such as the Swiss online pharmacy Zur Rose. Some manufacturers such as Axe, owned by Unilever, pay close attention to setting the same price for men's and women's deodorant when they are comparable, but products often aren't exactly identical, so they can be sold at different prices.

Other companies, such as clothing giants H&M and American Apparel,

try to bridge the gender gap with unisex collections (while simultaneously pushing incredibly gendered marketing campaigns) but these initiatives are feeble and isolated. For Elisabeth Tissier-Desbordes, the situation isn't going to change anytime soon: "Just look at toy catalogues; I've never seen

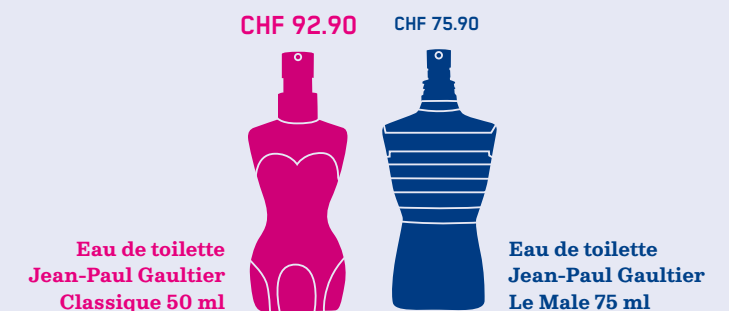
so much gender marketing. It's more effective than ever." Indeed, Hasbro was able to pull market share away from Mattel and its famous Barbie by focusing on toys for girls. The former publicist warned: "If we don't become aware of the dangers of gender marketing, nothing will change."▲

PRODUCT COMPARISONS

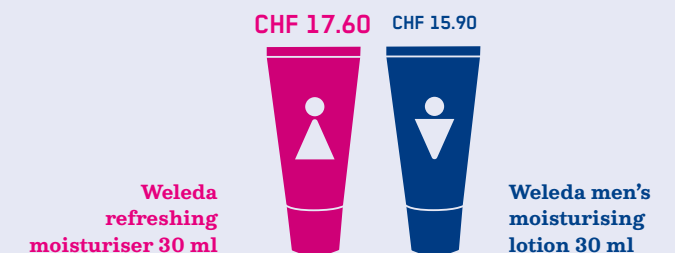
DISPOSABLE RAZORS



PERFUME



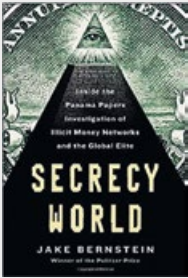
LOTION



SWITZERLAND DOESN'T WANT TO REGULATE

In March 2016, former socialist national councillor Jean Christophe Schwaab introduced a legislative proposal requesting the Federal Council to analyse the price disparities between comparable consumer goods and services for men and women. In the event inequalities were found, he also asked the government to propose ways in which to remove the "inexplicable" disparities. He based his request off the 2015 study by the New York City Department of Consumer Affairs that was mentioned in this article. The Federal Council did not pursue the investigation, stating that there are enough "sound business practices, particularly a clear price display" to counteract gender marketing.

TO READ, TO DOWNLOAD



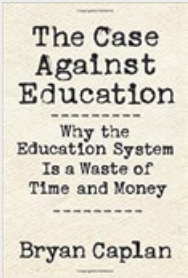
From
CHF 28.-

SECRECY WORLD

By Jake Bernstein
(Henry Holt and Co., 2017)

INVESTIGATING THE PANAMA PAPERS

In April 2016, the Panama Papers unveiled information on more than 200,000 offshore companies, after 11.5 million documents were leaked from the archives of Panama law firm Mossack Fonseca. Until the Paradise Papers, it was the largest leak of documents ever reported in the media. The investigation was led by 109 members of the International Consortium of Investigative Journalists (ICIJ) in 76 countries. US journalist Jake Bernstein, a Pulitzer prize winner, was one of the senior reporters in the investigation, which he describes in this book.



From
CHF 37.-

THE CASE AGAINST EDUCATION

By Bryan Caplan
(Princeton University Press, 2018)

WHY THE EDUCATION SYSTEM IS A WASTE OF TIME AND MONEY

After destroying the “myth” of the rational voter and exposing the “egotistical” reasons for having more children, “anarcho-capitalist” Bryan Caplan has a new book tackling the education system. He criticises the fact that the primary purpose of education is not to strengthen students’ knowledge, but to “certify” their intelligence. In a provocative way, he suggests cuts to education resources and promotes professional training, since he believes that teaching practical skills is more valuable for students to excel compared with their peers.



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ADOBE SCAN

THE ULTIMATE SCANNING APP

Finding a good app to scan documents often seems impossible. Adobe recently launched its own app, which we have found to be extremely effective, easy to use and well-designed. Thanks to very simple conversion to PDF and automatic text-recognition, this app will become indispensable.

THE CHEDI

ANDERMATT, SWITZERLAND



Take the virtual tour



THE CHEDI PENTHOUSES

The Chedi Penthouses combine the exclusivity of a private home with the amenities of the most elegant and luxurious hotel in the Alps. When it comes to the interior layout and finishing of your penthouse, you can let your imagination run free. Our architects and designers will work with you to realise your personal wishes, whether one-of-a-kind master bedroom, stylish library, expansive private spa landscape or private hideaway with guest rooms for your friends.

Sizes range from 189 m² to 616 m²

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TRAVEL

Itria Valley, the whimsical boot of Puglia

Linking the European continent with the Mediterranean Sea, Puglia is a wonderful way to discover Italy at its traditional finest

BY SALOMÉ KINER



Venice has rococo charm, Rome has intimidating history and Puglia has addictive beaches.

Spread over several provinces, with an incredible coastline and beautiful countryside, Itria Valley is a hotspot of architectural marvels and gastronomic wonders.

With their cone-shaped roofs, *trulli* houses seem to be spouting soil to

shelter mischievous elf families. The minuscule farms get their name from a construction technique from the prehistoric era that has withstood the test of time. Built with dry limestone and whitewashed, some *trulli* date back to the 17th century but remain intact and functional even today. They were so successful at that time because they could be easily taken down to evade real estate taxes... >



The 100-million-year-old Castellana Caves.

GUGLIELMI



PUGLIA BY BIKE

Bicycle tourism is booming in Puglia, where pedalling is an excellent eco-friendly choice in this region that still sees *la dolce vita* and its relaxed pace reign supreme. Puglia Cycle Tours offers several options for all types of riders: one week guided tours, led by a professional (min. 6 people), self-guided tours with luggage delivery and hotel reservations included, or the “bike&trulli” package, with week-long lodging and a GPS filled with ride ideas suitable for a day or a half-day. Starting at 500 Swiss francs per week.

www.pugliacycletours.com

To truly experience the rural cabins, visit their original community in Itria Valley, where entire villages of trulli point their cone-shaped roofs towards the radiant sky of southern Italy. In Alberobello, the trulli capital, several lookout points provide a welcome respite from tourist boutiques and offer an astounding view of the white stone houses covering the hills. It is a stark contrast to the red soil of the scrubland, where fertile resources produce delicious wine and olive oil (Puglia has around 65 million olive trees, all between 100 and 500 years old).

The Castellana grotto, a mere 20 km away, is also worth a visit. Rumour has it that it was formed one hundred million years ago. The (guided) tour is an incredible odyssey where visitors descend 60 m below the earth on a 3-km trail through a labyrinth of otherworldly tunnels with galactic ceilings and preserved fossils that tell the stories of the grotto.

REVIVE YOUR SENSES IN A MASSERIA

Puglia is not only the Caribbean of Italy, where its 800 km of varied

A traditional trullo from the Alberobello region.



ISTOCKPHOTO



Piazza della Libertà (“freedom plaza”) in the city of Ostuni.

AARON PETERSON

coastline is surrounded by the Adriatic Sea on the east and the Ionian Sea on the west – it is also the pantry of Italy’s boot. Everything grows here: fennel, asparagus, rosemary, chicory and rocket fields blanket the entire valley. Thanks to millions of ancient olive trees, the region of Puglia is the largest olive oil producer in Italy. And lest we forget cheese: mozzarella and burrata tastings are a ritual passage during local visits.

The best way to taste these various flavours is to spend a night at a masseria. These traditional farmhouses, which were fortified to protect farmers from potential invaders, have since been renovated and now offer a range of original lodgings, from a charming rustic cabin to all the comforts of modern living.

Many masserias have become agro-tourism sites and offer many activities for tourists to explore local resources, ranging from

simple tastings to experiences in a traditional workshop. At Masseria Salinola, visitors can even help harvest olives, mould cheese and learn to prepare orecchiette, small pasta in the shape of an ear that can also be enjoyed at the hotel restaurant, accompanied by vegetables from the hotel’s organic garden.

With its Tuffeau limestone steeples, Borgo Egnazia is a gem of architectural wonders spanning 70 hectares. This premium village is perfect for family trips. Amenities include a Kid’s Club, private guides that are all from Puglia, a personalised spa, mini-golf and tastings of vintage wines, which all make for a high-end immersion travel experience.

A NIGHT OUT IN AN IMMACULATE CITY

Ostuni looks more like a Greek landscape than an Italian postcard. But La Citta Bianca, perched atop three hills, is a perfect example of Italy’s architectural surprises. The city’s

origins, which reflect the various states of its heritage, date back to 7th century BC. But on first glance, visitors are struck most by Ostuni’s white walls and small winding roads. The city is impossible to resist and travellers will get wonderfully lost in its streets. But not for long: all routes seem to lead towards the Gothic cathedral, the protective symbol of this fortified city. At the top, the 360-degree panorama is definitely worth the climb. ▲

GETTING THERE

Flights to Brindisi from Zurich or Geneva start at 150 Swiss francs per person.

SLEEP

NINA TRULLI RESORT

Only 5 km from the sea, this village of *trulli* homes surrounded by vineyards was once a countryside monastery and is a master of slow living. Starting at 250 Swiss francs per night and per person. Open from March to November.

WWW.NINATRULLIRESORT.IT

LA MASSERIA CERVAROLO

This 16th century farm has received EU Ecolabel status and includes a restored church, bougainvillea, cacti, a pool and furnished trulli. Starting at 200 Swiss francs per night. Open from March to November.

WWW.MASSERIACERVAROLO.IT

MASSERIA SALINOLA

Starting at 180 Swiss francs per night.

WWW.MASSERIASALINOLA.IT

BORGO EGNAZIA

Starting at 260 Swiss francs per night.

WWW.BORGOEGNAZIA.COM



CARS

There's a new grand tourer in town

LOOK OUT, THE KIA STINGER IS SHAKING THINGS UP

BY BLAISE DUVAL



ENGINE: V6 3.3 L BITURBO
POWER: 370 CH / 510 NM
0 TO 100 KM/H: 4.9 sec
PRICE: CHF 59,200

Are you looking for a GT sedan with roughly 400 HP, four-wheel drive if possible, built for sport and kitted out with all the options and gear currently in style? And all for less than 60,000 Swiss francs...seriously?

Incredible but true: Kia has the goods. Virtually unknown in Europe for over 10 years, the Korean manufacturer has come out swinging with the Stinger. This four-door car, developed from scratch, is a showcase of technological prowess for the ambitious Asian brand, which has declared war on premium German classics such as the Audi S5 Sportback and the BMW 440i Gran Coupé.

Let's be clear: drivers who care about the name on their car, as

well as its potential resale value, should pass on this one. For anyone whose top priority is the intrinsic qualities of a vehicle, swipe right... Because yes, the Kia Stinger is objectively an excellent GT, far superior to what its DNA and its price would have you believe.

The Stinger dominated BMW and made a credible showing against Porsche

A believer, from the start, in the dynamic potential of its flagship

model, Kia subjected it to a convincing test at the end of January, pitting it on a closed course against a BMW 640i and a Porsche Panamera, no less. The result? The Stinger dominated the BMW and made a credible showing against the Porsche in most of the tests (acceleration, weaving in and out, G-force numbers collected) conducted under guidance from independent firm AMCI Testing.

If validating the extent of these abilities on the open road remains unfeasible, the feeling once you're behind the wheel nevertheless confirms the Stinger's athletic gifts. The V6, with its high torque, moves with plenty of force at all speeds, allowing the car to go from 0 to 100 km/h in less than five seconds. In "Comfort" mode, suspen-

sion filtering means that the drive is incredibly comfortable. "Sport" mode, logically, ups the level of the game and limits the car's movements with panache. As for "Sport+" mode, which turns off the anti-skid function, it's ideal for trips to the racetrack.

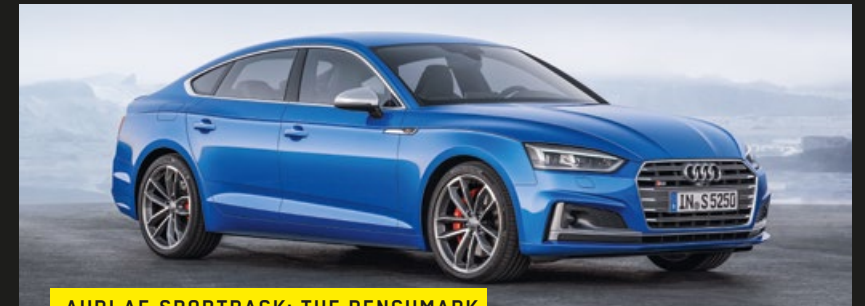
The interior layout won't dazzle you with its originality, borrowing here and there from the style of its German counterparts, in particular the Mercedes-style air vents. But it gets the job done, and is very functional and overall well finished. The driving position is optimal, well served by numerous (electric) adjustment opportunities, except for drivers taller than 1.95 m, who will find the Kia a bit low. And, it must be specified, that all the luxuries (autonomous cruise control, 360-degree camera, Harmon

Kardon hi-fi with 15 speakers, etc.) are included in the base price. The only premium option? Metallic paint.

We recommend it for people who'd like to be relatively discreet. Without going too far, the original lines of the Stinger are in sharp contrast with its traditional interior. The result? An unconventional, assertive look from all angles, which doesn't look like anything we've seen before, except perhaps the latest Jaguar sedans. The impression made is that of a large, low, powerful car. One that thumbs its nose at SUVs.

What remains is the question of reliability, as with any new vehicle. Kia, which has definitely thought of everything, offers a guarantee of seven years or 150,000 km. Who can top that? ▲

THE COMPETITION



AUDI A5 SPORTBACK: THE BENCHMARK

Very close to the Audi S4 in performance, the S5 Sportback adds a touch of style with its low lines and its hatchback boot. The 3.0 TFSI engine generates 354 HP. The quality of the workmanship and its appearance match Audi's usual standards; in other words, top-notch. From CHF 84,500.-



BMW 440i XDRIVE GRAN COUPÉ: THE ALTERNATIVE

A little less powerful than its current rivals, the high-end version of the Series 4 Gran Coupé range also relies on its design to seduce potential customers. The 326 HP of its six-cylinder 3.0 l engine are nothing to sneeze at. Comfort, sportiness, versatility: the BMW has hardly any weaknesses. From CHF 72,600.-

BOUTIQUE

AUDEMARS ON YOUR WRISTS

For the launch of the Royal Oak Frosted Gold, Audemars Piguet designed six cufflinks inspired by the legendary watch. With the same octagonal shape and hexagonal face, the stainless steel, rose gold and yellow gold cufflinks are decorated with the "Tapisserie" motif, seen on the Brassus watchmaker's cult timepiece. Available in blue, black and silver.

www.audemarspiguet.com
From CHF 1,600.-



SOLAR BAG

Want to become self-sufficient with solar energy? This is what Zurich-based start-up Sakku offers, with bags designed and produced in Switzerland that can power smartphones, GPS, tablets and other electronic devices. We particularly like the Freo model, which can be worn as a shoulder bag and which comes with a detachable solar panel that can be used separately.

www.sakku.ch
CHF 390.-



SWISS VERMOUTH

The name comes from a Corsican village not far from Ajaccio. And yet, red or white, Alata is produced in Martigny using wine from Valais vineyards fortified with grape brandy infused with a variety of aromatic plants. This local, contemporary reinterpretation of vermouth revives the star aperitif of the 19th century.

www.alata.love
CHF 24.-



SCANDINAVIAN BAR

Using traditional Scandinavian design, Nordic interior decor brand Bolia creates products that are minimalist and chic, bringing beauty to noble materials. One of its best-sellers is the Oliver Drinks cabinet, in smoked oak or walnut. Designed by Bertil Stam for the Danish brand, it hides all good mixologists' essential items with style.

www.bolia.com
CHF 1,149.-



ROBOT PROJECTOR

Keecker responds to voice commands, moves independently, plays music and projects films, photos and video games from anywhere in the house. Developed by a French start-up, this 39-cm-tall robot has an HD projector, a 4.1 audio system and a 360-degree camera that can be used for interior surveillance from a mobile phone.

www.keecker.com
From CHF 2,090.-



THE ART OF REDUCING NOISE

US-based Bose has built a solid reputation for its noise-cancelling headphones. Its wireless in-ear QuietControl 30 headphones are the successor to the very popular and high-quality QuietControl 20, which are not wireless. They are very effective and comfortable to wear, especially when on public transport or at work. The sound quality when listening to music is also excellent.

www.bose.ch
CHF 259.-

EXPEDITION-TESTED

Explorer Paul-Emile Victor called on Savoy-based Arpin to outfit him for his Arctic expeditions. The weaving company, which is celebrating its bicentennial anniversary this year, wanted to pay tribute to Victor with a capsule collection. With materials such as Etoffe de Sééz, fur, breathable fabric and PrimaLoft quilted fabric, the artisan weavers combined natural materials and new technologies to design a stylish jacket ideal for freezing temperatures.

www.arpin1817.com
CHF 1,049.-



TRIED AND TESTED

VIRTUAL
REALITY TABLE
FOOTBALL

BY STANISLAS CAVALIER

Kynoa Studios, a start-up in Geneva, has developed a new type of table football. *Swissquote Magazine* got a go on its first prototype.



Ah, table football...it was all the rage once upon a time. Teenagers would spend whole afternoons spinning their teams of footballers rather than hanging out in the school playground. Frenzied matches, like sold-out concerts, were the place to be, tucked away in the back of a smoky café. Balls made of cork, illegal wheel spinning, jarring, tic-tac passes...So many memories for the aficionados of table football, the nostalgics and fans of the "foos". It has many followers, and I'm one of them.

So, when Kynoa Studios asked me to test the first virtual reality (VR) table football, I jumped at the chance, albeit with a little apprehension. How could you possibly transform a game which, at least in my experience, is synonymous with beer and friends, into pixels? To find out, I headed to Kynoa's studios on Route des Jeunes in Geneva. It came as no surprise that this company's offices looked nothing like the old cafés of my younger years. It was more an open space with rows and rows of computer screens. The VR table football was at the back of the room. At a glance, it looked like a traditional table

with four handles on each side. Also like the original game, you could play one-on-one or as a four. But that's where the traditional aspects ended, the 22 footballers giving way to four Oculus Rift headsets.

"Put on a headset and grab the controllers," urged Kynoa's CEO, Florence Prini Saggio. With the headset on, the scenery immediately changed; I was no longer in an open space of- fice but thrown into a huge futuristic stadium. I turned my head and saw crazed supporters and countless details, all of which makes you feel like you're really "there". So, we're on the pitch, and my Swiss players are about to oppose the French team, controlled by our photographer.

The whistle blows and the game is underway. The digital players are attached to rods and a player controls them by turning handles, just like in traditional table football. But with the headset on, the action is heightened and bonus features make the game even livelier. I particularly enjoyed the multitball feature, inspired by *Pinball*, which involves playing with three balls at once. With goal after goal, my colleague was powerless against the supremacy of the Swiss! After

five minutes of play (with a couple of technical errors thrown in), Switzerland annihilated France, 8-2.

The final whistle went and it was time for a debrief. **Unsurprisingly, VR table football is nothing like its illustrious predecessor. Just as well!** Virtual reality opens up new possibilities and it would be a shame not to make the most of them. Only using the controllers brings back memories of the table football of days gone by. As for the rest, it's more like a video game. The merging of these two worlds is nonetheless a success, even though a few teething problems still need to be fixed, such as the two crashes that made the game freeze.

Following a demonstration in the Balaxert shopping centre in Geneva in February the VR table football will be available to buy from March, for a measly 95,000 Swiss francs (€81,000 approx.). "VR table football has been designed for shopping centres that want to attract families with a fun activity. It could also be used in gaming arcades," explains Prini Saggio. Servette Football Club has also shown interest in the game. ▴

THIERRY PAVEL

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