

WHAT IF...?

STARTUPS RE-IMAGINING THE WORLD

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France is more than just baguettes, brie, fashion and fine wine; it is also home to a thriving community of entrepreneurs, engineers, designers, investors, tech lovers, and other talented people who are embracing the potential of technology to change the world.

A tech boom has been unleashed throughout the country thanks to the explosive combination of our renowned creativity with our flair for algorithms. We have some of the best engineering schools in the world. Our consumer electronics companies thrive on this talent, which combines expertise in computer sciences with electronics, mechanics and design. In the era of Big Data, FinTech and Artificial Intelligence, our students have the skills of the future.

We're also seeing a rise in the not-very-French (or so you thought!) qualities of confidence and risk-taking. Combined with government reforms making it (much) easier to start a business means our entrepreneurs (yes – it IS a French word!) are not only thriving, but eager to display their wares to the world.

“La French Tech” is about shining a light on this talent, or “French Flair”, which is why we've produced this book. This edition has been specially produced to promote a broad selection of the French startups that are driving this movement. But not only.

Our ambition is also to show how innovative French or foreign companies set up in France are improving lives around the world by turning incredible and mind-boggling ideas into reality. Each of their ideas has been illustrated by specially commissioned artwork.

“What if...?” is the third book in the series of the same name, a continued celebration of French creativity and innovation, and a source of inspiration to us all ●

NEVER LISTEN TO THOSE WHO SAY: “IT CAN'T BE DONE”

In 2013, the French startup that I co-founded was floated on the Nasdaq after a US\$270 million IPO.

Criteo's success has helped make it the global leader in digital performance advertising, with over 2,000 employees worldwide and revenues of more than a billion dollars. Along the way, many people told us that what we were trying to do was impossible. They might have been right; what we ended up with is quite different from the movie-recommendation service we started out with. What sustained us was our belief – and the future would prove us right – that we had cutting-edge technology in our predictive algorithm. We just needed time, plus millions of dollars in investment, to figure out what to do with it.

Along the way we made many mistakes. Here are a few things I have learnt.

A technology startup is a long-term project in which success – if it comes at all – comes only after many difficulties and disappointments. The number one quality of any founder is persistence, the ability to not get discouraged in the face of rejection.

At Criteo, we invented a disruptive model for advertising in an industry in which collectively we had almost zero

experience. Perhaps it was easier for us to think outside the box, because we had fresh eyes and no legacy business to protect.

Technology startups need to be steadfast in their convictions, because they're operating in a world that isn't ready for them. Take banking, for instance. When I began my second modestly successful startup Kiwee – sold after six years for around US\$20 million – I had trouble finding a bank that would allow me to open a standard account to deposit the initial capital, let alone apply for a loan. Most commercial bankers are trained in traditional businesses, demanding financial guarantees that would be inconceivable for virtually all startups.

So we turn to venture capitalists, who in return for the (often substantial) risk of investing, demand a share of our businesses. Too many entrepreneurs are endemically suspicious of investors, devoured by an inherent fear of losing control. But it's better to have a small slice of a wedding cake, than the biggest piece of a miniscule cookie.

After under-investing at Kiwee, I was determined with Criteo to always raise too much capital rather than too little. That meant we could sleep better at night and

take more ambitious risks. It also guaranteed us more independence vis-à-vis our investors, as we didn't have to keep going back for money. Moreover, we used the money well, continuing to invest heavily in technology even when we'd 'made it', and accelerating our expansion overseas, when some would have been happy consolidating.

Riding the confidence rollercoaster can be challenging for a solo entrepreneur, which is why it helps to be part of a team. Having co-founders expands a startup's expertise and contacts, but more importantly you have someone to prop you up when your confidence takes a wobble. Choose people you trust and like spending time with, and don't be afraid about calmly discussing what happens when things go bad. An amicable separation is more likely if the rules of the game are written into the shareholder agreement.

How do you find cofounders? In my case, it was a chance meeting in a Paris incubator. Serendipity perhaps, but I was also open to talking about my idea. I've met startups who're so afraid of people copying what they're doing that they won't talk about it. Before they know it, it's been several years and they haven't done anything, and then it's too late.

Sadly, one challenge many of the startups in this book will face is being French. Many people see France as the country where communism succeeded – as one joke puts it. “La French Tech” is doing a great job at changing perceptions, but some are deeply ingrained. As I have a platform here, I'll tackle just a few.

Take the tax burden, for instance. Most Europeans are convinced they pay higher taxes than Americans, but it's not always the case. When I became a California resident,

my income taxes increased significantly. And that's before the California real estate tax of 1% of face value every year that would start a revolution if authorities tried to impose it in France.

Labor regulations are also not the straightjacket many would believe. It's true that social security and firing someone can be more expensive than in the United States, but these costs are factored into the labor market. Tech salaries in Europe are much lower than in Silicon Valley or New York.

At the time we were trying to break into the American market, being French was seen as a serious disadvantage – which we turned to our advantage (of course!). The idea of an advertising technology company coming from France was so improbable that it allowed us to grow under the radar for years. When we came out into the open, we had already reached a critical size.

Another key advantage for us is that France has a pool of highly qualified engineers with strong mathematical skills who were particularly relevant for the type of technology we were building.

My hope for Criteo is that we have shown that it is in fact possible to create world-leading tech companies in France that are as good as – if not better – than American firms. The American investors who looked beyond their prejudices and invested in Criteo certainly hit the jackpot ●

Jean-Baptiste Rudelle,
Founder and Chairman of Criteo

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WHAT IF

THE WORLD WAS DIGITIZED?

How sensors are already capturing and using data

First, people heard of the 'cloud'. They were told of the wonderful things it could do with data. But then they began to realize the 'cloud' was not a magical place in the sky. They visited the data centers that housed the 'cloud.' What an energy hungry monster it was! They wanted the wonder – and more of it – but not at that price.

Enter Sensing Labs, a startup ready to digitize the real world, affordably.

To reduce the cost and carbon footprint of data, four entrepreneurs with a bit of time on their hands began to examine how to take data centers out of the equation, as far as possible. The Montpellier-based founders of Sensing Labs predicted a growing hunger for data – which if unmanaged could become prohibitively expensive and environmentally unfriendly. Their innovation was to seek out existing technologies to reduce the cost of processing IoT (Internet of Things) data.

Their solution involved developing sensors with their own intelligence to do most of the work themselves, without depending on energy gobbling data centers.

SENSING LABS

ILLUSTRATION: GAËTAN HEUZÉ

Using embedded software, Sensing Labs made a product that can capture and process data, before compressing and encrypting it for secure low-cost long-distance transport.

Sensing Labs' range of sensors monitor outdoor variables such as temperature, light, and moisture, as well as indoor factors such as energy consumption and machine maintenance. The sensors' role is first to capture the data, like a regular sensor, then compress it and select the cheapest mode of transfer via long distance radio signals over LPWA networks (Sigfox or LoRa).

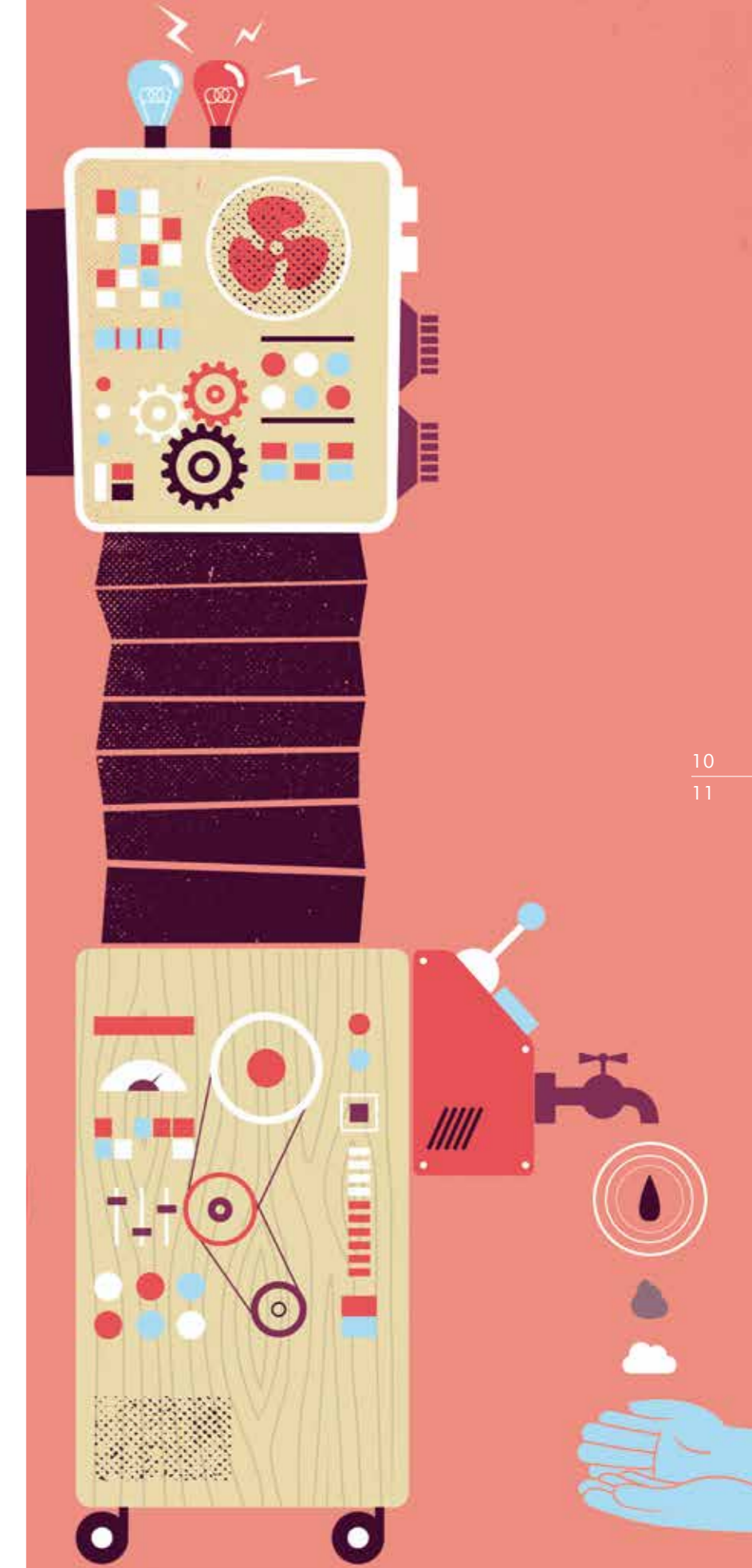
The encrypted data is then sent to a customized web platform. The data analytics reported by Sensing Labs will finally allow clients to use their own computer to consult a range of variables – from the exact source of a water or gas leak, to the energy efficiency of buildings, or to find out whether fields will require additional irrigation.

The possibilities for reducing cost and optimizing performance are enormous – and Sensing Labs has clients across a range of industries from smart buildings (energy consumption, temperature), to agriculture (luminosity, soil moisture) and industry (monitoring, preventive maintenance).

Sensing Labs' robust and easy-to-install products are designed to last 20 years, in all conditions. They are recognized by the LoRa Alliance, and approved by Sigfox.

In nine months of trading, Sensing Labs has attracted more than 60 clients and established distribution agreements in six European countries. The company expects sales to top €1 million this year, rising to €6 million in 2018.

Sensing Labs is currently preparing for a second funding round after successfully raising €500,000.



WHAT IF

YOUR SMARTPHONE COULD DJ?

How a wireless portable fader is revolutionizing the art of turntablism

Jean-Baptiste Hironde liked to unwind after a hard day at university by spinning some tunes in his bedroom. He was frustrated by two things: the decks took up a lot of space, and the equipment was more complicated than it needed to be.

This is where his idea of creating a startup began. Determined to develop a better system, Jean-Baptiste sought the help of his best friend Nicolas Dupré, who eagerly joined the adventure. In 2012 they launched edjing, a DJ app that enables anyone with a smartphone or tablet to mix anywhere for free. Available on iOS, Android and Windows, edjing has become the world's most downloaded DJ app with 45 million downloads.

However, Jean-Baptiste still wanted to create something extra for turntablists, who liked the sound experience but felt they lacked touch and control.

Enter the Mixfader, a wireless portable fader that can be used with traditional vinyl as well as smartphones and tablets via a dedicated app, edjing Scratch.

DJIT

ILLUSTRATION: RIKI BLANCO



The crossfader is the central part of the mixing deck that allows a DJ to switch progressively between two pieces of music. Mixfader preserves the feel and grip of regular faders, whilst opening up new creative perspectives for the art of turntablism to DJs, whatever their level.

Presented at SxSW 2015 as part of the "La French Tech" delegation, the Mixfader prototype created a huge buzz with media interest from 30 countries. The presentation video got more than two million views in 48 hours. Moreover, famous "French Touch" ambassadors – part of the French DJ movement that brought us Daft Punk – such as C2C contacted DJiT to congratulate them for this breakthrough innovation.

Feeling encouraged and hopeful of capitalizing on this enthusiastic response, DJiT launched a Kickstarter campaign – and sold €110,000 of Mixfaders in a single month! The first deliveries were made in April 2016.

Not only is the Mixfader vastly cheaper at €129 than mixing decks costing thousands, it also enables urban DJs to mix in the streets, on rooftops – or just about anywhere. Those already championing the device include DJ QBert, the inventor of scratch, and 9 O'Clock, a three-time winner at the DMC World DJ Championships.

The Mixfader can now be found in some of Europe's chicest department stores, such as Galeries Lafayette in Paris and London's Harrods, and will shortly be available in the United States and China.

After raising US\$2.6 million in its first funding round since 2013, the company is set to expand rapidly, which should lead to the Mixfader appearing in a lot more stores. New investors include XLR Capital, France's public investment bank Bpifrance, Jean-Charles Carré (David Guetta's manager), DJ Martin Solveig, and Stéphane Bohbot, the founder of Innov8 Group, a leader in retail 2.0 and connected devices.



WHAT IF

YOUNG DESIGN TALENT GAINED INSTANT EXPOSURE?

How an online fashion marketplace curates the designers of tomorrow and markets them for free

Arbia Smiti initially rose to prominence in 2009 through her popular fashion blog Carnet de Mode. She featured a number of talented young designers after discovering their wares in the boutiques and markets of France – but the exposure she gave them was limited because the designers themselves weren't online.

In her determination to help them, she imagined a service that could open the door to the international fashion community, no matter how small the designer. She tested the market via her readers – and Carnet de Mode 2.0 (or carnetdemode.com) was born.

For creators, joining the community is a risk-free strategy. Carnet de Mode provides all its services for free, and only charges commission from the sales it generates for designers.

Arbia and her team scour the globe for hot new fashion and design talent, looking for unique and original creations, with

CARNET DE MODE

ILLUSTRATION: GIANLUCA FOLÌ

an emphasis on design – and value for money. Selection is demanding: only around one in ten applicants are successful. This careful curation ensures quality and exclusivity, unlike other open marketplaces.

Once accepted onto carnetdemode.com, creators are provided with technology that enables them to create their own e-shop within minutes. The software is easy-to-use and intuitive, allowing them to manage invoices, orders, and client correspondence. They have the option to sell directly through their own site, or push their creations through Carnet de Mode.

This versatile website offers instant international exposure. Carnet de Mode also helps generate traffic and sales through a newsletter, marketing campaigns, press relations, and partnerships with influential fashion publications and fashion bloggers. A specific part of the site helps creators develop brand and sales strategies and pinpoint where next to invest (traffic generation, sales, etc.).

Launched in 2011, carnetdemode.com is now home to over 500 talented designers from 36 different countries. In one click, customers can buy a hand-made candle from France, a dress from a Spanish designer, or an Italian toy. The exquisitely wrapped purchases arrive with a personalized note from the creator.

Arbia kept the French name of her blog when she went international to harness France's reputation for high end fashion and design. While around half of the products sold via the site are sourced in France (and almost all of them from within Europe), most Carnet de Mode customers are American, English or Asian.

Arbia, a French and Tunisian national, is also an ambassador for the French Tech Ticket Global Startup competition. She says it's important to never stop innovating – and has recently branched out into lifestyle as well as fashion.



WHAT IF

WINE ALWAYS TASTED D-VINE?

How a sommelier machine delivers wine by the glass at perfect temperature and aeration

A few years back, three 20-something wine enthusiasts were spending a lot of time visiting vineyards, but when they bought the wine back home it just didn't taste the same. They sought expert advice – and discovered that temperature and aeration of wine are worth 50% of the quality.

They began trying to recreate the experiences they'd enjoyed with winegrowers, who served wine in perfect conditions. The experience proved incredibly complicated – and the only thing they could find to help them was the carafe. For example, a great white Burgundy wine should be served at 12-13 degrees Celsius with a decanting time of three to four hours. To create the ideal tasting conditions, you would have to decant the wine into a carafe several hours before tasting, put it back into the fridge to cool at around six degrees, then remember to take it out in time to warm up... Nobody does that, not even professionals!

Enter the D-Vine. Like a coffee machine, the device works with capsules. 10-Vins has sourced a vast array of excellent

10-VINS

ILLUSTRATION: THOMAS HAYMAN



wines, which come packaged in 10 cl bottles (the equivalent of a glass) with an RFID chip fixed to them. The D-Vine reads the chip and serves the wine in ideal conditions in less than a minute. Pass your smartphone or tablet over the chip, and the winemaker and their oenologist will pop up to tell you more about the wine you're enjoying.

Developing temperature and ventilation functions that could both heat and cool required a lot of investment in R&D. Co-incubated by Audencia in Nantes and HEC in Paris, the startup also sought input from major engineering firms and the prestigious École Centrale de Nantes.

At the same time, 10-Vins began selling 10 cl bottles of wine to test and establish their market and distribution. Once the D-Vine was developed, they already had 6,000 customers enjoying fine wines from Châteauneuf du Pape, to Bordeaux Supérieur, Saint-Emilion Grand Cru Classé, Riesling Grand Cru and Sauternes Second Grand Cru Classé.

10-Vins raised €45,000 on crowdfunding platform Ulule in December 2014, three times their target. Delivery of the first D-Vines came a year later – just in time to win two media awards at the Consumer Electronics Show 2016. These are Ubergizmo's "Best Of CES" and "Startup Of The Year" by Tech.co.

While most of their machines are sold directly to consumers, 10-Vins are eying the B2B market where they see huge demand from hotels.

In all, 10-Vins has raised a total of €4 million through a second crowdfunding campaign and further private investment. They're looking for an additional €5 million to improve manufacturing, bring down the €890 price tag, and expand internationally.

WHAT IF WE DIDN'T NEED CASH?

How secure wireless communication technology is the payment system of tomorrow

In parts of the world where there isn't enough food, aid is often distributed via paper vouchers. This US\$10 billion system is vulnerable to fraud and theft – not to mention regular wear and tear or mishaps that can leave families short of much needed sustenance. Paper vouchers are also limited by the number of distributors who will redeem them.

Humanitarian organizations have started digitizing food vouchers to address these challenges and make aid distribution more traceable. In Africa, Famoco's device has been selected because it can process high volumes of contactless transactions at affordable prices.

The kit comprises personalized NFC cards and proprietary merchant readers. The cards work like an e-wallet and can be used for a wide variety of purchases, from a large number of merchants. The cards store beneficiary entitlements and biometric data to ensure they are used only by the person to whom they've been issued and enable real-time monitoring by aid agencies.



FAMOCO

ILLUSTRATION: JEREMY BOOTH

The Famoco card readers are distributed to merchants with a special bag that doubles as a charging station using integrated solar panels. They require no further configuration and are very simple to operate (requiring no literacy). Lightweight and easily transportable, they are equipped with an Android operating system and a fingerprint reader – and have no street value.

Famoco's devices use NFC (Near Field Communication) technology, which enables wireless communication between two hardware devices that are held closely together. This, combined with bank-grade security, makes the solution ideally suited to cashless payment systems that work online and offline, and is particularly useful in isolated areas.

Famoco devices are remotely managed and designed for large-scale contactless deployments. Beyond humanitarian use they are popular for other transactional uses such as loyalty cards, cashless payments and transport ticketing.

The Famoco solution is also ideally suited for field service management, such as mobile workforce management, time tracking, security and surveillance, and access control. The main passenger railway operator in the Netherlands, NS (Dutch Railways), recently chose Famoco to renew their fleet of inspection terminals. Famoco's rugged Android devices meet the needs of controllers who require a dedicated, mobile, lightweight and robust device.

In Sri Lanka, Dialog has launched a cashless transportation service called Touch. Bus travelers top up their Touch card, then the ticket inspector uses the Famoco device to debit the contactless card on the bus.

Famoco is expanding worldwide and has deployed more than 100,000 devices in over 25 countries. They have offices in Paris, Brussels, Delhi and Hong Kong, and clients including Google, Orange, Gemalto, Airtel, Dialog, and AccorHotels.



What if

THERE WAS A REMOTE CONTROL FOR EVERYTHING?

How a smart remote is helping even the tech unsavvy control their connected devices

For those all at sea with technology, the modern world is an increasingly complex place. Whereas once it was simple to turn on the TV, now identifying the correct remote control can be daunting for some.

In uber-connected households, simple tasks such as turning off the lights can prove too much for the technology un-astute, such as young children. It was this observation, combined with a plethora of controls for their connected devices (thermostats, bulbs, speakers, cameras, blinds, fans, locks, etc.) that prompted three Dads with a background in telecommunications to form Sevenhugs (a hug for each of their combined seven children).

They imagined a single remote for all connected devices that every member of the family would find easy to use. Several years of R&D later – and with backing from investors including France’s public investment bank Bpifrance, Xerys and a successful Kickstarter campaign – the Smart Remote was born.

SEVENHUGS

ILLUSTRATION: MARIE ASSÉNAT

Using patent-pending point and control technology, the Smart Remote can adapt automatically to any device. A mobile application detects all connected devices in a house and asks permission to associate them. It is compatible with more than 25,000 products, including Samsung Smart TVs, Philips Hue and LIFX smart bulbs, Sonos speakers, Nest Learning Thermostat, and many more.

Once connected, the user has only to point the Smart Remote at a light bulb and a request to dim or brighten will appear. The Smart Remote is also designed to work for services. It can be configured, for example, to order sushi when pointed at a goldfish, or to order a taxi when pointed at the door.

Crucially for families, it’s easy to find no matter where in the house it gets lost. A little button on the base station makes the remote control ring loud enough to be heard, no matter how many cushions it is buried under.

All data are secure and encrypted, meaning you can’t influence the connected devices of your neighbor – or they yours.

The Smart Remote has attracted rave reviews. TechCrunch said it has the “potential to radically change how devices are controlled in the home.” CNET was even more impressed: “It kinda sounds like dark magic.”

At the Consumer Electronics Show 2017, the Smart Remote won three awards, including most innovative product in the Smart Home category.

Selected for the Ubi i/o accelerator program to help French startups in the United States, Sevenhugs set up shop in San Francisco in 2016. American ambition has rubbed off on them, and their aim now is to stock every home with a Sevenhugs remote.

The next step is also to investigate the big data possibilities of how to help families even further once they have feedback on how they use their connected devices.

Sevenhugs has already proved itself with a successful connected device – the hugOne, a SmartHome sleep system to track the slumber of all family members.



WHAT IF SHOES COULD TALK?

How connected shoes are improving the lives of feet

Imagine a shoe that knows when you're tired. Impossible right?

What about one that automatically adjusts cushioning to adapt to running terrain and training intensity? It couldn't be real.

What if I told you a company had developed shoes that could do all this, and analyze your gait, and provide real-time running coaching? As well as being able to tie their own laces...

Science fiction you may think, but all this is already possible with Digitsole's Run Profiler, the latest innovation in footwear by Karim Oumnia, whose life mission has been all about shoes. He invented the lightest football boot in the world, as well as the first breathable shoe.

One day, Karim was contacted by a longstanding French company specializing in hunting products. The CEO invited him to go hunting, in March, in the center of France. It was freezing and all the hunters who'd been out for hours had frozen feet. Karim lasted five minutes before he asked the CEO to drive him home. He refused – until Karim came up with solution. So he could get home, Karim promised a remote-controlled heated shoe. Once back in the warmth, he set about figuring out how to create one!

DIGITSOLE

ILLUSTRATION: GAËTAN HEUZÉ



The digital revolution had begun – and henceforward Karim's imagination knew no bounds.

Quick to see the potential of fitting electronics to shoes, Karim was also aware it wasn't going to be easy. He had to find something able to withstand shock vibrations, humidity and dirt – the three things sensors detest the most. It took four years to develop reliable electronics with maximum functionality.

Today, Digitsole is the only company in the world with twin expertise in footwear and electronics.

The first digital product, launched at the 2015 CES (Consumer Electronics Show), was a connected insole to control shoe temperature from your smartphone. It created a massive buzz – lots of people suffer from cold feet apparently – and was voted one of the best innovations.

A raft of new functionalities followed: calorie counting, posture correction, and soon a shoe specially designed to correct children's gait before bad habits develop (it will have flashing lights too). Also in the pipeline, a retractable heel for ladies.

Digitsole technology has the potential to improve posture and comfort for millions of people, particularly those who are hard on their feet or who work in harsh conditions, from soldiers and the police to construction workers and ski instructors.

Connected footwear also heralds new relationships with customers, who are required to provide information such as their name and email when they download the app. Even established brands are aware that the intimacy this affords stands to revolutionize their business models.

In 2017, Digitsole will be looking for new investors to help it reach its goal of being the world leader in connected footwear. Of the 21 billion pairs of shoes sold worldwide every year, Karim reckons Digitsole could sell as many as 10, 15 or even 20 million pairs!

WHAT IF

HEADPHONES PLAYED SOUND IN THREE DIMENSIONS?

How immersive wearable sound is changing the virtual reality experience

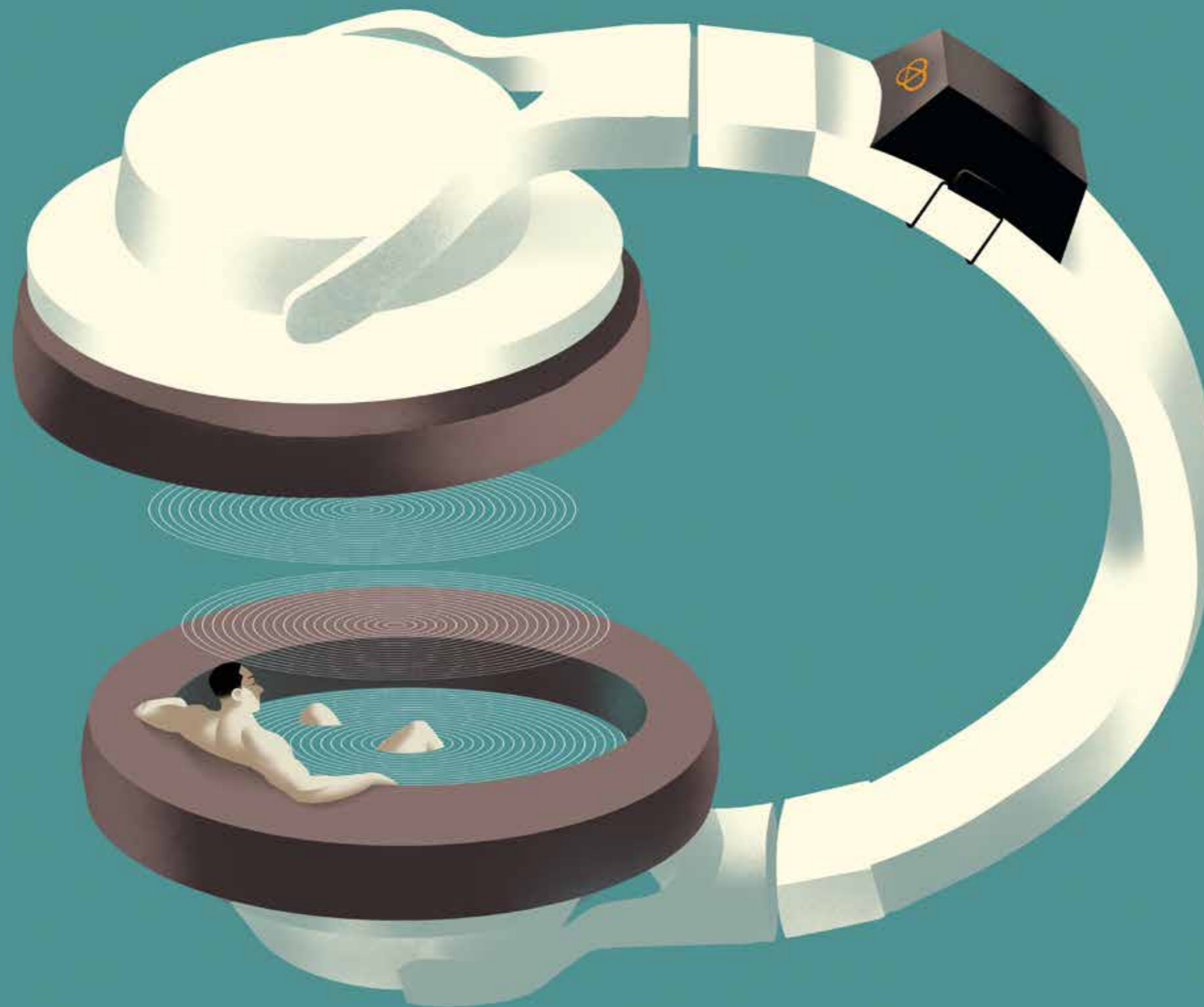
3D sound is what you hear in real life, allowing our brains to analyze sound and know where it comes from. We have an innate ability to locate sound in space by direction and distance, helping us to understand the acoustic structure of our surroundings and to distinguish between several sound sources. These perceptions are a key survival skill, alerting us to what's coming our way, but they also make for an immersive sensory experience.

Efforts to recreate this have been surprisingly flat – or 2D if you prefer. Even the most high-quality recordings struggle to recreate a full 360° environment. The home cinema experience tries to create an immersive experience, but sound direction is limited to the number of speakers installed (even with six or more), while computer- or phone-generated audio has so far been limited to stereo sound from two sources.

Three French entrepreneurs (and proud headset wearers) decided the sound experience of headphones had to be improved. They were concerned that an increase in audio-rich

3D SOUND LABS

ILLUSTRATION: RIKI BLANCO



entertainment – with many new 3D audio formats – was simply being lost on headphone wearers, despite more and more media being consumed on the go.

They created 3D Sound Labs and first sought to understand why we hear in 3D with only two ears. Next they set about creating a sound experience that could cope with an unlimited number of sources using technology that beats even the home cinema experience.

Their first product was the 3D Sound One, the world's first smart 3D audio headphones. This head-turning sound innovation involves real-time head tracking, motion sensors and advanced audio processing, and is compatible with all movie and music formats. Initially funded through a Kickstarter campaign, the headphones proved popular but the team felt they were being sidetracked into the fashion world.

At heart, 3D Sound Labs is a technology company. Rather than create a new headset, they decided to focus on using their technology to help those who already had a headset, but whose sound experience could be improved.

The 3D Sound One Module is a device that can 'hack' any headphone. This small box with elastic straps can be attached to any headset, meaning you can upgrade your headphones to offer a 3D cinematic sound experience without having to buy a new pair.

The technology is now set to rock the virtual reality world.

As we don't have 360° vision, our senses are often led by sound ("he's behind you!"). Directors can recreate this effect in film by drawing viewers towards a noise with the camera. In virtual reality, however, players are free to go wherever they want.

3D Sound Labs are in negotiations with most of the big names in the virtual reality market, who realize that sound will be an important differentiator in future product offerings. Virtual Reality is set to get a lot more real.

What if

YOU COULD BOTTLE SUNLIGHT?

How a combination of solar power, battery technology and predictive usage algorithms cuts energy bills

They weren't the first people to imagine bottling sunshine, but two renewable energy students were lucky enough to ponder the question 'at the right time'.

Cyril Colin and Karim El Alami were in California, where the sun seemed to taunt them: abundant during daylight hours, and then nothing as soon as night fell. As graduates of France's prestigious École Polytechnique, they were studying distributed power systems at Berkeley University, inspired by California's prowess in renewable energy.

The master's students wanted to figure out how to store solar power locally so it could be used when needed, and not just when there was sun. The first step was to create a buffer to store solar energy. Although technologically this had been possible for some time, the cost of solar panels and batteries had made it prohibitively expensive. "We came on the scene at the right time," says Karim. "In the past five years the cost of storage has been divided by five and solar panels by four."

ELUM ENERGY

ILLUSTRATION: INKIE

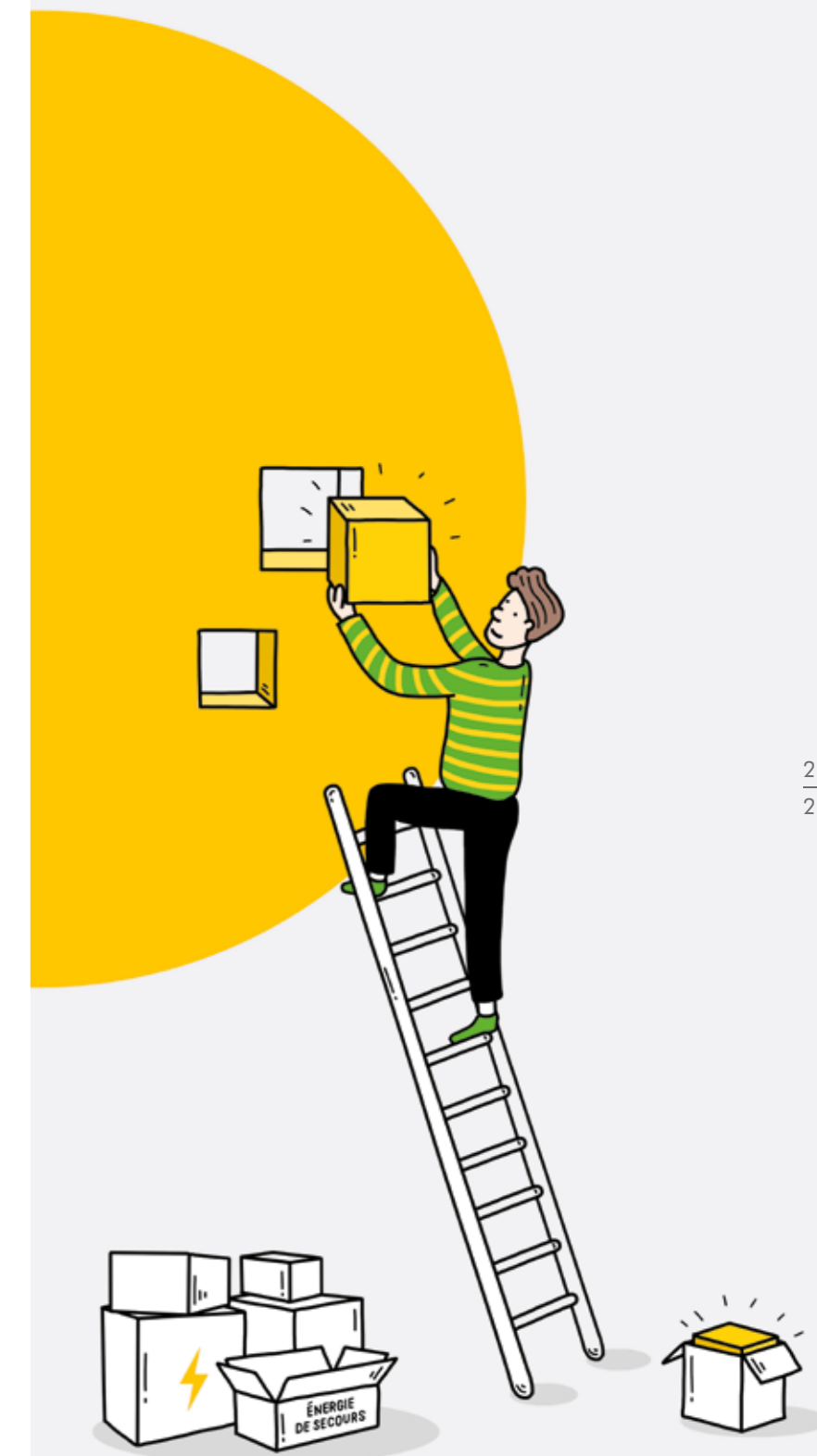
They created an artificial intelligence algorithm to predict the consumption needs of a building and the production capacity of the solar panels on its roof. The price of energy from the grid varies, and their algorithm enables customers to source power when it is cheapest through software that intelligently manages the consumption and storage of solar power.

After graduation, they set up in California accelerator "Cleantech Open" to find an application for their technology. Most of all, they wanted to adapt it for the European and African markets, where they saw great demand.

They returned to France in 2015, and set up in the Impulse Partner incubator, where they applied for funding and grants – including the French Tech Ticket program which they won. In 2016, they created Elum. They chose France because they wanted to source people from the artificial intelligence talent pool (such as the École Normale Supérieure and Pierre & Marie Curie University) and be close to global utility leaders (including Total, EDF and Engie).

They developed their business model at the Agoranov incubator in Paris. Elum sell their Energy OS software platform to independent energy producers, who finance the installation of solar panels and storage solutions for industrial and commercial clients in return for a share of their utility bill savings over 10-20 years (i.e. a "power purchase agreement"). Elum functions as the brain for such systems, enabling maximum returns.

Beyond energy savings, Elum also offers additional services, such as power-cut management – a key part of what they can provide in north and sub-Saharan Africa, where outages can be common. Even micro-cuts can damage profitability, as they can destroy machines and lead to operational losses. In Africa, Elum have secured two ongoing contracts with independent energy producers, and see future deals though electricity suppliers diversifying into solar power, as well as independent project developers.



WHAT IF

DATA COULD ROAM FREE?

How a new low-power, low-bandwidth global network is connecting millions of devices to the internet

Radio communications geek Christophe Fourtet was excited by the digital revolution, but he worried about the exponential cost of the energy needed to process all the data. He became convinced that a completely different technical solution was required and began to tinker. He created a technology that could send small messages using very little energy over very long distances – but he didn't know what to do with it.

Enter Ludovic Le Moan. The serial entrepreneur with experience in connected devices had come to the same conclusion. Immediately, he understood the vast potential of Christophe's invention for the Internet of Things.

Together they created the equivalent of the world's largest radio telescope for the IoT.

Sigfox uses a UNB (ultra-narrow band) based radio technology to connect devices to its global network. This means the network is highly scalable and built for a high number of devices, with very low energy requirements. It provides two-way communications with devices and is surprisingly easy to integrate with software applications.

SIGFOX

ILLUSTRATION: GIANLUCA FOLÌ



Today, the Sigfox low-power, low-bandwidth global communication network connects millions of IoT devices, including smart-home alarms, connected defibrillators, and monitoring devices for the oil and gas industry across 29 countries. The company expects to be operating in 60 countries by 2018.

Sigfox works on the principles of simplicity and agility. The infrastructure is completely independent of existing telecoms or radio networks, and uses an unlicensed spectrum. Base stations are as small as a briefcase, facilitating fast installation. Because data usage is relatively low, fewer base stations are needed.

In France, for example, the whole country is covered by 1,500 antennas, costing around €5 million to install, compared with the hundreds of thousands of masts required by telecoms networks.

In each country, Sigfox operates a partnership model, meaning the local partner is responsible for the installation of base stations and antennas on roof tops and billboards. The network is extremely secure, and designed so base stations don't recognize each other – meaning they don't need to be reconfigured for each new installation.

Where there is a Sigfox network, any device with Sigfox-compatible hardware can connect to the internet without requiring external hardware, like a Wi-Fi router. Sensors go to sleep when not transmitting data, minimizing their already low energy consumption. The batteries used in Sigfox connected devices can last for years.

Sigfox promises massive savings for companies that migrate to its low-power network. It is also targeting devices that haven't previously been connected. A third business case is where Sigfox technology can be complementary to existing telecoms or security networks.

WHAT IF

TRASH RECYCLED ITSELF?

How a smart trash can automatically sorts for recycling

Understanding sorting instructions for trash disposal is a bane of modern life. It shouldn't require a university degree, but the complexity and variance of rules means that it can feel that way.

In 2010, two recently graduated engineers were recruited to fix a sustainable development project that wasn't working. Beginning in La Défense, Paris' financial district, they spent days in offices working why highly qualified people were failing to master manual sorting bins.

The two cofounders quickly realized that sorting instructions and not people were to blame.

"When we are in front of a sorting bin, we don't often know which one to use," says Lucile Noury-Soyer. "Instead of making people feel guilty, we said let's try to simplify the sorting process," adds Rémi Gomez.

The R3D3 bin is smart enough to recognize, automatically sort and compact cans, disposable cups and plastic bottles. Place the object on the bin's base – and it will do the rest.

GREEN CREATIVE

ILLUSTRATION: JEREMY BOOTH



Green Creative devised an innovative sorting technique that makes an initial diagnosis based on weight. Once the compression begins, an algorithm based on height and force determines what type of waste it is sorting.

Next step design. Green Creative wanted a product that looked smart enough for the chicest of offices, and didn't take up too much space. The product they devised is smaller than competitors' smart bins, fitting well into corridors and reception areas – just as regular bins would.

Finally, they digitally connected the trash cans so customers are alerted when they're full. It's also possible to track how many bottles and cans have been collected.

As well as R3D3, Green Creative has a second product, Flexidry, which can remove packaging from organic waste (or bio-waste or food waste) without water or grinding, using low amounts of energy. In many countries, the food industry, supermarkets and catering companies are required to sort and recover their production waste, unsold products and leftovers. The Flexidry process turns what would otherwise be landfill into something very useful and environmentally friendly: a very clean organic matter that can be extracted to make biogas and bio-fertilizer.

The 18-person company has a 1,000 sq. m. production facility, a maintenance unit, a sales/marketing team, and an engineering department. France's 'innovative new company' program (JEI) and Paris Cleantech incubator PRINE mean that Green Creative have been eligible for a variety of grants, subsidies and mentoring support. After completing a first funding round in 2014, they raised €2 million in 2016, which will allow them to expand internationally. They have also signed a partnership agreement in Switzerland and are in advanced negotiations with companies in the United Kingdom and Poland.

WHAT IF

MICRO-ALGAE COULD FEED THE WORLD?

How the planet's most protein-rich food could make us healthier and save the ozone layer

They've been sustaining the creatures of our oceans and seas since the beginning of life on Earth – but now phytoplankton, also known as micro-algae, look set to become a human staple.

Why? Because they offer an answer to a complex problem: feeding a global population that is expected to reach 9.5 billion by 2050, while conserving the planet's ecosystems.

Today, we consume too much animal protein. As the human population grows, the use of arable land for raising livestock looks increasingly unsustainable, especially in terms of the impact on the ozone layer from all that methane. It's not good for us either, putting pressure on our kidneys and leading to higher incidence of heart disease, osteoporosis and cancer.

French startup Algama was formed by three friends (Alvyn, Gaëtan, and Mathieu). They appreciated the positive health benefits of micro-algae from dietary supplements, but didn't enjoy the experience. They knew if they could make micro-algae a food that people wanted to consume, the planet would thank them.

ALGAMA

ILLUSTRATION: THOMAS HAYMAN

The benefits of micro-algae are well known in health food circles. The two star supplements Chlorella and Spirulina are a popular addition to smoothies and green juice. Consumers know that micro-algae contain high-quantity natural proteins (up to 70%, compared to up to 30% in meat), along with amino acids, vitamins and minerals. Only a few micro-algae are available on the market however, out of potentially thousands of varieties.

There is an abundance of micro-algae in our planet, meaning cultivation is ecologically pure and resource-conserving. Having more of micro-algae around is even good for the ozone – micro-algae photosynthesis is four times more efficient than forests in turning carbon dioxide into oxygen. That's why the United Nations calls micro-algae a viable and sustainable future food alternative.

Of course, if making food (and especially food that people want to eat) from micro-algae were easy, we'd have been doing it long ago. Based in a FoodLab in Génopôle – the French biocluster, located in Evry – Algama has embarked on a major development program of prototypes for everyday food products to change that.

The first prototype was Springwave, a naturally blue spirulina-based drink that tastes good. It earned Algama an award for the best drink from SIAL, the world's largest food innovation exhibition.

The first product Algama plans to market is a mayonnaise, which will be on sale in France and the United States in 2017. The micro-algae create the same texture as classic mayonnaise, but without the eggs or mustard – good news for people with allergies and vegans. It is also 50-60% less fattening than a classic mayonnaise.

Recognizing years of R&D effort, Algama have some significant backers. They raised €3.5 million in a first funding round led by Hong Kong Investment fund Horizons Ventures, the leading investor in some of the world's most innovative companies, including Facebook and Spotify. This is helping them develop their commercial offer, with offices in Paris and Brooklyn, New York.

What if

ADVERTISERS KNEW WHAT PEOPLE WANTED?

How digital performance advertising revolutionized a very established industry

It began with a chance meeting in a Paris incubator. Serial entrepreneur Jean-Baptiste Rudelle (startup record: one failure, one modest success and Criteo), was presenting his movie-recommendation idea to business angels. He began chatting with a guy working on his laptop, who said: "Check out those two guys over there. I think they're doing something similar to you."

Those guys were Franck Le Ouay and Romain Niccoli, who became Criteo's co-founders. Together, the trio developed a website that allowed people to rate films and get customized recommendations. The design was slick, the technology innovative, and the results seemed pretty relevant. Problem was their traffic remained tiny, stagnating at 500 visitors per day, no matter how much they spent on advertising.

Then came the first pivot. Criteo tweaked their business model to sell their technology to companies, rather than going directly to consumers. Initial jubilation when they agreed a deal with AlloCiné, the French equivalent of IMDb, quickly wore off when it was clear their market was limited.

CRITEO

ILLUSTRATION: KAROLIS STRAUTNIEKAS



They tried adapting their technology to a customized recommendation app – but they couldn't figure out a way of making money.

Investors were losing patience. In the middle of a tense discussion an independent director stepped in. "Have you thought of using your algorithm for advertising?" he said. That was the third – and finally successful – pivot.

Technologically, it was possible – but Criteo still had little revenue and they needed to raise money fast. Enter Dominique Vidal, a French VC living in London whose startup Kelkoo, recently acquired by Yahoo, had fought to impose a pay-per-click advertising model on the market. Dom understood immediately what Criteo were trying to do. He had just joined Index Ventures, whose investment was crucial.

What Criteo invented is an entirely new approach to advertising. Instead of targeting people based on what they are (their age, gender, home address, or marital status), Criteo's algorithm concentrates on what they want (a new phone, a sofa, a beach vacation etc.). In the advertising industry at the time, it was a surprisingly revolutionary concept.

Criteo's approach required the ability to capture shopping intent, only possible in the digital era when people starting typing key words into search engines. Using sophisticated machine learning technologies Criteo invented a way to harvest other types of consumer data that allowed them to accurately determine high-quality shopping intent in an ever-expanding range of marketing scenarios.

Criteo technology also made it possible for advertisers to make a precise link between their advertising investments and their revenues. This enabled them to optimize media in a way that wasn't possible before.

So far, Criteo reckon they've captured just a small fraction of the vast universe of consumer shopping intent. They continue to invest in R&D to see just how far they can go.

What if

CHILDREN BREATHED UNTAINED AIR?

How air pollutant analysis just got easier and more precise

Formaldehyde is a colorless gas used in the manufacture of common building materials and household products such as carpets, furniture, shelving, flooring and bedding. It is found in 100 percent of French homes, offices and schools.

Studies have shown that exposure can trigger asthma in children. French legislation coming into force on January 1, 2018 requires schools and kindergartens to monitor formaldehyde and another pollutant, Benzene, a carcinogen that causes leukemia.

Stéphane Le Calve, a researcher at France's National Center for Scientific Research (CNRS) and the University of Strasbourg was invited to a working group on the indoor impact of chemical air pollutants by the French Environment and Energy Management Agency (ADEME) and the ministry responsible for sustainable development. He began thinking about the public health impact of formaldehyde... and invented a fully automated machine to measure it.

Like all scientists, Stéphane was obsessed with precision, but he also wanted to develop something useful.

IN'AIR SOLUTIONS

ILLUSTRATION: MARIE ASSÉNAT



His first criterion was real-time readings (existing methods involved sample times over several weeks and lab tests). Secondly, he wanted to improve on the only device providing continuing and immediate analysis, which was cumbersome and prohibitively expensive.

The product he developed is portable (battery-operated and weighing five kg), programmable and can visualize changes over time. Fitted in a school, for example, it can tell you when the peaks occurred. This will improve general understanding – for example few teachers know that common activities such as painting, gluing or using felt can be sources of pollution. The invention can also pinpoint where the pollution came from, and which air currents it moved with. Information like this enables schools to identify and eliminate the source, ensuring that children can breathe easier.

Looking for someone to market his product, Stéphane met Stéphanette Englaro in 2011. She understood the science along with the market potential, and two years later they formed In'Air Solutions.

Supported with public and private funding – and hosted and encouraged by Strasbourg University and the CNRS – they have developed a technology that has won numerous awards, including Bpifrance's Innovative Business Creation prize.

They have also adapted their technology to measure for other pollutants. By early 2017, In'Air Solutions will have two products to market, to analyze formaldehyde and benzene – both of which must be measured in educational establishments from 2018. With help from Business France they've already tested export demand in Europe and will soon be doing the same in North America.

WHAT IF

WASTE DIDN'T POLLUTE, BUT HEALED THE PLANET?

How agricultural waste can be transformed into a fossil fuel alternative

It all began at Europe's largest summer school for climate innovation and entrepreneurship, Climate-KIC. Emmanuel Thiéry, a French student in entrepreneurship and graduate from the Pierre and Marie Curie University, and Mariana Bittencourt, a Brazilian architect and PhD student in economics and eco-innovations, met a group of students driven by an ambition to turn agricultural waste into something useful. They began by looking at their own consumption habits.

Being students, they drank a lot of coffee, and being an environmentally conscious Brazilian, Mariana was aware of the polluting effects of coffee waste.

Coffee is like a cherry, but the fruit part is often thrown away, as only the seed or coffee ground is considered to be valuable. The group worked on ways to make coffee production more sustainable, and to increase coffee farmer revenues, settling on pyrolysis. This process changes the chemical and

BIOPHENOL

ILLUSTRATION: RIKI BLANCO

physical composition of organic matter through anaerobic thermochemical decomposition at high temperatures. It is one of the processes involved in the charring of wood.

They called their team Cophenol – mixing coffee with the compound phenol, commonly known as carbolic acid – and decamped to Brazil. After a successful Indiegogo crowdfunding campaign, they were able to fund research into transforming the thrown-away fruit into something useful.

In Brazil, Cophenol developed a sustainable biorefinery process that transforms coffee waste into valuable chemical products without causing further soil and water pollution or emitting greenhouse gases. The by-products biochar or bio-oil are both useful products for coffee farmers. Biochar, or organic charcoal (coal made for agriculture), can be used to improve soil productivity. Combined with other organic matter, it can also be used as a fertilizer, a combustible fuel, or to remove water pollution. Bio-oil can also be used as a substitute for petroleum-based substances.

Cophenol applied for the French Tech Ticket Global Startup competition for talented startups looking to 'incubate' their project in France. It was one of six winners, selected out of more than 700 applicants, to present their idea to President Francois Hollande.

They teamed up with chemical engineer Moussa Dicko and set up in Paris, where there is no coffee waste – but many possibilities. Their carbon-negative process can be used with any biomass product made from agricultural and forestry waste, and after some French Tech Ticket mentoring, the team changed their name to Biophenol.

The Biophenol team are currently working on oak bark offcuts, for which there are a large variety of potential uses, from cleaning industrial water by removing metals to reducing fertilizer needs.

Biophenol are currently working with oak loggers in the Centre-Val de Loire region of France on their first product: a resin which can be used as a wood adhesive.

WHAT IF CHANGING BUSINESS PROCESSES WAS EASY?

How an open source business process management suite helps CIOs reduce maintenance costs

Business Process Management isn't usually thought of as something pretty: it's usually described with masculine words such as efficient, effective or value-generating. But when researchers at France's National Institute for Research in Computer Science (INRIA) were looking for a name for their collaborative workflow project, they turned to Spanish engineer Miguel Valdés Faura. He said their BPM solution would be the sexiest on the market, and called it 'Bonita,' which means pretty in Spanish.

So what is BPM? Basically, it's a way of making businesses and organizations work better. In many cases that means automating processes such as managing loan requests in banks, or recording insurance claims.

What makes Bonitasoft 'sexy' is their recognition that automating a process is often not the last step. This is particularly true since the digital revolution accelerated the pace of technological change – meaning many businesses need to constantly update their processes. The way this is usually done is by building applications on top of existing processes, which can be messy – even for IT wizards.

BONITASOFT

ILLUSTRATION: GAËTAN HEUZÉ



Bonitasoft strives to make processes as easy to use as they are to build, with a platform enabling companies to develop applications and maintain them over time, which is very sexy indeed (especially for Chief Information Officers).

The CIO's main responsibility is to manage their organization's computer systems. Often, 85% of their budget is swallowed by maintenance, when what they really want to do is build new technology to expand their businesses. The Bonitasoft platform reduces maintenance costs significantly by making it easy to make improvements.

The story began in 2001 at INRIA when researcher François Charoy and engineer Miguel Valdés Faura released the first version of the Bonita open source project. Bonita was then used in industry, where the project was incubated for several years at French computer firm Bull. In 2009, Miguel was joined by Charles Souillard and Rodrigue Le Gall, and together they founded Bonitasoft – transforming the publicly funded research project into a commercial company.

Today, they are an international team of a hundred people in France and the United States spread between four offices: Paris, Grenoble (where it all began, and where the R&D team is located), San Francisco and New York. Clients include many members of the French stock market index CAC 40 and the Fortune 100 largest companies in the United States. In all, they have 1,000 customers in 75 countries.

BPM is, of course, a crowded market. Bonitasoft beat off competition by designing a lighter, scalable, modular and more customizable solution. Because it was also available in open source, customers had a free try. They could download it, start using it, and pay for the commercial version only when they were satisfied. Bonitasoft also introduced a subscription model, a rarity in 2009 that has been much copied since.

What if

YOU COULD PREPARE FOR JOBS THAT DON'T YET EXIST?

How a web platform is reinventing career advisory services

Our children live in a world where the jobs of their parents will soon be defunct, and the jobs of tomorrow don't yet exist.

In an environment like this, many are wondering, how do I prepare for the future of work? What skills will I need? What will be the jobs of tomorrow?

We are entering the so-called 'Fourth Industrial Revolution', where the way we live and work is changing fundamentally. Technology is advancing at breakneck speed, disrupting established business models and practices, and even whole industries. Geeks are going creative, as the traditional boundaries between arts and sciences are being broken down. No-one expects a career for life, or even a pension. The rise of artificial intelligence even has some questioning whether humans will be needed at all in the future.

Enter Pixis.co. It was founded by an Italian, Borna Scognamiglio, and Wissam Sammouri, a Lebanese with a PhD in data mining, who met each other while studying in France. They saw that future workplaces will require flexibility and

PIXIS

ILLUSTRATION: INKIE



multiple career changes, and a combination of skills that can't easily be obtained at school or university. Some careers are so new and evolving so fast that there is little guidance at all – particularly in the key areas of sustainable development and innovation.

Predicting the future isn't easy, of course, but big data had untapped potential for career forecasting. In particular, the Pixis team noticed three things. Firstly, most students (67% in a 2015 OpinionWay survey for LinkedIn) want better careers advice. Secondly, over one-third of university students change their mind or drop out in their first year. And finally, companies report that students lack the right skills. That, they surmised, was a market opportunity.

One year later and Pixis won the French Tech Ticket Global Startup competition. After a year of mentoring and seed funding, they released their online college guidance platform.

Pixis, meaning 'compass' in Latin and Ancient Greek, offers a variety of pathfinding services. There is a career search engine called 'Galaxy' to start. Students can then complete an online questionnaire to identify potential future careers. There are a variety of paid-for premium services, such as signposting required skills and how to acquire them. While universities and colleges may provide some of the basics, students of tomorrow will need to complete their CVs through online courses, self-teaching via YouTube and MOOCs, the massive open online courses that are shaking up traditional ways of delivering learning.

For those wishing to delve deeper, Pixis also offers a paid-for coaching service via a directory. This includes coaches and professionals offering to answer questions about their chosen career, or to describe the reality of their daily working life. Coaches are curated according to their use of advanced cognitive methods, while quality is assured through user ratings.

Pixis are also developing an artificial intelligence assistant that will accompany users through the platform and make connections between the different services.



WHAT IF

CAMERAS COULD FLY?

How a self-flying drone shoots professional-quality images

Hexo+ is essentially a self-flying camera loaded with pre-programmed focusing movements that can be launched by a smartphone app. It was dreamt up by seven-time world champion snowboarder Xavier de Le Rue, who was fed up of paying a fortune for helicopters to film his adventures.

He pulled together expertise from a team of six that includes software developer Sogilis, whose embedded systems are used in all Airbus planes, and Playmaker Communication, the film production company of Xavier's agent Mathieu Giraud. The award-winning technology they created (three prizes at CES 2015, and one at ISPO 2015) means a drone can shoot footage as good as a professional photographer in a helicopter – without the need for a cameraman or a pilot.

Precision is achieved through a smartphone app that enables users to create a rich storyboard, detailing pans and zooms, or even 360-degree spins. Add a spectacular wilderness background and some daredevil sporting moments, and the result is incredible.

A 2014 Kickstarter crowdfunding campaign raised over US\$1.3 million in just 30 days from over 2,300 supporters. Community backing allowed Squadrone System to launch

SQUADRONE SYSTEM

ILLUSTRATION: JEREMY BOOTH

Hexo+, and they haven't forgotten it. Every two weeks, they check in with their community of adventure sports enthusiasts who endorse the development of new product features.

They successfully raised €3 million last year to develop Hexo+ for new applications beyond adventure sports and to expand internationally. With the help of talented engineers poached from the Grenoble startup ecosystem, Squadrone System are now developing other drones for new applications. The potential is vast: rooftop drones that could help emergency services through early detection of fires, indoor warehouse inventory, site surveillance and security – to name just a few potential uses.

With experience in embedded intelligence, optimized mechanics and electronics, and radically easy-to-use mobile apps, Squadrone System's mission is to make drones accessible to all. Using civil aerospace methodology, they have developed safe navigation algorithms to capture the aerial views of a pilot, without having to get in a plane or helicopter.

Next in the pipeline is Eyesee, an indoor drone for stocktaking and inventory control in warehouses. This indoor industrial drone has been developed with Hardis Group, a digital services firm and software publisher, and is being tested by warehousing, transport and packaging leader FM Logistic at its warehouse in Satolas (France). Production is expected to begin next year.

Around 60 percent of Squadrone System's customers are American, and the company has already set up in San Francisco with help from Business France's Ubi i/o accelerator program. Further expansion may depend on legal drone regulations, which vary country to country.



WHAT IF

CAR OWNERS RENTED OUT THEIR OWN CARS?

How streets littered with empty parked vehicles could be a thing of the past thanks to a new car rental market

Buying and owning a car can be very expensive, yet these fast depreciating assets often sit idle in front of our houses. Paulin Dementhon thought there must be a way to transform cars from resource drainers into asset generators.

On the street where he was living in Marseille, three families shared one car – splitting running costs with the help of an Excel file. He became obsessed by all the useless cars clogging up our cities. What a waste of resources! Why was car-sharing not a more common thing?

With zero digital experience, Paulin set up a website that allowed people to advertise their cars, or their need for one. One day a user telephoned Paulin to say that he'd rented his car out ten times, but he now had a problem: someone had damaged his vehicle.

At this moment Paulin realized how useful the service was – and how much more useful it could be with a little

DRIVY

ILLUSTRATION: RIKI BLANCO



more attention. He spent the best part of a year talking with insurance companies and setting up a proper website, launching Voiturelib at the end of 2010 (it would later become Drivy when the service went international).

Offered office space by the founders of carpooling service BlaBlaCar, Paulin moved to Paris. Once there, he quickly noticed most people don't need or own a car – although having one occasionally for weekend getaways, holidays or supermarket shopping would be useful. The popularity of car clubs and Autolib', the city's nascent electric car sharing service, convinced Paulin (and his early investors) that he was onto something big.

Paulin was still fielding calls from people using the service, fixing problems wherever he might be (celebrating the New Year, or on the top of a mountain), before Nicolas Mondolot joined the adventure, taking care of the technical side. An angel funding round at the end of 2011 enabled Drivy to recruit an operations team, and launch its mobile app.

Today, Drivy is the leading car rental platform in Europe, covered since 2014 by insurance giant Allianz. With 40,000 cars registered on its network, renting a Drivy car is now easier and cheaper than using traditional car rental companies. From the outset, Paulin wanted Drivy to be as flexible as possible. You want a big car on Tuesday and a smaller vehicle on Thursday? No problem.

Drivy has also found a technical fix that spares users from the hassle of exchanging keys. With Drivy Open, you can open the car door from your smartphone via the Drivy app. Paulin had long dreamed of the possibility, investing in two years of R&D to develop the technology.

Available in France, Germany, Spain, Belgium and Austria, Drivy now has over a million users. This rapid growth has seen the team increase from twelve people 18 months ago to 83 today. For environmental, congestion and financial reasons, Drivy expects the popularity of car ownership to fall, particularly in cities. At the same time, people still need occasional access to a car – which means demand for their service will grow.

WHAT IF

CAMERAS COULD TALK?

How to unlock the secret life of your home and garden – and be alerted to intruders

The Secret Life of Pets – an animated film that premiered at the Annecy International Animated Film Festival in 2016 – tells the story of a Jack Russell called Max, and what he gets up to when his owner is at work.

Now, pet owners have a way of monitoring what their animals do when left to their own devices. Using breakthrough deep-learning algorithms, Presence is the first outdoor security camera that can detect and report in real time on any activity at your property – human, animal or vehicle.

It can tell you if anyone is loitering around your home at night, or if a car has entered your driveway. For budding David Attenboroughs, Presence also reveals the secret animal life in your garden or yard. Netatmo Founder Fred Potter likes to observe the animal life in his country house in Brittany. At night, he's seen foxes, rabbits, ferrets – and noted birds always come at the same time each day.

Launched in 2016, Presence follows the success of Welcome, a smart home camera that uses face recognition technology to

NETATMO

ILLUSTRATION: THOMAS HAYMAN



identify family members. It can be used to notify users when children or elderly parents are home, and when they leave the house – or when a stranger's face appears.

Netatmo is the only company to have introduced artificial intelligence into cameras. Both Presence and Welcome can send the names of the people it sees to the user's smartphone, or alert them to an unknown face or (for Presence) a vehicle.

Privacy settings are fully customizable. Users can decide whether or not the camera should send notifications or store footage. Recorded videos and identification data stay entirely private on the camera's local SD card. Nevertheless, they can be saved in a personal FTP or Dropbox account if the user wishes.

Both cameras won four "Innovation Awards" at the world-famous Consumer Electronics Show in 2015 and 2016.

Netatmo's smart products fall into four categories: weather, security, energy and air care. The company's first device is the personal Weather Station, which monitors indoor and outdoor environmental elements, including temperature, humidity, air pressure, CO2 level, noise pollution, rain and wind. Working in more than 170 countries, it's a crowd-sourced weather observation network that operates around the globe.

In November 2013, Netatmo launched their Smart Thermostat, which allows users to monitor and control household heating remotely. Designed by Philippe Starck, it can help them save up to 37% of the energy needed to heat their home.

At CES 2017, Netatmo announced two new products: a Smart Smoke Alarm and an Indoor Security Siren to deter intruders. The company has also collaborated with Legrand and Velux as part of its "with Netatmo" partnership program to create connected solutions integrated into residential home infrastructure. The company, in which Fred Potter and Netatmo's other founders remain majority shareholders, is passionate about creating smart and useful products for the home.



What if TEA WAS THE NEW WINE?

How a sophisticated tea culture is wooing France, and the commercial potential of its Grands Crus

When Chinese tea aficionado Qian Yang came to study in Paris, she was disappointed by the tea culture. Her coffee-drinking friends elegantly blended milk or sugar into their cups with a silver spoon, while she was burning her fingers hooking tea bags out of boiling water and looking for somewhere to dispose of them once used. The vulgarity ruined the taste experience, even when shredded tea leaves didn't spill out of the bag holes to leave unsightly dregs at the bottom of the cup.

Qian began to imagine how different tea drinking could be in France. The fashion for tea brands like Kusmi Tea shows an appreciation for finely blended teas in Paris and other big cities. More and more young people are turning to tea, whereas in the past it had been seen as something for old people. For health reasons, many people choose tea over coffee or even alcoholic beverages, and are developing an appreciation for the taste.

In May 2016, Qian and Mike Liu Yang established Infuthé SAS in France, after being selected for the French Tech Ticket

INFUTHÉ

ILLUSTRATION: KAROLIS STRAUTNIEKAS

Global Startup program. Their ambition was to foster a French tea culture by changing the way people drink. They reasoned that a tea-drinking culture had only one pre-requisite: boiled water. So why couldn't it be transported out of tea houses and into France's many coffee shops?

They began with the tea bag. French Tech Ticket network engineers, including one from NASA, helped them with design and choose materials, while incubator Usine 10's 3D printers created a prototype. To find manufacturing facilities and service providers that could help them with mass production, they made some modifications.

They ditched the first triangular design to take inspiration from makeup, and designed an oblong-shaped bag that can be dipped in water and replaced in a holder, without spillage. The cover also means the teabag can be used several times – as in Eastern tea culture where 5-7 infusions is standard. It's about the same size, shape and length as a lipstick, and can easily be stored in a small bag.

Next they turned their attention to the leaves. For a high-quality drink, these must be whole. Infuthé's first blends, or Grands Crus, will be adapted from Chinese classics. Like wine, the quality is all in the terroir, year of harvest, type of leaf, and the growers' experience. Infuthé's first product will be a black Tibetan tea that doesn't exist in Europe, closely followed by a green mountain tea mixed with jasmine, and another black tea from Taiwan.

After that comes the tea ceremony. Although the market for the full-blown Chinese version will be limited, Qian and Mike expect a little of the magic to rub off in everyday drinking. Just as the Chinese tend to drink only the finest French wines, they expect French people to gravitate towards the finest tea blends.



What if

PETABYTES OF DATA COULD BE STORED ON STANDARD HARDWARE?

How a high-performance software-defined storage platform is disrupting traditional rack-based solutions

It was the late-2000s and Facebook and Twitter were still in their infancy. The first internet-connected multimedia smartphone had only just been made available to the public (2006/07) and HD television didn't exist.

Jerome Lecat was leading his second startup, which provided large-scale email platforms to some of the biggest telecoms companies in the world. His customers talked about the need for a high-performance storage system that could deal with thousands on online requests per second. If only the hardware wasn't so costly and cumbersome...

For the past 30 years, data storage has required expensive hardware based on aging technology. About ten years ago people started talking about the cloud as this magical place where photos, films and music were stored. In reality, this often meant racks of dedicated servers humming behind barbed wire fences.

SCALITY

ILLUSTRATION: MARIE ASSÉNAT



Jerome noted that the giants of the internet – Google, Amazon and Facebook – were bypassing this hardware setup, preferring to store their own data on standard servers controlled by software. He figured they didn't have to be the only ones. Today, it's called software-defined storage (SDS) – basically data storage independent of hardware.

Scality was formed in 2009, the year when Spotify made music streaming commonplace, and video-on-demand (VoD) exploded. SDS was in its infancy, with questions of how much data could be stored this way.

The Scality team created what they called the RING. Essentially it's a bunch of hard disks on standard servers controlled by software that enables companies to store and retrieve billions of objects or even petabyte-sized objects.

The Scality solution not only just stores data, but also activates it on demand for thousands (if not tens of thousands) of operations per second. Currently no other object storage vendors can do this.

Scality's aim is not to replace data centers, but rather to offer a complementary technology (also of interest to data centers) that makes data storage much more cost-effective, efficient and reliable.

The name is derived from the concept of scalability. In computing, an algorithm, program, networking protocol or other system is said to scale if it's able to handle a growing number of situations. If it's not scalable, then new technology is required. The term has also been appropriated by the business community to refer to a company's ability to grow at pace.

Current clients include telecoms operators (Orange, SFR), VoD sites such as Dailymotion, and TV channels (Eurosport, TF1). Over 500 million people use the RING, although they may not realize that the video they are watching on replay relies on Scality technology. The company expects to double their clientele to 250 this year across all regions of the world.

WHAT IF

WATER WAS FILTERED WITH DIAMONDS?

How chemical-free diamond electrodes can purify water, avoiding waste and saving money

In 2010, the United Nations General Assembly passed a resolution stating that access to clean drinking water and sanitation is a basic human right. Yet the World Health Organization estimates that one in 10 people don't have a source of safe drinking water, while one in three lack toilet access.

To help them, an Indian entrepreneur has developed a water treatment method that is cheaper, more environmentally friendly and more robust than energy-intensive conventional methods, using a material usually associated with wealth.

While prized as a jewel by women all over the world, diamonds are also valued for their purity, high stability and robustness. As Raphael Kiran discovered, this means they make great electrodes that can purify water for a fraction of the cost of conventional methods.

During his PhD in electrochemistry, Mr. Kiran worked at the Diamond Sensors Laboratory in the French Alternative Energies and Atomic Energy Commission (CEA).

DYMOND CLEANTECH

ILLUSTRATION: GIANLUCA FOLÌ



There, he invented an energy-efficient technique to automate the cleaning of diamond electrodes. That was the initial spark. Smart cleaning techniques and low-cost production of diamond electrodes followed.

By 2014, Mr. Kiran had teamed up with two other scientists and a business developer, and together they applied for and were selected by the French Tech Ticket Global Startup competition. Mr. Kiran credits the program for the support they subsequently received, including legal and technical advice, market research, as well as funds to develop their project.

Here's how it works: firstly, Dymond Cleantech uses 60% less power, reducing operating costs.

Secondly, it is 100% chemical-free. This is because a chemical that can purify water is contained within water itself. The diamond electrode splits the water molecules, creating a very reactive hydroxyl radical that incinerates the pollutants and microbes without generating any waste. The process eliminates the pathogenic micro-organisms that cause diseases such as cholera and hepatitis more efficiently than a number of chemicals – and without any of the hazardous by-products.

Dymond Cleantech's process also employs an automated biofilm cleaning technology that cleanses the electrode of biofilm and mineral deposits, improving the durability and service life of the electrode and reducing maintenance costs. The company estimates that service life will exceed 20 years.

Their first product is the Diamond Shower, which cleans and recycles the wastewater from the shower, which accounts for 40% of household water use. They are also developing a product with a pilot customer to completely recycle gray water.

The potential market is huge. Dymond Cleantech plans to offer ultra-pure water treatment systems to high-tech firms in industries such as pharmaceuticals, semiconductors and biomedicine; water recycling technologies for agricultural and domestic purposes; and wastewater treatment technologies to breweries and car washes.



WHAT IF

PHOTOGRAPHS BROKE FREE FROM THEIR FRAMES?

How a smartphone camera records the entire experience of a photograph, and lets you navigate inside it

Looking at a particularly exquisite painting can feel immersive. People sometimes feel like they could dive in – but they rarely say the same about photographs. Why?

Giroptic Founder Richard Ollier decided to rethink the art of photography. By framing photos – usually in rectangular formats that conform to the same dimensions as our phones, computers and TV screens (4/3 or 16/9) – had we put form before function? By transposing the frames of one art form (painting) on another, had we put artificial limits on photographs?

Richard reasoned that when you take a photo, you're capturing a moment. For many people, it's a memory rather than something they want to put on a wall. For all these people, the frame is a prison. Forcing your experiences into a rectangular box means choices have to be made about what to leave out.

GIROPTIC

ILLUSTRATION: GAËTAN HEUZÉ

Richard and his team re-imagined the photograph as a sphere that allows you to capture an entire scene, and afterwards navigate inside it. He envisioned being able to re-live the moment in 360°, or experience it in a different way, by changing the angle or direction of vision.

Of course, capturing 360° isn't easy – requiring several captors and optical lens, as well as the connections between them. And once you've started down this road, everything changes – from the method of taking a photo to its storage and distribution.

Giroptic's story began with a 360° panoramic street view – well before Google Street View existed. It was a success, but their B2B model meant the expensive hardware had a limited market.

A successful Kickstarter campaign changed all that. Marketing the world's first full HD 360° camera directly to consumers proved a massive success (US\$1,419,068 raised from 3,916 backers).

Designed to see the world "Up, Down and All Around," the 360 Cam records videos, takes still photos, and streams real-time video over Wi-Fi from every angle. It was designed to offer the industry's largest field of view, delivered via three synchronized 185° fish-eye lenses that can stitch images together in real time inside the camera. With a waterproof rating of IPX8 and a proprietary underwater lens cup accessory, users can also enjoy crisp and distortion-free images underwater.

The latest invention, the Giroptic iO, is an attachment for the iPhone or iPad, offering users a fully immersive 360° experience without having to buy a dedicated camera. You can share your experiences live via social media.

Giroptic's team of 45 is spread across sites in Lille (Giroptic's headquarters), San Francisco and China. France supplies talented optical, software and electrical engineers, while the United States is the main market, and China harbors the most long-term potential.



WHAT IF

FIRMS COULD SEE HOW THEIR BRANDS ARE USED?

How image recognition technology can unmask real consumer patterns via social media

TT Chu was starting a designer fashion brand at home in Singapore, manufacturing Oxford-style men's shirts. He wanted to gain insight into how his customers were wearing his shirts by searching using the hashtag of the brand name. He quickly discovered that 90% of photos shared online are not tagged or attributed keywords, making that impossible. Every brand manager he spoke to was similarly frustrated – so he set about finding a solution.

At the same time, May Yamaura was working as a digital marketer in the United States. She was dissatisfied with text-based analytics for consumer insights, noting that visual experiences are slowly replacing text as the communication medium on social media sites such as Facebook and Instagram.

TT and May met through mutual friends in Japan, and began discussing the massive potential of image-based analytics. With support from IBM, Amazon and Google – who offered them free credit for data crunching – they began to build a technology platform in 2013, and in 2015 they launched visual marketing research tool Brand Pit.

BRAND PIT

ILLUSTRATION: RIKI BLANCO



Using artificial intelligence and image recognition technologies, Brand Pit extracts information directly from photos and videos shared on social media, identifying brands and their context. By tapping into the exact moment of consumption, Brand Pit is able to analyze how, where, and by whom products are being consumed. For example, Brand Pit analysis showed Corona that 15% of their consumers are female, aged in their 20s, often drinking at the waterfront with friends.

Brand Pit sells consumer behavior analysis reports to brands and advertising agencies. This valuable insight has enabled clients such as LVMH and Unilever to adjust their marketing and advertising strategies – and maximize their investments.

The company now has 20 employees working in Japan, Hong Kong and Paris. They set up in France after winning the French Tech Ticket Global Startup competition, rejecting efforts to woo them to the United Kingdom after deciding that London was too expensive.

They have found the French Tech ecosystem kind and helpful, and Paris an inspirational base. The beauty of the city, its culture, art and history feel like the natural home for a business focusing on innovation, visual impact and creativity. It's also an important center for luxury brands, with most of Brand Pit's clients being in food, beverages and fashion.

The French Tech ticket program has already helped Brand Pit establish valuable connections with companies and research institutes focusing on artificial intelligence for further R&D. The founders add that they are impressed with the vibrant talent pool, which will help grow their business as it looks to expand into other European countries.

What if

E-SALES OF LUXURY BRANDS WERE FAKE-FREE?

How an online marketplace for second-hand designer brands won fashionista trust by ensuring authenticity

As a Product Manager at Chanel, American Meryl Job had a fabulous wardrobe. To keep up with the latest trends, she had a clear-out every so often, but she couldn't find an appropriate place to sell designer brands online. There was simply nowhere beyond general websites that had the look and feel of luxury fashion, and she knew many Parisian fashionistas and bloggers with the same predicament.

She soon discovered the difficulties of selling luxury goods online. First challenge: guaranteeing authenticity. Secondly, because second-hand luxury goods are valuable, buyers require a return guarantee.

Enter legal expert Renaud Guillerm. He joined Meryl in 2007 to help develop a platform offering a 100% guarantee against counterfeits and a guaranteed return policy for exclusive luxury fashion goods.

Videdressing was one of the first signatories of the charter against counterfeiting in partnership with major luxury brands.

VIDEDRESSING

ILLUSTRATION: MARIE ASSÉNAT



They recruited a team of specialist lawyers to check all the luxury products being sold on the website. To help them, Videdressing developed a specific intellectual property inventory tool to quickly sift out fakes. Compare this to old-world methods, where an army of people would be required to verify a product.

Sellers quickly lined up to join the community – and their pre-loved goods attracted a large number of buyers (as well as media coverage – journalists were among Videdressing's first clients). Meryl and Renaud found they had uncovered a massively under-served market.

It's also a market that renews itself. Fans of luxury goods don't all have big pockets. Selling items they may have outgrown creates funds for buying new ones.

Today, the community is more than a million people strong. Videdressing maintains its popularity by offering competitive prices (40%-80% cheaper than store-bought items), access to over 900,000 unique pieces from over 8,000 designer brands, and very competitive commission rates (15% for sellers). The team includes fashion specialists, designers who have worked with leading luxury brands, product managers, and developers. They have invested heavily in the mobile site, which accounts for 60% of their business.

From the outset, Videdressing cultivated a strong relationship with its community. Volunteers answer questions from prospective buyers and sellers, and help improve the experience. Ratings encourage sellers to describe their product accurately and provide a high quality service. Videdressing closely monitors transactions and addresses any potential issues.

Customers are mainly women between 25 and 45 with strong fashion sense. While most reside in France, Videdressing have customers in over 100 countries – and a growing number of men (think watches). Videdressing customers like to mix and match, marrying a high-street blouse from Zara or Zadig & Voltaire with a Hermes scarf, for example. Between 4,000 and 5,000 new products go on sale each day.



WHAT IF

YOU COULD RUN FASTER WITHOUT TRAINING HARDER?

How an analytics platform can improve your running experience

People who like running know there's a lot of apps, tracking devices and other gizmos that tell you how fast you ran, over what distance and so on. The devices collect a lot of data, but often they don't do much with it.

Two running enthusiasts – American Christopher Lukic and Jacklyn Giron from the Philippines – used many different running apps, but found the results were lacking. Often difficult to understand, they provided an overload of information, rather than good insight.

Christopher and Jacklyn agreed they could do better, and set about creating an app that presents and logs data in a more intuitive way. Initially built as a fun tool for friends and family, they noticed Smashrun was being used by runners all over the world. They began monetizing the service in 2013.

What Christopher and Jacklyn had discovered was that good data visualization helps you delve inside your run by teasing out patterns and dependencies. For example, do you perform better on downhill or uphill? On a particular day, perhaps you

SMASHRUN

ILLUSTRATION: THOMAS HAYMAN

didn't do that well. Was there anything out of the ordinary about your run? With Smashrun, you'll know when you're improving and when you start to plateau. More importantly, you'll see when it's okay to push on and when you need to cut back.

Another Smashrun absolute is that logging runs shouldn't be a hassle. You can manually add a run in seconds, and it's easy to import data already collected on other devices and apps, whether it be in GPX, TCX, or HRM format, or stored on a Garmin, TomTom, Magellan, or Nike+ device.

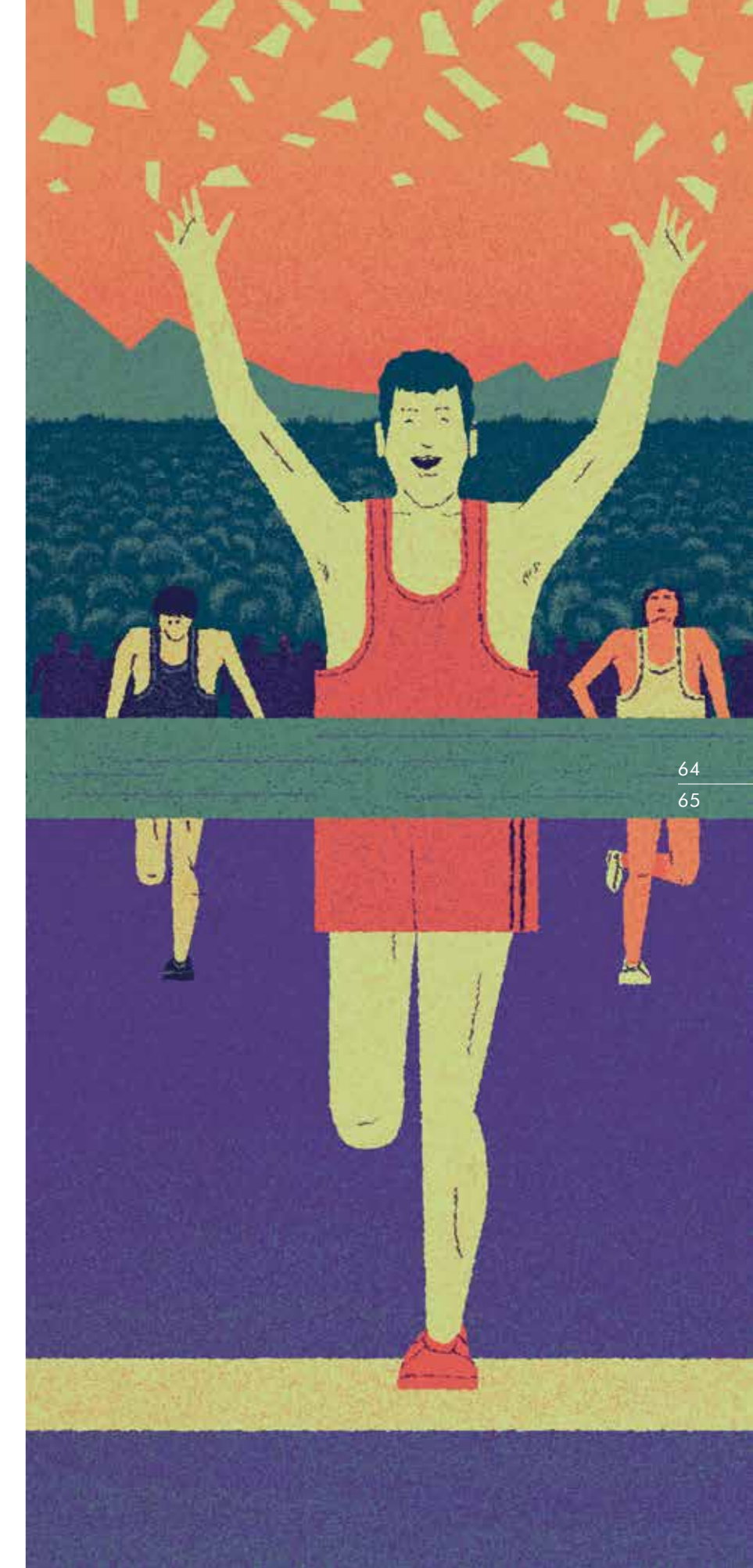
Smashrun stores and graphs years of data – giving runners a new perspective on their entire running history. It's free, easy to use, and kind of addictive (in a good way).

Aware that running can be monotonous, Smashrun invented some quirky badges to help motivate Smashrunners, particularly on those sluggish, difficult days. As Jacklyn points out, human beings have been rewarding accomplishment with symbols or tokens of respect for thousands of years.

Lots of running apps award badges to users to get them to run faster and compete with friends, but no-one else has offered prizes for running to the four corners of the world, on the Summer Solstice, or on Pike's Peak, the highest peak in the Rocky Mountain range. So taken was a Techradar journalist that he set himself the challenge of earning every badge within a year – not an easy task. The rarest badge is the Two by 365 by 10k, which requires users to run 10km every other day for an entire year. Only two people have ever earned it.

In just a few years, traffic had spiked, particularly in Europe. The Smashrun team wanted to move closer to their European client base, but Schengen visa rules meant they had to move every three months.

They applied for and won a place on the French Tech Ticket Global Startup competition, which gave them a small amount of capital to grow their business – and a three-year visa. Since then, they've already noted that the French go for longer runs than Americans, are more competitive, and use more trackers!



What if

TRANSPORTING GOODS TO AND WITHIN AFRICA COULD BE MADE SIMPLER?

How an online logistics hub stands to revolutionize trade in Africa

It started out as an ordinary day at the port of San Pedro, Ivory Coast, for Zakaria Dabone. Then a warehouse full of fertilizer changed everything.

With no dump truck available to transport the much needed fertilizer, the farmer who had paid for it ended up not only missing the planting season, but having to pay to store the fertilizer. Mr. Dabone felt that there had to be a better way.

Originally from landlocked Burkina Faso and with experience in his family's 45-year-old freight transport business, Mr. Dabone is familiar with the logistics difficulties that arise in some parts of Africa. He began to think of a platform connecting every part of the transport network, from the mechanic who repairs the trucks to the shippers, carriers, freight forwarders and warehouse operators that send, move and deliver freight.

In Ghana, Mr. Dabone met Steven Silverstein, an expert in international government policy, and French marketing

BIFASOR

ILLUSTRATION: KAROLIS STRAUTNIEKAS



specialist Rym Soussi. Together, they decided to turn the idea into a business. They formed Bifasor and applied for the French Tech Ticket Global Startup competition.

Bifasor is one of the 21 winning startups, out of a total of 1,400 applicants worldwide, who received support from the French Tech Ticket. Their idea has evolved into a platform that brings formality to what is still an informal marketplace in many countries. The three founders credit French seed funding and mentoring for helping their early stage company get off the ground.

Bifasor brings small and medium-sized logistics companies online through a social network that provides information, connects them with one another and facilitates their interactions. This includes importers, exporters, manufacturers, distributors, shippers, warehouse owners, freight forwarders, freight agents, and custom brokers, among many others.

Subscribers can market, message and make deals from a single control panel. The search engine allows members to find new opportunities with reliable companies and individuals through a system that brings transparency to an otherwise tedious, time-consuming process.

Membership is free, and recruitment teams are in place on the ground in Ghana, Ivory Coast and Burkina Faso. Bifasor has 200 subscribers – many of them members of the International Federation of Freight Forwarders Associations – and is looking for investors to commercialize the platform.

The company vision is to create new economic opportunities for Africa by helping improve supply chain efficiency, which will in turn facilitate intra-continental trade.

Bifasor is currently available in English and French, with Portuguese and Arabic to follow soon.

What if

IVF SUCCESS RATES DOUBLED?

How patient-focused big data analysis stands to revolutionize reproductive medicine

Most women trying to get pregnant know that the best time to conceive is during the fertile window of their menstrual cycle. This is different for every woman, but generally speaking the probability is highest the day before and the day of ovulation.

Traditionally, however, in vitro fertilization has taken a different approach. Reproductive medicine assumes that with drugs, doctors can rebuild the cycle from scratch. The first step in IVF treatment is to suppress your natural monthly hormone cycle with drugs, after which another drug is taken to boost egg supply.

Russian fertility treatment expert Olga Bolibok has 20 years' experience of fertility treatment in Moscow. She was convinced that IVF birth rates were higher when eggs were collected and fertilized during a woman's natural fertile window.

A chance encounter with software engineer Andrey Temlyakov in 2010 gave her the opportunity to test her



POLYWED

ILLUSTRATION: INKIE

hunch using big data. They teamed up with physiologist Vera Vasenina, and together with Olga's husband – Igor Bolibok, a professor in chronobiology, spent the next five years developing an IT service for fertility clinics.

One in six couples worldwide experience fertility problems, and every year over 1.5 million IVF treatment cycles are carried out across the globe. Using patient data detailing more than 1,000 IVF attempts in Moscow clinics, the Polywed team developed BioChron technology that has doubled fertility success rates.

Currently only one-third of IVF treatments are successful. The average IVF live birth rate is 27%, as measured by the European Society of Human Reproduction and Embryology (ESHRE), and 29.4% for the Society of Assisted Reproductive Technologies (SART) in the United States. BioChron technology increases the average IVF live birth rate up to 60.2% – with efficacy doubling for all patient age groups.

The approach is totally unique in reproductive medicine. While most reproductive experts focus on the embryo, Polywed began by looking at the patient. BioChron technology enables doctors to offer a personalized approach, including calculating the optimal date for IVF treatment.

For fertility clinics, BioChron technology has the added advantage of requiring no further equipment and no additional tests. It has already won the Polywed team multiple awards, including the Suvorov Prize, a Swiss-Russian award for outstanding innovative projects with international impact, and the French Tech Ticket Global Startup competition.

CEO Andrey Temlyakov credits the French Tech Ticket program for helping Polywed set up in Europe, where over half a million IVF treatments are carried out every year. Through French Tech Ticket connections, he has been able to quickly establish relationships with French clinics, which are now testing BioChron's efficacy.

WHAT IF

NEW CUSTOMER SHOPPING HABITS COULD BE ELICITED?

How a product recommendation engine draws its analysis from social media

In the digital era, product recommendation engines predict the shopping intent of users by sifting through a variety of consumer data, from browsing and digital purchase history to online shopping carts.

This works well for sites such as Amazon, where many shoppers are repeat customers with a data trail. But what happens if you're launching in an emerging market, where users are buying online for the first time, or launching a new product line of little relevance to existing customers?

CEO and company co-founder Mani Doraisamy launched Guesswork to address the startup e-commerce sites that weren't being served by existing product recommendation engines.

New e-commerce sites spend millions of dollars in marketing to attract users to their site, but Mani felt their money could be used more effectively. He notes that only around 20% of users typically wooed to a new site will sign in, and of these, only 3%

GUESSWORK

ILLUSTRATION: GAËTAN HEUZÉ

will buy products. Most recommendation engines focus on this small selection of users because they're the only ones they have data on. Guesswork decided to focus on the other 97%.

The company analyzes users' social media to make product recommendations, with impressive increases in conversion rates, the key measure of e-commerce success. Within four weeks, Mani predicts a 300% rise in the number of customers completing a transaction as a proportion of the total number of website visitors.

This is based on the experience of customers including Zalora, Asia's largest fashion e-commerce site; Linio, South America's top e-commerce site; Babyoye, India's largest baby products site; Zivame, India's largest lingerie site; Deerberg, a German online fashion retailer; and Stalkbuylove, India's top women's fashion apparel company.

Guesswork have designed a system that is easy to set up and requires zero maintenance. Customers just insert a line of code into their website, which shouldn't take longer than five minutes. That's when the Guesswork algorithm comes into play, recommending products to users on mobile websites and via email, without requiring any further input from the seller.

It even works without an internet connection. When users go offline, the Guesswork algorithm keeps compiling recommendations that will show when they come back online, thereby adding more sales that might otherwise have been lost.

Guesswork was founded by Indian nationals Mani Doraisamy and college friend Boobesh Ramalingam, both of whom are experienced in building web platforms.

The company is currently focusing on expanding beyond its initial customer base in India and South East Asia. It decided to set up in Europe after a happy customer - Zalora - referred them to other companies also funded by Rocket Internet, a German VC firm. They have now set up in Paris after winning the French Tech Ticket Global Startup competition.



WHAT IF

YOU COULD RENT PEOPLE'S HOMES LIKE HOTELS?

How premium hotel services – from concierges to child-minding – are being delivered in private properties

Concierge is a French word, and no wonder. French premium hotels, from the Ritz in Paris to the Hotel du Cap-Eden-Roc in Cannes, have a reputation for exemplary service.

Squarebreak wanted to bring this French touch to the private rental market for holiday stays. Their vision was to reimagine our towns and cities as giant hotels, where streets are corridors, and private houses are the rooms.

The journey began when two real estate and hotel industry professionals, Hugues van Heesewijk and Maxime Lesaulnier, met working for Wimdu, a European private apartment rentals startup. Interested in managing quality stays, they teamed up with serial entrepreneur Réda Berrehili and launched Squarebreak.

Unlike Wimdu and Airbnb, Squarebreak is less a marketplace for deals between homeowners and travelers, and more an operator focused on ensuring that the experience of renting someone's home is as pleasurable as staying in a premium hotel.

SQUAREBREAK

ILLUSTRATION: JEREMY BOOTH



Homeowners sign a management and operation contract, entrusting their property to Squarebreak for the duration of its rental. Beyond handing over a set of keys, they are required to do nothing more.

A Break Manager assumes the roles of Hotel Manager, Room Service and Concierge. Before a guest's arrival, they check to ensure that the property is spotless, the beds are made with the finest linen, the towels are soft and fluffy, and the bathroom is stocked with premium toiletries. A basket of local delicacies is left as a welcome gift.

Guests booking a Squarebreak stay can also reserve a number of services usually associated with premium hotels: from babysitting and personal chefs to bike/boat/ski rental, theatre or restaurant bookings. The Break Manager is available throughout the stay to attend to guests' every need, while the app makes reservations easy.

Currently, Squarebreak has around 500 properties on its books in two categories: principal residences in cities such as Paris or Nice, which are mainly rented during the summer months when owners are absent; and holiday villas or chalets available for short-term rentals all year round. They operate in France, Spain and Morocco, with plans to take Squarebreak to Italy and Portugal.

Clients are looking for a high-end experience without spending millions. Prices start around €2,500 per week for a house sleeping 8-10 people, with average bookings coming in around €6-7,000. Break Managers, who are trained by Squarebreak, take 50% of the commission, from which they have to pay operational expenses.

In their first year, Squarebreak generated revenues of €150,000, rising to €1.5 million the following year, enabling them to raise funds to develop the service. Shareholders include AccorHotels, the world's leading hotel group.

What if

CORPORATES WORKED WITH AND LIKE STARTUPS?

How an entrepreneurial and open approach to consulting helps institutions keep pace with the digital revolution

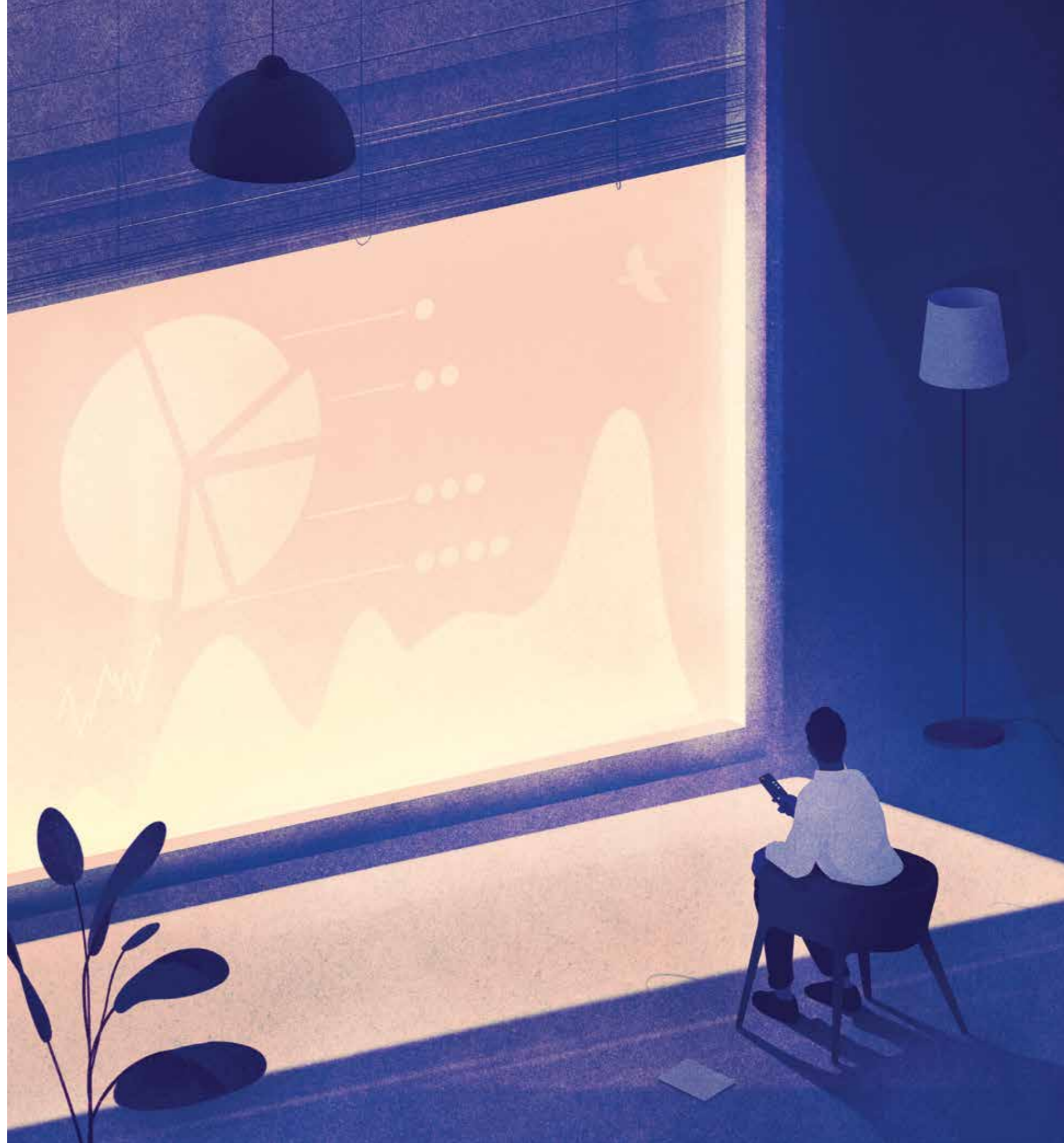
The digital revolution is driving innovation and accelerating the pace of change. Established business practices are being jettisoned and new ones invented, only to be discarded when better things come along. Keeping up requires agile business models, innovative mindsets and strong networks in the ever-changing startup ecosystem.

Just as yoga teaches us to be physically flexible, mental agility can also be achieved through open thinking. Five by Five are the yoga teachers of the corporate and institutional worlds, an open innovation consultancy that pushes open systems across business models, collaboration and data.

But doesn't that make them just another consulting firm? Not at all. Although they have many of the same clients as the big consulting firms, Five by Five do things differently. Their first principle is openness: for example, by partnering with startups to uncover new solutions to corporate challenges, exploring nascent technologies, testing distribution partnerships, or identifying potential investment targets. Secondly, they work

FIVE BY FIVE

ILLUSTRATION: KAROLIS STRAUTNIEKAS



entrepreneurially: Five by Five fix their clients' problems with a variety of methods, such as design thinking and rapid prototyping to define, produce and test solutions. Answers are found in-house or sourced through their network of startups, where the key is to find genuinely creative and efficient solutions that can involve government, the corporate world, entrepreneurs, or a combination of all three.

They see their business as a kind of social laboratory, with their "entrepreneur in residence" program a key asset to emerge out of it. It was inspired by Five by Five's desire for people capable of putting their hand to anything, from UX design to API strategy. After struggling to find versatile people through traditional channels, they realized they did exist – in the startup world. But startupper don't want to be employees... The Five by Five solution was to recruit early-stage founders to work for the agency two or three days a week, leveraging their talent for corporate clients while funding and providing them with office space to work on their startup the rest of the time.

Five by Five was inspired by chancing upon an aviation term for a perfectly clear communication signal. That's the official version in any case. Unofficially, they were two thirty-something women – Chloé Bonnet and Kat Borlongan – working in the macho world of innovation who wanted a name that made them sound tough. Kat opened an aviation book and found the term Five by Five.

Kat and Chloé met working on the SNCF Open Data Program in 2012. They founded Five by Five a year later. Their new way of tackling innovation has won the young company an impressive client list including Google, Coca-Cola, Capgemini, Bpifrance and the World Bank. Last year saw them launch the Paris Summer Innovation Fellowship with the City of Paris, while in January this year, 66 miles was born, an intrapreneurship program for women who want to launch startups from inside large corporates.

WHAT IF RECORDED SOUND WAS DISTORTION FREE?

How a compact speaker can produce a giant bass sound without distorting the higher end of the audio spectrum

When Devialet set about raising funds to develop their distortion-free sound amplification technology, they weren't just looking for money. They knew they had found something special, and they wanted strategic investors who would nourish it. Entrepreneurs in love with sound.

ADH Intelligence combines the invention of Pierre-Emmanuel Calmel with the vision of Quentin Sannié and the design of Emmanuel Nardin. In 2007, the three cofounders gathered 45 potential investors in a Parisian art gallery, on the pretext that the Rolling Stones played there 20 years previously. Those lucky enough to be in attendance that night were ushered into a very small room, before Devialet turned up the volume.

It was a smart move. When it was time to let the people out, many were overjoyed to the point of tears. That emotion translated into almost €1.5 million in investment, raised in a single night.

DEVIALET

ILLUSTRATION: GIANLUCA FOLÌ

Such flair is characteristic of the French company named after an 18th-century French writer few have heard of, Sieur de Viallet, a friend of famous Enlightenment philosopher Diderot. Both men were involved in the feted Encyclopedie (or French Encyclopedia) project, and Devialet's cofounders claim that the Enlightenment philosophy is the driving inspiration behind their brand.

Devialet is best known today for two high-end speakers that have won 62 awards between them, and still move some people to tears. Their first product, top-of-the-range Expert, retails for US\$12,000, while the Phantom, a smaller, more accessible device, sells for around US\$2,000.

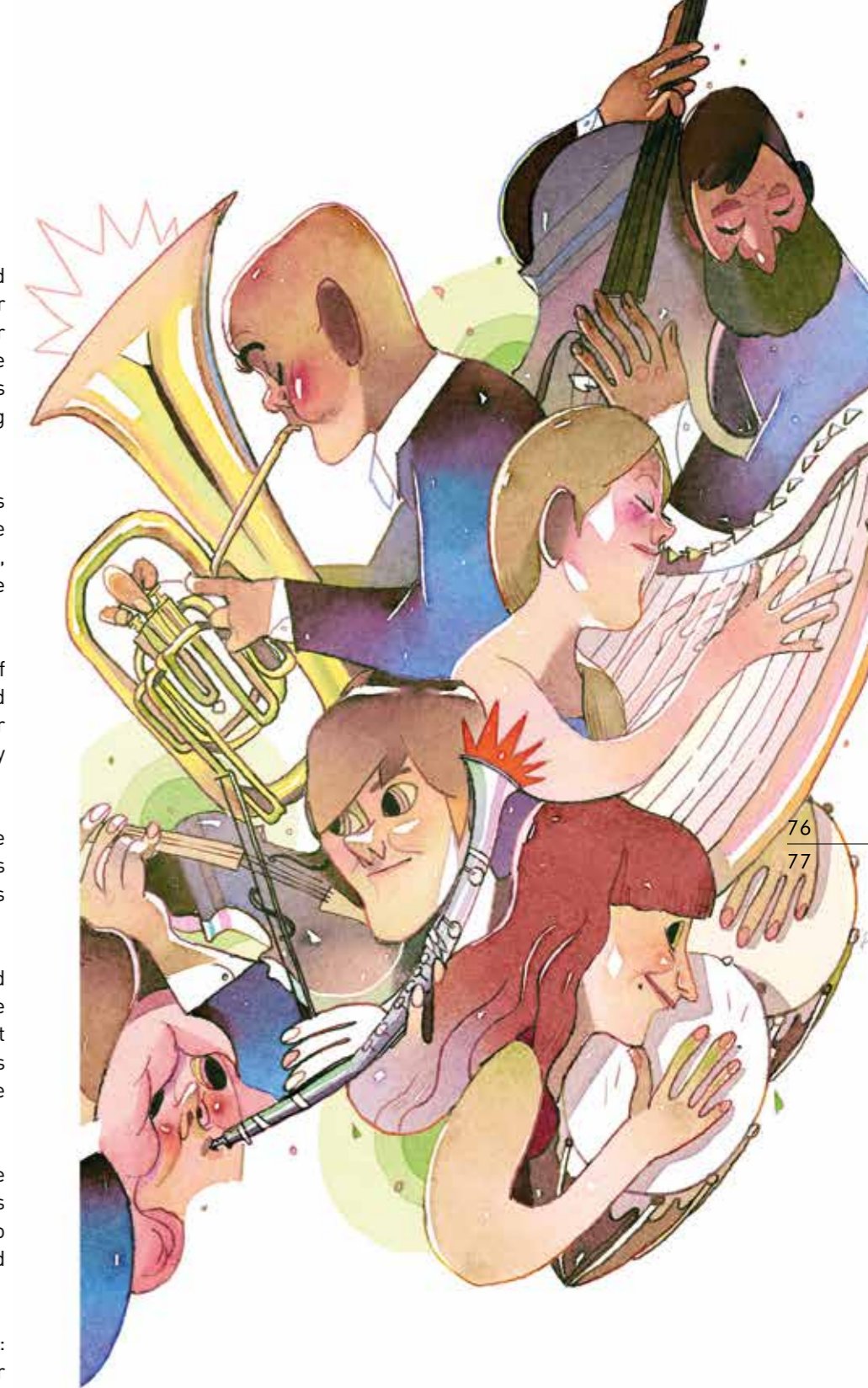
Both are packed with cutting-edge technologies – 108 of which are patented – that remove distortion from recorded sound, allowing the bass line to come to the fore like never before. The sound is big, but the speakers are relatively small, with a slick French-touch design.

For those who understand the technology, Devialet have invented the first hybrid technology to fuse the preciseness of analog Class A amplification with the power of digital Class D amps, the result of which is unheralded sound quality.

For some fans, this may mean little – but they all understand an amazing aural experience when they hear it. And while Devialet may draw upon French philosophers, it is all about democratizing great sound. The revolutionary startup is committed to bringing the benefits of their technology to the widest of audiences.

Passionate about the idea that we all experience the emotion of music in the same way, no matter what our tastes are, Devialet's next move is to embed their technologies into TV sets and cars, before turning their attention to laptops and smartphones.

CEO and Co-Founder Quentin Sannié puts it like this: "Through our technologies, Devialet's ambition is to deliver unforgettable emotional experiences to more and more people".



ACKNOWLEDGEMENTS

Business France would like to thank everyone who took part in this publication.

Special thanks to Jean-Baptiste Rudelle for providing the foreword.

BUSINESS FRANCE WOULD LIKE TO THANK THE FOLLOWING COMPANIES FOR TAKING PART:





Business France is the national agency supporting the international development of the French economy, responsible for fostering export growth by French businesses, as well as promoting and facilitating international investment in France.

It promotes France's companies, business image and nationwide attractiveness as an investment location, and also runs the VIE international internship program.

Founded on January 1, 2015 through a merger between UBIFRANCE and the Invest in France Agency, Business France has 1,500 personnel, both in France and in 70 countries throughout the world, who work with a network of public- and private-sector partners.

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What is La French Tech?


It's a quality accreditation for French startups and entrepreneurs to make them proud and raise their profile under a single banner.

La French Tech is a thriving community of diverse stakeholders from the French tech world (entrepreneurs, engineers, designers, investors, tech lovers, government agencies like Bpifrance and Business France) in all sectors (digital, BioTech, MedTech, FinTech, etc.). Members of this community include champions such as BlaBlaCar, valued at €1.2 billion, or Sigfox and Devialet, which respectively raised €150 million and €100 million in 2016. Meanwhile, since 2013, €200 million of public funds have been invested in business incubators and accelerator programs throughout France to support our startup community even further.

La French Tech is a movement: because things are happening in France, and mentalities are changing. People are increasingly becoming risk-takers (37% of French people would like to create their own business) and much has been done through recent reforms to make it easier to invest in France.

La French Tech is also about being open to the world and welcoming foreign talent, for example through the French Tech Ticket Program for international startups looking to set up in France.

For further information, please visit: www.lafrenchtech.com

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Designed and produced by: Sphère Publique –  – agence@spherepublique.com

Printed in April 2017 by Atelier graphique du Cognaçais, 16100 Cognac, France

Legal deposit: March 2017

ISBN 978-2-9560305-0-8

