

# SWISSQUOTE

ePRIVATE BANKING MAGAZINE



## S3

# THE SWISS SPACE SHUTTLE

LAUNCH PLANNED  
BEHIND THE SCENES REPORT  
INTERVIEW WITH THE CEO

.....DASSAULT.....VIRGIN GALACTIC.....SPACE X.....THALES.....  
.....MEGBITT.....HARLEY-DAVIDSON.....SONDUA.....

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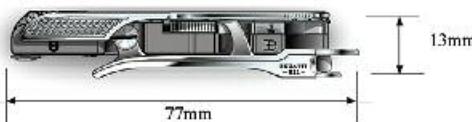


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# Wide-open space

The most promising market of the 21st century may very well be “over our heads”, beyond the Karman line that marks the border of space 100 kilometres above the Earth.

In any case, space is stirring the imagination of entrepreneurs, as seen in the enthusiasm and resources that the stars of the new economy – the same that figured in the feature article of the last issue of Swissquote Magazine – are devoting to their space shuttle projects (see page 42). And it is doubtful that CEOs as visionary as Richard Branson, Jeff Bezos and Elon Musk are looking to space simply to satisfy their egos.

As explained by all the specialists we talked to for this issue, the space industry today is at a turning point. Exciting projects previously reserved for government agencies are now also – and even above all – being developed by private actors. Among current developments, the advent of space tourism is clearly the most media-hyped and fascinating.

These innovative, game-changing projects and the passion they inspire are a ray of light in today's relatively gloomy economic environment. This is certainly the case with the shuttle being developed by the Payerne-based company, Swiss Space Systems (S3), the focus of this issue's feature article (on page 30).

A pioneer in its field, much like its neighbour, Solar Impulse, S3 aims to become the world leader

in mini-satellite launches, a market bound for impressive growth. The company is also working on a passenger transport shuttle, to be launched at a later date. The secret to the success of the small Swiss firm – a dwarf among aerospace giants – lies in its knack for successfully combining the technical solutions of partner companies including heavyweights Dassault, Meggitt and Thales Alenia Space. S3 is on track to meet its objectives, with initial test flights set for 2017. Our report on the company's headquarters sheds more light on the adventure.

Coming back down to Earth, but staying within the sphere of motorised escapism, take a look at our portrait of Harley-Davidson (on page 56). The legendary US motorbike manufacturer, over a century old and listed on the New York Stock Exchange since 1986, appeals to analysts with its longevity and brand image. Not a bad way to refresh your spirit, short of a trip to space...

We hope you enjoy this issue.



Marc Bürki,  
CEO of Swissquote

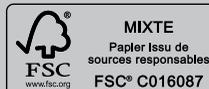
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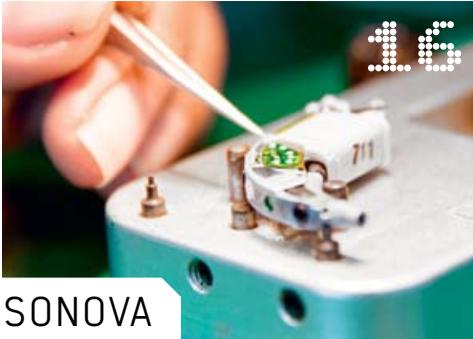
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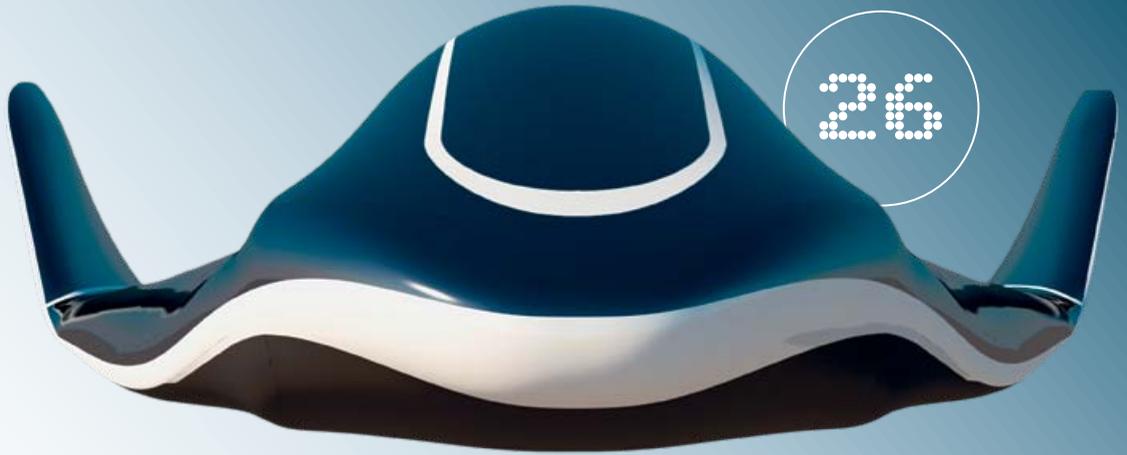


MIAMI



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PASCAL JAUSSI

# S3 THE SPACE-CONQUERING SWISS SHUTTLE

MAKING SPACE FOR TOURISTS



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# I N T E L L I G E N C E

AG AI AR BE BL BS FR GE GL GR JU LU NE NW OW SG SH SO SZ TG TI UR VD VS ZG ZH

## SCANDALOUS AGREEMENT FOR NOVARTIS



Johnson & Johnson and Swiss-based Novartis Group have been fined €16 million by European authorities, who accuse the two pharmaceutical companies of having conspired to delay the Dutch market release of the generic version of Fentanyl, Johnson & Johnson's pain-reducing patch whose patent expired in 2005. In exchange for its cooperation, Novartis received from its rival a sum of money greater than the amount of sales it would have made if it had launched a low-cost version of Fentanyl.

☒ NOVN

## NESTLÉ WATER WINS OVER AMERICANS

Nestlé water sales have skyrocketed in the US thanks to e-commerce and the company's mobile app. Deliveries make up 17% of Nestlé Waters' US sales, which were expected to reach \$4 billion in 2013. While its rivals continue to target corporations, the Swiss group has won over individual consumers, who tend to prefer smaller bottles of water.

☒ NESN

## WEATHERFORD ACCUSED OF CORRUPTION

Oil services company Weatherford has been condemned in the United States for bribery and flouting sanctions against Iran, Cuba, Syria and Sudan. The Geneva-based firm will have to pay a \$253 million fine. The US authorities accuse Weatherford of having exported \$23 million in goods and services to Iran between 2003 and 2007. The Group also allegedly paid for a pilgrimage taken by a Saudi Arabian official and picked up the tab for the honeymoon of the daughter of an Algerian official, in exchange for contracts.

☒ WFT

## SWATCH TO CONQUER THE GULF



Faced with dwindling sales in China, Swatch is seeking out new opportunities in the Middle East. The Biel-based group has bought an additional 18% stake in Rivoli, bringing its participation in the Dubai-based chain of 360 shops to 58%. Swatch is also continuing to open its own shops in the region, under the name Tourbillon for its high-end brands (Breguet, Blancpain, Omega) and Hour Passion for its mid-range brands (Longines, Tissot). The Group also owns a 33% stake in Saudi Arabian chain Alzouman General Trading.

☒ UHRN

## SYNGENTA SAYS GOODBYE TO MELONS



Swiss agrochemical group Syngenta has disposed of its American subsidiary Dulcinea Farms, selling it to produce wholesaler Pacific Trellis Fruit for an undisclosed sum. Founded in California in 2004, the subsidiary marketed mini-watermelons and original varieties of melon grown from seeds supplied by Syngenta.

☒ SYNN

## PANALPINA GOES PAPERLESS

The average air freight shipment generates 30 paper documents. All, more than 7,800 tonnes of paperwork are transported by air each year, reducing efficiency, increasing costs and creating an environmental problem—in addition, handwritten documents are notoriously full of errors. To address the problem, logistics services provider Panalpina launched its first entirely paperless flight at the end of 2013, on the route serving Huntsville (United States), Luxembourg, Hong Kong and Guadalajara (Mexico).

☒ PWTN

## SIKA REINFORCES BUILDINGS



After a wave of earthquakes, New Zealand is looking to strengthen the buildings in its major cities. The country has turned to a new technique developed by Swiss construction company Sika. The Zug-based group will wrap the support columns of the buildings with a thin layer of carbon fibre, giving them the flexibility to absorb and diffuse the shock wave of an earthquake. The ultra-light material can also be used to reinforce the façade of the buildings.

✉ SIK

## TURNING YEAST INTO VANILLA

Traditionally, fragrances and perfumes are extracted from natural plants and spices, the process by which Firmenich and Givaudan have built their fortunes. But since the plants and spices are often rare and expensive, lower-quality synthetic fragrances have been developed. Basel-Landschaft-based company Evolve offers a third option: by genetically modifying yeast, it has created a vanilla fragrance that closely resembles the original. Look for it to hit the shelves in 2014.

✉ EVE

## TAKING CONTROL OF THE COCOA CHAIN



By 2016, Swiss chocolate maker Lindt & Sprüngli will have complete control of its chain of cocoa bean suppliers in Ghana. The Zurich-based group has launched a pilot programme giving 8,000 local farmers access to training, plant nurseries and loans to buy agricultural equipment. The programme will be expanded to include 5,000 additional farmers by the end of 2014 and 25,000 more over the next three years. The goal is to enable the farmers to double their productivity. The programme will also guarantee Lindt & Sprüngli access to stable quantities of high-quality cocoa.

✉ LISN

## DARWIN AIRLINE EXPANDS

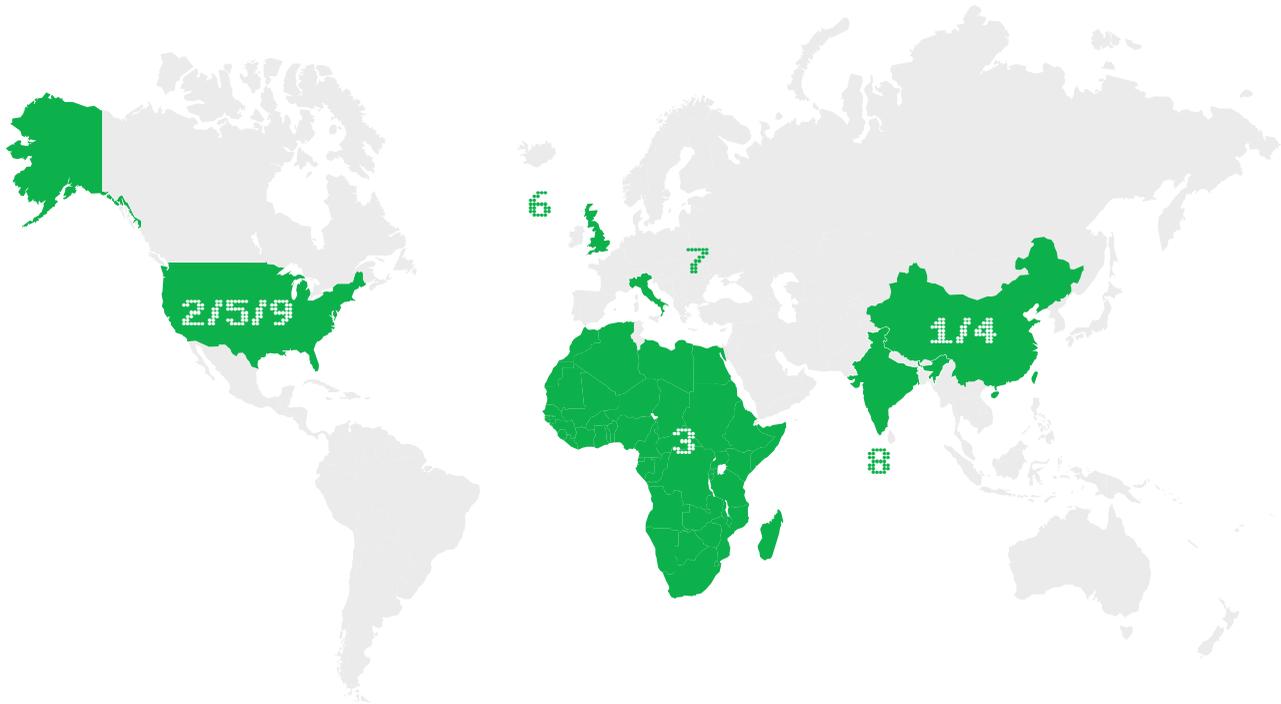


Etihad Airways has bought a 33.3% stake in Lugano-based Darwin Airline. The goal is to turn Darwin into a regional airline capable of serving its European bases from secondary markets. By mid-2014, the Swiss carrier will serve 18 new destinations, including Amsterdam, Paris, Düsseldorf and Belgrade. The new cities will be linked to airports where Etihad Airways already operates, via its hub in Abu Dhabi. The Emirati airline will also operate one flight daily to Zurich.

## A JUMP IN IPOs EXPECTED ON THE SWISS STOCK EXCHANGE

Credit Suisse is predicting a surge in listings on the SIX Swiss Exchange in 2014. At least three are expected in the first six months, followed by two or three more in the second half of the year. Among the companies applying for an IPO on the Zurich-based stock exchange is SFS Intec, a mechanical fastening parts manufacturer based in St. Gallen that plans to list in the first quarter of 2014. Only one firm joined the SIX Swiss Exchange in 2013: Cembra Money Bank, a subsidiary of General Electric.

# WORLD WATCH



## HOME THEATRES FOR CHINESE CLIENTS

Canadian movie theatre manufacturer IMAX has set up a joint venture with TCL Multimedia Technology Holdings Limited, a Chinese firm based in Shenzhen (north of Hong Kong), to develop and market luxury home theatres. At \$250,000 each, the theatres will mainly be marketed to Chinese consumers, who prefer to watch films at home rather than in public movie cinemas. The reason? The government authorises the showing of only 34 foreign films, in public cinemas, each year.



## US DISTRIBUTORS PICK UP THE PACE



For major US distributors, the name of the game is speed. Amazon has built new urban warehouses and now offers 24-hour delivery in 11 US cities. The Seattle-based firm even has plans to deliver packages using drones. Walmart has improved the synergy between its online division and its 4,100 physical stores, reducing travel distances on its deliveries. And eBay has launched a pilot project: one-hour deliveries using a network of bicycle couriers.



## AFRICA, THE NEW MARKET FOR COSMETICS

The major cosmetics groups are honing their strategies in Africa. By 2017, Africa's health and beauty market is expected to grow to €10.5 billion, with South Africa and Nigeria making up half of the market. The groups have rolled out ethnic brands on the continent, such as Motion (Unilever), SoftSheen-Carson (L'Oréal) and Nice'n Easy (Procter & Gamble). Unilever has even adapted the anti-age products from its Ponds brand for darker skin tones. However, these companies face competition from local firms, such as Soul Mate and Sleek Studio, as well as from Chinese (Longrich) and Indian (Godrej) brands.

## RENAULT ENTERS THE CHINESE MARKET



French carmaker Renault has had its eye on the Chinese automobile market, one of the most promising in the world, for several years now. But Renault first needed to obtain permission from the National Development and Reform Commission, the official organisation in charge of managing China's economy, to establish itself there. That permission came in mid-December, with Renault authorised to launch a joint venture with the Chinese Dongfeng Group, a nearly €1 billion investment. Renault will now be able to produce some 150,000 cars per year in China, starting in 2016.

✉ RNO

## THE KNOW-HOW OF AMERICAN HOTELS

The Chinese spent \$102 billion on foreign travel in 2012. Chinese travellers have specific customs that US hotel chains are striving to accommodate. Four Seasons, for instance, trains its staff in the pronunciation of Chinese names and offers Asian clients green tea and Mandarin newspapers. In addition, the hotel group avoids assigning them rooms with the number 4 (a symbol of bad luck) and makes sure to place managers a floor higher than their employees. Marriott, Hilton and Conrad all have similar programmes.

## LOW-COST TABLETS

Supermarkets in the UK are vying to offer digital tablets at the lowest possible price. Tesco was the first to launch with its Hudl model, which retails for £119. Argos followed shortly after with the £100 MyTablet. But it's Aldi, the large German distributor renowned for its low prices, that undercuts them all with Lifetab, an £80 Android tablet. However, Lifetab's 7-inch screen and 1024x600 pixel resolution make it a somewhat inefficient device. The same goes for MyTablet, whose battery life is too short, and Hudl, whose camera is of rather poor quality.

## MONCLER GOES PUBLIC IN MILAN



French fashion brand Moncler recently went public on the Milan Stock Exchange. The maker of high-end down jackets joins other prestigious brands listed in Milan, such as Salvatore Ferragamo (listed in 2011) and Brunello Cucinelli (listed in 2012). Moncler's IPO is a sign that the exchange, which already includes 17 luxury brands for a total capitalisation of €32 billion, is beginning to specialise.

✉ MONC

## STRATEGIC ALLIANCE IN INDIA



Indian businessmen Mukesh Ambani and Sunil Mittal have signed a 15-year deal worth \$2.1 billion. Mr. Ambani, head of Reliance Industries, will have the right to use the telecommunications infrastructure (particularly the fibre-optics network) of his arch-rival's company, Bharti Airtel, to roll 4G out across India. Mr. Mittal, on the other hand, gains a large client through the deal. The alliance will completely change the Indian telecommunications sector by reducing the role of other brands, such as Vodafone (UK) and IDEA (India).

## HARPERCOLLINS PUTS ITS CATALOGUE ONLINE

The e-book market will probably not have as devastating an impact on publishers as the online music market. Nevertheless, e-book sales rose 257% between first-quarter 2010 and second-quarter 2013, from \$100 million to \$375 million. HarperCollins Publishers, a subsidiary of News Corp, decided to take advantage of this trend by launching an online subscription service that provides access to all of the works in its catalogue. The service will be hosted on the Scribd platform, which has over 80 million visitors each month.

✉ NWS

# SECTORS

## WIND ENERGY

### Floating wind turbines in Japan

Japan has launched one of the most ambitious energy projects of its history. Forced to shift away from nuclear energy after the Fukushima catastrophe, the country is now to construct giant wind turbines over 100 metres tall that will float along its coastline, making it possible to anchor them in deep waters. The first of these structures, inaugurated in November, generates enough electricity to power 1,700 homes. Japan plans to build 140 such turbines by 2020, enough to produce as much electricity as a nuclear power plant. The government will provide \$226 million to build the first three turbines, then a consortium of 11 companies (including Hitachi, Mitsubishi, Shimizu and Marubeni) will take over. Eventually, offshore wind energy will likely account for between 30 and 60% of Japanese electricity production.

### Vestas invests in Kenya

Wind turbines today are found mainly in developed countries. Danish firm Vestas wants to change that: it has partnered with Masdar, an Abu Dhabi-based company specialising in renewable energies, to supply low-cost electricity to Kenyans. Using wind turbines equipped with diesel generators, Vestas will power 200,000 households by 2014. The project will then be expanded to other African, Asian and Latin American countries. Some 50 million people live in areas that lack sufficient electricity but have strong winds, according to Vestas.

■ VWS

## STOCKS

### Record year for US stocks

The S&P 500 index, which measures the performance of the 500 largest companies listed on the US stock markets, climbed nearly 30% in 2013. It posted the biggest gain since the 1997 internet bubble. Analysts remain cautious, however. Most predict moderate results in 2014, noting that earnings need to catch up with share prices.

#### S&P 500



SOURCES: CBS MONEYWATCH (GROWTH BETWEEN 2 JANUARY AND 17 DECEMBER 2013); THE NEW YORK TIMES.

#### TOP 5 PERFORMERS

1 NETFLIX (online movies)	+303%
2 MICRON TECHNOLOGY (electronic chips)	+256%
3 BEST BUY (retailer)	+245%
4 DELTA AIR LINES (airline)	+139%
5 PITNEY BOWES (mail processing)	+115%

## ... .. STREAMING ... ..

### YouTube takes on Spotify

New competitors are emerging constantly in the music-streaming market. YouTube is now getting ready to launch its own platform in early 2014. For \$10 a month, members will be able to listen to music and watch videos online, including on their smartphones or tablets, without having to put up with a barrage of advertisements. YouTube has already signed licensing agreements with three major record companies (Sony, Universal and Warner) and several independent labels. Other subscription radio stations include Google Play, launched in May, and iTunes Radio, launched in September. Headphones maker Beats Music also plans to launch its own service shortly.

### Pandora is growing

The September launch of iTunes Radio did not produce the expected results. Pandora, the other giant in the sector, is performing extremely well, with 71 million users at end-October compared with 20 million for Apple's service. Pandora also improved profitability: advertising revenue reached \$144 million in third-quarter 2013, a 36% increase year-on-year, with mobile advertising revenue up 58% to \$105 million. Pandora's total revenue for 2013 will likely be between \$652 million and \$662 million.

## UPS

### Xiaomi



Chinese smartphone maker Xiaomi has big plans for expansion in Asia.

The company is to start selling devices in Singapore and Malaysia. Xiaomi's devices run on Google's Android operating system and have the advantage of being less expensive than the iPhone (\$135 for the Hongmi model, for example). But Xiaomi is up against Samsung, Lenovo and Huawei, which are also targeting those markets.

### Toyota



Toyota recently unveiled a hydrogen-powered concept car. It will be

the first fuel-cell vehicle ever to enter mass production, starting in 2015. First-year sales will likely remain under 1,000 vehicles, but the Japanese group sees the market as promising. Toyota isn't new to innovation: in 1997, the company launched the Prius, a hybrid car that turned out to be a great commercial success.

TM

### Shire



Irish pharmaceutical company Shire has bought ViroPharma for \$4.2 billion. The American

group specialises in the treatment of rare diseases, offering expensive, highly personalised preparations. Shire hopes to earn \$2 billion in revenue in this sector in 2014, which would represent 40% of its total revenue.

SHP

## DOWNS

### ENI



Italian firm ENI is facing delays in Mozambique, where it has discovered

an enormous offshore gas field containing 2.115 billion cubic metres of gas, more than the entirety of Norway's reserves. Mozambique had undertaken to build four gas liquefaction plants by 2018 but will probably not be able to meet the deadline owing to logistical problems and a lack of infrastructure.

ENI

### Royal Bank of Scotland

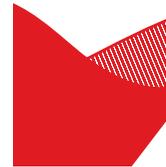


Royal Bank of Scotland has been ordered to pay \$100 million to the United States

for having violated the sanctions on Iran, Sudan, Burma and Cuba between 2005 and 2009. The bank failed to disclose the origin of certain funds transferred from those countries to American financial institutions. British bank Standard Chartered was fined \$674 million in 2012 for similar reasons.

RBS

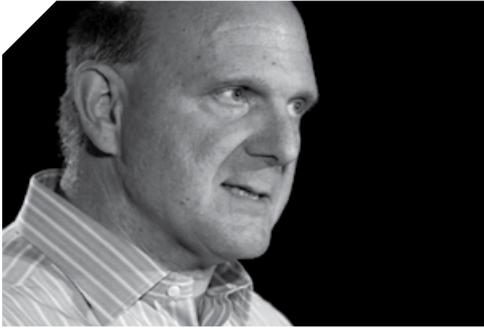
### Vale



Brazilian mining group Vale agreed to pay 5.97 billion reais [2.2 billion Swiss francs]

to the Brazilian government to cover back taxes on its foreign earnings. The world leader in iron production will pay out an additional 16.36 billion reais over the next 15 years. The Brazilian tax authorities, however, had demanded 45 billion reais, nearly twice as much.

VALE



“The vulnerability we have is not just on phones. We still need to upgrade and improve, and that’s part of the Nokia acquisition.”

Steve Ballmer, CEO of Microsoft, in an interview with ZDNet.



“The red line is that PSA will remain French. That is our position.”

In an interview with BFMTV-RMC, French Industry Minister Arnaud Montebourg refused to let PSA Peugeot Citroën Group transfer to foreign ownership.



“Clearly the euro zone debt crisis is not over yet. This reality cannot be emphasised often enough. But we are seeing preliminary successes, and we are convinced the crisis can be overcome permanently.”

Angela Merkel, in the first speech of her third term.



“We are seeing that Ukraine is in a difficult situation right now [...]. We say that Ukraine is our sister country and that, therefore, we must act like a good neighbour and reach out to help.”

Vladimir Putin, at his annual press conference in December.



“Eighteen years ago, I’d drive packages to the post office myself.”

Jeff Bezos, CEO of Amazon, describing the early days of his company in an interview with CBS. Now he plans to have packages delivered by drones.



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Together  
we  
grow



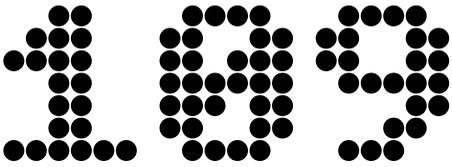
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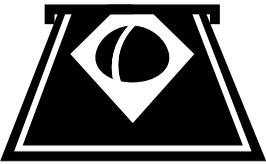
Together we go green





The number of years remaining before the planet's coal reserves run out, according to British Petroleum's annual report on world energy reserves. Total world coal reserves at end-2013 were 860 billion tonnes.

159'898



The number of cash machines (ATMs) in Brazil, more than any other country. Switzerland has just over 5,000.

370,000

The number of iPhones sold per day worldwide in the last quarter of 2013, exceeding the number of daily births (360,000).

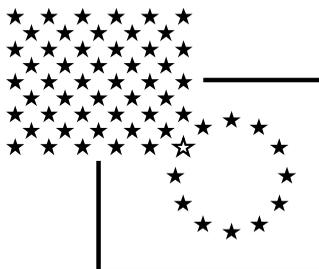


120

The cost, in billions of dollars, of obesity in Australia, or a full 8% of the country's GDP. The US comes out much better, with admittedly high costs – at \$190 billion – but for a population of 313 million compared with Australia's 23 million.

645.9

In billions of dollars, the amount of trade between the USA and Europe in 2012. In comparison, total trade between the USA and China in 2012 was €536.2 billion.



**UP**

**Iron**

The price of iron reached \$139.40 per tonne in November, whereas its average price in 2013 was around \$125 per tonne. This strong performance was driven by a rebound in Chinese demand for steel, which is made from iron. Even the increased production in Australian mines was unable to bring down the price.

**US crude oil exports**

The United States issued a record 103 licenses in 2013 for exporting crude oil from the fracking boom, compared with 66 in 2012. The oil is bought at a low price along the coast of the Gulf of Mexico, then resold at a higher price to refineries in Canada, the only country where crude oil exports are authorised to be sent.

**DOWN**

**French tour operators**

For French tour operators, 2012-2013 was a dismal season. Package-tour sales fell 8.2% on the previous year, impacted by the economic crisis and persistent instability in North Africa. Consequently, TUI France has announced 300 lay-offs and decided to franchise 31 branches.

**Chinese solar panels**

The European Union has imposed anti-dumping measures on Chinese solar panel producers, accused of selling their products below market prices and receiving illegal subsidies from their government. They will now have to pay taxes averaging 47.7% over a two-year period.

# SCAN

## SMUGGLED CIGARETTES SWEEP ACROSS FRANCE



The parallel market for tobacco is continuing to grow in France, says a study by the consultancy firm, KPMG. In 2012, the parallel market grew to 22.6% of the 65.7 billion cigarettes consumed nationwide, compared with 21.2% in 2011. Of that 22.6%, 15.7% are smuggled or counterfeit cigarettes and 7% are lawful products, as more and more French smokers are crossing the border to buy tobacco in neighbouring countries, where it is much less expensive. This phenomenon grew 24% between 2011 and 2012.

## EARNINGS DOWN FOR PHARMA FIRMS

Pharmaceutical companies are struggling to make their research efforts cost-effective, according to a study by Deloitte and Thomson Reuters. Over the past four years, 167 products reached phase III of clinical trials and 105 were released on the market, but the return on investment for the 12 companies studied fell from 10.5% to 4.8%. Expiring patents, restrictive health policies, and the development of medications for rare diseases are the likely causes of the downturn.

## Playstation 4

## VS

## Xbox One



### IN BRIEF

Playstation 4, released in November 2013, was the first of the two consoles to hit the Swiss market. The PS4 retails at a competitive price and is not only better than its rival on paper but more compact as well, comparable in size to the PS3 Slim. Plus, the new joystick is more ergonomic than its predecessor. However the glossy black section of the console's exterior is very sensitive to scratches and fingerprints and has received mixed reviews.

Xbox One won't hit the shelves in Switzerland until 2014. Microsoft's console comes standard with the Kinect 2 module, a smart camera allowing users to interact with the console using gestures and spoken commands. In addition to the module's eagerly awaited application in future games, Microsoft aims to use it to establish the console as a multimedia centre for the living room.

### SPECIFICATIONS

**RAM:** GDDR5 8GB (176 GB/s)  
**Drive:** Blu-ray 6x  
**Storage:** 500GB removable hard disk  
**Dimensions:** 275x53x305 mm

**RAM:** DDR3 8GB (68.3 GB/s)  
**Drive:** Blu-ray  
**Storage:** 500GB irremovable hard disk  
**Dimensions:** 343x80x263 mm

### VERDICT

Although Playstation 4 has a slight advantage in terms of raw power, it is still too early to declare PS4 the winner. The market's verdict will depend mainly on the quality of each console's exclusive games. So far there's nothing particularly exciting about Sony's launch line-up, and gamers will have to wait to get their hands on the big-name titles (Uncharted, Gran Turismo, Metal Gear, etc.) in next-gen mode.

Microsoft seems to have assembled a better launch line-up than Sony, with a few exclusive titles (such as the Forza 5 car racing game) that take full advantage of the console's graphic capabilities. Xbox One doesn't impress with its bulky design, but it is quieter than the PS4 during gameplay thanks to better ventilation. The new joystick fits the hand nicely and is another one of the console's pleasant surprises.

### PRICE

About \$490

About \$640

### FIGURES

Sony ☒ SNE	Microsoft ☒ MSFT
FOUNDED	FOUNDED
1958	1975
CEO	CEO
KAZUO HIRAI	STEVE BALLMER
REVENUE	REVENUE
\$72.35 BILLION (2013)	\$77.85 BILLION (2013)
CAPITALISATION	CAPITALISATION
\$16.7 BILLION	\$313 BILLION
WORKFORCE	WORKFORCE
146,300 (2013)	100,518 (2013)

# SONOVA, THE SWISS HEARING SOLUTIONS EMPIRE



The worldwide leader in hearing aids, with its many branches, is emerging triumphantly from a troubled time. Despite the turbulence it has endured, Sonova's results are on the rise.

By Catherine Riva

Above: the Phonito Nano hidden earpiece. According to Phonak's website, it's the world's smallest earpiece for undercover professionals.

Sonova Holding has made the headlines on a number of occasions over the past three years: due to a series of disruptions (see the insert on page 19) but also because of its excellent results. Under the leadership of Lukas Braunschweiler, CEO since November 2011, the Group, based in Stäfa (Zurich), has actually managed to consolidate its position as the worldwide leader in hearing aids.

Sonova used to be Phonak Holding. By changing its name on 1 August 2007, it ensured its transformation from a simple hearing aid company into a global group, bringing to an end any confusion between the holding company and its flagship brand. Today, Sonova develops and distributes hearing solutions in two sectors: hearing aids and cochlear implants. Its revenue for the previous financial year (2012/2013) stood at 1.8 billion Swiss francs, and it employs almost 9,000 people worldwide.

The Swiss firm now groups together many brands. In addition to Phonak, Sonova controls Canadian company Unitron, another hearing aid manufacturer, and since 2009, Advanced Bionics, an American manufacturer of cochlear implants. The Swiss company also owns the Connect Hearing brand, which unites the various stakeholders in its international distribution network – hearing experts hearing aid professionals and hearing centres – including AuditionSanté, Boots Hear-

## Key figures

**9,000**

The number of Sonova employees worldwide.

**1.8**

The Group's 2012/2013 turnover (in billions of Swiss francs).

**1.5**

The estimated size (in billion of Swiss francs) of the global "hearing care" market, with hearing aids on the one hand and cochlear implants on the other.

**7.6%**

The average percentage of its income that Sonova sets aside for research and development.

**65**

The size (in nanometres) of the chip in the Quest platform, on which the latest Phonak models are based, i.e. 0.000065 mm.

ingcare, Hansaton, Hearing Planet and Triton Hearing.

Sonova has many years of experience with hearing aids and can trace its roots back to the first portable device, the Phonak Alpina, launched in 1951 by AG für Elektro-Akustik, of which the current group is the successor. Since then, the brand has been synonymous with innovation. It once again demonstrated this with the introduction to the market, in 2011, of a product known as Lyric, a device placed near the eardrum that can be worn continuously for up to four months, including overnight, in the shower and while playing sports.

According to analysts, the hearing aids market is growing by around 5% each year and still suffers from a supply shortage. According to Sonova's estimates, only 10% of people with slight to

moderate hearing loss wear a hearing aid, and in industrialised countries, 30% of people suffering from major hearing loss still do not have a hearing aid. Therefore, there is significant potential for development.

The Zurich manufacturer is also eyeing emerging markets. "Sonova already leads the way in Brazil and we are in the process of implementing a strategy for the Chinese market (editor's note: the Chinese market is destined to become the Group's second-largest market in terms of size)," explains Group spokesman Michael Isaac. The company is also pursuing an acquisition strategy, with a particular view to improving distribution. It intends to continue to set aside between 50 and 70 million Swiss francs for it each year. ▲

☒ SOON



.....Analyst's recommendation.....

**"A unique positioning"**

Analysts are optimistic about the future operation of Sonova's business. Christoph Gretler of Credit Suisse and Oliver Metzger of Commerzbank both emphasize Sonova's unique positioning in the hearing aids sector, as well as its excellent reputation with patients and acousticians. "With its current portfolio, Sonova is the leader in terms of technology, and it is growing faster than the hearing aids market," says Mr. Gretler. "Its presence on the cochlear implants market is now enabling it to

develop devices that combine the two technologies."

However, Sonova will have to rise to two types of challenge. In Mr. Metzger's opinion, changes will need to be made to the hearing aid reimbursement system in some countries: "This development may affect the whole sector, as it did in 2013 in the Netherlands and Denmark, with a negative impact that could continue in 2014." Mr. Gretler, on the other hand, feels that Sonova will have to

make a concerted effort to improve its distribution, particularly because of the growing importance of chains, which are gradually replacing independent acousticians. "To win over emerging markets like Brazil and China, Sonova will need to focus in the medium term on developing either specific products or new sales channels," he adds. Mr. Gretler and Mr. Metzger recommend buying Sonova shares with a price target of between 140 Swiss francs and 145 Swiss francs.



According to analysts, the hearing aids market is growing by around 5% each year and still suffers from a supply shortage.

### Legal storm

The first sign that Sonova was in for stormy weather came in March 2011, with the late publication of a profit warning, the consequences of which were felt right up to the end of 2012.

A few days prior, some of Sonova's top managers had sold off large blocks of shares, pocketing substantial gains. The opening of an insider trading

investigation led to the immediate departure of then CEO Valentin Chapero and finance director Oliver Walker. Andy Rihs, co-founder of the company, stepped down as chairman of the board.

In July 2012, Sonova was fined by the Swiss SIX Stock Exchange and received a summons for payment from shareholders, who felt

wronged as a result of the alleged insider trading. In 2013, legal disputes on the other side of the Atlantic, linked to faulty Advanced Bionics cochlear implants, put the Stäfa manufacturer back in the headlines.

"These events did not affect the day-to-day operation of the Group," maintains Michael Isaac, spokesman for Sonova. "All

of these problems have now been resolved." An out-of-court settlement was signed with shareholders in October 2012. In November of the same year, the insider trading investigation cleared the former managers. In the US, Advanced Bionics was able to obtain an out-of-court settlement in October 2013.

2014 SONOVA

# ANALYSIS

## ADVICE FOR INVESTORS

### “Burma’s economic indicators are all flashing green”

Burma is at last opening up to globalisation, sensing the promise of huge growth potential. Sylvain Fontan, independent analyst and founder of the website L’Economiste, discusses investment possibilities in the country also known as Myanmar.

**SWISSQUOTE MAGAZINE ▶ What is the current political and economic situation?**

SYLVAIN FONTAN ▶ Burma is emerging from a lengthy military dictatorship. Aung San Suu Kyi, general secretary of the National League for Democracy, was elected to parliament in April 2012. And the process of democratisation is underway, though the country is still fragile and the army holds great sway.

Consequently, Europe and the United States have lifted their economic sanctions, re-opening the door for foreign investment. Burma is one of the poorest countries in Southeast Asia. Infrastructure is still rudimentary, which is a drawback but also an opportunity for cautious, well-thought-out investments. The government has also taken action to stimu-

late foreign investment by streamlining administrative formalities and granting a five-year tax holiday to new firms. Burma truly wants to open up to globalisation and become economically independent. Until now, it has been almost entirely inward-looking. Foreign trade – mainly oil and gas exports to China and India – accounts for only a quarter of GDP.

**How much foreign investment does Burma currently receive?**

Foreign investment increased fivefold between 2012 and 2013, from \$300 million to \$1.5 billion. These investments come mainly from China, Hong Kong, Japan, South Korea and Singapore. China has a strong presence in Burma, investing chiefly in infrastructure. It is helping build dams, deep-sea ports and pipelines to access oil and

gas from the Bay of Bengal. Europeans and Americans have less of a presence for the time being. Competition is weak, leaving plenty of room for investment.

**What about the people? Is a middle class beginning to emerge?**

Burma still has no middle class, but everything suggests that one will emerge in the next five years. GDP grew by 6.5% between 2012 and 2013, according to IMF estimates. The government will likely strive to maintain and build on recent progress in opening up to globalisation. Everyone would benefit from the emergence of a middle class – and the government knows it. With democratisation underway, foreign investment rising quickly and GDP growing strongly, the economic indicators are all flashing green.



2013 THE COCA-COLA COMPANY

A new Coca-Cola enthusiast in Burma. The American firm recently opened a local production facility in the country. (4 June 2013)

#### Which sectors should investors single out?

Mobile telephony looks hugely promising. Burma has approximately 60 million inhabitants, only 3% of whom own a mobile phone. The government, aware of the need to develop the communications network, launched a call for tenders to several operators. The two winners were Norway's Telenor and Qatar's Ooredoo. The clear objective is to equip 80% of the population with a mobile phone and give it access to the network by 2016. Work will begin mid-2014. With so many new subscribers in such a short time period, these firms' share prices are bound to surge.

#### What other sectors should investors focus on?

Agriculture, remembering that the primary sector accounts for 45% of GDP. To boost exports, Burma is seeking to increase crop yields. The government is keen on biotechnologies and has plans to collaborate with Swiss company Syngenta on hybrid rice growing.

The infrastructure sector is also growing strongly. Burma needs to build deep-sea ports as another means of boosting exports. Bouygues Construction, a French company, is already present on the ground and involved in these large-scale projects.

Tourism, of course, is another sector to keep an eye on. The hotel industry deserves special attention, considering the capital, Rangoon, has only 8,000 rooms. France's Accor, among others, is exploring ways to expand its business. The situation in Burma reminds me of Thailand 50 years ago, when it had only 300,000 tourists per year. Now it attracts 14 million. ▽



Sylvain Fontan  
Analyst  
[www.leconomiste.eu](http://www.leconomiste.eu)

# Natural gas, a high-margin product

A specialist in energy sector investments, Richard Katz from Powernext shares his analysis of natural gas trading, an activity involving high risk but considerable potential returns.

SWISSQUOTE MAGAZINE ▶

**Natural gas is seen as a particularly volatile product, one that beginners find hard to get a hold on. Why is that?**

RICHARD KATZ ▶ Natural gas is a highly volatile financial product for several reasons. First, world gas consumption fluctuates due to unpredictable weather conditions and highly variable economic situations. Also, the level of supply is directly impacted by the discovery of new gas fields, or, conversely, by problems in gas field operations and transport. But gas price variations are sensitive mainly in the short term, as is often the case for energy markets. The situation is more measured over the long term.

**We all remember seeing the natural gas price slide from \$13.50 in July 2008 to \$2.50 in September 2009...** That slide happened after shale gas fields came online in the United States and Canada back in 2008. Supply – until then generally from Norway, Russia and Qatar – suddenly exceeded forecasts. And quite logically, the gas price plummeted, espe-

cially in the USA. The discovery of shale gas in the USA and the manufacturing slowdown in Europe sent the US and European markets downwards.

**Most analysts are forecasting a rise in gas prices in the short and medium term. What do you think?**

I wouldn't like to venture a precise forecast in terms of price (which is currently at \$4.80). But fossil energy remains a rare commodity, while the world population and overall energy consumption are on the rise, especially in emerging countries. Because that scarcity tends to drive prices upwards, I see an upward trend in the long term.

**What can an investor moving into gas trades expect? Are significant gains possible?**

What investors should certainly expect is a very risky market in the short term. And natural gas trading is carried out over short time periods, by playing on variations in long-term contracts – over 20 or 25 years – made by the major gas producers. The appeal

lies in higher margins than for more conventional products, with considerably larger price spreads. In other words, the opportunities are greater but the risks are higher.

**What kind of investor profile is suited to natural gas?**

Quite clearly, investors who like to take risks, rather than those into long-term wealth management. It's a viable option for anyone looking to diversify their portfolio to include high-margin products.

**What main trends in natural gas do you see in the long term? Does the future look bright?**

Gas has only been considered a major resource for 10 or 15 years. Before that, attention was considerably more focused on oil. For me, the main trends lie in new uses of gas for vehicle or boat fleets, and, more generally speaking, for all new "clean" uses where fuels such as coal don't fit the bill. This is why we've seen the development of gas power plants, especially since electricity prices started to climb back in 2005, even though that development



TOM FOX / ART / NEWSCOM

Installation of a gas pipeline near Mustang, Texas. Shale gas exploitation has been booming in the region over the past six years.

has slowed recently owing to the slowdown in economic activity. The European Union's future policy on CO<sub>2</sub> issues will also play a decisive role.

If regulation is accommodating, products such as coal – low on cost and high on CO<sub>2</sub> – will remain at a high price. But if more stringent environmental requirements

are imposed, gas will increase in value. ▲



Richard Katz  
Analyst  
Powernext, Paris

## Swissquote's offer

Individuals can trade the natural gas market easy using Swissquote's eForex platform. Swissquote's Natural Gas is an appealing alternative to the natural gas futures contract offered on the Chicago Mercantile Exchange.

Unlike futures, Swissquote's Natural Gas product does not expire each month, offers

flexible transaction sizes and lower margin requirements.

Swissquote's Natural Gas price is derived from a combination of two futures contracts so traders should be aware that the product requires daily adjustments for refinancing in order to reduce excessive variations between the two futures contracts.

The natural gas market fluctuates considerably combined with the leverage available from Swissquote, this trading product is recommended only for experienced traders not shy of risk.





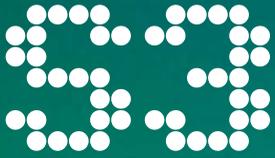
TILMERY PAREL

## Abionic: the start-up revolutionising allergy testing

Nicolas Durand, a former PhD student of nanotechnology at EPFL, is the 31-year-old CEO of Abionic, the most award-winning Swiss start-up of the moment. Since inception in 2010, the company and its 10 employees have already garnered 19 honours, including third-best Swiss Start-Up last year.

These distinctions reward the invention of the abioSCOPE, a mobile laboratory capable of diagnosing a patient's allergy profile in just twenty minutes. The process is simple. A single drop of blood is placed into a

capsule containing patented biosensors overlaid with the most common allergens, such as pollen, foods or animal proteins. The capsule is then placed on a CD platform and inserted into the abioSCOPE, which resembles a DVD player, to detect any allergies. Unique in the world, this method is entering a market now estimated to be worth five billion Swiss francs. Abionic will begin selling its flagship product in 2014 in Europe, then worldwide from 2015. To do so, it hopes to attract 10 million Swiss francs at its next fundraising.



THE SPACE-  
CONQUERING  
SWISS SHUTTLE



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THE SMALL SATELLITE  
MARKET TAKES OFF

# Entrepreneurs keep looking up

The conquest of space was long reserved for government agencies, but now private players are getting in on the act, opening up promising new markets.

By Ludovic Chappex

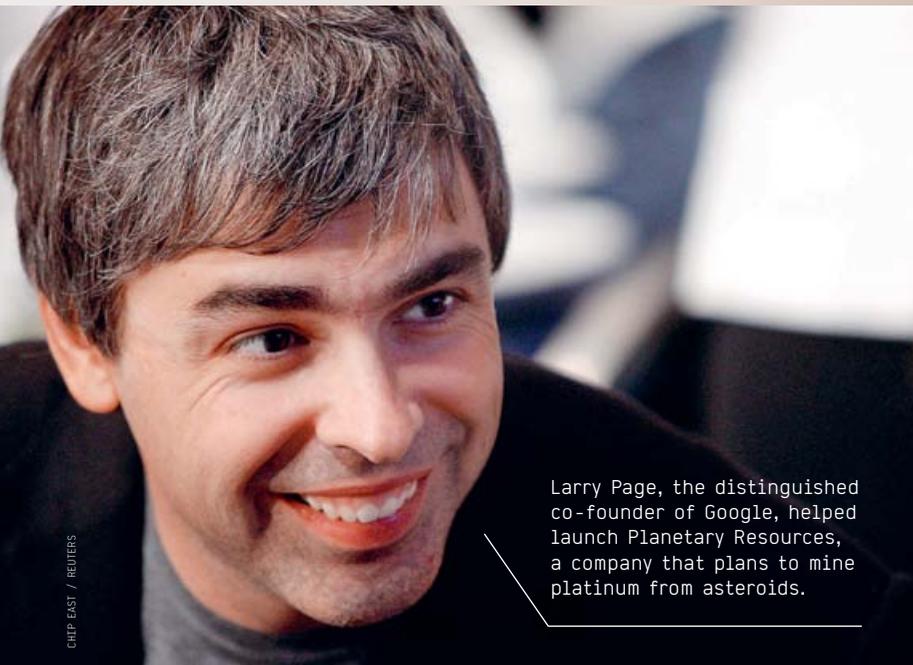
Astronomers, adventurers and children aren't the only ones dreaming about the cosmos these days. Ambitious entrepreneurs – some of whom seem to be in touch with their inner child – see space as a new economic frontier, a market they have to tap into before anyone else. Firmly determined to remain one step ahead on innovation, today's star CEOs, be they Elon Musk (Tesla), Richard Branson (Virgin) or Jeff Bezos (Amazon), are devoting a significant share of their research to space

transport, with some of them developing huge projects (see article on page 42).

By all accounts, those projects are now reaching maturity. In December 2013 Elon Musk's SpaceX became the first private company to launch satellites into space. Next up will be the transport of astronauts and scientists to the International Space Station (ISS), set for 2015. On a lesser scale, a profusion of companies have developed turnkey products and solu-

tions, among them US firm Nanoracks, which produces IT equipment for use on the ISS.

The boom in the private space industry is due in great part to the recent, and drastic, reduction of governmental space budgets, most notably that of NASA. At the height of the Cold War in the 1960s, when the conquest of space went hand in hand with intimidation and national prestige, NASA was gobbling up as much as 5% of the US federal budget, compared to ten times less today.



Larry Page, the distinguished co-founder of Google, helped launch Planetary Resources, a company that plans to mine platinum from asteroids.

## GOVERNMENT SUPPORT

These budget cuts have opened the door to private players. In fact, these companies are being encouraged in their efforts by the US government, as Peter Platzer, founder of the Californian mini-satellite manufacturer Nanosat5f, neatly sums up: "The government has cut its aerospace budget but has invested \$1 billion to help the private sector get on its feet. The aim is for NASA to be able to call on companies such as SpaceX for certain services. The government lacked the resources to continue on its own. The same applies in Europe and the rest of the

world, because space activities remain extremely expensive. In terms of limited budgets, the exception to the rule is China.”

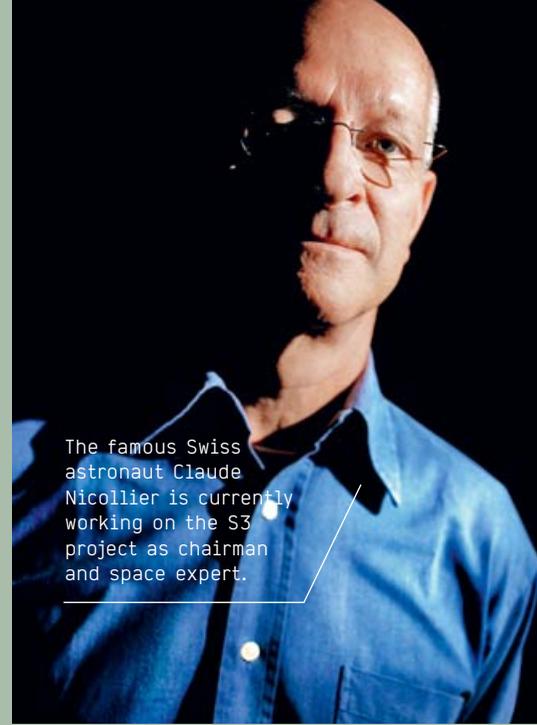
In a somewhat ironic development, NASA today relies on Russian Soyuz rockets to send its astronauts to the ISS, quite simply because it lacks its own equipment. Each launch costs NASA in excess of \$60 million – an amount that SpaceX has promised to reduce by one-third.

In contrast to the “old space industry”, under government control, the “new space industry” seems boundlessly ambitious, swift and innovative. A good example is the seemingly absurd project of Planetary Resources, a company with as main shareholders Google founder Larry Page and filmmaker James Cameron, that aims to use robots to

extract precious metals from asteroids orbiting around the Earth. Planetary Resources is still nowhere near achieving its goal, but a close eye should be kept on the company, whose annual economic activity is reckoned by some to be worth tens of billions of dollars. The company argues that a single asteroid measuring 500 metres long contains as much platinum as the total amount hitherto extracted from the Earth.

## The US government has invested \$1 billion to help the private sector get on its feet

**REUSABLE SPACE SHUTTLES**  
Back down to earth: Eyes are equally riveted on the construction of Switzerland’s S3 shuttle, the subject of the special feature of this issue of Swissquote Magazine. The S3 shuttle, a futuristic spacecraft whose main mission will be to launch mini-satellites into orbit, is particularly representative of the new space industry in that it will be entirely reusable and call on a number of technologies from the aeronautics sector. These two advantages will enable S3 to considerably reduce



The famous Swiss astronaut Claude Nicollier is currently working on the S3 project as chairman and space expert.

FRED NIENZ / REZO

launch costs, thereby potentially boosting the market.

According to the estimates of the UK monthly, *Space Trade Magazine*, the space industry as a whole will be worth some \$600 billion by 2030. The rising stars in the sector are mainly unlisted start-ups. But the landscape could change quickly, as seen in recent years in the rapid growth of the big web companies. SpaceX, certainly not a small player in the race for space leadership, could be floated on the market this year.

“The space industry is at a pivotal moment in its history,” says Chad Anderson, head of European operations for Space Angels Network, a US investment network specialising in the space industry. “The rise of private players opens up new economic outlets. There’s quite a lot of uncertainty in the sector, but the potential returns on investment are enormous.” ▲

## Switzerland weighs in

Not many people know that the Swiss space sector accounts for around 800 jobs and is worth 200 million Swiss francs in annual revenue. Swiss companies stand out in particular in the production of atomic clocks for satellites, nose cones for Ariane launchers, measuring instruments and sensors, and engines for the US Rover robots exploring the surface of Mars. Switzerland is also a member of the European Space Agency (ESA), serving as co-president with Luxembourg since last year. It is currently developing the CHEOPS satellite intended for exoplanet observation and set for orbit in 2017. Also, the Swiss Space Center at École Polytechnique Fédérale de Lausanne was recently attributed skills centre status on nanotechnologies by the ESA.

# S3, the space conquering Swiss shuttle

Swiss Space Systems, or S3, intends to revolutionise the growing market of small-satellite launches. To that end, the Payerne-based company is building a space shuttle featuring world-first characteristics. We take a closer look.

By Ludovic Chappex

On its official launch on 13 March 2013, the small, Payerne-based company Swiss Space Systems, or S3, boldly announced its intention to become a world leader in the launch of small satellites using a space shuttle developed, assembled and operated in-house.

Is that statement to be taken seriously? A Swiss company building a space shuttle? Not that the country lacks aerospace savvy; it actually has a strong record (as shown on page 29). But does it have the resources and skills required to pull off a challenge of this magnitude?

We visited the company in late December at its discreet headquarters in the foggy anonymity of the Payerne industrial park. It has been almost a year since S3 publicly announced its objective, but media cover-



A MODEL OF THE FUTURE S3 SHUTTLE, IN 1:48 SCALE. BACKGROUND: THE HANGAR WHERE THE ACTUAL CRAFT WILL BE ASSEMBLED STARTING IN 2016. THE SHUTTLE WILL MEASURE 15 M LONG AND 10 M WIDE AND WILL BE ABLE TO REACH A SPEED OF MACH 10.

FRED NERZ / REZO

2013  
S3 OFFICIAL  
LAUNCH

2014  
MOCK UP  
TEST FLIGHT

2015  
S3 SPACEPORT  
INAUGURATION

## “S3 is forecasting initial revenue of 100 million Swiss francs a year”

age has been sparse. The company is instead focusing its efforts on the technical development of its shuttle, away from watchful eyes.

Within its 2,000-square-metre locale perched above a fitness centre, the company is

completely unnoticeable from the outside. A simple staircase leads up to the front door, where an unassuming plaque tells us this must be the place. But the presence of a fingerprint scanner suggests that something serious is going on inside...

Because, yes, S3 fully intends to build its space shuttle. And yes, the project is moving along as planned, as confirmed by CEO Pascal Jaussi (interviewed on page 38). “We are fully on schedule and are maintaining our objective of an initial commercial launch in 2018” he told us.

The Swiss Space Systems adventure is something of a Swiss miracle, the secret formula lying in the firm’s ability to get —▶



**2016**  
SHUTTLE  
ASSEMBLY

**2017**  
FIRST SHUTTLE AND  
SATELLITE TEST FLIGHTS

**2018**  
FIRST COMMERCIALS  
LAUNCH



S3's current offices, total surface area 2,000 sq. m., have the feel of a new economy start-up. Employees can decide their own working hours and have free access to food and drink.

companies and institutions from around the world involved in the project. These include the likes of Dassault and the European Space Agency, based in countries as diverse as the USA, Russia and Spain (see page 36-37).

With a budget of 250 million Swiss francs, S3 is less a creator of technologies than a new kind of "aggregator" bringing together the best existing solutions. Each company involved in the project adds its stone to the edifice in its field of expertise, providing engi-

neers or parts for the shuttle. The companies all stand to benefit from the initiative, as the business outlets are very real. S3 is forecasting initial revenue of 100 million Swiss francs a year, but given the potential of the fast-growing market – with an estimated

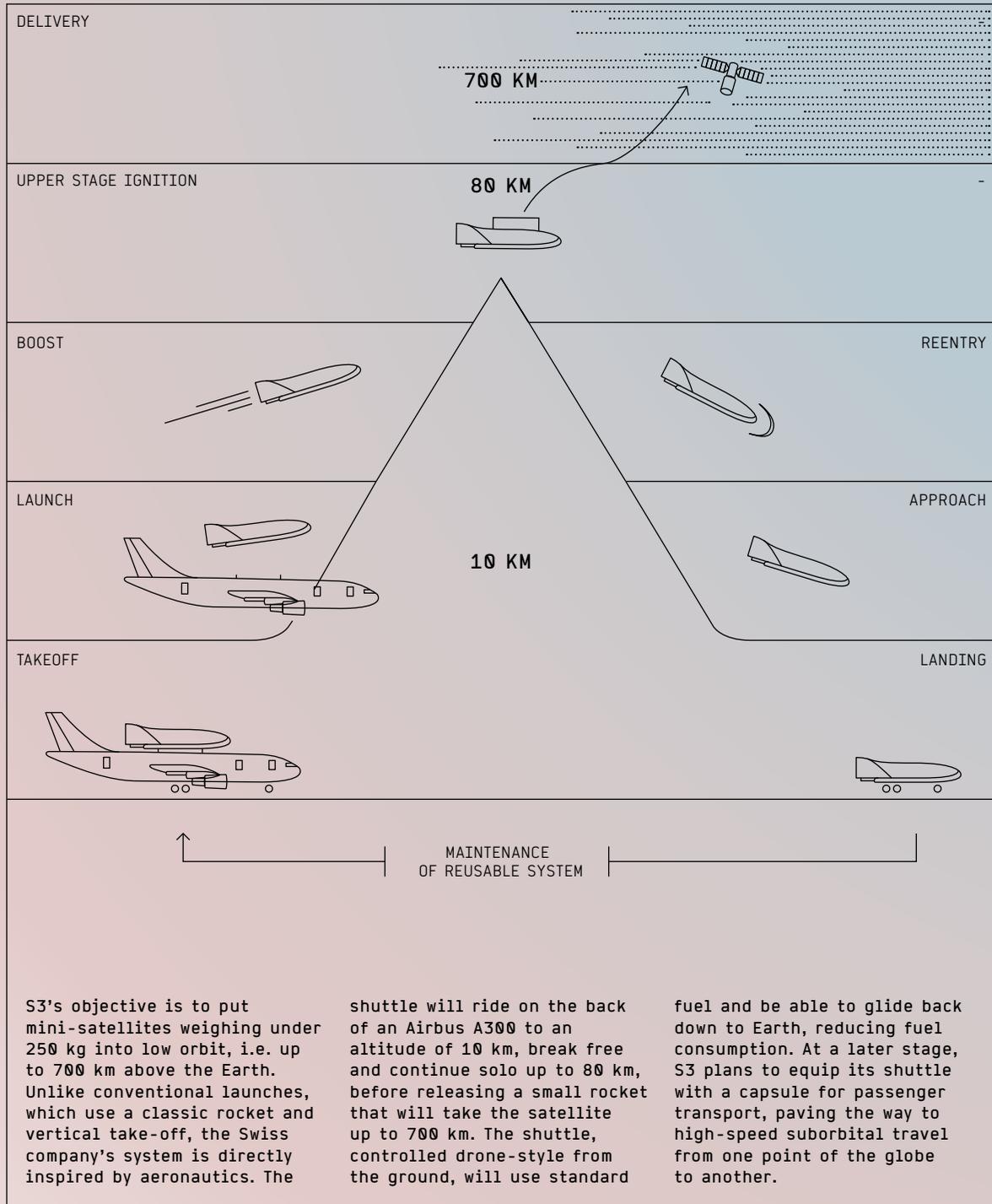
worth of 50 billion Swiss francs by 2020 – those involved can certainly set their targets even higher.

But make no mistake: while the project brings together a number of players, it is S3 that will assemble the shuttle in Payerne and

**“Employees decide themselves on their working hours, but I have to regularly force people to go home in the evening”**



# A new take on satellite launches



coordinate operations (see the detailed diagram on page 36). S3 will also handle the maintenance of the shuttle, which will be completely reusable and return to Earth after each flight.

This is the key feature of the company's ingenious business model – and a revolutionary approach in the aerospace industry. With conventional satellite launches, the classic vertical-take-off rockets can only be used once, making each launch an expensive affair. By opting for a horizontal take-off – and landing – system, S3 has changed the game. The result is a four-fold reduction

in unit costs per launch, the equivalent of 10 million Swiss francs for each 250 kg, compared with today's 40 million Swiss francs.

Future customers include academic institutions (some of them partners of the project) and businesses interested in Earth observation, imaging and scientific projects. The Payerne-based firm has already signed a contract worth several million Swiss francs with the Swiss start-up SpacePharma, based in Delémont, which is shaping up to be a future leader in exomedicine, a fast-growing discipline which explores and develops new medical solutions in

zero-gravity environments. The contract covers the launch of 28 mini-satellites weighing 5 kg each, at the rate of one launch per month starting in 2018.

The enthusiasm in the S3 office is palpable. Over 60 employees – up from 30 on company launch – are hard at work on the development phase of the shuttle. The teams are motivated purely by passion.

“Employees decide themselves on their working hours, but I have to regularly force people to go home in the evening,” says Pascal Jaussi as he shows us around the premises. The dedicated CEO



3D rendering of S3's future offices, expected to be completed in 2015. The complex, estimated at 50 million Swiss francs, will be located right next to the Payerne aerodrome and will include an aircraft hangar.



S3

3D rendering of S3's tandem aircraft and shuttle. The Swiss company will acquire an Airbus A300 this year bearing the company's colours.

of S3 admits he hasn't taken a holiday since 2007, when the project was first outlined. We arrive at a heavy steel door, again with fingerprint access. "Even I'm not cleared to access this part of the office," says head of communication Grégoire Loretan. Unlocking the door, Pascal Jaussi mentions the high level of security at the company – to protect the IT servers and monitor the building – but without going into detail.

We note that the contractors working inside the building have all signed a confidentiality agreement. The atmosphere is classic James Bond.

The door opens to reveal a huge hangar, where shuttle construction will begin in 2016. For now, the space is home to a handful of engineers manning their

screens. "Surveillance and security levels will be further increased as we near the test phase and the commercial launch of the shuttle," says Pascal Jaussi. "We will have an entirely new building in 2015, currently under construction next to the aerodrome, but the assembly phase of the shuttle will take place here."

Detailed plans of the future building are posted on one of the walls of the hangar. Just next to them, oversized posters show the future shuttle and the Airbus A300 that will serve as its launch platform, both of them painted black and featuring the S3 logo. "The plane bearing our company colours will be ready this year," says the CEO.

Well, well. The S3 project that we thought was limited to research suddenly seems

extremely hands-on. "We've already reached the point of no return," says Pascal Jaussi. "We are in an advanced stage of development. If we'd had to, we would have thrown in the towel long ago."

The ramp-up of the S3 project is reflected in the growing number of press releases issued in the last few weeks, covering the partnership with Moscow State Technical University, the collaborative effort with Spaceport Colorado, the creation of a subsidiary in the USA, and a new network of partners in Spain.

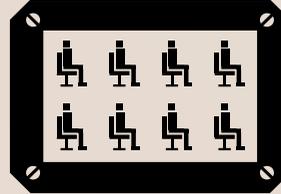
The diminutive Swiss company has four years to pull off its challenge on schedule. The buzz surrounding the project will no doubt grow significantly before then. Whatever the case, the process has well and truly taken off. ▲

# Listed partners of the S3 project

By Jade Albasini

## THALES ALENIA SPACE

The S3 shuttle will also be able to transport human passengers, thanks to the know-how of Thales Alenia Space Italia, a subsidiary of the French group based in Rome. Inspired by the technology used on the Columbus module, a laboratory attached to the International Space Station and manufactured by Thales, the S3 **module** has a capacity of 8 people.



For Bruno Villeroil, financial analyst at BNP Paribas, investing in Thales remains a bold move. “In a highly competitive market, and especially in civil aviation, I would remain cautious. The wager seems a little too risky to me, even though the annual results are convincing”.



Thales Group (Italy)

2012 revenue: €14.2 billion

Sectors: Defence, security, aerospace, transport

Workforce: 68,000+ (in 56 countries) of whom 8,000 are at Thales Alenia Space

✉ HO

## DASSAULT



Swiss Space Systems can count on the expertise of an illustrious partner, Dassault Aviation, created by Marcel Dassault in 1929. The French manufacturer acts as a leading consultant and supplier in the S3 project, focusing in particular on the design of the shuttle’s interior architecture. Dassault also supplies the landing gear and the land-based **flight desk**, based on the one used for the company’s “Neuron” drone.

The group as a whole is a sound investment. “The demand for business aeroplanes in emerging countries is set to boom in the coming years. Dassault Aviation’s share price could therefore climb by 20% in the medium term,” says Nicolas Laroche, an analyst at Crédit Agricole Private Banking in Geneva.



Dassault Aviation (French)

2012 revenue: €3.9 billion

Sector: Aviation

Workforce: 11,600

✉ AM





## ELECNOR

Spanish company Elecnor Deimos, owned by the Elecnor group and a European leader in the space industry, is contributing to the development of the shuttle's navigation software. In 2017, it will also be supplying the S3 project with its "white rooms" – scientific facilities with low particle concentration used in the test phase of satellite launches. But its biggest role in the Swiss project consists in building a **spaceport** in the Canary Islands that will be used as a base for commercial S3 launches starting in 2018. Working on a range of programmes for the European Space Agency, including Exomars, a spearhead initiative in the Mars mission, the technological arm of Elecnor posted revenue of €70 million in 2012. Analysts comment that "the company is set to outperform the market" and recommend buying shares.

Elecnor (Spain)  
 2012 revenue: €1.9 billion  
 Sectors: Aerospace infrastructure, renewable energies  
 Workforce: 12,500 of whom 500 are at Elecnor Deimos

🇪🇸 EK5

## MEGGITT

Meggitt, a UK firm set up in 1947, supplies the biggest names in the aviation industry, including Airbus, Boeing, Embraer, Eurofighter and Gulfstream. The company's Swiss subsidiary, based in Villars-sur-Glâne, produces **sensors** for the S3 shuttle, in other words the monitoring system. The technology developed by Meggitt, known as the Integrated Health Management System, monitors a number of parameters including pressure and temperature. "Meggitt is a wise investment if you take a long-term view," says Sandy Morris, a financial analyst at Jefferies in London.

Meggitt PLC (UK)  
 2012 revenue: £1.6 billion  
 Sectors: Defence and aerospace  
 Workforce: 10,000 (in 40 countries)

🇬🇧 MGGT

### AND...

AERNNOVA (SPAIN)...SENER (SPAIN)...SONACA (BELGIUM)...SPACEAPPLICATIONS SERVICES (BELGIUM)...SPACEPORT COLORADO (USA)...SPACEPORT MALAYSIA (MALAYSIA)... THE VON KARMAN INSTITUTE FOR FLUID DYNAMICS (BELGIUM)

### TECHNICAL ADVISORS

AEROSPACE DESIGNLAB-STANFORD UNIVERSITY...EUROPEAN SPACE AGENCY (ESA)... ECOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE (EPFL)...UNIVERSITÉ CATHOLIQUE DE LOUVAIN (UCL)...BAUMAN MOSCOW STATE TECHNICAL UNIVERSITY

# “Our goal is to open new markets”

The CEO of Swiss Space Systems (S3) talked with Swissquote Magazine at the company's offices in Payerne.

By Ludovic Chappex

Pascal Jaussi is a busy man. The CEO of S3 hasn't taken a holiday since 2007. Instead, he spends almost all of his time working on S3's space shuttle project, the aim of which is to make space access more accessible. We spoke with him at his company's head office in Payerne in December. Welcoming and visibly confident in the future of the project, he filled us in on the objectives and the details.

**SWISSQUOTE MAGAZINE** ▶ Several prestigious firms, including France's Dassault and Spain's Ecnor, are working on the S3 project. How did you bring them on board?

**Pascal Jaussi** ▶ We had to persuade these companies, one by one, of the soundness of our project. Initially I worked on convincing a technical manager in a particular branch, so that he in turn could persuade his boss, and so on, right to the

top of the technical ladder of each firm. The companies in question had to find an interest in working with us. They refused to take risks but said they were ready to come on board if we managed to bring together at the same time all the players needed to complete the project. So we had to work on several fronts at the same time. That first step took over four years.

**When approaching these renowned aerospace companies with their considerable resources, how did you position your small Swiss company as a credible partner?**

To appear legitimate to these companies, the first thing we did was get to fully know their systems and how to use them. After that, it was the idea of putting their technologies to a new commercial use with a new product that convinced them. The fact is, none of these companies alone have

all the necessary parts. Our role is to gather and integrate technologies and make all the pieces of the puzzle fit.

**Did the fact that S3 is based in Switzerland have a positive impact on the outcome?**

Yes, because our partners know that Switzerland is not in a position to put these technologies to questionable use. The neutrality label plays in our favour, as does the country's political and economic stability.

**So if the market exists, why haven't other companies rolled out similar projects?** Very few manufacturing businesses resemble S3, which acts as developer, assembler and operator all at the same time. Our advantage is having considerable flexibility to respond to new opportunities. Giant companies often lack agility. In contrast, we are





#### Pilot, engineer and manager

Pascal Jaussi's career clearly reflects his passion for all things aerospace. The CEO of S3 and licenced airline pilot worked for eight years as a test flight engineer for the Swiss Air Force.

The 37 year old, married, with one daughter, holds an engineering degree from Ecole Polytechnique Fédérale de Lausanne (EPFL) and has also completed Masters degrees at Institut Supérieur de l'Aéronautique et de l'Espace in Toulouse. Today he devotes 100% of his time to the development of the shuttle.

The project originated back in 2005 when Pascal Jaussi joined the Space Centre team at EPFL headed by famous Swiss astronaut Claude Nicollier. The team's objective at the time was to make new use of some of the developments of the European shuttle Hermès, a project abandoned back in 1992. After four years of academic work, the idea of an industrial application emerged, finally leading to the creation of S3.

## “We aren’t in a situation where we have to wait for a technological leap before moving ahead with our project.”

seeing the emergence of a multitude of innovative start-ups in the space sector. But these companies lack money. S3 forms something of a bridge between these two worlds, by placing proven technologies at the service of innovation.

### What advantages do your partners have in working with S3? Can you give us a few examples?

Some of the businesses provide their technology so as to boost their image. Others have joined forces with us because they haven’t found their market yet and are looking to monetise their technology. For example, some large companies have invested in R&D for years and want to capitalise on some of their developments. We offer all these companies a real-life platform and business project.

### How is the project financed?

Some of it by investors, the rest by our partners. Some developments work on a barter-like basis. Businesses and partner institutions lend us engineers or equipment in exchange for a discount on the price of future satellite launches, for example.

You said that the safety level of your system would be higher than that of traditional, vertical launches. How can you be so sure at this stage of the project?

Unlike traditional launches, where you can’t backtrack once the rockets have been fired, our system offers us several “ways out” in the event of any technical problem. Launch can be interrupted at different phases in the procedure. For example, if there is a problem after the shuttle is released from the plane, we will be able to stop the process at any time up to an altitude of 100 km and ten times the speed of sound. The shuttle, which is able to fly, could easily return to Earth and land.

### What’s your biggest challenge at the moment?

One of our challenges is coordinating our work with each partner. But because the technologies already exist, we aren’t in a situation where we have to wait for a technological leap before moving ahead with our project. For example, we don’t have to develop a new engine. This is something that sets us apart from projects underway in the United States. We also have to learn how to work in different languages and with different cultures. This is the first time a project like this has happened in the private sector. When a government launches a project of this kind, it develops a long-term strategy. In the private sector, you need to recoup on your investment in five to eight years.

### Are you finding it easy to recruit staff?

S3 currently has 58 employees. Being based in Switzerland enables a lot of our fellow citizens who had travelled abroad to work in the space industry – and the US in particular – to come back to their country. We haven’t needed to publish a single job ad to recruit staff. The enthusiasm generated in the space sector has been largely sufficient. We receive mountains of CVs from everywhere.

### Where do you place S3 in the leadership race in relation to the huge projects of star CEOs such as Elon Musk’s SpaceX and Richard Branson’s Virgin Galactic? Do the milestones they have announced seem realistic to you?

Whatever the case, these projects have considerable financing. If they manage to do it before us, and if their motivation and enthusiasm opens up a new path, then all the better. Let’s say these companies are clearly better than S3 – even though they started from zero. What they still need to do is show that they can meet their goal with real reliability. At S3, we already have the proven technological solutions of our partners. And if giant companies such as Dassault and Meggit, with their existing technologies, see joining forces with us as a good idea, that’s because it’s not easy for a lone company to manage all the components of a project like this. What I do know is that despite all the expertise of our partners, it is impossible to go any faster.



**Are you on track in terms of your planned development and testing schedule?**

We work in two-year cycles. 2013-2014 is devoted to development, 2015-2016 to shuttle assembly, and 2017-2018 to test flights. For now, we are entirely on schedule and all the indicators are positive for our partners. We are maintaining our objective of an initial commercial satellite launch in late 2018 or early 2019.

**Is the company considering a stock-market listing?**

That option isn't on the cards for now, because we want to keep total control over the project, without being held accountable.

**Concerning passenger transport, which you want to offer at a later stage, what adjustments will need to be made to the shuttle?**

The work concerns the module originally intended to hold the satellite. We are currently developing a pressurised version adapted to passenger transport, working together with our partner Thales Alenia Space. The passenger module, measuring five metres long and three metres wide, will be able to transport up to eight people. The idea is to transport passengers from one continent to another at very high speed but at a reasonable price. The prices that our competitors have announced are exorbitant, but correspond to their gigantic development costs. In our case, the price of a ticket will be closer to that of a business-class airline flight. It will reflect purely the additional development cost

of a pressurised passenger module, as the other costs have already been factored into our business plan for the launch of mini-satellites.

**For S3, what will be the first commercial outlets for passenger transport?**

Medical research in microgravity is an important area. With suborbital flight, a state of microgravity can be sustained for over seven minutes, compared with just 25 seconds in an Airbus. But there are other promising perspectives such as the transport of organs for urgent transplants and high-speed travel for teams of specialists.

**For passenger transport, will the shuttle be piloted by a human being?**

Yes. The shuttle is designed to be controlled from a flight deck on the ground, but the flight deck was developed to be easily transferred to the shuttle itself. We are using technology developed for drones, used successfully by our partner Dassault on its Neuron model. This is a good example of an existing high-performance technology that we are putting to new use in our shuttle.

**Last December you announced the confirmation of partnerships with several Spanish firms. Spain will also be your main base for commercial satellite launches. Why is that?**

Spain was something of a given for us. First of all, because Spanish companies have advanced aerospace expertise, but also because of the geographical location. The Canaries region will serve as our European launch centre

as it offers fast access to the desired orbit. An adapted spaceport will be built there with the help of our partner Elecnor. After that, we will set up a range of operating locations so as to be as close as possible to the customers concerned.

**Where are your main customers located?**

The biggest market today lies potentially in the United States, which is why we set up a subsidiary in Georgetown (Washington D.C.) in October. Forgoing the USA would be a mistake, given the country's advanced innovation in the space sector. That said, our goal is to create and open new markets, which will come with the drastic cut in satellite launch costs. The boom that lies ahead will concern continents that previously lacked access to space, including South America and Africa. So you really can talk about the democratisation of space access.

**Are there any reasons to fear that S3 could be offshored?**

I won't hide from you the fact that we are getting some extremely attractive offers at the moment. But it is very important for us to stay in Switzerland.

**But the offers are likely to become more urgent and attractive the nearer you get to the launch phase. One of your partners could buy you out...**

We will do all we can to stay in Switzerland. That determination is expressed explicitly in the name of our company. It is my responsibility to not listen to the sirens' song. ▲

# Making space for tourists

A cluster of companies led by high-profile entrepreneurs including Richard Branson and Jeff Bezos are vying to make space transport more widely accessible. So who will be the first to send tourists into space?

By Serge Maillard

The race is on to become the first private company to send tourists into space on a regular basis. Of the ten or so players in the running for the prestigious title, three in particular stand out: star businessman Richard Branson and his company Virgin Galactic, Amazon founder Jeff Bezos and his Blue Origin project, and the US-Dutch company XCOR. Upstart Elon Musk, PayPal founder and Tesla electric car pioneer, is also a serious challenger with SpaceX, though astronauts remain the company's priority.

The companies in the race keep pushing back the announced dates of their maiden passenger flights. Richard Branson has become a master in the art, having announced a debut flight for 2009. He now aims to make that happen in 2014. Flight or no flight, Branson has succeeded in increasing the value of his ten-year-old company to \$1 billion through his own investments and ticket sales,

and with a little help from the Emirati fund Aabar, which has invested close to \$400 million in the project.

"Some 660 people have already bought a ticket to ride on Virgin Galactic's SpaceShipTwo," says Jean-Luc Wibaux, director of the Un Ticket Pour l'Espace agency in Paris. "European customers are often space fans, and not necessarily billionaires, while Americans are more interested in joining a club and getting together to network. Space for them is like the new golf."

Virgin Galactic is charging customers \$250,000 for the joy of escaping gravity for a few minutes at a little over 100 kilometres above the earth. That altitude is just above the Karman line marking the frontier of space. In comparison, the International Space Station (ISS), today's main base for professional astronauts, orbits at an altitude some four times higher.

Leading up to the first suborbital space flight, competition on Earth is fierce. The race is also being played out on the semantic front, with a certain dose of intimidation, as expressed in a recent remark by Silicon Valley's rising star Elon Musk, who said that "we are more likely to discover unicorns" than see his rival Jeff Bezos journey to the ISS in a spacecraft.

**In Branson's shadow**  
Each project has its own jealously guarded approach

## Harnessing asteroids

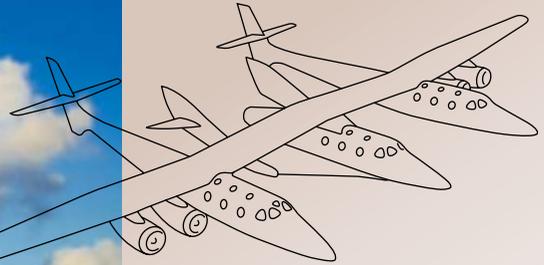


Planetary Resources, a US leader in space innovation, is seeking to exploit the mineral resources on asteroids orbiting the Earth. More than 1,500 of these rocky bodies, made of rare metals, predominantly platinum, are believed to be as accessible as the surface of the Moon. It's a promising idea that could help compensate for the increasing scarcity of certain resources.

BREAN SMITH



Richard Branson  
CEO of Virgin Galactic



#### SPACESHIP TWO (VIRGIN GALACTIC)

Richard Branson's SpaceShipTwo will be sent into space using a carrier plane, breaking free at an altitude of 15 kilometres, with six tourists and two pilots on board. Virgin Galactic has already sold over 600 tickets to space, at \$250,000 apiece.

to space tourism. Virgin Galactic's SpaceShipTwo, with room for six passengers and two pilots, will set off on a carrier plane called White Knight Two, before striking out on its own at an altitude of 15 km to reach the Karman line. The journey is expected to last two and a half hours at Mach 4, or four times the speed of sound.

“Space for them is like the new golf”

Virgin Galactic's space HQ, staffed by some 250 people, is located in the Mojave Desert in New Mexico, a state that is turning into the hub of the new space industry. “The company is developing two carrier planes and five shuttles,” says Jean-Luc Wibaux. In an initial test in April 2013, SpaceShipTwo left the ground – but only for 20 seconds.

Virgin Galactic's most serious rival XCOR, located nearby, is still in the assembly phase with its Lynx spacecraft. Unlike Branson's machine, Lynx does not rely on a carrier plane. It is a single space shuttle with four rocket engines, but which takes off just like a plane and is reusable. However, Lynx can only accommodate one passenger and one pilot. The lucky traveller will have to fork out \$100,000 for the 30-minute flight.



LYNX (XCOR)

Assembled in the Mojave Desert by XCOR, the Lynx spacecraft can transport two people, pilot included. Unlike Virgin Galactic's project, the Lynx does not require a carrier plane for launch. XCOR says the spacecraft will be able to make four flights a day.

“A single failure with a single passenger and the development of the entire business goes down the drain”

XCOR has so far assembled 13 engines and carried out over 4,000 test firings. “Like Virgin Galactic, they announced their first tourist flight for the third quarter of this year. I see them as credible, because they manufacture a lot less free buzz than Richard Branson and generally think things through before making an announcement. It's a more measured approach, even if they are neck and neck,” says Chad Anderson, head of European operations for the US-based Space Angels Network, which



MAX S. GERBER

Jeff Greason  
CEO of XCOR

promotes investments in the space industry.

“Date-wise, I’ll leave it to Sir Branson to assume the consequences of his marketing approach,” says Jean-Luc Wibaux. “It’s a revolutionary engine, requiring a lot of tests. Six years ago, when I said that the first flight would be made in 2015, people called me a pessimist. But that’s what we’re heading for.”

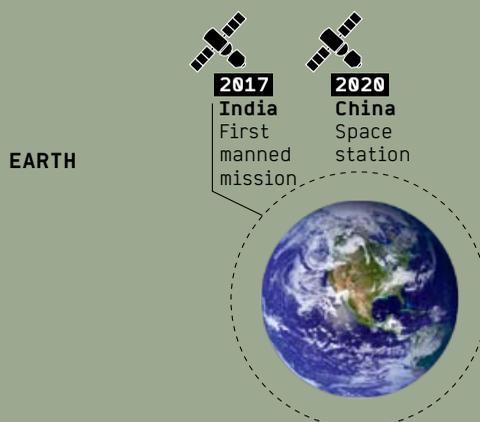
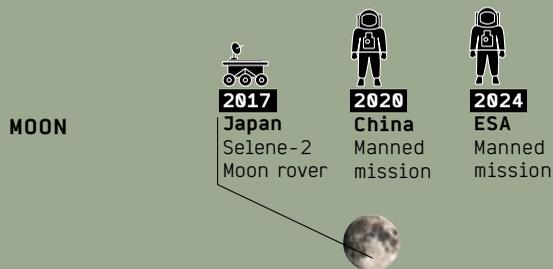
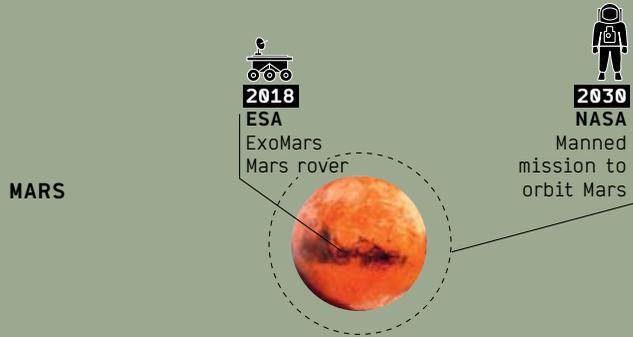
Meanwhile, Amazon chief Jeff Bezos is also doing the exact opposite of Richard Branson in terms of communication, giving almost nothing away on his spacecraft, the New Shepard. No launch date has been announced. All we know is that the shuttle will be reusable. An initial craft exploded – with no one on board – in a test flight in 2011, showing just how tough the task is. “The situation today is extremely competitive, with several leading projects fighting it out,” says Michael Lopez-Alegria, former NASA astronaut and ex-commander of the ISS.

## Gardening on the Moon

NASA hopes someday to start growing plants on the Moon. The US space agency is reportedly trying to germinate seeds in an airtight, sunlit chamber. It is receiving support from private companies participating in the Google Lunar X Prize, a space competition with a \$20 million purse. The experiment will shed light on whether future moon settlers will be able to farm their new home.

## Major government projects

The private sector isn't alone in the conquest for space. Several governments are also in on the action. Newcomers are getting involved, and missions now have their sights on Mars.



## Life on Mars



Data collected from Mars by the science laboratory rover, Curiosity, has confirmed the potential for life on the planet. Four scientific papers conclude that the Martian environment may once have supported a primitive form of life. Likewise, alien life may exist on the moons of Jupiter, particularly Europa. Researchers believe a vast ocean is hidden under Europa's ice layers. The JUICE exploration mission, scheduled to launch in 2022, will reach Europa by 2030 in the hopes of uncovering its secrets.

### THE QUESTION OF SAFETY

So how big is the budding market? In 2012 Tauri Group, a research company specializing in the space industry, put the number of potential customers at a minimum of 8,000. "If the first flights happen soon, the suborbital flight market could be worth \$600 million in the next decade," says Michael Lopez-Alegria. "But the potential is even greater."

Several hurdles need to be cleared before that happens. Chief among them is regulation. In the United States, flight certification is granted by the Federal Aviation Administration and requires at least 20 propulsion tests. The situation is not as far along in Europe, where for now no official regulatory body exists for private space flight.

The reason behind many of the delays is that manufacturers want to rule out any chance of a failed first launch, which

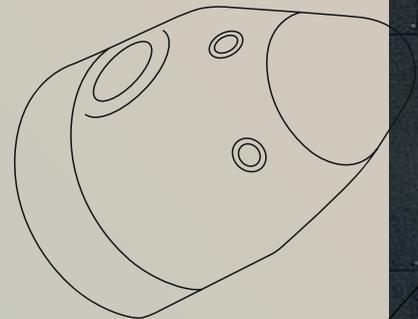
could nip the market in the bud. After all, space remains a dangerous environment, and sending non-professionals there calls for a number of firewalls. "Safety comes at a high cost," says Lino de Faveri, head of industrial affairs at the Swiss Space Office. "The idea is to make the industry more accessible, as EasyJet has done in commercial aviation. Yet EasyJet is no less safe than Swiss, since both use the same standard aircraft. For space flights, on the other hand, special technology needs to be developed. A single failure with a single passenger and the development of the entire business goes down the drain."

## NASA is now looking to call on the services of private companies able to launch craft into space

The main risk lies in the rocket engines used by the space shuttles. Unlike jet engines, rocket engines

consume fuel stored on board because the amount of oxygen is too low for conventional propulsion at altitudes over 100 km. And so the system is highly explosive. Before being able to fly a single tourist into space, the industry is already in mourning, following three deaths in an engine explosion at the Virgin Galactic assembly site in 2007. With rockets, "you can't issue a recall or do a patch... You either get it all right or you're screwed," Elon Musk said recently.

Meanwhile, Richard Branson recently admitted in a BBC interview that suborbital journeys "weren't for the weakest among us." Before



NEW SHEPARD  
(BLUE ORIGIN)

Amazon founder Jeff Bezos is working on his Blue Origin project in the utmost secrecy in a secluded part of Texas. All we do know is that the New Shepard capsule will be launched using a reusable, vertical-propulsion module.

ANDY ROBBERS / KEYSTONE

heading off on the cosmic roller coaster ride, passengers will have to train intensively. "After three days of simulations, they will be able to decide whether they want to go or not," says Jean-Luc Wibaux. The "weakest" can always fall back on less vertiginous projects, such as the space-travelling stratospheric balloon under development by Barcelona firm zero2infinity.

### Private replaces public

Despite Richard Branson's best intentions, his passengers will not be the first space tourists. That honour goes to the seven millionaires who have already sojourned on the ISS since

2001, including the American Dennis Tito and Cirque du Soleil founder Guy Laliberté. With ISS trips now a thing of the past, the private sector is taking over. Above and beyond tourism, an entire industry is opening up to

## Space motels

Several projects are afoot to develop space hotels for big-name guests and researchers on assignment. US firm Bigelow Aerospace intends to rent space modules orbiting 370 km above the Earth for €20 million per two-month stay. The modules in question are inflatable capsules. Here on planet Earth, the founder of the

company, entrepreneur Robert Bigelow, made his fortune with the Budget Suites of America hotel chain. Two space hotel prototypes, called "Genesis", have already been put in orbit. In January 2013, NASA announced it would pay Bigelow \$18 million for an extension to the International Space Station between now and 2015.

new players in the shadow of NASA and Soyouz craft. The new space race is a reality, first of all for financial reasons. Under Obama, the US government has drastically cut its public space budget. ISS-bound shuttles such as Columbia have proven extremely expensive. NASA is now looking to call on the services of private companies able to launch craft into space.

The void left by this shift has naturally attracted entrepreneurs from Silicon Valley, young and wealthy individuals such as Musk and Bezos, hungry to take on new challenges. "As has been the case with other sectors, the government has shown the way by opening up new frontiers. We are in this period of transition," says Michael Lopez-Alegria.

Michael Lopez-Alegria, former astronaut and US record-holder for the longest space flight, at 215 days, now heads the Commercial Spaceflight Federation, which represents the interests of the new space industry in Washington. Grouping some 50 members, including Virgin Galactic,



Jeff Bezos  
CEO of Blue Origin

## X Prize, the contest that started the race

At the origin of Richard Branson's Virgin Galactic space tourism project lies a brilliant engineer, Burt Rutan. The founder of Scaled Composite, the company that produces the SpaceShip craft, is best known for winning the X Prize back in 2004. The contest, launched in 1996, offered \$10 million to the first private business able to launch a manned craft into space. Burt Rutan pulled off the challenge with SpaceShipOne,

the first private experimental plane to fly at an altitude of over 100 km. Some 27 teams around the world took part in the contest, which served as a catalyst to the present-day development of space transport by demonstrating that the private sector possessed all the expertise needed to take on the challenge. The competition was inspired in particular by the 1919 Orteig Prize, which led to the first transatlantic flight by Charles Lindbergh.

Blue Origin, XCOR and SpaceX, the organisation lobbies for the credibility of the new alternative, seen largely as an "industry on paper" by old space pros.

"Above and beyond the competition between our members, we are a big family, with a common agenda," says Michael Lopez-Alegria. "If the space transport industry is to break through one day, we need to work together and share expertise. The market also needs new laws." The emerging actors in this industry are working together to strike the right balance, adds Chad Anderson: "Regulation shouldn't be so severe as to prevent everyone from flying, but neither should it be so lax that everyone can do it..."

### SPACE X, THE MOST AMBITIOUS

After tourism, the new players are looking at a number of other uses for their future shuttles. For example, scientists should be interested in the democratisation of space access, which will enable them to carry out research in

low orbit at an affordable cost. Some companies, XCOR and Switzerland's S3 among them, also envision the replacement in the long term of regular planes by shuttles, able to travel from London to Hong Kong in 90 minutes by going into low orbit. The airline KLM is already a partner of XCOR.

The US firm Bigelow Aerospace has developed a system of inflatable capsules that could replace the ISS. "The ISS today is home to just three Russians, two Americans and an astronaut from another country. Scientific presence in space has to be opened up to other nationalities, through this kind of project," says Chad Anderson. Bigelow's project would also be open to tourists, in the shape of "space motels" (see box on page 47).

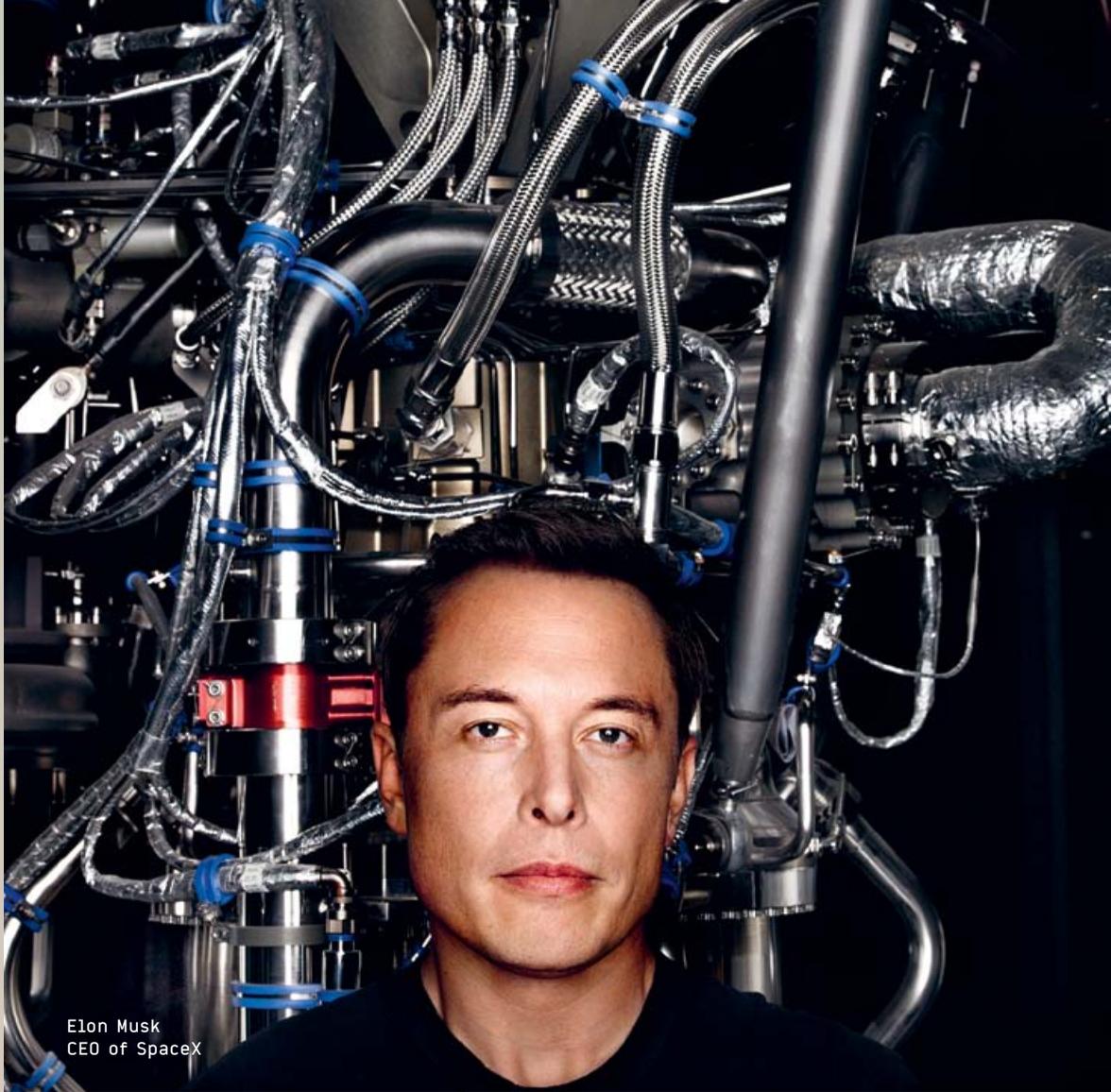
But the most ambitious space entrepreneur, the one all eyes are riveted on, is Elon Musk, at the helm of SpaceX. The firm, set up in 2002, won NASA's Commercial Orbital

Transportation Services contract for supplying equipment to the ISS. Its Falcon 9 rocket has already powered the Dragon shuttle, unmanned, to the space station three times. SpaceX signed a \$1.6 billion contract for 12 cargo flights over several years.

SpaceX is also in the running to win another NASA contract, this time on transporting astronauts to the ISS. US astronauts currently have to hitch a ride on Russian Soyuz shuttles launched from Kazakhstan. The deal is worth over \$400 million a year. Washington doesn't necessarily disapprove of a private company entering into the industry. SpaceX is competing against two other contenders for the contract: the giant Boeing and a new company, Sierra Nevada, which is developing a miniature space shuttle called "Dream Chaser".

Elon Musk says the first manned Dragon flight will be made in 2015, with as many as seven astronauts on board. But for Musk, supplying the ISS is just one step towards a more ambitious goal: Mars. In the lobby of the SpaceX head office in Hawthorne, California, hang two pictures of the planet, one red and one green. The second holds the most interest for the entrepreneur, who intends nothing less than to colonise Mars. "Either we spread Earth to other planets, or we risk going extinct," he said recently in an interview. "We want to have a future where we're out there exploring the stars." Is it any coincidence that PayPal,





ART STREIBER / AUGUST

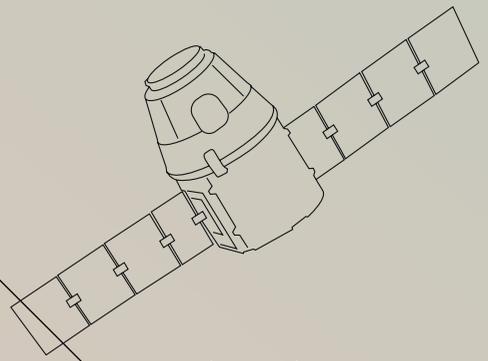
Elon Musk  
CEO of SpaceX

co-founded by Musk, recently announced its intention to launch the very first “intergalactic currency”?

“Musk is not alone in this somewhat mad project,” says Chad Anderson. “The Dutch company Mars One wants to offer one-way tickets to Mars using SpaceX craft. It recently signed a contract with Lockheed-Martin and hundreds of people are already committed to the project. They see it as a new conquest of the West.” Organised like a reality TV contest, with the victorious

candidates winning a ticket to Mars in 2025, the initiative has already attracted applications from over 200,000 people.

In February 2013 the first space tourist, Dennis Tito, announced his intention to organise a mission taking two astronauts into orbit around Mars for two years. Departure is planned for between now and 2018 using the SpaceX shuttle. It would seem that once you’ve developed a taste for space, it’s hard to put your feet back down on the ground... ▲



DRAGON (SPACEX)

Powered by the Falcon 9 rocket, Elon Musk’s Dragon delivers cargo to the International Space Station (ISS) for NASA. The next step will be transporting astronauts to the ISS.

# The small satellite market takes off

Satellite manufacturers are successfully shrinking their products, making them much less expensive to operate. The development has pricked up the ears of multinationals and hedge funds looking to monitor their activity from space.

By Serge Maillard

“Many of the activities requiring a standard satellite can today be done with miniature machines.” For example, the UK firm SSTL, a pioneer in the field bought out by EADS in 2008, has developed metre-precise Earth imaging resolution from space. “We wouldn’t have been able to do that ten years ago because it would have required very large satellites,” says Phil Davies, head of business development at SSTL. As in other industries, satellite technology is becoming lighter, smarter and more frugal on energy.

In standard industry terms, “small satellite” refers to machines weighing less than a tonne. “Pico” satellites weigh between zero and one kilogram (such as the “Swiss-Cube”, Switzerland’s first-ever satellite launched in 2009 by EPFL for 600,000 Swiss francs using an Indian rocket), while “nano” satellites weigh in at between one and ten kilos, “micros” between ten and 100 kilos, and “minis” from thereon up to a tonne. The average weight of an SSTL satellite is 150 kilos, but, says Phil Davies, “We also build satel-

lites weighing 400 to 600 kilos. In all, we’ve launched 41 satellites in just under 30 years.”

The slim-down approach has enabled the satellite industry to generate major savings, since each kilo sent into space corresponds more or less to its weight in gold. The launch in late 2013 of the European Space Agency’s Gaia satellite telescope, weighing just over two tonnes, cost the tidy sum of €740 million, while the launch of a small satellite by and large remains under the €1 million mark.

## A SECTOR IN RENEWAL

Some highly sophisticated activities such as astrophysics and telecommunications will no doubt continue to use large satellites for some time to come. But others, starting with Earth imaging, are opening up to manufacturers of small satellites.

“Based on our analysis, the satellite sector is the number one market for players in the new space industry, far ahead of launch providers or human space transport. We estimate this market at approximately

\$200 billion,” says Richard M. David, co-founder of NewSpace Global, a New York-based information service provider that tracks over 600 companies in the new space industry. NewSpace Global analysts note a “higher than anticipated” growth in the small satellite sector.

Meanwhile, the firm, Euroconsult, expects over one thousand satellites to be built between now and 2021, a full 36% more than in the last decade and a figure not seen since the end of the 1990s, when the first generation of satellites launched for cell phones led to a boom across the segment.

## BIG DATA PLAYERS

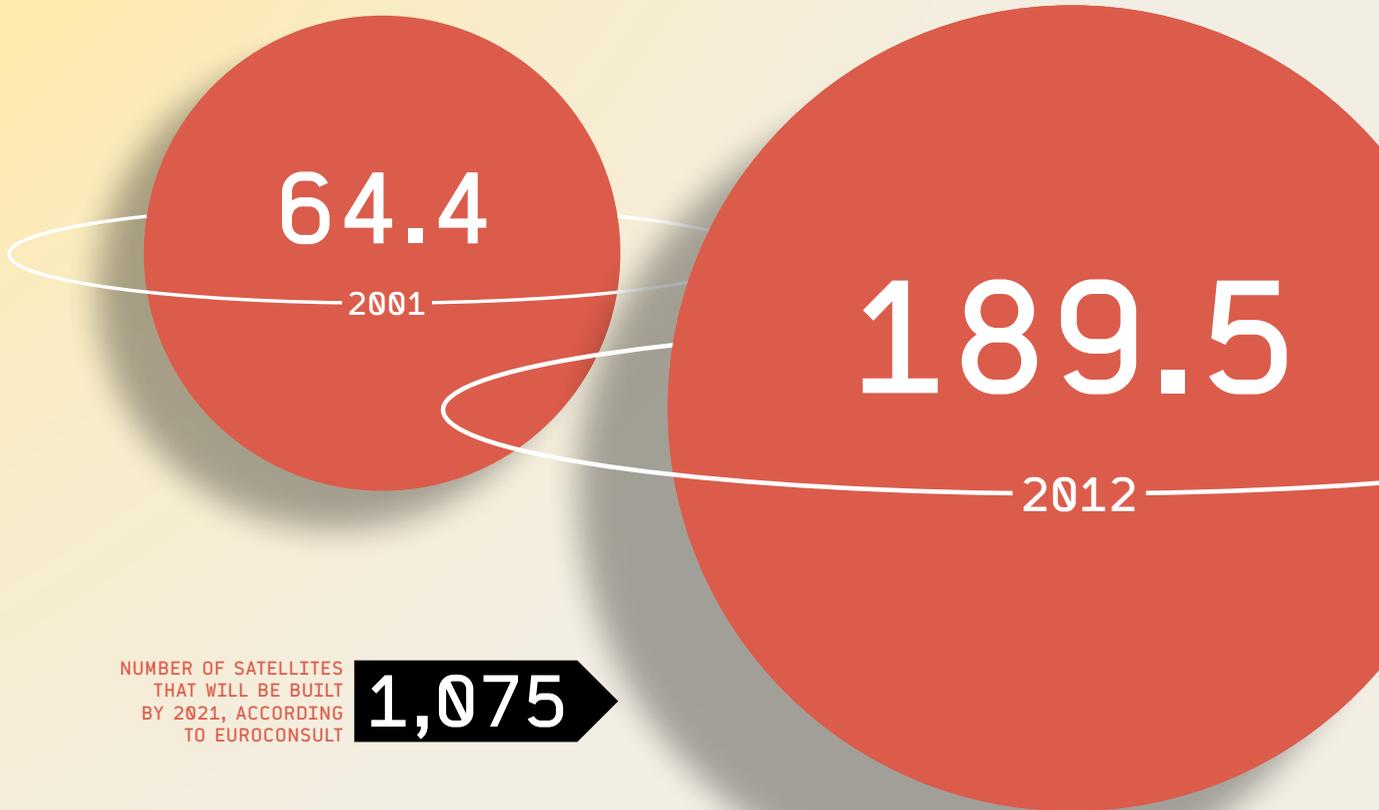
While satellites are getting smaller, the customer base is growing broader. Customers include scientists and government bodies, who use small satellites for research, agricultural surveillance and air traffic monitoring. But demand is coming increasingly from private customers attracted by the growing affordability of the sector.

“There is no better way of understanding what is hap-

# THE SATELLITES INDUSTRY IS TAKING OFF

Revenue in the sector has nearly tripled since 2001, with average annual growth of approximately 10%.

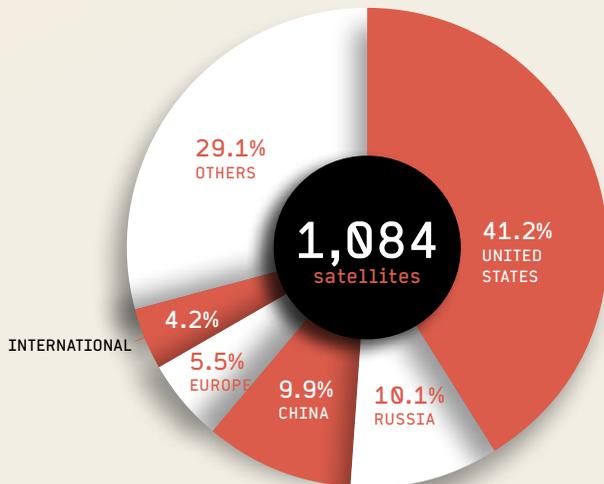
REVENUE OF THE SATELLITES INDUSTRY  
In billions of dollars



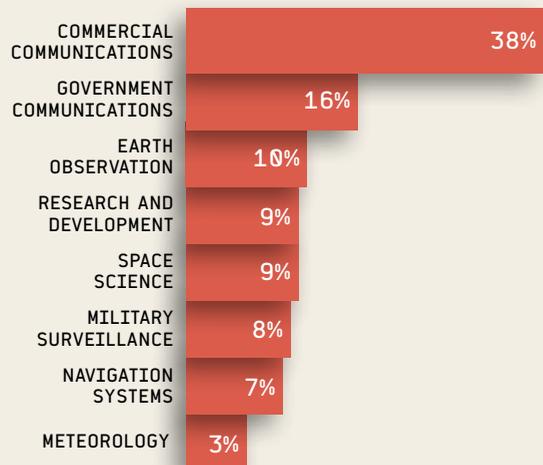
NUMBER OF SATELLITES THAT WILL BE BUILT BY 2021, ACCORDING TO EUROCONSULT

**1,075**

SATELLITES IN ORBIT...



...AND THEIR FUNCTIONS



SOURCES: UCS SATELLITE DATABASE, SATELLITE INDUSTRY ASSOCIATION (SIA), EUROCONSULT

pening on our planet than observing it from space,” says Richard M. David. “Banks and hedge funds are now using this information for their investment strategies. As are mass retailers, Walmart included. The new tools can be used to count cars in car parks and monitor sea and air trade flows along with truck and train freight. I know an analyst from UBS who uses this information.”

## “In my opinion, Boeing has yet to pay sufficient attention to this market”

“What we are selling here is not just images, but information with high value added, such as the amount of fertiliser a farmer needs, or forecasts on annual harvests, which impacts the price of wheat on the stock markets,” says Phil Davies from SSTL. Manufacturers generally sell the images on to intermediaries, who process the data before supplying it to a range of private and public customers.

“One of the biggest such intermediaries, The Climate Corporation in San Francisco, which sells farming insurance on the basis of this information, was recently taken over by agri-food giant Monsanto,” says Richard M. David. Monsanto paid over €1 billion for the company. “All these businesses are taking advantage of the growing market

of ‘big data’ processed through earth observation satellites.” The information is also invaluable for large oil and gas companies, whose pipelines snake across the globe.

### PLANET LABS ATTRACTS INVESTORS

Many of the players moving into the market are based in Silicon Valley. One of the best known is Planet Labs, a company founded by three former NASA researchers. The San Francisco firm recently raised over \$50 million to build small “dove” satellites weighing around five kilos that take high-resolution pictures of the Earth. Their target audience is scientists and companies looking to assess the scale of climate change and the impact on agriculture and deforestation. More than 30 such satellites have already gone into orbit.

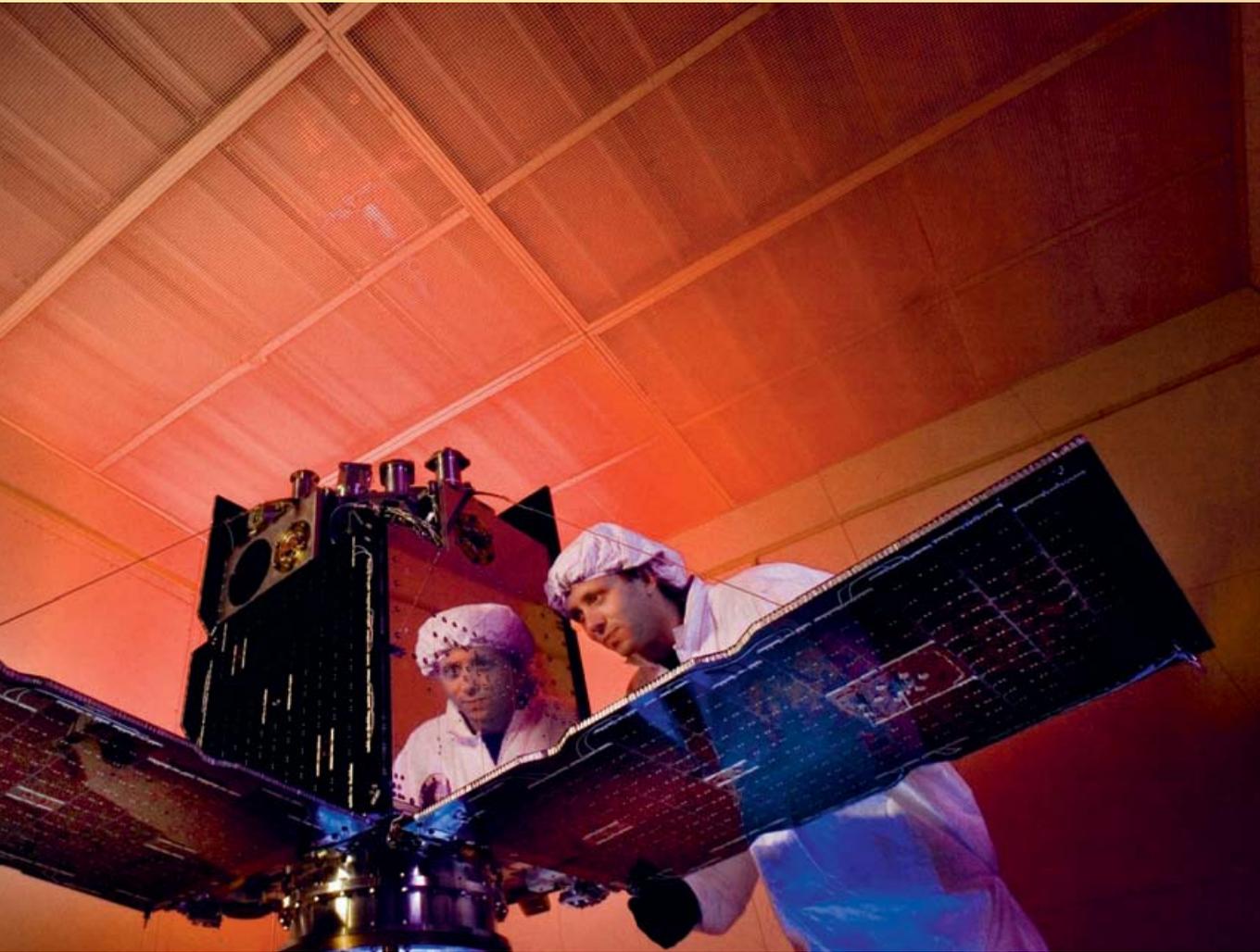
Another company active in the niche market, though with heavier satellites, is the start-up SkyBox Imaging, which has already raised \$91 million. Last December, it launched its first small satellite, SkySat-1 (100 kg) on the back of a Russian rocket. “To our knowledge, SkySat-1 is the smallest satellite ever flown that is capable of capturing imagery at better than 1 meter resolution,” said the company in a corresponding press release.

The Californian start-up NanoSats develops nano-satellites called ArduSats enabling a broad public to carry out experiments in space. The company’s main targets are universities



and students. “We want to contribute to the move to make space accessible,” says founder Peter Platzer. “It is vital that science students be able to carry out their own tests in the cosmos.”

So where do long-standing satellite customers such as Boeing stand? “They are also looking at miniaturisation and have a few projects, but they are waiting to see whether these small firms will really open up a new market,” says Chad Anderson from the



Assembly of a small satellite by Surrey Satellite Technology Ltd (SSTL). The UK firm was bought out by EADS, a sign that large companies are becoming more interested in the sector.

US-based Space Angels Network. He would not be surprised to see the big manufacturers move into the niche market in the coming years. "We can already put a lot of technology in small satellites. In my opinion, Boeing has yet to pay sufficient attention to this market."

#### BREAKTHROUGH TECHNOLOGY

But the big companies are starting to show interest, as seen by the EADS takeover of SSTL. "They realise that they don't have the skills in-

house to build small satellites," says Peter Platzer. The NanoSatisfi founder sees small satellites as meeting the criteria of "breakthrough technology", meaning they have the capacity to replace existing technology. "It's just like when the personal computer replaced the typewriter in the 1980s."

"Today we are reaping the benefits of the hundreds of billions invested in R&D by the IT, robotics and surveillance industry in the 2000s.

We are using their innovations on our satellites," says Peter Platzer. The emergence of standards on dimensions and weights enables researchers to coordinate their work and develop compatible parts. The growing number of projects is also encouraging research. "More nano-satellites have been launched in the last three months than in the preceding seven years," says Peter Platzer. As the technology becomes more widely available in the decade ahead, the sky will no longer be the limit. ▲

# Skirts, dragons and tweets can be economic indicators

The economy abounds with peculiar statistical tools for measuring activity and, in some cases, predicting crises. These tools have recently come into wider use for monitoring social networks and search engines. Here are some of the strangest.

By Matteo Maillard

## R-Word Index

The weight of words



Silence may be golden when recession looms. A study by *The Economist* showed that crises coincide – and even deepen – with the regular use of the word “recession” in the press. In 1981, 1990 and 2001, the index, which measures the occurrence of the R-word in *The Washington Post* and *The New York Times*, showed that the more the word is used, the closer the crisis.

Source: *The Economist*

## Hemlines Index

Skirt length, a bellwether of economic crisis



For economist George Taylor of the Wharton School, the shorter the skirt, the stronger the economy. This surprising observation, sometimes criticised for frivolity has nevertheless been confirmed by several studies since it was created in 1926. According to Taylor, skirt length follows fluctuations in the market and can be used to predict economic performance in the year ahead. The Hemline Index is calculated by measuring skirt length as a percentage of the distance from floor to waist.

Source: George Taylor, Wharton School, University of Pennsylvania

## Big Mac Index

Purchasing power



This indicator of purchasing-power parity (PPP), created by *The Economist* magazine in 1986, measures countries' inflation rates and competitiveness, using the McDonald's Big Mac. Identical throughout the world, the burger is an excellent tool for comparing currencies and determining whether they are undervalued or overvalued against the dollar.

Source: *The Economist*

## Google Trend Index

Seeing the economy through search requests



With over 8 billion daily queries on its search engine, Google decided to use this mass of data to observe trends. It created an index that can track, and sometimes predict, market gyrations by monitoring the queried terms. Google compares the number of searches on a given topic with the total number of searches. Available online, the tool tracks several sectors of the economy, from automobiles and luxury goods to real estate and tourism. For now, the index monitors searches from the US version of the site only.

Source: *Google Domestic trends, Business Insider*

## Twitter Index

Using tweets to decipher markets



Tweet calmly, otherwise you might spook the markets! Indiana University researcher Johan Bollen measured the mood of Twitter users by tracking the words tweeted on the social network. Using the Google-Profile of Mood States algorithm, which combines several indices, he grouped the words into six mood categories: happiness, kindness, alertness, sureness, vitality and calmness. Looking at a sample of 9.7 million tweets posted between March and December 2008, he found correlations between the daily changes in the GPOMS indices and fluctuations on the Dow Jones Industrial Average. The results are astounding. The calmness index correctly predicted the position of the Dow Jones two to six days into the future, with 87.6% accuracy. According to Bollen, there are no economic or behavioural mechanisms at work here. Calm tweets merely reflect investor confidence.

Source: Johan Bollen, *Switched.com*

## Skyscraper Index

Bearers of bad tidings



Up goes a skyscraper, down comes the economy. That's the theory posited in 1999 by US economist Andrew Lawrence, then head of research at Dresdner Kleinwort Wasserstein. Backed by numerous studies, the index reveals a remarkable correlation between the ends of economic cycles and the construction of high rises, which are harbingers of recession. Skyscrapers such as the Empire State Building, the World Trade Center and, more recently, the Burj Khalifa tower in Dubai have all proved the index correct, since their construction coincided with recessions in their home countries. This June, work will start in Changsha, China, on the Sky City building – soon-to-be tallest tower in the world, at 838 metres. Should markets be scared?

Source: Andrew Lawrence, Mark Thornton, *Barclay's Skyscraper index*

## Year of the Dragon Indicator

Symbol of good luck



The dragon is the most popular Chinese zodiac sign. It embodies ambition, personal success – and the promise of excellent returns for investors. The explanation for this surprising reality is that many people decide to marry, buy a house or have children in the Year of the Dragon. That's why 1976, 1988, 2000 and 2012 all coincided with a market upturn, particularly in Asia. The Dow Jones Industrial Average has gained an average 7.7% in dragon years since 1900.

Source: Dow Jones Industrial Average, *The Economist*

## Men's Underwear Index

The great cotton oracle



Be it boxers or briefs, men's underwear is a staple that sells fairly regularly. In normal times, that is. In times of crisis, though, men tend to forgo buying undergarments as a way to save money. Former US Federal Reserve Chairman Alan Greenspan is known to monitor the MUI to identify periods of recession. The longer men go without buying new underwear, the worse the crisis will be.

Source: Alan Greenspan, *Mintel Group*



# Harley-Davidson looks East

More than a century after its creation in a log cabin in Milwaukee, the sole remaining US motorbike manufacturer is a time-proof legend. The brand's future now depends on winning new sales in Asia.

By Jean-Christophe Piot

A famous scene from the 1969 American film *Easy Rider*. Harley-Davidson is among the ten best-known US brands worldwide.

With their guttural roar, oily fragrance and love of open spaces, the world's most famous two-wheelers have been the ride of choice for mechanic-savvy enthusiasts, rural Midwesterners and the police for over a century. Their iconic status has been sanctified by Hollywood and rock culture. From Peter Fonda's chopper in *Easy Rider*

to Hunter S. Thompson's LSD-fuelled reporting and Arnold Schwarzenegger's wheels in *Terminator*, Harley-Davidson has carved out its spot in the pantheon of US and global myth. Harley-Davidson today is one of the top-ten most recognised US brands worldwide alongside Coca-Cola and Disney. Harley-Davidson was quick

to align its strategy with the unfailing attachment of consumers to its values and image. The brand's community-based marketing approach – one that could even teach Apple a lesson or two – is based on the loyalty of an extremely tight network. Harley-Davidson Owner Groups, or "HOGs", have over one million bike-riding members



worldwide. Each club, generally tying in with a local dealership, organises group bike rides for members and cultivates a deep feeling of belonging.

“These bikes make striking up friendships at a red light entirely possible,” says Romain Bellina, a young Geneva resident who has been

in love with the brand since his childhood. He recently bought his first Harley at the age of 24. “Harleys have a sound, look and smell unlike any other brand.” Like the oil drop-shaped fuel tank, the famous V-Twin is a legend unto itself. It is the V-shaped dual cylinder engine, invented in 1908, that gives out that distinctive throb,

**In figures**

**7,900**

The number of Harley employees worldwide.

**28%**

The brand's market share in the US, behind Honda with 35%.

**46**

The average age of a Harley owner.

**5**

In billions of dollars, Harley revenue in 2012.

**19%**

The percentage of Harleys owned by women.

EASY RIDER / COLUMBIA

the unique Harley sound. And there is nothing anecdotic about it. In the 1990s Harley-Davidson fought in vain to file a patent on the “potato-potato” sound that over time has become the brand’s special sound signature, as characteristic as its famous “Bar and Shield” logo. Introduced in 1910 and unchanged since, the logo, featured on clothing, helmets, mugs and jackets, alone generates nearly 5% of the brand’s revenue.

**HELP FROM THE REAGAN ADMINISTRATION**

Over the years, Harley-Davidson has been through some hard times, for a number of reasons. While it was one of the few motorbike brands to survive the 1929 crash and was saved by US army orders from 1939 to 1945, the brand faced a near-fatal threat in the 1970s and 1980s, this time directly linked to its identity.

Adding to the decline of the motorbike market following the two oil crises, new rivals, namely Honda and Yamaha, were appearing on the scene.

**The company even has a jury of Harley owners approve the sound of each new model before it goes into production**

After making the mistake of scorning what it called poor copies, Harley scraped through the 1980s by drastically cutting production costs and laying off 40% of its workforce. It also received much-needed help from the Reagan administration, which raised taxes on imported Japanese bikes by 50%.

The Milwaukee-based company found it hard to strike a balance between the emergence of new norms and the requirements of an aging, almost exclusively male clientele. “As with all very strong brands, change is becoming difficult,” says Harvard professor Susan M. Fournier. “If you change your product too much, you risk losing your identity and

forgetting the reasons why your customers like you.” If Harley failed to change, the risk was that it would not attract new customers and die out along with its last fans. Floated on the stock market in 1986, the brand sought in the 1980s and 1990s to maintain a balance between tradition and innovation and to make changes without losing its soul. The company reached out to young people by developing faster and sportier bikes, with the Buell brand in particular. Technological innovations remained cautious, apart from the switch to a liquid-cooled engine, which at first upset the purists, but whose excellent quality finally won over the more pragmatic of the brand’s faithful.

Robust and resilient, new Harley models feature original Harley quality, drawing on the roots of a brand that makes popular and reliable bikes. “That’s the big strength of Harleys,” says Romain Bellina, a born mechanic. “They cost more to buy but their mechanical simplicity

**..... Analyst’s recommendation.....**

**“A very strong brand image”**

Harley-Davidson, floated on the NYSE in 1986, has a lot of appeal for financial analysts, for whom the company’s longevity proves its ability to adapt to cyclical trends. The big financial firms describe Harley as a company with “a very strong brand image” and a leader in its domestic market. While they still see the aging demographic of its customers as a problem in the long term, all

of them applaud the manufacturer’s efforts to limit its US market dependency.

In the short term however, Morgan Stanley observes that Harley still makes 70% of its sales in the US and that the stock price will depend above all on the state of the US economy – particularly on the unemployment rate, credit access and the used-bike

market. Morgan Stanley thinks that Harley will beat its annual revenue record, set in 2006, but will not meet its objective to generate 40% of sales internationally by 2017, partly because of the lacklustre European market and aggressive pricing from rivals. J.P. Morgan is expecting a rise in the share price to \$70 at end-2014 compared with \$62 at end-2013. Morgan Stanley’s most optimistic forecast is \$80.



## A Harley for Pope Francis

In a story that testifies to the symbolic power of the Wisconsin brand, last summer over 40,000 Harley-Davidson believers came together in Rome to celebrate the brand's 110th anniversary. The event featured parades, exhibitions and concerts. But the highlight came when Pope Francis blessed the Harleys of 1,400 bikers in Saint Peter's Square. The day before, the same bikers had offered the Pope two recent models imported directly from Milwaukee. While the Pope has since sold one of the models for the benefit of a charity organisation, everything leads us to believe that he has held on to the other.



STEFANO RELLANDINI

makes maintenance easy and cheap and extends their lifespan." The lesson of the 1980s has been learned. The brand is now keen to infuse a Harley image and spirit into all of its models, with a distinctive look, chrome-finished engine block and V2 engine. The company even has a jury of Harley owners approve the sound of each new model before it goes into production.

And while the average age of Harley customers remains an issue, the solution could well come from the East. Under a system akin to controlled appellation, all Harley parts are produced in the United States, with assembly alone sometimes assigned to off-shore plants, particularly in Brazil.

### OFFICES IN SINGAPORE

Long a prisoner of the US market, the brand exported a full 40% of its production in 2013. Business is especially brisk in South-East Asia, which already accounts for 25% of Harley's export revenue. To further this growth, the manufacturer opened new strategic offices in Singapore in 2012 to directly manage the Asia-Pacific market. The aim of this mini-revolution is to generate 40% of retail sales in Asia by 2014. To that end, the company is developing lighter bikes with capacities of 500 cc to 750 cc, much smaller than its emblematic models. Yet another mistake in the eyes of purists, this downsizing approach, aimed at attracting more young people and women, is fully in line

with the brand ethos. As Anoop Prakash, Harley-Davidson managing director in India, recently said, "It's not just a bike you're buying, but a certain idea of freedom." The company now has 13 distributors in the country.

Covering India, China, Singapore and other countries in the region, the strategy of the Milwaukee business is proving successful. Exports are going strongly, with a near 10% rise in growth rates. But a single anecdote says more than the figures: Harley recently opened a dealership in the centre of Saigon. The move reflects the power of a brand that first arrived in Vietnam in the 1960s with the US army. ▲

✉ HOG



# GOVERNMENT INTERVENTION AND THE FREE ECONOMY

Quantitative easing measures have been multiplying across numerous countries. These policies are often bound to fail.

Quantitative easing—or QE—is a monetary policy with which anyone involved in the financial markets is, by now, familiar. Simply put, the objective of QE is to lower yields across the maturity spectrum. The US Federal Reserve and the Bank of England are the most recent proponents of QE, despite the technique's poor results in Japan over the last decade. With the Federal Reserve now widely believed to be ready to begin tapering, but the Japanese back in QE full swing, we look at the implications of government intervention and consider whether markets are more vital when left free to fluctuate without manipulation.

Japan's recent experience with quantitative easing is the most stark example of the policy's failure. Despite experimenting with multiple variations of QE, the Japanese economy has not evolved out of a low/negative inflation environment. The key

question that arises, then, is: does quantitative easing amount to market manipulation and, ultimately, central planning, both of which are inconsistent with a capitalist market philosophy in which weak economic agents should be eliminated through failure. By altering the yield available on government bonds there is inevitably a knock-on effect on all other markets, causing price dislocations that can be at odds with the fundamental backdrop. This tends to lead to a misallocation of capital. In fact, for the entire QE process to succeed, we would have to assume that government is the best allocator of capital, which in turn implies that a capitalist market is in favour of central planning, the base case of communist governance. And so, there is a clear contradiction at work when capitalist economies engage in QE.

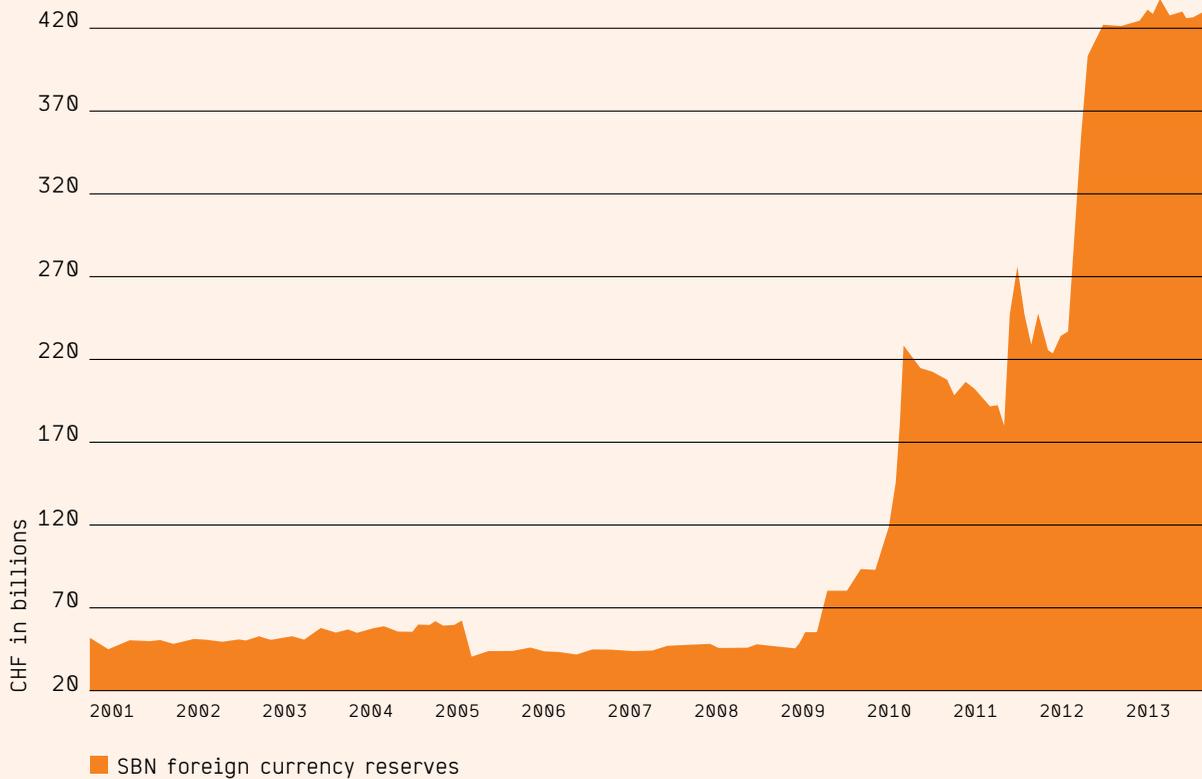
Manipulation is not, however, isolated to the bond market.

Currency intervention is widely advertised and practiced by, amongst others, the BOJ and the SNB. At the height of its market interventions, the SNB was hyper active in attempting to maintain the floor in EUR/CHF. So much so that they started to recycle the Euros they were buying, back into the Australian dollar, forcing the Aussie higher. This was done at a time when the Australian economy was itself weakening, and could have benefited from a lower exchange rate.

The end result of this type of manipulation? The methods that have led asset managers and investors to allocate capital efficiently are becoming blunt tools. These techniques rely on efficient and ultimately free markets.

Due to such pervasive government intervention, once tried-and-true market principles are becoming less and less applicable. In essence, constraints are being placed

A twofold increase in reserves since 2011



on the free market which are inconsistent with the economic structure that is believed to be in place. Whether a market participant trades from a quantitative or a fundamental starting point, they will expect certain parameters in their analysis to remain stable within their investment horizon. In either case, this is becoming more and more difficult to achieve: governments may alter the rules as they please, reducing the predictability of asset returns. As a result, some market participants are withdrawing funds and returning them to investors; or, in

the worst cases, they are exiting the asset management arena entirely. Any such exodus makes markets less liquid, and even more susceptible to manipulation.

It would seem that market manipulation has been used to avoid the economic implications of a vast debt overhang in the developed world—with potentially undesirable end results. It is possible that the only achievement of market manipulations, such as QE, will be to have delayed knowing the truth about flailing or failing economies—and in so doing, to

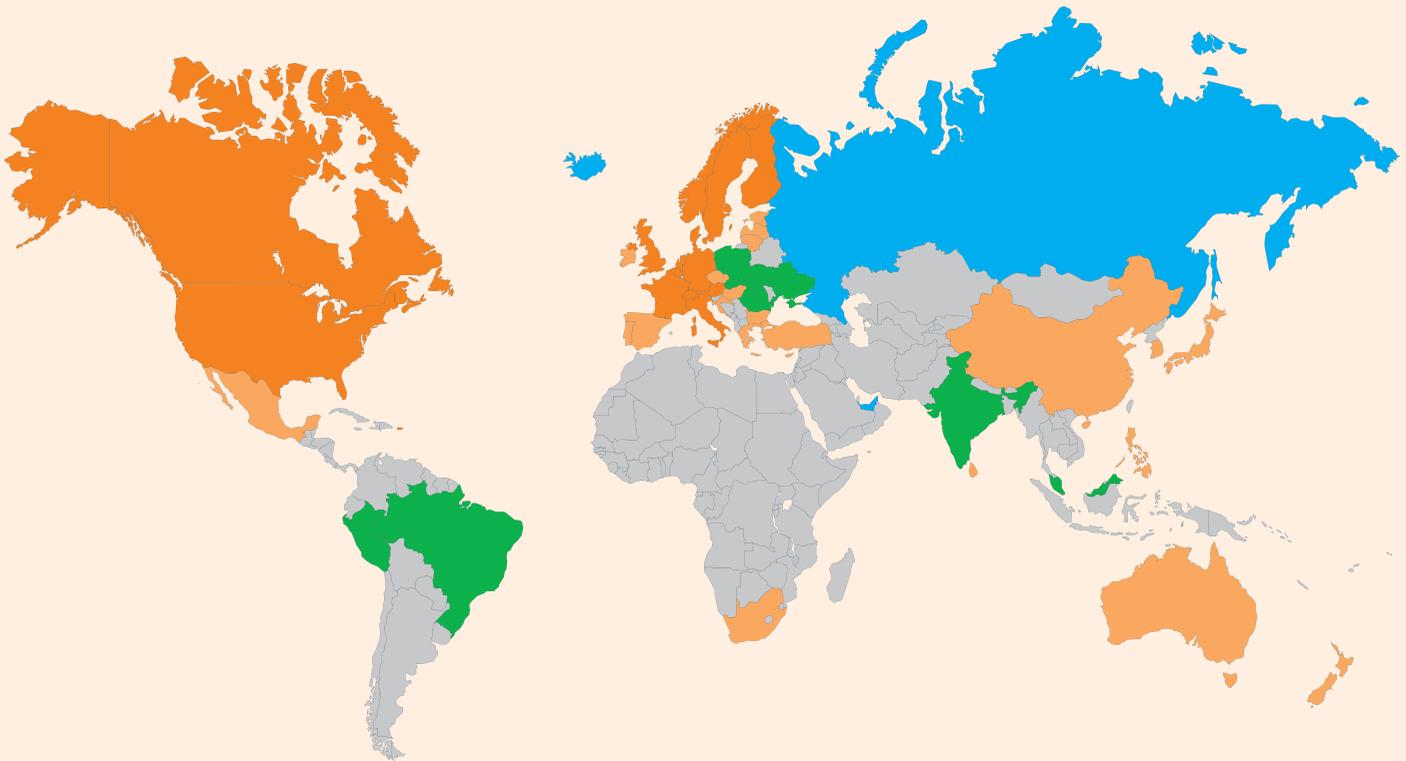
have initiated a wave of increased government involvement in what are meant to be free [i.e., capitalist] markets. There is little proof, anywhere in the world, of a government having the ability to improve or solve its country's economic woes. The market, itself, has and always will be the most efficient allocator of capital, if left to operate freely, without government intervention. ▲



**Bijoy Kar**  
Senior Market  
Strategist  
Swissquote

# MAP OF SWISSQUOTE'S GLOBAL TRADING ACTIVITIES

WWW.SWISSQUOTE.CH



- ONLINE REAL-TIME EXECUTION
- ONLINE DEFERRED EXECUTION
- BY TELEPHONE
- RESTRICTED TRADING

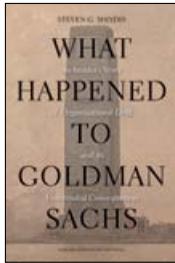
## AND SWISSQUOTE OFFERS SO MUCH MORE

- swissquote.ch – a free, real-time information portal for bank customers
- Innovative tools to manage private wealth (e-Private) and/or to analyze securities
- A real-time, multi-currency bank account, a custody account, an online payments service and securities trading at discounted prices
- Real-time share dealing on the world's largest stock exchanges (see map)
- Direct access trading for options and futures on the largest futures and options exchanges (Eurex, CME - Chicago Mercantile Exchange - and ISE - International Securities Exchange)
- Real-time trading of warrants and other derivative or structured products (Scoach and Euwax)
- Fundshop: the largest Swiss trading platform for investment funds (more than 5,500 products online)
- Bond trading (more than 9,000 products)
- eForex (foreign exchange and precious metals): more than 60 currency pairs available thanks to our innovative FXBook technology (spreads from 1.8 pips and a leverage ratio of 100:1)
- An innovative savings account
- An online mortgage
- Foreign exchange: currency spot trades, futures, swaps and options
- Lombard loans
- Term deposits and fiduciary investments
- Credit cards (Visa and MasterCard)
- Multilingual call centre open Monday to Friday from 8 AM to 10 PM. Tel: +41 825 88 88

## TO READ

## WHAT HAPPENED TO GOLDMAN SACHS

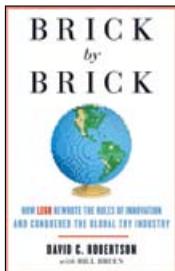
By Steven Mandis [Harvard Business Review Press, 2013]



Goldman Sachs adhered for decades to a strict code of conduct based on integrity and discretion. Until it went public in 1999, its reputation was spotless. But the corporate culture changed radically after the IPO. Steven Mandis, who worked for the firm for 12 years, analyses how Goldman Sachs has changed and the extent to which its image has been tarnished.

## BRICK BY BRICK... HOW LEGO REWROTE THE RULES OF INNOVATION...

By David C. Robertson [Crown Business, 2013]



In 2003 Lego was on its last legs. Unable to adapt to new trends sparked by the technological revolution, the Danish toymaker was fading into oblivion. Nine years later, its fortunes had turned around spectacularly. David C. Robertson examines the company's rebirth and the people who made it happen.

## TO DOWNLOAD

## PERSONALISED NEWS

[iPhone, iPad, Android]



This app scans its users' favourite content on social networks, learning their reading habits and interests on a daily basis. Any articles likely to interest them are then compiled into an engaging, personalised daily online magazine. Zite delivers maximum information in minimum time.

Zite  
Free

## ONLINE MEDICAL CONSULTATIONS

[iPhone, iPad, Android]



A total of 38,000 US doctors are connected to this vast interactive network, allowing users to not only get advice but also put specific questions to specialists and locate the best medical care for their condition. The app is useful all-round: patients are helped to make decisions, and practitioners can open a virtual practice and make a name for themselves.

Healthtap  
Free

## INSTANT ELECTRONIC ADDRESS BOOK

[iPhone]



Constantly misplacing people's business cards? CardMunch will solve the problem. You take a picture of a card and a team of human workers immediately converts the image into a contact to be added to your electronic address book. Each contact is accompanied by the cardholder's LinkedIn profile. CardMunch is reserved for members of the LinkedIn network.

CardMunch  
Free

## SIMPLIFIED ORGANISATION

[iPhone, iPad, Android]



Taasky's simplicity and elegant design set it apart from other, similar apps. To-do items are ranked by priority and divided into four colour-coordinated categories: Home, Work, Friends and Shopping Lists. Changes in the status of a to-do item are signalled by sounds and animations, making the app more intuitive.

Taasky  
\$0.99

## SPORT

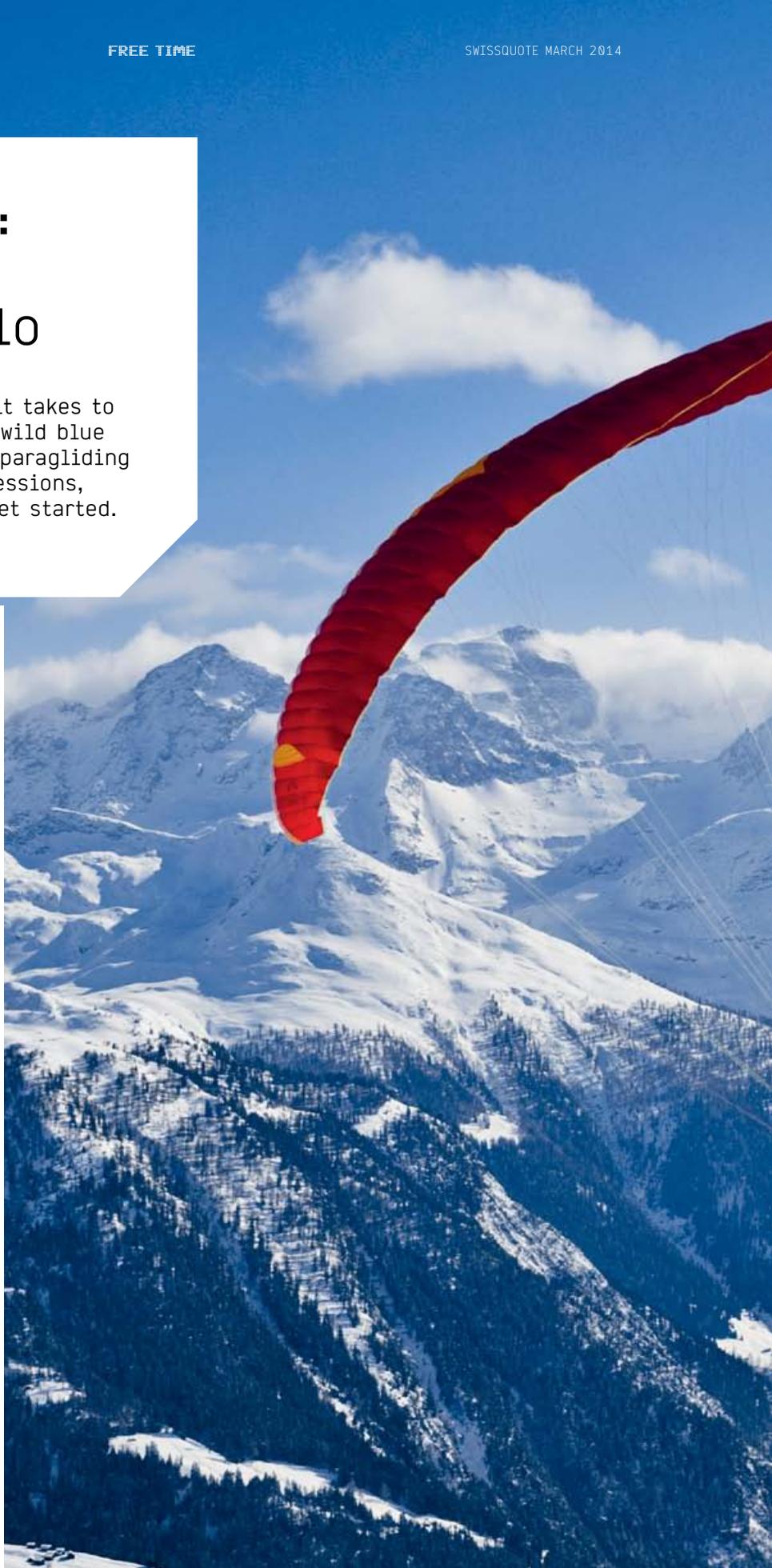
# Paragliding: the thrill of flying solo

Three days' training is all it takes to be able to fly solo into the wild blue yonder. Our journalist gave paragliding a whirl and shares his impressions, tips and advice on how to get started.

By Daniel Saraga

I'm in the air at last, a dozen metres or so above the treetops. Lake Geneva is to my right, and the Pennine Alps rise up straight ahead of me. Climbing higher, I bank towards the landing area beside the River Rhone. For the next fifteen minutes I'll be floating up here, accompanied only by the sound of the wind against the sail and radioed instructions from my instructors on the ground. It's my very first solo flight, and already I feel like Icarus! Hard to believe that just four days ago, I knew nothing about paragliding. And since those four days were wide open on my calendar, I figured it was time to try something entirely new.

It all started the day before a long weekend. I did some research on a skydiving club and called a couple of paragliding schools. One of them had openings available, so I booked in. On arrival, I filled out a short form and got my equipment: a sail (the wing) packed tightly into a giant backpack, a seat (a cross between a harness and a portable chair) and a helmet. I spent the next three days on the ground, learning how to take off





## The eye of the instructor

“Paragliding is open to anyone over 15 years old,” explains Stéphane Chevalley, instructor at Villeneuve in the Vaud canton on the shores of Lake Geneva. “Most of our students are between 25 and 50, but we recently had a 90-year-old man! More than 80 per cent of paragliders are men. The best time of year for beginners is autumn. The wind is a lot calmer, with fewer rising currents of warm air. But spring has the advantage of offering students a much more challenging environment. Of the 800 students I’ve taught over the past ten years, only two didn’t get to fly solo. The first simply decided not to, and the second was struggling so much that we advised him not to continue.”

and manoeuvre the sail, and in the air, where, flying tandem, I was allowed to handle the controls for the first time. Nothing too complicated: just pull on the left handle to turn left, and vice versa.

Then came the day of my first solo flight. The thought of being alone in the air was as nerve-racking as exciting. Would I be able to keep my composure up there? What if I panicked? But the temptation was too great. A deep breath, and off I went. I pulled on my sail to fill it with air for take-off. On the first

attempt, the sail ended up in a heap behind me. On the second, I was too brisk and the sail came crashing down in front of me. I had to unfold it once again and carefully untangle the lines connecting my seat to the wing. I wondered if I would ever get off the ground.

Third time lucky. I was up in the air at long last! I began shouting for joy – a common reaction for the first-time soloist. I had just one nagging question as I touched down fifteen minutes later: when can I go back up? ▲

## Risky hobby?

The Swiss National Accident Insurance Fund (SUVA) records nearly 400 paragliding accidents each year, both benign (sprains) and serious (fractures, paralysis of lower limbs). On average, five deaths per year are caused by paragliding accidents, almost always due to human error. However, SUVA does not consider paragliding a high-risk sport, provided it is practised responsibly. For that reason, it does not require additional insurance.

## Practical information

To fly solo, you first need to take a three-day basic class on the ground. Then, you can schedule flights at any certified school (one flight costs about 30 Swiss francs). In the beginning, renting your equipment on site is cheaper (about 25 Swiss francs per flight, or 90 Swiss francs per day) and more convenient if you are taking public transport.

After a minimum of 50 flights, you can take an exam to obtain a licence and fly entirely on your own, without radio assistance. The alternative is to fly tandem. Flight times will depend on the difference in altitude (15 minutes per 1,000 metres), but flights can last up to one hour if there are thermals.

### DEALS IN SWITZERLAND

- >FlyRiviera in Villeneuve (Vaud) flies from Sonchoux, les Rochers-de-Naye, and Leysin.  
Basic class: 680 Swiss francs (incl. 2 tandem flights and 1 solo flight)  
Tandem: 170 – 250 Swiss francs
- >Touch and Go in Brunnen (Schwyz) flies from different mountain peaks around Lake Lucerne (Pilatus, Rigi, Fronalpstock).  
Basic class: 1300 Swiss francs (incl. 4 solo flights)  
Tandem: 180 Swiss francs
- >Luftkraft in Davos (Grisons)  
Basic class: 800 Swiss francs (incl. 1 solo flight and 1 tandem flight)  
Tandem: 175 Swiss francs



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## AUTO

## Lean Machines

The most successful new cars today stand out for having slimmed down. Seems their manufacturers clearly understand that luxury and lightweight are becoming increasingly synonymous.

By Philipp Müller



Weighing just 900 kilos with 240 hp, the new Alfa 4C has the true feel of a supercar.

2013 FIAT S.P.A.

A constant refrain in all of today's automotive press kits is how the latest model has been put on a strict diet. And the slim-down trend applies to all market segments. "With the 208, Peugeot enters a new era," said CEO Vincent Rabaud in 2012 on the launch of the brand's new supermini, weighing in at some 110 kg less than its predecessor. Other carmakers are doing exactly the same, with Volkswagen having trimmed a good 100 kg off the latest Golf, Land Rover taking a record 400 kg off the Range Rover, which used to weigh a full

three tonnes, and Mercedes shaving some 100 kg off the new C Class.

After decades of putting on weight, the kilos coming hand in hand with improvements in safety, comfort and driving aids, cars are now starting to slim down. The simple reason behind the trend is that while engine efficiency and aerodynamics are being constantly improved, the potential for such improvements is shrinking. With fuel consumption on the decrease and pollutant emissions public enemy number one, the only way

forward is through alternative solutions, such as electric drivetrains, or lighter cars – without compromising comfort or safety.

#### PLASTIC AND CARBON ALL THE RAGE

Carmakers are working to cut the weight of chassis, engines and vehicle bodies, sometimes by using slim-line steel with a very high elasticity limit. And sometimes by doing away with steel altogether. Citroën, for example, has "plasticised" the tailgate and floor of its new C4 Picasso, shedding some 60 kg in the process.

JAGUAR LAND ROVER LIMITED



Range Rover's latest model is 400 kilos lighter. It's a giant leap forward in terms of agility and fuel economy.

The trend is also afoot in the sports car segment, where weight reduction is synonymous with agility and an improved mass-to-power ratio. The new Corvette C7 Stingray has been clad in a plastic-composite body that looks as smart as an iPhone 5C. On an even more high-tech and exclusive note, carbon fibre is making waves. It is technologically possible today to mould the entire chassis structure in this light yet stiff material, and its use is becoming more widespread. It is a major selling point for Alfa Romeo with its new 4C, a thoroughbred sports car weighing just 900 kg for 240 hp and costing four times less than McLaren's MP4-12C designed according to the same principle.

#### AUDI AS A PIONEER

With more mainstream cars, aluminium remains the mate-

rial of choice. Audi was the first brand to make affordable and widespread use of aluminium in chassis and body design, and the material is now being used in engines.

## After decades of putting on weight, cars are now starting to slim down

Back in the 1990s, to outflank its gargantuan rival, the Mercedes S Class (the V12 S600 version of which weighed in at 2,100 kg unladen), Audi made aluminium a decisive selling point for its new A8

limousine, which was considerably lighter than its rival even with a four-wheel-drive transmission. The success of the A8 no doubt played a part in setting the weight-watching trend in motion.

But the fact remains that cars are rarely bought for being lightweight, even if they are more frugal on the fuel. In Switzerland, that truth is reflected in the success of 4WD cars, and hulking SUVs in particular, suggesting that lighter weight is of secondary importance, far behind comfort and safety. A 2012 report by the Swiss Federal Department of Environment, Transport, Energy and Communications found that the weight of cars on the road in Switzerland had grown without interruption by 200 kg in 16 years. So the situation for now is something of a paradox, but the trend may soon start to reverse. ▀

The 2014 Mercedes C-Class is in line with the current trend, weighing 100 kilos less than its predecessor.



2013 DAIMLER AG

MULTIMEDIA

# Mini tablets make major strides

By Blaise Duval

## The premium tablet

This new version of the iPad Mini, launched in November 2013, has taken a giant leap forward in display. The tablet's new Retina screen offers impressive resolution (2048 x 1536 pixels), equivalent to the latest iPad Air – even though the Mini is smaller. The result is exceptional image definition. Operating speed and storage capacity have also been improved. The iPad Mini is certainly a top-of-the-line product.



**IPAD MINI RETINA**  
 200 x 134.7 x 7.5 mm  
 331 g  
 7.9 inches:  
 2048 x 1536 pixels  
 16, 32, 64 or 128 GB  
 Apple A7 dual-core,  
 1.3 GHz  
 About \$475

## The bargain-priced challenger

The 2013 version of the Nexus 7 from Asus improves on many of its predecessor's already stellar features. Sleek, understated, and downright stylish, the Nexus 7 is the lightest tablet of its kind. Also, its dimensions are more practical than those of the iPad Mini, which, though thinner, is also larger and less comfortable to hold.



**GOOGLE NEXUS 7**  
 200 x 114 x 8.7 mm  
 290 g  
 7 inches:  
 1920 x 1200 pixels  
 16 or 32 GB  
 Qualcomm Snapdragon  
 S4, 1.5 GHz  
 About \$275

## The all-Amazon alternative

From a technical standpoint, Amazon's 7-inch tablet is a force to be reckoned with. The device stands out on all levels, from its finish and feel in-hand to its power and quality of display. There's just one [big] drawback: access to apps, books, music and other content is strictly confined to the Amazon Appstore, an exclusive portal offering far fewer apps than rivals Google Play (Android) and App Store (iOS). Nevertheless, the HDX 7 is still the hands-down choice for devoted Amazon fans.



**AMAZON KINDLE FIRE HDX 7**  
 186 x 128 x 9 mm  
 303 g  
 7 inches:  
 1920 x 1200 pixels  
 16 or 32 GB  
 Qualcomm  
 Snapdragon 800,  
 2.2 GHz  
 About \$300

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## TRAVEL

# THE UNKNOWN SIDE OF MIAMI

Famous for its beaches and idyllic climate, the emblematic city of Florida boasts a whole host of other attractions. A guided tour in five easy steps.

By William Türler



OLP

Let's be honest, Miami's main attraction is not its cultural life... well at least not yet. The contemporary art scene is on the rise, following on from Art Basel Miami Beach, an event that has become a real favourite and is now in its 12th year. Various neighbourhoods dedicated to art and design, such as the Wynwood Arts District and the Design

District, are also becoming more visible. The city now even has a large modern and contemporary art museum, the Pérez Art Museum Miami. Designed by Swiss architects Herzog & De Meuron, the museum recently had its official opening. Miami also stands out for its Art Deco style (Miami Beach has the most extensive architectural

collection in the world), its legendary hotels and its nightlife. Of course, there is no getting away from the fact that Miami's major attractions are the ocean, its miles and miles of beaches and its tropical climate, which is particularly pleasant in winter with temperatures between 25°C and 28°C from February to April. ▲

## THE HOTEL

If there is one thing that Miami Beach is not short of, it is hotels. It has a real plethora catering to tourists from all over the world. Just a short distance from the main drag on Collins Avenue, the Standard enjoys a fantastic setting overlooking Biscayne Bay and offers a swimming pool with underwater music, al fresco dining and rooms with private Jacuzzi baths. “We offer something that South Beach hotels don’t. A quieter, more relaxing experience with less of a party vibe,” explains manager Grace Duncan. Something that is corroborated by the excellent spa facilities with around thirty therapists and their expert hands, offering a wide range of personalised massages.



CHRIS GOLDBERG

**Standard Spa Miami**  
[www.standardhotels.com](http://www.standardhotels.com)

## THE TRIP

There is, of course, the option to head down to Key West to admire the bridges, which span over the ocean as far as the eye can see. But for something more original, why not pay a visit to Stiltsville? This collection of wooden stilt houses south

of Miami in Biscayne Bay is emblematic of the history of the region, and of the US as a whole. Most of these shacks date back to the time of the prohibition. Stiltsville was where lawyers, bankers, politicians and other wealthy individuals would come to play, drink and relax. Exposed to hurricanes, several of these

structures have not survived. Stiltsville is now managed by the National Park Service, and visitors are recommended to contact this organisation regarding visits.

**National Park Service  
 Florida, Biscayne**  
[www.nps.gov](http://www.nps.gov)



ZOEL



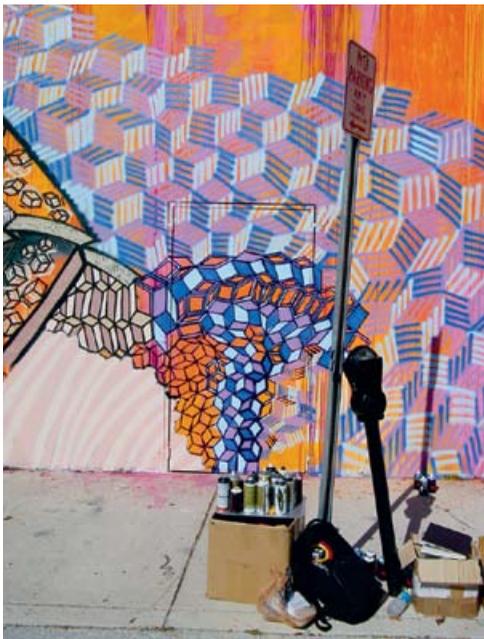
TIM BARN

## Cultural awakening

In recent years, it seems that Miami is trying to move away from its image as nothing more than a beach resort. The Art Basel Miami Beach exhibition, which caters primarily to a wealthy clientele from North and South America, as well as to the area's many

Russians, makes its presence known with an affluence and visibility that continue to grow each December.

In the downtown area, visit the stunning Pérez Art Museum Miami, designed by Swiss architects Herzog & De Meuron, which has just opened its doors. Or explore the Wynwood Arts District, a neighbourhood to the west of Biscayne Bay that features more than 70 galleries, museums and collections. This new buzz can also be felt on Collins Avenue, thanks in particular to the Faena project. The project, scheduled for completion in December 2014, will include an arts centre, luxury apartments and the legendary Saxony hotel, whose décor, sounds and staff uniforms will be designed by Australian film director Baz Luhrmann (The Great Gatsby, Moulin Rouge). In short, a new epicentre representing “a perfect balance between the arts, architecture, nature and technology,” says the Argentine, Alan Faena.



JEREMIAH GARCIA

Pérez Art Museum Miami  
[www.pamm.org](http://www.pamm.org)

Wynwood Arts District  
[www.wynwoodmiami.com](http://www.wynwoodmiami.com)



YUOLINHA



PATRICE LEROUX

**Raleigh hôtel**  
[www.raleighhotel.com](http://www.raleighhotel.com)

## The design

Miami Beach is known for its pastel colours and Art Deco style. It is essential to visit the Art Deco District, a neighbourhood with more than 960 historic buildings on Ocean Drive, Collins Avenue and Washington Avenue. Added to the US National Register of Historic Places in 1979, it is home to the world's largest collection of Art Deco architecture.

The city's most symbolic buildings include the Delano hotel, built in 1947, the Raleigh, which dates back to 1940 and has a magnificent pool, and the Fontainebleu, whose grandiose lobby and swimming pool make it well worth a trip. The Fontainebleu even featured in the 1964 film Goldfinger, starring Sean Connery.

Situated to the west, towards the airport, the Design District, which has its own annual fair running alongside Art Basel Miami Beach, has become a real hub for design and fashion over the years. It has more than 130 stores, galleries, showrooms and architectural firms.

## Bling-bling and clubbing

The nerve centre of Miami Beach in terms of bars, clubs and restaurants is on Lincoln Road, extending to South Beach along Collins Avenue, Washington Avenue and Ocean Drive. And you don't have to wait until the sun goes down for things to liven up. Many hotels organise afternoon poolside parties, for instance the W South Beach, belonging to the luxury hotel chain W (which has just opened its first hotel in Switzerland, in Verbier). Lapo Elkann, an international style icon and heir to the Fiat empire, stayed at the W South Beach during the last Art Basel Miami Beach.

Something worth bring to the attention of electronic music lovers, the 29th annual Winter Music Conference will open its doors from 21 to 30 March. The line-up includes more than 500 events, festivals, seminars and workshops, all open to visitors and industry professionals.



SEAN EDZIZANO

**W South Beach**  
[www.wsouthbeach.com](http://www.wsouthbeach.com)

# BOU TIQUE



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[www.frxsh.com](http://www.frxsh.com)

about \$700



## Happy Anniversary

Strellson is celebrating the tenth anniversary of Swiss Cross, its highly popular jacket originally lined with Swiss Army blankets. To mark the occasion, the Kreuzlingen-based company is reproducing a limited series of 1,500 jackets with a lamb-swool collar. Each comes with a Wenger wooden pocket knife.

[www.strellson.com](http://www.strellson.com)

about \$650



## Relax to the max

Designed by Claudio d'Amore, the Origin reading and meditative space from the Kosha brand has an extra-comfortable base and ten sections for shelving favourite books. This elegant Swiss-made piece of furniture comprises 33 strips of wood, produced one by one and assembled by hand.

[www.kosha.ch](http://www.kosha.ch)

about \$36,000



## Personal trainer

The Pulse activity sensor from French brand, Withings, monitors your physical activity 24/7 and displays the information in graph form. You can accurately monitor the number of steps taken, calories burned, distance travelled, change in elevation, heart rate, and even the quality of your sleep. Pulse is the ultimate gadget for the health-conscious geek.

[www.withings.com](http://www.withings.com)

about \$120



## Classy carrier

Founded by Queen Elizabeth II's nephew, Linley produces bespoke furniture, gifts and accessories. A stand-out item is the Shooting Companion, a walnut chest housing eight pewter cups, two crystal decanters, a cigar box and a cigar cutter. This sporting ensemble is a must-have gift for the true gentleman.

[www.davidlinley.com](http://www.davidlinley.com)

**about \$5,500**



## Gardening 2.0

No need for green thumbs to turn your living room into a tropical greenhouse. Dig the Flower Power sensor into the soil and let it monitor the health of your favourite plants. Designed by Parrot, this hi-tech gadget features a dedicated app that tells you when to water, fertilise and move your plants.

[www.parrot.com](http://www.parrot.com)

**about \$70**

## Cycling in style

Exercise bike maker Ciclotte loves to reinvent the wheel. The Italian company has just released a new high-tech model for athletes, designed in collaboration with Tonino Lamborghini. This beautifully sculpted carbon-fibre fitness machine comes equipped with a touch screen allowing users to choose from 12 levels of resistance. A perfect way to stay in shape during the cold months.

[www.ciclotte.com](http://www.ciclotte.com)

**about \$13,000**



## Private 3D printing

Printing objects in three dimensions from the comfort of your own home is now a reality. US start-up Formlabs has developed Form 1, a high definition 3D printer for the consumer market, using funds raised through the crowdfunding platform, Kickstarter.

[www.formlabs.com](http://www.formlabs.com)

**about \$3,000**

## SHOP

## WATCHES

**Apollo 11 DNA**

RJ-Romain Jerome is celebrating the 40th anniversary of the launch of NASA's first space station with his latest opus, the Skylab. The new watch features a bezel containing fragments from the Apollo 11 capsule and houses a five-level mechanical skeleton in a black 44-mm PVD steel body.

[www.romainjerome.ch](http://www.romainjerome.ch)

**About \$17,500**

**Lunar clock**

In tribute to the astronauts who journeyed to the moon, Omega has designed the "Dark Side of the Moon" watch. The 44.25-mm timepiece is waterproof to 50 metres, and features a black ceramic body and a tachymetric-scale bezel, enhanced with matte chrome nitride.

[www.omegawatches.com](http://www.omegawatches.com)

**About \$12,000**

**Island life**

IWC has revisited its legendary Aquatimer diving watch from 1967. The Schaffhausen-based watchmaker is launching a special-edition model this year dedicated to the Galapagos Islands. In a gesture embodying the brand's commitment to the protection of the fragile archipelago, part of the revenue from sales will be donated to the Charles Darwin Foundation.

[www.iwc.com](http://www.iwc.com)

**About \$12,000**

**Take the plunge**

Cartier is taking its first visit to the ocean depths with a diving version of its famous Calibre model. With its unidirectional rotating bezel, 300-metre waterproof function, and superluminova hands and time control indicator, the Calibre Diver looks set to become a classic for diving fans.

[www.cartier.com](http://www.cartier.com)

**About \$8,000**

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In each Swissquote Magazine, an artist describes his or her creative process. This month, we feature the Swiss dancer and choreographer Eugénie Rebetez.

## “I’m inspired by entrepreneurs”

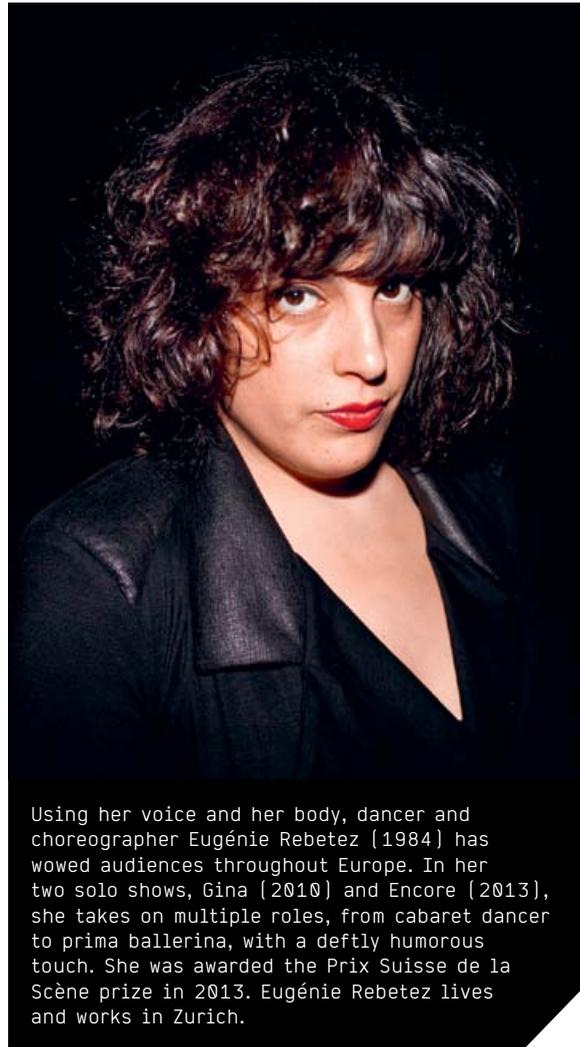
By Eugénie Rebetez

“People often ask me whether I have any influences. It’s a tough question because when someone inspires me, their work seeps into me, flows through me and inevitably influences me, even if I’m unaware of it.

I’m particularly inspired by people, be they artists or entrepreneurs, who set out to accomplish something on their own, with courage and creativity. Ambition is a very positive quality if it helps you achieve your dreams. I need to be creative, not only on stage but in managing my career as well.

I don’t know where my inspiration comes from – it’s a mystery to me. But I do know that I love to laugh and cry. I have a weakness for romantic comedies and variety shows. I love watching people on stage, but I can’t help thinking about the person behind the character, about their fears, their awkwardness. I’m fascinated by the contrast between what we try to portray and who we really are.

For my first solo show, *Gina*, it seemed natural to start with myself, even though I had no intention of doing an autobiography. I called my second show *Encore* because I was face-to-face with myself again, with the feeling that I couldn’t reinvent myself. I regained control of my own work to take it even further, poke fun at it and feel freer.



AUGUSTIN REBETEZ

Using her voice and her body, dancer and choreographer Eugénie Rebetez (1984) has wowed audiences throughout Europe. In her two solo shows, *Gina* (2010) and *Encore* (2013), she takes on multiple roles, from cabaret dancer to prima ballerina, with a deftly humorous touch. She was awarded the Prix Suisse de la Scène prize in 2013. Eugénie Rebetez lives and works in Zurich.

At the creation stage, I film all the rehearsals to fashion the material for the show. I also write a lot, even though my performances are largely silent. It’s a slow-maturing process that can take up to two years. My body needs time to espouse my thought.

I mostly work alone, but I always need my collaborators. Since I perform often, I get precious feedback by dialoguing with the audience. I’m also lucky to be accompanied by Martin Zimmermann, of the Zimmermann & de Perrot duo, who I’ve collaborated with in the past. He has watched my work with a critical but constructive eye and helped me come into my own. I’m going to be his assistant in his next solo show, and I look forward to sharing my own solo experiences with him. ▲

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