

# THINK ACT

THINK ACT #21 12|2016 VIGILANT



What  
it  
takes  
to  
stay  
ahead  
in  
today's  
high  
velocity  
world

**VIGILANT**

Roland  
Berger





**"Respect  
for quality  
is a spiritual  
matter."**

**ZHANG RUIMIN**  
CEO of Haier and Management  
Philosopher

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"The blockchain revolution represents nothing less than the second generation of the internet."

DON TAPSCOTT  
Innovation Expert and Author of  
*The Blockchain Revolution* and *Wikinomics*

→ [READ MORE ON PAGE 44](#)



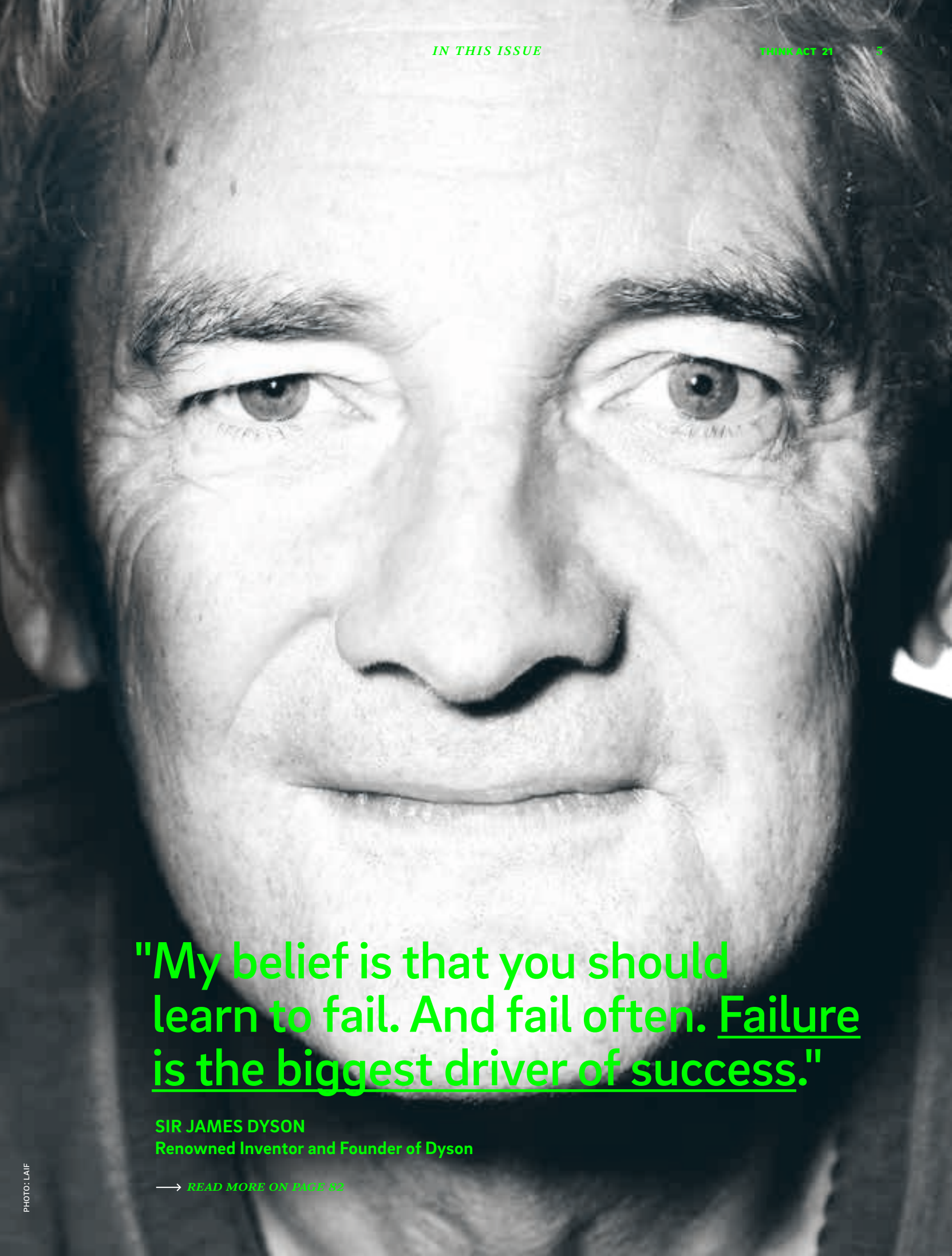


"The fear of failure is part of human nature. As an entrepreneur, the best you can hope for is to learn to live with that fear."

LETICIA GASCA

Champion of failure's transformative power and Founder of FuckUp Nights

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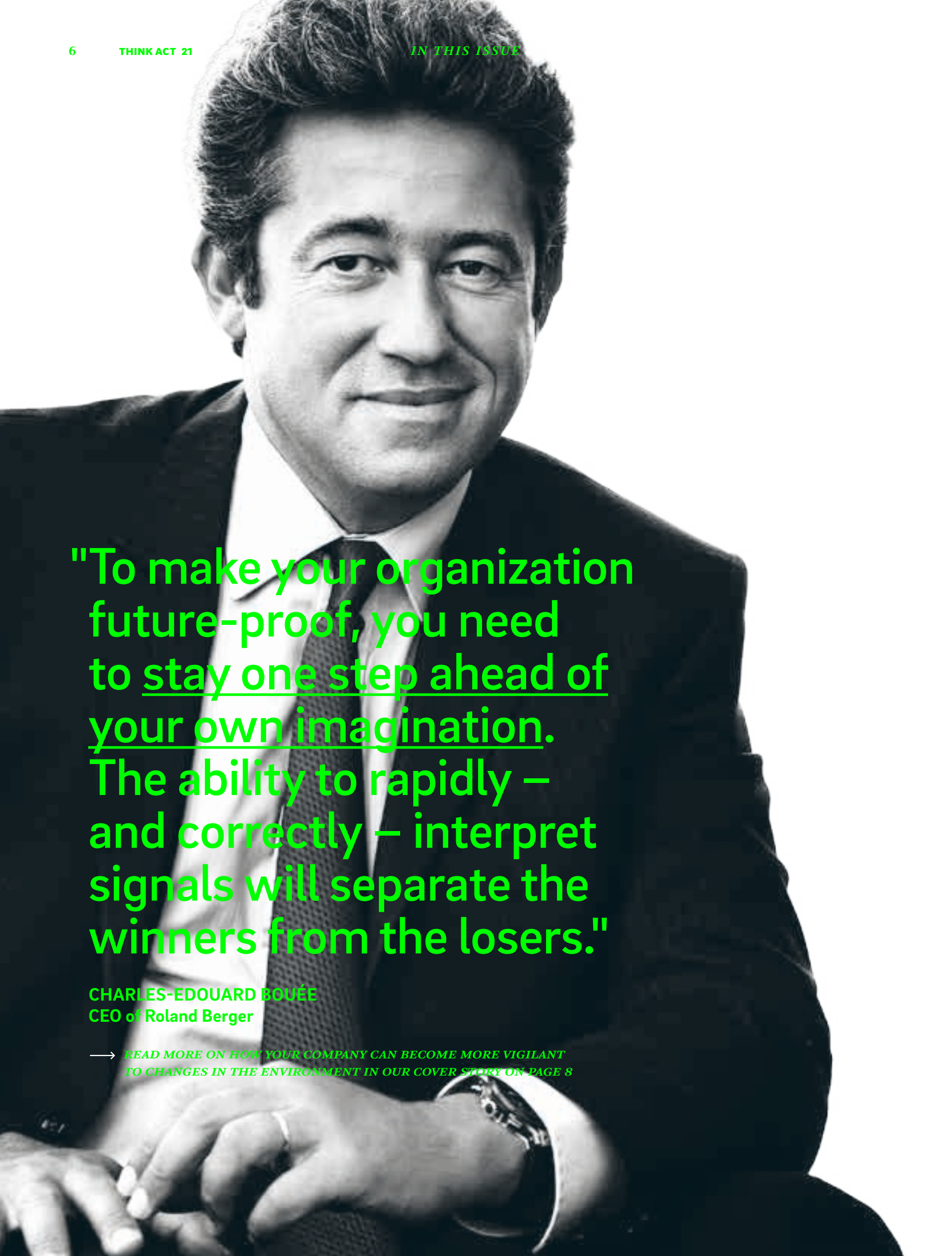


"My belief is that you should learn to fail. And fail often. Failure is the biggest driver of success."

SIR JAMES DYSON  
Renowned Inventor and Founder of Dyson

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"To make your organization future-proof, you need to stay one step ahead of your own imagination. The ability to rapidly – and correctly – interpret signals will separate the winners from the losers."

CHARLES-EDOUARD BOUÉE  
CEO of Roland Berger

→ READ MORE ON HOW YOUR COMPANY CAN BECOME MORE VIGILANT  
TO CHANGES IN THE ENVIRONMENT IN OUR COVER STORY ON PAGE 8

# THINK ACT

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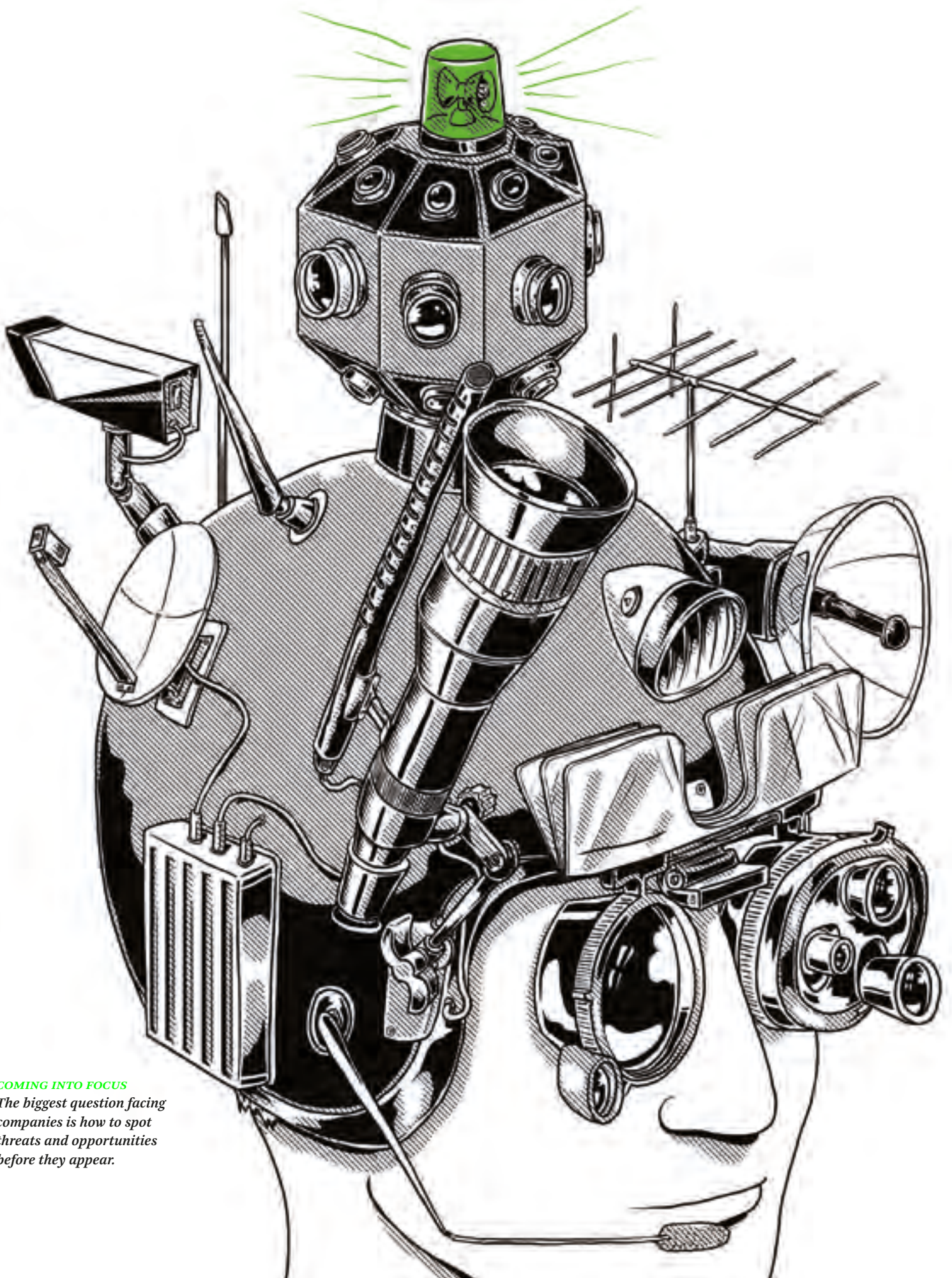
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**COMING INTO FOCUS**

*The biggest question facing companies is how to spot threats and opportunities before they appear.*



# Beyond the Horizon

*In our digital world the business landscape changes fast. Industries are in constant flux, competitors emerge from unlikely places and new technologies threaten established business models. Companies that thrive in this environment need 360° vision, an open mind and an appetite for collaboration.*

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BY **Janet Anderson** AND **Damian Reilly**

ILLUSTRATIONS BY **Peachbeach**

*With inputs from*  
**NEELIMA MAHAJAN** and **STEFFAN HEUER**



# S

**SEPTEMBER 2016.** Senior executives from a motley group of companies and institutions – including the likes of pharmacy chain Walgreens, University of California at San Francisco, health care communications company Vocera, non-profit Community Health Network and network hardware company Cisco – gathered in San Francisco for an intense two-day brainstorming session. Their goal? To find ways to improve the experience of cancer patients. The participants were carefully chosen: they came from companies that play a role in the value chain of cancer care provision.

Unlike a standard health care conference, this was a hands-on event. Participants were challenged with developing – in just two days – tangible solutions that could be implemented in a real-world situation. With them, giving feedback on each prototype, were the very people at the center of this issue: cancer patients, their spouses and caregivers including nurses, doctors and other medical specialists.

Devised by Cisco, this experiment falls under an initiative called the Hyperinnovation Living Labs. These labs bring together senior executives and experts from companies in different industries to work together intensively over a short period to solve a pressing common problem. The participants bring different perspectives to the solution-finding and decision-making processes that typically take a few months but in this case, are compressed into a few hours.

What the participants take away with them is not just the immediate solution, but a pool of ideas that can be drawn on in future and, of course, the new network they have created through their common

**"Can you predict where lightning is going to strike? Of course you can't, but if you generate a lot of electricity and if you put some metal rods in the ground, then the chances of lightning striking will be much greater..."**

**Bettina von Stamm,**  
*Director, Innovation Leadership Forum*



endeavor. In the case of the health care lab in San Francisco, ultimately six ideas passed the test – and got funded.

This process, termed "ecosystem innovation", is one of a growing number of approaches designed to spur innovation and help companies deal with today's biggest challenges. Cisco still invests heavily in traditional R&D but, like many other companies, it has learned that there is no single path to innovation.

## Shifting landscapes

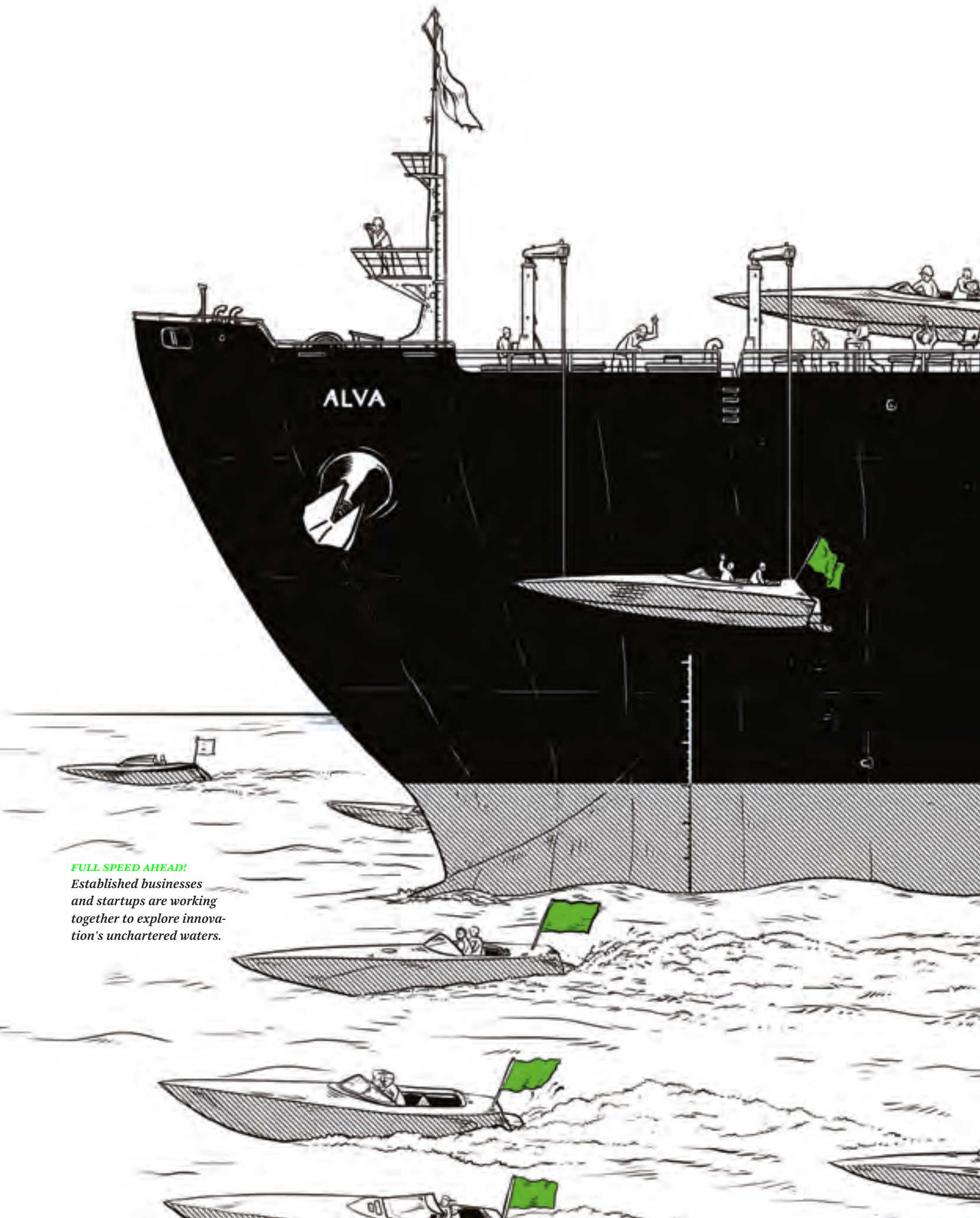
It has almost become clichéd to say that today change happens at the speed of light. Corporate life cycles are speeding up: businesses come into being, mature and die out much sooner than they did a few decades ago. Digitization is turning established businesses and whole industries upside down. At the same time horizons are widening and boundaries between industries are blurring: the ecosystem in which a business operates is no longer clearly defined. It's not necessarily in the same region, or even the same industry.

The most pressing question for those who run established businesses is how they can prepare for competitive threats and spot opportunities even before they appear on the horizon.

The answer lies in developing 360° vision. Businesses need to pick up the signs of change coming not just from competitors but from suppliers, customers, employees and society at large.

The threats and opportunities can come from any angle. A supplier can become a competitor, as changing technology opens up new opportunities; customers can change their behavior and expectations overnight. Competition can come from unlikely places. Digital giants like Amazon, Apple, Google and Facebook are hoovering up market share and expanding into new sectors. Equally significant is the mass of early-stage startups, as yet unknown to the wider public, any one of whom could quickly turn an established business into a footnote in the pages of history. →





**FULL SPEED AHEAD!**

*Established businesses and startups are working together to explore innovation's uncharted waters.*

"Car manufacturers follow fashion trends for ideas on colors, materials, styling. These days, they are looking at what is happening in architecture, too."

Marc Worth, CEO, Stylus





**BE NIMBLE. BE QUICK.**

*Today's game-changer is the ability to pick up the signals of change before they impact your structure.*

Freight companies are keeping an eye on customers like Amazon, toying with the idea of setting up its own shipping networks. Luxury Swiss watchmakers, with manufacturing traditions that stretch back centuries, are thinking of strategies to counter high-tech smartwatches. Real estate agents, hoteliers, taxi drivers – everyone is finding their established business model challenged. With the advent of blockchain technology, industries ranging from banking and legal services to online retail and energy could all be upended in the blink of an eye. [See article on p. 44]

The high-profile corporate casualties of the past decade have stoked the fear in every business of being devoured overnight by a new entrant they didn't see coming. No one wants to be "Ubered." And even upstarts like Uber are being Ubered by more nimble rivals – after burning \$2 billion in the Chinese market, Uber was forced to sell its China operations to its much stronger local rival, the Chinese ride hailing app Didi Chuxing.

It's tempting to see new technology as the game-changer. But the real game-changers are, arguably, the ability to pick up signals of change before they impact you and the structures and tools to act quickly on new ideas and effectively fend off threats.

## DO YOU HAVE THE RIGHT SENSORS?

### Keep your eyes open...

"Can you predict where lightning is going to strike? Of course you can't, but if you generate a lot of electricity and if you put some metal rods in the ground, then the chances of lightning striking will be much greater than if you just wait for a thunderstorm and for something to happen," says Bettina von Stamm, Founder and Director of the Innovation Leadership Forum in the UK.

"Innovation is, of course, very hard to see coming," she says. "But, if you keep your eyes peeled and you look in all sorts of

places – not only in the obvious places – there are distinct ways to increase your odds." Most companies keep an eye on their rivals. But to succeed today, you need to look beyond your usual horizons. Take Etihad Airways, the UAE-headquartered airline, which actively looks beyond aviation for ideas. "We benchmark ourselves outside of the aviation sector, instead drawing on hospitality industry leaders for inspiration," says Senior Vice President Marketing, Shane O'Hare, referring to top hotels, fine dining establishments and private member clubs.

London-based innovation advisory company Stylus uses a similar approach when it helps clients – among them firms like Adidas, Swarovski and Volkswagen – stay ahead of the innovation curve. It looks far and wide to find answers to how consumer lifestyle trends, shifting mindsets and behaviors and changing demographics impact product design and consumer engagement.

"When we produce fashion content, it is not for the fashion industry, it's for the automotive trade or the hospitality industry. Car manufacturers follow fashion trends for ideas on colors, materials, styling. These days, they are looking at what is happening in architecture, too," says Founder and CEO of Stylus, Marc Worth.

### ...and your ear to the ground

Six thousand: that's the average number of new tweets posted on Twitter every second, while every day, some 52 million photos are shared on Instagram. Buried in those tweets and photos is invaluable information on what consumers across the world are doing, their changing likes and dislikes. But the sheer weight of this information is daunting: how do you separate the wheat from the chaff, the real signals from the noise and chatter?

That's where services like Nextatlas, developed by iCoolhunt SpA, come in. The Italian startup helps brands tap into social data to identify nascent consumer trends. Using feeds into Twitter, Instagram and Tumblr, among others, it picks up →



the images and opinions people are posting and where in the world they are posting them from and spots emerging trends very early. Its clients range from Prada and Barilla, to Allianz and L'Oréal.

Nextatlas is, in essence, a virtual listening post that companies can tap into to get information on the latest trends. There are also physical listening posts. Nearly every car manufacturer today has a base in Silicon Valley to monitor new developments and form targeted partnerships. Technology scouts sniff out new developments in their relevant markets. Companies embed people in certain consumer demographics to be able to latch on to the latest trends.

Creating a strong network is also essential. But the network needs to extend beyond the "usual suspects." Nathan Furr, Assistant Professor of Strategy at INSEAD, says that big companies need to actively talk to young entrepreneurs and idea generators. One way of doing this, he says, is by sponsoring an incubator. He describes this as "reverse mentoring" – the old learning from the young.

Helping create such relationships are companies like unBound Digital, a forum that brings corporates and startups together to learn from one another. "Everyone knows the ground is shifting and that corporations need to be alert or they risk being swallowed," says Founder and CEO Danny Seal. "Five or six years ago, it was startups that were desperate to meet a Unilever, a P&G, a Diageo. Now it is the other way around. Corporates are realizing they have a lot to learn from startups."

In fact, there is quite a queue forming of established firms sending delegations to Silicon Valley to gather inspiration. Some are calling it "innovation theater" because, despite the good intentions, not much of this inspiration makes it back to the headquarters.

Picking up the signals is important. But how do you sift through them and translate the meaningful signals into action? Says Worth, "What it comes down to is how quickly a company can respond."

## INSTALLING THE RIGHT FILTERS

### Oil tanker meets speedboat

An interesting experiment is underway in Berlin. Axel Springer Plug and Play Accelerator GmbH has partnered with Deutsche Bank to invite early-stage fintech companies to their 100-day accelerator program. The idea is simple: big established firms, such as traditional banks, envy the agility and creativity of young startups. Learning from these young companies involves special search and filtering skills.

"Fintech and insurtech are rapidly developing sectors. Innovative startups are growing strongly and are changing user behavior for good," says Jörg Rheinboldt, CEO of Axel Springer Plug and Play in Berlin. "We go to conferences, universities and startup gatherings all over Europe looking for entrepreneurs with new ideas," says Rheinboldt. From Vilnius and Warsaw to Lisbon and London. The accelerator team

uses what Rheinboldt calls "special search glasses" to find the right entrepreneurs and startups. "We adjust the lenses so that we can detect where the traditional value chain can be extended or disrupted. Once we have an idea of what can be done, we talk to the startups," he says. "If we believe a team is up for it, we invite them to join our accelerator program. We always encounter founding teams who totally surprise us." The fintech startups that are chosen to receive funding gain access to Deutsche Bank's Innovation Labs and its Digital Factory in Frankfurt so that there is a two-way flow between them and the bank's own research and development activities in the digitization area.

While there are many learnings on both sides, this is also fertile ground for potential culture clashes. "Sometimes startups move too fast for the bigger firms – people in established companies can't believe that a small team can set up something valuable and sustainable in just a few weeks," says Rheinboldt. Opening your mind to new ideas is not as easy as it sounds. "We need to understand the



**"We need to understand the industries our corporate partners work in, but at the same time, we need to help them forget everything they know to let new things happen."**

**Jörg Rheinboldt, CEO, Axel Springer Plug and Play Accelerator**





# How Cisco 'Makes' Markets



A deeper look into CHILL

## INNOVATION ON BOARD

*Leadership that is open to change can accelerate the path to new business models.*



Innovating in isolation is passé. Multi-party innovation is in. Cisco's Hyperinnovation Living Labs (CHILL for short) is an experiment in driving disruptive innovation along with customers and partners. The Hyperinnovation Living Labs are organized in several locations around the world by a small, agile team of 10 to 12 people, led by Managing Director Kate O'Keeffe.

In terms of innovation, the Labs are about identifying new markets for existing products, or creating new products for new markets.

Each Living Lab starts with a zone of focus, or "battlefield," where the team thinks there is richness or opportunity for Cisco. They start conversations with customers that they believe are either already exploring ideas in that zone or that have capabilities with an interesting dimension to add to the dialogue.

There is an exhaustive process to pre-qualify potential partners. Partners have to make an investment to be a part of the Living Labs. They are bought into the process, committed to the process, and have to have the appropriate delegated authority to engage in the process. "We buy 'drilling rights' together before we go and drill together," explains O'Keeffe.

Rapid prototyping and quick feedback are an essential part of the mix. By building things, the participants get real, end-user feedback about how, when and whether they would interact with the product idea. "Working in this way saves us time, saves us resources and allows us to move quickly," says O'Keeffe.

Of course, it is still a high-stakes game of innovation. "Failing fast and failing often is very much built into the process. People will have their hearts broken by end users who don't want their idea or don't like it, or don't feel it solves their problem," she says. "It's still hard to be excited about an idea and then to have to pivot away from it rather quickly."

Choosing the right partners is key to success. An enormous amount of thinking goes into bringing a cohort together and selecting the right companies and partners to participate in a lab. Chief strategy officers and CEOs are all physically present in the conversation. And any party that could stand in the way of an innovation being implemented has to be there, too.

The primary objective of CHILL is to drive growth for Cisco. The company believes that the best pathway to unlock that kind of growth is tapping into something new in a particular industry or ecosystem. "We undertake the process for the outcomes – for the growth that we believe will result from working in this way," says O'Keeffe.



KATE O'KEEFFE



industries our corporate partners work in, but at the same time, we need to help them forget everything they know to let new things happen," he explains.

### Test fast. Filter fast

While the payoff from a winning idea may be huge, the vast majority of ideas are doomed to fail – and the cost of failure is often massive. This makes it imperative to weed out bad ideas quickly. By the same token, many promising ideas may be scrutinized to death before they are put to the test. How do you get the balance right?

One way is not to fear failure, but to embrace it. It's an approach more and more businesses are trying to adopt through the use of what Furr describes as "rapid experimentation." It's an excellent way to speed up the development process, but it's also, according to Furr, helpful in getting the timing right for a new idea. "We tend to think the biggest mistake a company can make when responding to a technology threat is to leap too late, but leaping too early is just as bad. Companies that leap too early go all in before the market is ready and get their fingers burned. But disruption is not a light switch; it's a 'maybe.' Companies need to respond to it by building capabilities through rapid experimentation. If you are managing uncertainty, it's all about the speed of learning."

This lesson has even been taken onboard by industrial giants. GE, a leader in the innovation field for many years, has just launched Fuse, a 3D printing and micro-fabrication factory that enables startups to carry out rapid product prototyping of their ideas. They believe that Fuse can cut the time from idea to product by 50%. GE says this will help it evolve from a traditional industrial company to a digital industrial company. They see their future role as a business services platform connecting innovators and helping them build successful businesses.

Yet other companies take it one step further. In October 2016, Marriott Hotels

# How BASF adapted B2C methods for its B2B business



Creator Space™

When a global organization that's been in business for over a century decides to shift tack, it is a major undertaking. In 2011, the chemicals company BASF made a move from being an upstream commodities and materials provider to a downstream solution provider.

With the launch of its "We Create Chemistry" strategy, the company needed to understand better the complex value chains and ecosystems its business operates in. It needed to engage more intensively with customers and other players in the value chain to understand the signals of change and to identify technology trends in areas outside its direct value chain.

And so BASF decided to use its 150<sup>th</sup> anniversary in 2015 to launch a year-long co-creation program called Creator Space™, in which employees from across the company worked with customers, scientists, thought leaders, institutions and communities to understand how it could help solve some of the world's biggest problems. "It was a big listening party," says Elise Kissling, the program's Director.

Creator Space™ combined ideas and methods like customer co-creation, open innovation, empathic design and idea jams, derived largely from best practices of B2C companies. The big challenge for BASF was to adapt these to its B2B environment. "We developed a whole set of methods to help our more technically oriented people learn skills in areas like social and market research, and new methods like design thinking and ecosystem analysis. This helped them to not only listen, but also interpret what they heard and derive conclusions for the company," explains Kissling.

The relationship with the outside world is different for B2Bs. "If you are a B2C company and you understand the needs of your direct customers, it's easier for you to create a product that will directly fulfill that need. We have to think about what will

have to be developed 10 steps away from us and what that means in our labs," says Kissling. It's a more complex picture.

One project illustrates the challenge well. It is a project to create a closed-loop system for industrial laundry in order to reduce water usage. BASF's part is to develop a chemical solution, but it couldn't do that without first understanding the current washing machine landscape, how industrial laundries use them, and what other peripheral solutions are already in use to reduce water usage.

"We have to understand all of that and then figure out what it means for the requirements of our technical solution. Our laundry detergent business unit, the washing machine unit and our material science people have to go out and bring back learnings that can be built into the technical specifications."

Around 10,000 of BASF's approximately 112,000 employees are scientists working in research and development. They also had to adjust to this customer-focused approach. "Initially there was skepticism," admits Kissling. "But as the year went on, people got extremely excited. I've never seen so much energy and momentum."

At the end of the year, BASF decided to continue the program. More than 100 new projects were taken up by the company. "We are helping those teams apply learnings from the startup world to get their ideas off the ground and into the normal pipeline," says Kissling.

The Creator Space™ program is a big experiment for the company. "We're learning as we go," says Kissling. And the biggest lesson so far? "Success depends on having the right team setup in terms of skills and resourcing. This may seem obvious. But it will take some time before we have the experience to train and staff innovation projects as easily as we would with a product launch or the construction of a new production facility."



turned one of its properties into a live lab to test out new concepts. By opening M Beta, a hotel innovation incubator, at its Charlotte Marriott City Center hotel in North Carolina, USA, the company has made it possible to test new ideas on real guests who give feedback in real time using "physical beta buttons" available all around the hotel.

Companies like Marriott understand the need to quickly test new ideas, junk the ones that don't work and roll out the ones that do, but of course not everyone can afford to do it in a real-life environment.

## The funnel

Customer feedback for new ideas is great, but what if you are an engineering firm like Airbus Defence and Space, whose products are satellites and defence systems and whose customers include multinational agencies and institutions? The pressure to innovate has always been there, but now the requirement for speed is being felt in this sector too. Where it once considered its competition to be government-backed institutions like NASA, today, with space startups getting seed investment from venture capitalists, Airbus Defence and Space has recognized the need to speed up the process of finding and developing the right new ideas.

To do this it taps into the creativity of all its employees. "We put out a company-wide call for people to submit their ideas for technical or business innovation," says Guido Schwartz, Deputy Head of Corporate Innovation at the company. Anyone can submit an idea – all are welcome. The challenge, then, is how to filter these ideas and identify quickly which ones to take forward.

The company's Innovation Board considers the ideas from several perspectives. Does it have a business model that works, is it technically feasible, does it fit into the overall company strategy, is it of interest to more than one of the business lines? If it passes these tests, the team behind the idea is given the funding and support to develop their idea further.

There are several stages in the funnel. "We have an accelerator phase and a seed phase,"



## The three traps of innovation

**There are three primary traps we can fall into with innovation, according to Nathan Furr, Assistant Professor of Strategy at INSEAD.**

### → ONE

**The first is the tendency to have an idea and work on a solution before deeply understanding the problem to be solved.**

### → TWO

**The second is trying to build a full solution, perfecting and refining it because we want customers to like it, when in fact a minimum would be better.**

### → THREE

**The third is applying a metric from an existing business to judge it by.**

says Schwartz. "Throughout the process the innovation team takes their idea out to test it with potential customers, internal and external. If an idea passes every stage, it goes into a maturation phase, leading to a product or service that is ready to go to market."

One challenge in this funneling process is overcoming existing mindsets – the tendency to reject a new idea because it takes a different approach to established ways. "This tendency is natural, so we counter it by ensuring the idea owners are supported by coaches the whole way, helping them to make their case. The team fighting for a new idea is never alone," says Schwartz.

By injecting an entrepreneurial spirit into the company's staff, Airbus Defence and Space hopes it will stay ahead of the likes of SpaceX.

This idea can be taken further. The Chinese white goods giant Haier is flattening its organization in order to create an open marketplace for ideas. Employees are seen as entrepreneurs and anyone with a good idea can look for funding and manpower resources to create a micro-enterprise. If the idea works, they reap the benefits. Likewise, they run the risk of losses if it doesn't. The motivation to make the project succeed is high and the system encourages internal competition. By turning employees into entrepreneurs, Haier not only injects a startup spirit into its business, but it ensures that as a company, it stays at the cutting edge. [See article on p.20]

## THE RIGHT STRUCTURES TO MAKE IT WORK

### Mapping out the journey

One thing we learn from this journey is that there is no silver bullet – there is no single approach that will work 100% every time. Most companies are adopting a portfolio of approaches and these sit alongside their conventional R&D efforts. Like the chemical company BASF, for example, whose Creator Space™ program combines a whole host of ideas and methods, from co-creation and open innovation to →





## "The team fighting for a new idea is never alone."

**Guido Schwartz,**  
Deputy Head of Corporate Innovation,  
Airbus Defence and Space



empathic design and ideation, to help them break the barriers that can prevent a large B2B company from hearing and reacting to what is going on around it.

But key to it all is leadership. Being ready and able to react quickly to change requires leadership that is oriented toward innovation. "It is important to create a shared vision at the outset of what innovation means, why it is needed, and where it is supposed to take a company," says von Stamm. "Organizations must understand that the probability of achieving innovation is fundamentally linked to the dominant values and behaviors of that organization. You need to map out the journey."

Business leaders not only have to define the vision, they also have to believe in it and live it. Often this means they need to change their values and behaviors, too. "They can lose enthusiasm for innovation when they realize what it will entail," says von Stamm. And at the same time there is the day-to-day business to be tended to. "Ideally, organizations need to be ambidextrous: able to achieve operational excellence on one hand while promoting innovation excellence with the other. Both hands need to work together. The challenge is big, because two distinctly different mindsets are required," she says.

At glass and ceramics manufacturer Corning, each division – such as telecom, life sciences and Gorilla Glass (the revolutionary protective glass cover on touch-screen devices) – does their own innovation for their business. Projects deemed higher risk, higher reward go to a central innovation office that focuses on entrepreneurial opportunities spanning all business segments. The idea is simple. "Divisions have to meet their quarterly goals and their plans. If you have a very big, high-risk project in a

division that swings wildly while you try to start up and scale it, it will end up getting tamped down. So if you have a tough quarter, you slow down spending," says Martin J. Curran, Executive Vice President and Corning's first ever Innovation Officer. "When you have a large idea, you have to decide whether it can be birthed, managed and nurtured inside a division or do you need to put it in the center, where the research and development guys are, to be able to run a project until it gets to a point and then hand it back to the business, or if it gets big enough, create its own business." As an example, he talks of using Gorilla Glass in automobiles. "That's clearly a Gorilla Glass division adjacency but they were so focused on their consumer electronics piece so we would take that on."

For such initiatives to succeed and not get lost or trampled by the company's existing products, structures and processes, top management buy-in is essential. In Corning's case, Curran clearly has it: he works for both the CTO and the Chairman of the Board. He also sits on the 12-member management committee, which then gets full visibility on the portfolio of projects the innovation office is working on and chances of acceptability increase.

### From satisfying existing needs to finding new spaces

At the end of the day, it boils down to one thing: true innovation will not happen in isolation. "The secret to inventing something new lies in our interconnectedness," says Joe Heinrich, an evolutionary biologist at Harvard. "For almost every successful inventor, there is a group of people working on the same idea, often coincidentally. Those who readily trade insights with others in the group tend to reach their goals faster." He believes that wherever ideas are traded freely and openly, progress will follow and that some of the best innovations happen when people with diverse perspectives work on them. "You don't need to be the best, but you do need to collaborate with as many people as possible," says Heinrich.

In fact, in today's digitized world, collaboration is essential. This is the thought that led Cisco to set up its Hyperinnovation Living Labs.

"If you think about the Internet of Things, it no longer makes sense to innovate in isolation," says Kate O'Keeffe, leader of the initiative. "Innovating in isolation is in effect inherently limiting. You are on your own – you have a superior technology, but you can't leverage the true synergies and capacities of the digitized future. Unless you are connecting your data to the data of others to make smarter, better decision-making, you are not really leveraging the full benefit of a digitized future."

Human beings tend to innovate in groups, and so Cisco believes that industries and corporations should do the same. "We also take an ecosystem approach because we believe that's the best way to make markets. When we think about innovation, we think about not just whether or not we can create a new product that will satisfy a need. We think about needs that may not yet be in existence. We think about marketplaces that have yet to be thought of. And we think that the greatest and simplest way to drive that kind of shift is through inclusion of different aspects of that one industry."

The value that comes from diversity and from learning from others is enormous. But being open to learn from others takes a degree of humility. "We have humility about what our customers know about their industries and their customers. And that humility allows us to listen differently," says O'Keeffe. ■

#### IT TAKES A VILLAGE

*Growing a strong structure of innovation requires cooperation, diversity and the willingness to learn.*



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Higher heating efficiency and better effect  
Save the energy and make it easier  
for whole washing process



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Particular Design For Chinese

### 中国式抽屉洗碗机

Sino-Dishwasher with drawer style



### 可容纳9类共43件餐具

Capacity: 9 sets totally 43 dishes



产品特点: 1. 容量大  
2. 清洗效果好  
3. 节省空间  
4. 节省能源  
5. 节省时间  
6. 节省空间  
7. 节省能源  
8. 节省时间  
9. 节省空间

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8. 节省时间  
9. 节省空间

PLATES AND SPOONS vary from one country to another. Haier's range of dishwashers adapts to this. The one in the middle has been specially developed for the Chinese market.



# "Change is the lifeblood of any company."

INTERVIEW CONDUCTED BY *Henrik Bork*

*Nobody embodies China's emergence as an economic power better than*

*Zhang Ruimin. The CEO* ↗

*of the Haier empire with its 60,000 employees and revolutionary approach to reinvention talks exclusively to THINK ACT about China's future, Europe's weaknesses and smashed-up refrigerators.*







## Zhang Ruimin

Zhang Ruimin is CEO of the Haier Group. A son of an ordinary worker, he took over a run-down refrigerator plant in 1984 and turned it into a global group, which now sells washing machines, TVs, computers and "smart air ecosystems" in over 100 countries. He has long been regarded as one of China's most influential business leaders and has been ranked No. 38 in the Thinkers50. As a member of the Communist Party's Central Committee, he also enjoys good contacts in politics. He is 67 years old.

**THINK ACT:** Not many CEOs start their career as an ordinary worker, as you did. Where was that, and what exactly did you learn then?

**Zhang Ruimin:** When the Cultural Revolution broke out in China in 1966, I was still in the fifth grade. I was lucky – I was not sent to the countryside like many of my classmates, but I did have to work in a factory, on a lathe. I wanted to continue my education, but back then the bookshops had nothing but the works of Marx, Engels, Lenin and Mao. Later on I studied engineering at a vocational college.

Did this experience help you turn Haier into one of the first Chinese brands to become well known internationally?

I worked my way up from an ordinary worker to a group leader, and then from a departmental head to a plant director. I am a manager who was once managed himself. This is important. I have not forgotten that workers often regard many decisions made by management as absurd. Today I try to put myself in their shoes with every decision I make.

In 1985, a year after you became director of the company now called Haier, you handed out sledgehammers. In a symbolic exercise you had 76 refrigerators smashed up because they were faulty.

In those days we were not allowed to dismiss workers. But it was important to motivate them. My trips to Germany played a big role in that respect.

I visited Liebherr and was immediately impressed. In Germany everything was standardized. I said, jokingly: "It's raining right now. Is there a standard for that, too?" The German replied, not for rain itself, only when the rainwater hits the ground. Even the manhole covers in Germany are inscribed with industrial standards.

Your workers must have been shocked by the sledgehammer exercise, nonetheless!

Back then a refrigerator cost the equivalent of two years' wages for a worker. We stuck on every refrigerator a piece of paper that showed the quality problem together with the name of the person responsible. Those people then had to smash up "their" refrigerator. Some workers wept, but it proved a useful exercise.

Did you wield a sledgehammer, too?

Yes, of course, I had to be the first to wield the sledgehammer.

What was your biggest problem in those days?

The factory was lossmaking. We no longer had the funds to pay our workforce. We could not obtain any loans. The farmers in China were starting to make big money by this stage, so I went out into the countryside to borrow some. The director of a cooperative wanted to drink brandy with me. He said, "I'll lend you ¥10,000 for every glass you empty with me." I quickly worked out that a month's wages was ¥40, so for 800 workers I needed over ¥30,000. I kept drinking, and then the farmer's wife went over to the *kang* bed-stove and fetched the banknotes from a drawer.

What other management decisions did you make back then?

One of my first rules was a ban on urinating and defecating at work. It may be hard to imagine today, but in those times the path to the outside toilet turned into mud when it rained.

Why did you look to Germany in particular for inspiration?

I was the head of a team that flew to Germany. I think there are two countries where quality is highly regarded. Germany has Mercedes and BMW. The Japanese also have this team spirit. I believe respect for quality is a spiritual matter.

You do a lot of traveling. How do Chinese and western entrepreneurs differ in their thinking and their approach to solving problems?

There are great cultural differences. Foreign companies concentrate much more on individual processes. They regulate everything. Chinese companies may not be so good at this. In China we often view problems from a higher perspective.

Can you give an example?

Let's take the difference between western and Chinese medicine. A doctor in the West prescribes an X-ray or measures someone's blood pressure. Everything

## "I have not forgotten that workers often regard many decisions made by management as absurd."

is quantified. A Chinese doctor in the same situation may only feel someone's pulse. Stomach cramps may not come from the stomach – they could be caused by a problem somewhere else in the body.

### And what is the best approach?

In China many people take the attitude that "approximately" (*chabuduo*) is good enough. That is a problem. It also has its good side, though. The Chinese do not merely look at a detail, they look at the whole picture. In the internet age, such holistic thinking is not such a bad thing, especially for entrepreneurs.

### Why?

Because the internet levels the playing field. Let's take sales as an example. Walmart is the world's biggest supermarket chain. Yet an e-commerce company without a single shop of its own can grow even faster. Nowadays a company can no longer be seen as a self-contained unit. It always forms part of a bigger system.

### Do you believe, therefore, that the Chinese way of thinking has benefits in the age of the internet and globalization?

Often, yes. Thousands of years ago, the philosopher Laozi said that people did not even need to know of the existence of an outstanding leader. The leader simply had to give them everything they wanted, and then they were to make the best of it themselves. This is how we should really all think in the internet age. Thinking in terms of the bigger picture is a strong part of Chinese culture.

### You are renowned for surprising decisions.

### How important is change for a company?

I think that change is the lifeblood of any company.

When other Chinese companies want to develop foreign markets, they go first to Southeast Asia or Africa. Haier, however, started in Europe and in the US.

Others may be happy simply to sell their products. We are not. Selling is not our overriding goal. We want the most demanding customers abroad to accept our products. There is a Chinese saying: if you want to learn to play chess, then look for a master.

### And what happened when you shipped your first refrigerators to Germany?

That was in the early 1990s. They were completely rejected by German consumers. We needed a whole year just to gain the certification. But that was a good thing – over that year we got better.

### Many of your ideas are now being studied by MBA students abroad.

In the internet age everyone learns from everyone else. The new keyword is "platform." A store chain may be the biggest in the world but an e-commerce operator without a single shop of its own has a platform. And what does that mean for a company like ours? We are experimenting at the moment with giving our employees more responsibility.

### You have announced that you intend to transform Haier into an "information-driven company."

The most important change is a new openness. In the past we were able to rely on our own employees, for example on the 1,100 people working in our research and development department. Things are different now. We have hundreds of thousands or even millions of people at our disposal worldwide. They do not all work for us but we are linked up with them.

### You have also ordered the abolition of middle management at Haier.

The old corporate structure resembled a pyramid. The workers had a lot less information at their disposal than the managers. In the internet era, however, it has become possible for the workers to know more than their managers. I once read why Toyota was supposedly better than Ford: Toyota has five tiers of management, whereas Ford has 14. And Haier has now abolished all of them.

### And how does that work?

Here is an example from our sales organization. We used to have a national sales director, and then one for every province, every city, and every administrative district. That has all gone now – the company's management is now in direct contact with the districts. Decisions on staffing and salaries are taken at district level. If they exceed their targets, they are allowed to keep the profits.

### Have you introduced this new structure only in sales?

No, everywhere. We have told our salespeople that they need not only to sell more products, but also to attract more customers. They must have information about their customers and must un- ➔

# 125

overseas consumers become Haier customers every minute



derstand what these customers want. They then have to pass this knowledge on to Production. Production used to mean producing for the warehouse. Now we are seeking to supply specific products directly from the workbench to specific customers. But as yet only 20% of our goods are bypassing the warehouse and going directly to the customer.

**So a similar strategy to real-time automobile production?**  
Yes, indeed.

**Haier is successful globally. But why are there so few other Chinese brands that are well known internationally?**

A lot of famous brands are manufactured in China, but the design does not come from China. This is Original Equipment Manufacturing (OEM): the companies concerned manufacture the components or products but do not put them on the market. For many Chinese companies that is enough, because there are good profits to be made. China is now embarking on an innovation-driven strategy, however, so we may well see more Chinese brands in the future.

**You plan to transform Haier from a manufacturer into a service provider.**

It is our aim not only to sell more products like refrigerators or televisions, but also to find solutions to a problem. We now aim to sell "smart home" systems, where all appliances are interconnected via the internet. Air-conditioning units in the office can be controlled from home. New products will not be particularly valuable if they are not networked.

**The costs of labor and other resources are rising rapidly in China. Many manufacturers are already shifting their production to other countries.**

The pressure from rising wages is certainly great. We have plants in 24 countries, but the labor costs are now higher than in China only in three countries: in Japan, Italy and the US. Wages in Thailand are already cheaper than in China, but we do not plan to simply switch production to low-wage countries. The solution in our view is to create more value for our customers.

**At present China's economic growth is based predominantly on investment in plants and equipment. But this cannot continue forever on that scale. What comes next?**

You are right that we are now in this second phase. Investment in rail and road transport is necessary, but its share of the overall economy is relatively high, at up to 40%. As you rightly comment, this cannot continue forever on that scale. This is pre-



## The white goods heavyweight

Haier is one of China's most successful companies and, with a market share of 10.2%, one of the world's leading household appliance brands. With 2015 earnings of over \$1 billion, it is also highly profitable. For more than a decade, Haier has followed a strategy of building up its brand not only in China, but also in overseas markets, which is still rare among Chinese companies.



## Pioneering management models

Abolishing middle management and demanding entrepreneurship and innovation from every employee: the philosophy that "customers are always right while we need to constantly improve ourselves" has made Harvard and other renowned business schools sit up and take notice: Haier – and its success – is taught as a case study.

## "There is a Chinese saying: if you want to learn to play chess, then look for a master."

cisely why we need innovations. The question is simply which. At Haier we believe that the internet offers us good opportunities.

**Do you believe that global warming poses a risk to humankind and what do you think should be done to counteract it?**

It is clear that temperatures are on the rise. Regardless of whether emissions are responsible for this, it is an issue we need to face up to. Our dependence on fossil fuels is part of the problem.

**How will China's rise affect life in Europe or in the US? Should the people there feel afraid?**

The Chinese have never felt threatened by growth in other countries. So why should they be afraid of us? Globalization is bringing us all closer together.

**What shortcomings have you noticed on your trips to other countries? Do you have any constructive criticism for us?**

When we travel to other countries, we do so to learn from their experience. But I must say that the welfare state in Scandinavia could pose a problem. With such egalitarianism, where are people to find motivation? I saw something similar in Germany. If someone does not work yet receives almost as much money as someone who is in work, why work at all?

**Could it be that Europeans have a greater fear of change than the Chinese?**

We believe that companies in Europe are less aware of the transformation that the internet entails. The internet is making customers much more fickle. European brands seem to think they do not need to communicate directly with their customers because of their high brand acceptance. That is where our opportunity lies. ■

# 3,800,000

Facebook followers: Haier champions a "zero distance to the customer" approach to digitization

## Revolutionary restructuring

### → DISRUPT YOURSELF

Haier took a revolutionary approach to the threat of disruption – it disrupted itself first. Turning itself into an internet-based platform company is just its latest move to stay ahead of changing times and its competition. Part of a long line of innovations, the company's "zero distance to customer" principle led to the "Haier U+ APP" that allows customers to personalize their appliances while still being built at certain factories.



### A GLOBAL INNOVATOR

Chinese farmers carry a Haier refrigerator on their way back to their village in Anhui (top); Haier premieres its R2-D2 refrigerator on October 29, 2015 in Tokyo, Japan (middle); the Haier booth at CES 2013 at the Las Vegas Convention Center (bottom).



*JUST A CLICK AWAY* The Chinese are embracing the fintech revolution.




*Unlike the West, the rapid growth of the mobile internet in China has created fertile soil for innovative financial services in the space of just a few years. A study in contrasts.*



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BY **Henrik Bork**

# Crucible of the Fintech Revolution







**ZHANG SENHUA**, 34, a fintech entrepreneur in Beijing, has discovered a lucrative niche for his company Duocaitou: he makes dreams come true. Zhang himself wouldn't phrase it quite like that; until recently he was an investment banker at Bank of China International. Facts and figures are the foundations of his profoundly rational world. And yet the mobile crowdfunding platform founded by Zhang, Duocaitou, has already made 70 business dreams a reality since June 2015. Duocaitou specializes in finance for boutique hotels, which are currently springing up on China's mountainsides and coasts like bamboo shoots in spring rain.

One example is the new Shan Shui Jian hotel, whose name can be translated as "between mountains and water." The modern boutique hotel opened recently at the foot of the Huangshan, the famous Yellow Mountain of China's Anhui province. The owner had a dream, and now it's come to life: a 300-year-old traditional Chinese dwelling, extended and flanked by a modern glass and steel construction.

Back in June of this year, the project had not even been live on Zhang's crowdfunding platform for 24 hours before the **¥3 MILLION** (approx. \$438,400) needed to finance it had been raised. "In terms of volume, our project is absolutely perfect for China's new middle class," says Zhang.

On average, the investors who finance dreams like this hotelier's on Duocaitou part with **¥53,000**, or just over \$7,700. And they do it from their cellphone using WeChat, an immensely popular app in China that functions like WhatsApp, but also offers payment services. The crowdfunding platform uploads hotel photos and project descriptions onto its company's official WeChat account, the customer clicks a

few times, an investment contract with the projected dividends is sent directly to their cellphone screen, where they can sign it with their finger and quickly press "send": another white collar worker in Beijing, lawyer in Shanghai or doctor in Guangzhou becomes an investor.

### Providing the missing link

The Duocaitou platform steps in where China's financial markets have previously feared to tread, and it does so in two ways. It's not just the case that entrepreneurs would not find credit for this kind of hotel project anywhere – China's state banks are just as conservative and risk-averse as major banks the world over. It's also that the increasingly wealthy middle class in China struggle to find legal channels to profitably invest their disposable income: the communist government in Beijing strictly controls the property market because any overheating of that market could quickly lead to civil unrest; high deposits are required before you can be approved for a mortgage, and the number of homes available for any Chinese person to buy is regulated. It is also very difficult to invest abroad. The flow of currency out of China is very stringently restricted, making the transfer of credit to overseas accounts effectively only a realistic option for the new super-rich. Interest on bank deposits in China is also very low.

Crowdfunding platforms such as Duocaitou can therefore position themselves as the missing link between unproductive capital and risk-tolerant companies, creating a completely new interface between the financial and property markets and the mobile internet. "Our projects promise good returns, right from the first year, but

our borrowers often start off without even owning the land, and the banks would rarely lend them money," says Zhang.

It is often those same middle-class people who head out of the city in their BMWs or Toyotas on a weekend to a chic boutique hotel who used Duocaitou to invest in that hotel. The entrepreneur describes his crowd-investors as 25 to 45 years old with one or two children and an annual household income of around **¥500,000** (approx. \$76,300), **¥200,000** of which is disposable income.

The phenomenal success of WeChat, developed by internet giant Tencent, has created an ecosystem in China in the space of just a few years in which fintech companies like the one headed by **ZHANG SENHUA** can grow faster than would be conceivable anywhere else on the planet. WeChat is one of the world's most successful messaging platforms with more than 800 million active monthly user accounts, almost all of them in China (WhatsApp reached 1 billion users in 2016). A blend of a messaging app à la WhatsApp, social media network like Facebook and an e-commerce platform, WeChat is the most important app in China and the one people spend the most time using.

The Chinese use WeChat to chat and send files, to read specialist media and to buy rail tickets. You can pay for the noodle soup from a street food vendor for ¥10 via a WeChat payment provider, just as you can for a ¥100 taxi journey with the Didi Chuxing ride hailing service or send ¥1,000 in emergency funds to your son in college. It's not an unusual sight to see crowds of Chinese people crossing the street in Beijing or Shanghai, eyes glued to their cellphone screens. Most of them are hooked on to WeChat even as they walk.



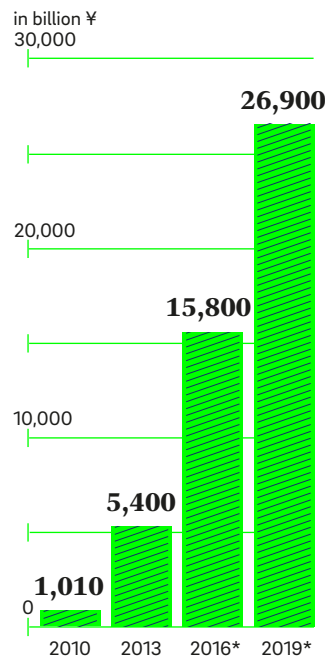
## Not an ant, but a giant

Ant Financial (China)

Valuation:  
**\$76 billion**

Total funding:  
**\$4,500 million**

## Online payment on the rise



Online payment transaction volume in China from 2010 to 2019\* (in billion ¥)

Source: Statista 2016  
\*estimated

The rapid growth of the mobile internet in China has now created a vibrant market for finance-oriented technology firms. "Fintech – from mobile payment and crowdfunding to new technologies such as artificial intelligence for asset management – is currently experiencing a boom in China," says **ZENNON KAPRON**, who previously worked for Citibank and is now a fintech specialist advising entrepreneurs in Shanghai at his industry market research firm KapronAsia. It is primarily big internet companies such as Baidu, Alibaba and Tencent, a triumvirate often abbreviated to BAT, which have the most success with their own fintech investors, says Kapron. "But there are hundreds of interesting fintech startups in Beijing and Shanghai."

According to a recently published report in *China Daily*, China is one of the fastest growing fintech markets on earth and it was reported that **\$4.5 BILLION** in new venture capital flooded into Chinese fintech firms in 2015, more than four times the figure for the previous year. That accounts for around 20% of worldwide investment in this sector.

The superstar of the new fintech sector in China is Ant Financial, once the payment arm of the Chinese e-commerce giant Alibaba. It has now been trading independently for the last two years and achieved a market value of **\$76 BILLION** in its latest round of financing in April this year, making it worth almost as much as the US investment bank Goldman Sachs. Alibaba Founder **JACK MA** created his own third-party mobile payment firm, Alipay, in 2004, initially out of sheer necessity: he needed to make payment for packages from his internet shopping platform Taobao easier for consumers on their doorsteps. By 2011, it was so successful that it became its own separate entity. Today, Ant Financial – a comprehen-

sive fintech company that evolved from the early days of Alipay and still includes the payment service among its offerings – has 450 million active users and takes care of 170 million financial transactions every day.

For Ant Financial – and indeed many Chinese fintech companies – the key to success lay in addressing the needs of a large population often ignored by traditional banks. That was something Jack Ma saw when he founded Ant Financial's first money market fund Yu'eobao in 2014. Chinese consumers, already used to making day-to-day payments with Alipay, could now invest money with just a few clicks on their cellphones. And with a minimum investment of ¥1. That was something that traditional banks did not offer, and it won over the young Chinese – within just two years, Yu'eobao had become the world's second-largest money market fund. According to *Forbes*, the fund manages **\$90 BILLION** for more than 260 million investors. "It's a real difference from the USA, where fintech firms have to change an established market if they are to be successful," says Zennon Kapron. "In China, many fintech companies are still able to start small, and then continuously introduce new products."

## A different climate

In comparison, the initial hype surrounding fintech has already cooled significantly in the USA. Industry achievers that were celebrated just a few years ago, such as the Lending Club – Founder Renaud Laplanche was heralded by the media at the time as the "next **JEFF BEZOS**" – have all lost significant market value. Nevertheless, there are dozens of American first-wave fintech unicorns, startups that have already →

CHINA





## What exactly is George?

George is a hybrid creation: one part accounting app, one part budget book 4.0. On top of the usual features found in most banking apps, George offers many additional tools. George will not only track your spending, he will also analyze your spending behavior and categorize the results. George also keeps a complete archive of previous transactions – a very handy tool come tax time. Notably, George is not limited to savings accounts at Erste Group: the app also integrates with accounts at other banks. George is surprisingly intuitive and easy to use – hence the 700,000 users logging in nine times per month.

*STARTING AT ¥1 Fintech money market funds like Yu'e bao are popular with China's youngsters.*





achieved a market value of a \$1 billion or more. However, another success like PayPal is not currently likely.

In contrast to China, the American market is no longer being changed by young startups that are threatening established competitors and inventing completely new business models. It is the banks themselves that are embracing the technology and "fintech-izing" their business processes. Goldman Sachs has been one of the most active investors in the fintech sector for several years. The Wall Street bank has not only acquired shares in payment service providers such as Square and Bluefin, but has also invested significant sums in Bitcoin startups and big data.

Bank of America (BoA) holds its own annual Technology Innovation Summit in Silicon Valley. So far, this has given 300 startups the opportunity to present their ideas, and dozens of them have left the event with a cooperation agreement in their pockets. BoA has a yearly budget of **\$3 BILLION** for new technologies, digital projects and startup acquisitions. "Our appetite for innovation is tremendous," said Cathy Bessant, COO and CTO at Bank of America, in an interview with the *San Francisco Business Times* during the summit.

Many of the fintech revolutionaries from the early days have since proven to be less radical with regard to the role of established banks. It wasn't so long ago that Brad King, Founder of the mobile bank Moven and author of the book *Breaking Banks*, proclaimed the "death of the merchant banks." Now he promotes cooperation rather than confrontation. "We can't continuously position ourselves solely as rebels," says King, "or the banks will regard us as their enemies." Instead, it's friendly overtures from fintechs.

Something similar is happening in Europe. Deutsche Bank is planning to invest €750 million in its digital strategy. Germany's biggest bank is currently creating a digital think-tank with 400 employees to concentrate its R&D in-house. The ING Group in Amsterdam has opted for a different approach and is working with 40 fintech startups in order to learn from them. ING CEO Ralph Hamers describes this strategy as "innovation from within."

## Thinking big

In Vienna's financial district, **BORIS MARTE**, Project Manager at Erste Group Bank AG, apologizes for his brown loafers, worn without socks. With his shoulder-length gray hair and slim-fit suit trousers, the 51-year-old has a rather unorthodox style for a banker. He studied cultural philosophy, he says with a chuckle.

Marte was involved in the development of a new app for Erste Group called George that has already been downloaded 36,000 times, and Marte is visibly proud of his creation. George is primarily a personal finance manager, but it's also much more than that – it is its own ecosystem and will wow millions of people in the near future. Whether that happens remains to be seen, but it does already have 700,000 (app and website) users, which is a considerable figure for Austria. If current growth is sustained, one in 10 Austrians will be using George by next year and the app will be a further example of the new symbiosis between fintech and established financial companies.

There is a different kind of optimism at work in China. Hundreds of ambitious startup companies toil away in Beijing's student dormitories, in their founders' cheap studio

apartments or in their first offices, financed with money from angel investors. Micai falls into the last category. The fintech startup has rented two floors on the 26<sup>th</sup> story of an office tower block to the north of Beijing's Third Ring Road. Belgian **GREGORY VAN DEN BERGH** paints huge visions directly onto the whitewashed wall with a marker. "We want to become a kind of Microsoft Windows for asset managers," says the 27-year-old entrepreneur.

"Think big!" is the motto of many Chinese startups, and it certainly applies to Micai. Fifty programmers and other employees, most of them fresh out of university, sit behind him in two open-plan offices and create software that is set to automate traditional portfolio management with the aid of artificial intelligence (AI), according to their boss.

Van den Bergh has also already developed a "robot advisor," a digital investment consultant armed with algorithms. Unlike a human advisor, whose investment tips are often based more on his own interests than on objective criteria, Micai's investment robots are fed only with verifiable data.

To date, innovations in asset management have only taken place at one point in the value creation chain, in sales, says Van den Bergh. "We want to have an impact at all stages, including the asset management back office and middle office," says Van den Bergh. He has an ambitious goal. He wants his own cloud-based software to replace the Excel files that asset managers all over the world have used up to now to manually type in their key data. He has already carried out two rounds of financing to bring in investors. "I am convinced that fintech firms with innovative technology in China currently have the best prospects," says Van den Bergh. ■



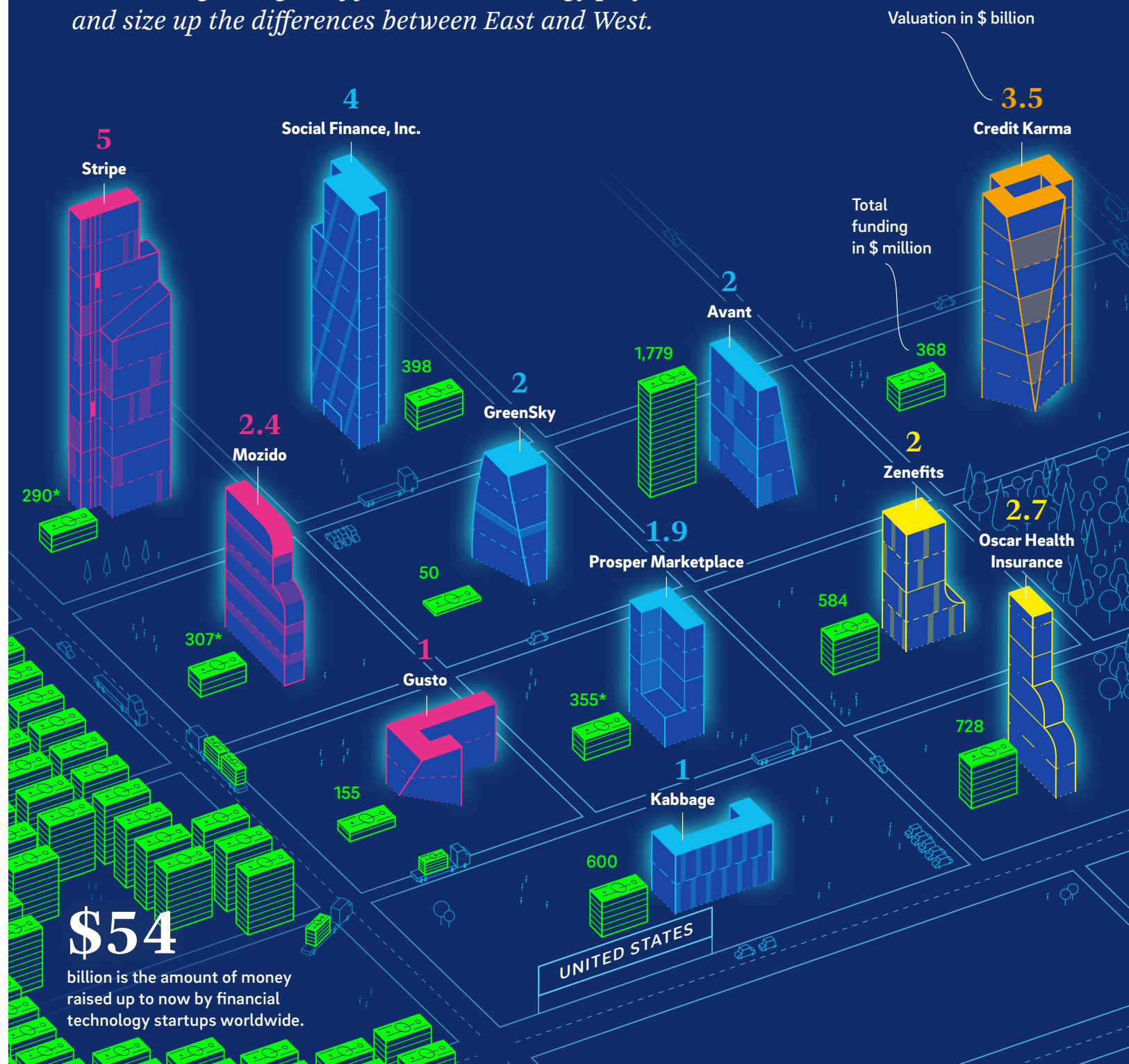


# Fintech City

*Beijing and Shanghai are thinking big – and quickly becoming the center of the fintech revolution. But Fintech City never sleeps. Today there are 1,942 companies in 58 countries worldwide. Reason enough to take a look at the global grid of financial technology players and size up the differences between East and West.*

## THE FINTECH UNICORNS

- Banking & Exchange Apps
- Payment & Transaction
- Insurance/Reinsurance
- Free Credit and Financial Management Platform



18.5

Lufax

## THE LEADING FINTECH HUBS

### NEW YORK

An obvious choice for entrepreneurs seeking both opportunity and talent.

### LONDON

Long a center for all things financial, it was a natural to move to the front of fintech – but will Brexit change its status?

### TEL AVIV

In just seven years, the number of fintech startups has exploded – from 90 in 2009 to 500 today.

### BEIJING

A rising middle-class of ready adopters is pushing the Chinese capital to the forefront of fintech.

### SINGAPORE

The government bolstered fintech with an innovation lab and international agreements.

8

Zhong An

1.1

TransferWise

1

Funding Circle

272

UNITED KINGDOM

116

258

2.3

Klarna

1

Rong 360

56

2.3

Adyen

1

China Rapid Finance

4.8

Paytm

740\*

INDIA

266\*

THE NETHERLANDS

301\*

SWEDEN

931

CHINA

1,685

## GIANT AMONG GIANTS

Not included in this list below is Alibaba's Ant Financial, which stands head and shoulders above everyone else in China, with a value of \$76 billion and a total funding of \$4,500 million.

\* Excluding undisclosed amounts  
Sources (Apr./Nov. 2016): Crunchbase, Venture Scanner, company data  
Graphic: Golden Section Graphics



## M-KOPA Solar

### → A QUICK LOOK

"M" stands for mobile, *kopa* is Swahili for "borrow" – this solar energy company offers the relatively large number of off-the-grid households in Kenya, Tanzania and Uganda access to an affordable, reliable alternative to kerosene lighting and battery power. Customers pay a deposit, take the system home, and then make daily payments through M-PESA – Kenya's dominant mobile financial services provider. After one year, customers own the product.

### → FAST FACTS

Sector: Energy  
Revenue: \$60 million  
Employees: 2,500  
Founded: 2011  
Reach: 400,000 households in three countries





# Silicon Savannah

## Fast Tracking Kenya's Digital Future

*Nairobi is becoming the center of the African tech scene – and offering a new chance to 80% of unemployed Kenyans under 35 years of age. From startups and incubators to a purpose-built tech city, we take a look at some of the key players.*



## TEAMS


### → A QUICK LOOK

The East African Marine System (TEAMS) is a submarine fiber optic cable initiative spearheaded by the Kenyan government to provide the infrastructure required to support the country's growing tech scene. A joint venture with Kenyan telco operators and UAE-based operator Etisalat, the cable links Fujairah in the United Arab Emirates to Mombasa on Kenya's coast, with service extending to Uganda, Rwanda, Burundi, Tanzania and Ethiopia.

### → FAST FACTS

Sector: Infrastructure  
Technology: Fiber optics  
Length: 3,108 miles  
Completed: 2009  
Design capacity:  
Upgradable to 640 Gb/s



A photograph showing several workers in bright orange uniforms and caps pulling a thick rope or cable on the deck of a ship. In the background, a large white ship is visible. The text '3,108 miles of undersea fiber optic cable now connect Kenya – and East Africa – directly to the rest of the world.' is overlaid on the right side of the image.

3,108 miles of  
undersea fiber  
optic cable now  
connect Kenya –  
and East Africa  
– directly to the  
rest of the world.



## M-FARM

### → A QUICK LOOK

Send a text message, receive the going market rate:

M-Farm connects Kenya's low-volume farmers with buyers and each other, and provides fair, accurate pricing information on a wide range of local crops. Now operating as a text message service, app and website (complete with a trading platform), transactions are handled by an integrated mobile money transfer system that protects farmers from middlemen and opens up fair access to bigger and better markets.

### → FAST FACTS

Sector: Information

services/Mobile trading

Registered users: 14,000

Types of crops covered: 42

Founded: 2010

Average farmer's profit

increase: 100%



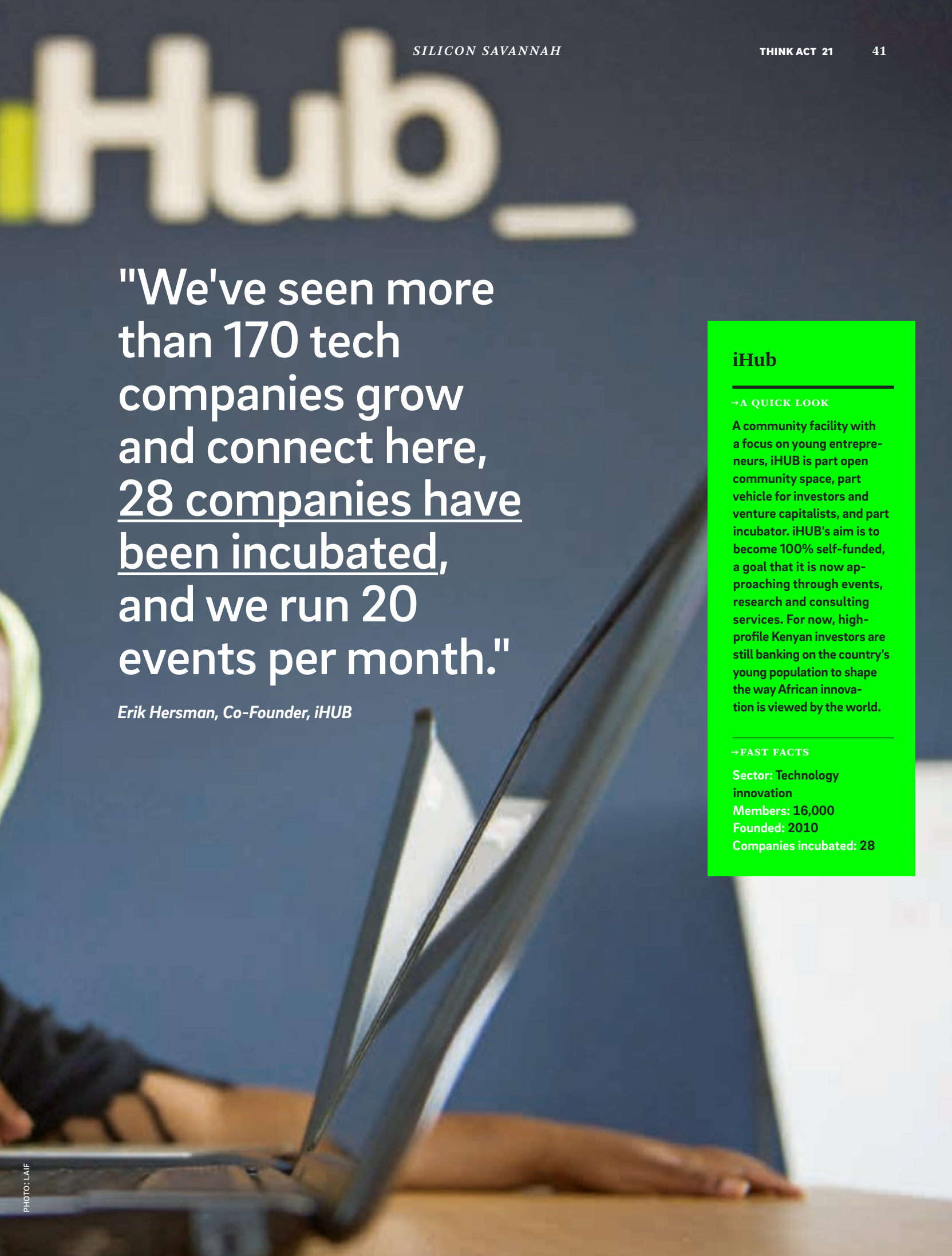




With the help of  
M-FARM's text  
message-based  
service, Kenyan  
farmers are increasing  
their profits by an  
average of 100%.







"We've seen more than 170 tech companies grow and connect here, 28 companies have been incubated, and we run 20 events per month."

*Erik Hersman, Co-Founder, iHUB*

## iHub

### → A QUICK LOOK

A community facility with a focus on young entrepreneurs, iHUB is part open community space, part vehicle for investors and venture capitalists, and part incubator. iHUB's aim is to become 100% self-funded, a goal that it is now approaching through events, research and consulting services. For now, high-profile Kenyan investors are still banking on the country's young population to shape the way African innovation is viewed by the world.

### → FAST FACTS

Sector: Technology innovation

Members: 16,000

Founded: 2010

Companies incubated: 28



Nairobi is on the  
fast track: a new  
home for Kenya's  
tech future.





**STARTUP STORIES** have been piling up for a few years now in Nairobi – this city of a million people has become a magnet for tech startups. People are talking about the emergence of Silicon Savannah. The internet is already responsible for 2.9% of Kenya's economic output, and it could be as much as 10% by 2025. And this prediction seems quite realistic, indeed. Nowhere in the world is the number of mobile phones growing as fast as in Africa. More than half of the 1.1 billion people living in Africa have a cell phone, and they use it as a wallet, radio, doctor, weather station and bank account. And wherever there is a lack of infrastructure, new startups are springing up.

Many of them come from Nairobi: iCow, for instance, sends farmers SMS tips to help them increase the milk yield from their cows – for a fee. And so that wholesalers won't have farmers over a barrel, M-Farm sends prices for beans, bananas or sweet potatoes via SMS. M-Peepa provides emergency mobile loans of up to \$300. Simply send an SMS and the money is credited – M-Peepa will deduct the amount from the borrower's next wages.

More than half of Kenya's 43 million residents receive their wages on their cell phone thanks to the mobile payment service M-Pesa. M-Pesa was set up in 2007 by Kenyan mobile telephone provider Safaricom and, according to its shareholder Vodafone, it now handles almost half of Kenya's GDP. The service is so successful because it works with cheap cell phones, it's simple to use and offers many Kenyans – as well as people in Tanzania and South Africa – a bank account for the first time. M-Pesa is one of the foundations of Kenya's IT boom: dozens of startups use this service for their new business ideas. Many of them are based in business incubators such as iHub.

But, surely Kenya's position as the top location for African startups is down to the fact that a number of undersea cables have connected Kenya to global data pipelines in recent years. The Nairobi government's innovation-friendly policies have also played a major role – including the central bank's decision to waive the requirement for M-Pesa to apply for a banking license.

And the tech-boom continues. Konza Technology City, a completely new town covering 5,000 acres complete with colleges, data centers and research labs is being built in Konza, 37 miles from Nairobi. More than 17,000 new jobs are set to be created in Konza during its first phase of construction.



## Konza Technology City

### → A QUICK LOOK

In May 2016, the Kenyan government announced it would fast-track plans to build Konza Technology City, a sustainable, world-class technology hub and a major economic driver for the nation – and the future home of an estimated 200,000 people.

### → FAST FACTS

**Location:** 37 miles south of Nairobi  
**Projected gross regional product:**  
**\$1.3 billion**  
**Jobs to be created in the first phase:**  
**17,000**  
**Cost:** \$11.8 billion  
**Size:** 5,000 acres



*EMBRACE THE REVOLUTION Don Tapscott has some advice for today's smart companies: don't play victim to the blockchain, participate fully in it.*



# Making it Rain on the Blockchain

*Don Tapscott an authority on the digital economy, and his son Alex Tapscott, an expert in industry-leading blockchain businesses, want to introduce you to the internet's second generation.*

BY **Don Tapscott** AND **Alex Tapscott**

**DURING THE EARLY DAYS** of the internet, the notion of new business models was introduced. Now once again the technology genie has escaped from the bottle – and we don't mean the social web, Big Data, the Cloud, robotics or even artificial intelligence.

We're talking about the blockchain, the technology behind digital currencies like Bitcoin. With blockchain technology underlying cryptocurrencies such as Bitcoin, we are beginning to see radical new business models and big changes in firms: how they are funded and managed, how they create value, how they perform basic functions like marketing and accounting and how they compete.

Most strategists see blockchains as being central to so-called "fintech" and a big change for the financial services industry. To be sure, this technology will be at the heart of changes that may well render the industry unrecognizable. However, our two-year research project provides strong evidence that the blockchain revolution represents nothing less than the second generation of the internet, and it holds the potential to transform money, business, government, democracy, culture and society.

The internet today connects billions of people around the world, and is certainly great for communicating and collaborating online. But because it's built for moving and storing information (and not value), it has done little to change the corporation and the nature of business. When you send information to someone, like an email, Word document or PDF, you're not sending the original – you're sending a copy. It's OK (and indeed advantageous) for people to publish a copy of their PowerPoint file, but it's not OK when it comes to money, stocks, intellectual property or music rights. So with the Internet of Information we have to rely on powerful intermediaries to establish trust. Banks, governments and even social media companies like Facebook do all the work of establishing our identity, helping us own and transfer assets and settle transactions seamlessly.

## The future of value

Overall they do a pretty good job – but there are limitations. They use centralized servers, which are vulnerable to attack or shut-down. In addition they take a piece of the value for performing this service – say 10% of the transaction to send funds internationally. They capture our data, not just preventing us from using it for our own benefit but often undermining our privacy. They are sometimes unpredictable and often slow. They exclude two billion people who don't have enough money or a firm identity to justify a bank account. Most

problematic, they are capturing the benefits of the digital age asymmetrically – and today this is a growing problem.

What if there were an Internet of Value – a globally distributed, highly secure platform, ledger or database where we could store and exchange value without powerful intermediaries? That's what blockchain technology offers us: safety, reliability and trustworthiness of commerce online. That's why we call it the Trust Protocol. It presents countless opportunities to blow centralized models to bits – models like the corporation, a pillar of modern capitalism, along with its management canon and bureaucratic hierarchy.

It turns out every business, institution, government and individual can benefit in profound ways. With the rise of a global peer-to-peer platform for identity, trust, reputation and transactions, CEOs will be able to re-engineer deep structures for innovation and shared value creation. We're talking about building 21<sup>st</sup> century companies that look more like networks rather than the vertically integrated hierarchies of the industrial age. CEOs in the financial services industry have now recognized that blockchain provides a concrete threat and subsequent opportunity, and executives in other industries will soon follow.

New business models are emerging everywhere. The "disruptors" like Uber and Airbnb may well be disrupted themselves as most so-called sharing economy companies are really service aggregators. They aggregate the willingness of suppliers to —→

sell their excess capacity (cars, equipment, vacant rooms, handyman skills) through a centralized platform, and then resell them to users – all while collecting valuable data for further commercial exploitation. Blockchain technology provides suppliers of these services a means to collaborate that delivers a greater share of the value to them. Just about everything Uber does could be done by smart agents on a blockchain. The blockchain's trust protocol allows for cooperatives or autonomous associations, to be formed and controlled by people who come together to meet common needs. All revenues for services (except for overhead) would go to members, who also control the platform and make decisions through consensus.

### How will blockchains change the corporation?

Many management thinkers – us included – have speculated that the internet would reduce transaction costs in the marketplace, leading to the unbundling of the vertically integrated corporation into an interconnected network of networks.

However, the surprising reality is that the internet has had very peripheral impact on corporate architecture. The industrial-age hierarchy is pretty much intact as the recognizable foundation of capitalism. Sure, these networks have enabled companies to outsource to low-cost geographies, dropped transaction costs inside the firm and a host of other services, but the primary structure remains relatively the same.

Blockchains hold the potential of dropping the costs of search, coordination, contracting and establishing trust in the market, causing the boundaries of corporations to finally open up. We're in the early days of profound changes to the deep structures and architecture of the firm and how businesses orchestrate the capability to innovate, create goods and services and engage with the rest of the world.

A global searchable database of all transactions would dramatically lower the search costs for organizations. Smart contracts on blockchains will slash the costs of contracting, enforcing contracts and making payments, including micropayments specified on contractual arrangements. Smart agents on the blockchain hold the promise of eliminating agency and coordinating costs, perhaps even leading to highly distributed enterprises with little or no management.

Blockchain technology also takes networked business models to a new level by adding in native payment systems, reputation systems, uncensorable content, trustless transactions, smart contracts and autonomous agents – the key innovations of the blockchain revolution.

**1. Peer producers:** There are thousands of dispersed volunteers who brought you open source software and Wikipedia. By enabling reputation systems and other incentives, blockchain technology can improve their efficiency and reward them for the value they

**"With the Internet of Information we have to rely on powerful intermediaries to establish trust."**



### Standing behind the blockchain

Don Tapscott and Alex Tapscott are the authors of the book, *Blockchain Revolution: How the Technology Behind Bitcoin is Changing Money, Business, and the World*.

Don is the author of 15 widely read books about technology in business and society and is ranked as No. 4 on the Thinkers50, a ranking of the leading management thinkers globally. Alex is the CEO and Founder of Northwest Passage Ventures, an advisory firm building industry-leading blockchain businesses.



*A FAMILY AFFAIR Father and son duo Don Tapscott and Alex Tapscott bring two generations of insight to the blockchain debate.*



create. Just as IBM embraced Linux, firms can tap into self-organizing networks to co-create or peer-produce value.

**2. Rights creators.** Many musicians, photographers, artists, designers, scientists, architects, engineers and authors have not received proper compensation for their intellectual property (IP) on the internet. Blockchain technology solves the IP world's equivalent of the double-spend problem – piracy – better than existing digital rights management systems. Consider the digital registry of artwork, including the certificates of authenticity, condition and ownership: artists could decide whether, when and where they wanted to deploy it – and be able to track where each of their pieces ended up (as well as their current value).

**3. Blockchain cooperatives.** The Trust Protocol supercharges cooperatives – autonomous associations formed and controlled by people who collaborate to meet common needs. With blockchain technology, they can translate their willingness to cooperate into reliable accounting for rights, assets, skills and work product that displaces platforms like Uber, Airbnb and TaskRabbit. Again, all of the value is split equitably among the value creators.

**4. Metering economy.** Perhaps blockchain technology can take us beyond the sharing economy into a metering economy, where we can rent out and meter the use of our excess capacity. With blockchains we can rent out excess capacity of certain commodities – Wi-Fi hot spots, computing power, storage capacity, the heat generated by our computers, our extra mobile minutes, even our expertise – without lifting a finger. For example, when you travel, your Wi-Fi can rent itself out in your absence, charging fractions of pennies for every second of usage. Your imagination (and possibly new regulation) is your only limit. Your subscriptions, physical space and energy sources can now become sources of income, metering their use directly to a counterparty and charging them for it through micropayments.

All you need is a decentralized value transfer protocol to allow them to safely and securely transact with one another. These platforms instill subsidiary rights in all our assets. You need to decide the extent to which you want to assign others usage and access rights – even the right to exclude others from using your assets – and what to charge for those rights in a competitive market.

## "We're talking about building companies that look more like networks than the vertically integrated hierarchies of the industrial age."

**5. Platform builders.** Enterprises create platforms when they open up their products and technology infrastructures to outsiders. Blockchain technology makes platform building cheaper and manageable. It provides a standard common database and standard common contracts, which increase data transparency and portability. Users can pursue the best terms and cooperate with the best talent to create their own platforms, rather than using the applications of traditional companies.

Think of the car of the future, part of a blockchain-based network where everyone can share information and various parts of the vehicle are responsible for transactions and the exchange of money between parties. Given such an open platform, thousands of programmers and niche businesses could customize applications for your car. Soon such platforms could transform entire industries such as financial services by settling all kinds of financial transactions and exchanges of value. A consortium of the largest banks is already working on the idea. This type of new platform is the rising tide that lifts all boats.

**6. Blockchain makers.** Blockchain technology supports the Internet of Things used in manufacturing. It can automate not only the coordination of machines, but the tracking of inputs and outputs from each. We could, for example, monitor our beef from birth to burger, enabling the consumer to buy animals that were raised humanely, fed quality ingredients and butchered under sanitary conditions. Manufacturing-intensive industries can give rise to planetary ecosystems for sourcing, designing and building physical goods, marking a new phase of peer production – making it rain on the blockchain.

Just as a modern aircraft has been described as "a bunch of parts flying in formation," companies in most industries tend to disaggregate into networks of suppliers and partners. Three-dimensional printing will move manufacturing closer to the user, bringing new life to mass customization. Soon, data and rights holders can store meta-data about any substance from human cells to powered aluminum on the blockchain, in turn removing the limits on corporate manufacturing.

**7. Enterprise collaborators.** Today, commercial collaboration tools like Salesforce Chatter or Microsoft SharePoint are changing knowledge work, but there are clear limitations. Users often cannot transfer their ideas from unit to unit, let alone from job to job, yet vendors and corporate IT can eavesdrop on collaborations. To attract talent, firms need to respect employee security and privacy. The blockchain enables individuals to establish and manage their own personas online and decide how, where and what to contribute to a commercial project and with whom – and subsequently be able to revoke permission when a service or collaboration is no longer active.

Smart companies will participate fully in the blockchain economy rather than play its victims. In the developing world, the distribution of value creation (through entrepreneurship and talent pools) and value participation (through distributed ownership) may help to reconcile the prosperity paradox.

Overall, the open networked enterprise shows profound and even radical potential to supercharge innovation and harness extraordinary capability to create good value for shareholders, customers and societies as a whole. ■



**A** STEFAN MÜLLER took over Miltitz Aromatics  
from his father in 2013.



# Sniffing out Success

*How can small and mid-sized companies reinvent themselves?  
We take a look at four German companies that are breaking  
the rules and proving that the future belongs to the fast.*

BY **Daniel Schönwitz**

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**M**ARCO POLO, the intrepid explorer, came across a fascinating phenomenon in 1275. As he was fishing for squid off the coast of Socotra Island in the Arabian Sea, he noticed dull gray clumps of a waxy substance floating on the ocean's surface. It had a foul – almost fecal – stench, which much to his surprise soon transformed into a pleasant aroma. He suspected, quite correctly, that this strange substance had come from sperm whales.

Ambergris, as this mysterious substance is called, has become a much sought-after commodity for the fragrance industry. Yet to this day nobody knows exactly how it forms. What we do know is that the substance is made in the body of the whale after it has swallowed something indigestible, like a squid's beak. It ends up floating in the ocean in whale vomit or manure, and the longer ambergris spends floating on the surface of the ocean, the more it develops a woody, almost tobacco-like aroma that has perfume makers around the world making a beeline for it.

But these days, there's no need to scour the oceans to find rare ambergris. You just need to go to Bitterfeld, a nondescript town in the eastern part of Germany.

The chemical plants glisten in the rain, the heavy clouds still hang above the old two-story brickworks and there is an unpleasant smell in the air that clings to your nose. "C12MNA," explains Stefan Müller by way of a greeting, referring to 2-Methylundecanal, the chemical to be blamed for the stench.

Müller took over the mid-sized chemicals company, Miltitz Aromatics, from his father in 2013. Miltitz produces synthetic ambergris using a remarkably efficient and much sought-after process. "Earlier you needed up to 300 bar pressure to make ambergris, but our old plant couldn't manage that. So we designed a proprietary method that works without pressure," says the 39-year-old.

In Bitterfeld of all places, where East Germany's opencast brown coal mines once polluted the air, Miltitz produces not only ambergris, but also the ingredients for some of the world's most popular scents. With its innovative process for ambergris production and other in-demand aromatic substances, the company's 50 employees achieved a turnover of almost €14 million (\$15.3 million) in 2015. The company's customers primarily include major perfume and aroma manufacturers around the world. "Around 1,600 out of the 2,000 components in perfumes are chemically synthesized today, with the rest provided by nature," says Müller.

The well-respected Swiss Research Institute of Small Business and Entrepreneurship at the University of St. Gallen in Switzerland recently crowned Miltitz Aromatics as one of 23 Future Champions in the German-speaking world. These firms have an export rate of at least 40%, are technology leaders, have taken command of new markets early and are growing so fast they stand to become the dominant, global players in their respective fields. Miltitz Managing Director Stefan Müller says that his company simply needs to reinvent itself frequently and make the best of what it has as quickly as possible. "Otherwise we could never remain competitive in the capital-intensive chemicals industry."

## The age of "micro-multinationals"

This makes Miltitz one of those companies well prepared for the third wave of globalization. According to the Trade Winds study by HSBC, this wave will quadruple global trade by 2050. Yet unlike previous expansions, experts report that small and mid-sized enterprises (SMEs) stand to benefit the most this time. New technologies and global platforms are making location and size irrelevant. The study's authors even speak of an "age of micro-multinationals." The future, it would seem, belongs to specialized, flexible and well-connected SMEs.



## Stefan Müller

*Miltitz Aromatics*

### → A QUICK LOOK

**Stefan Müller took the helm of Miltitz Aromatics GmbH from his father in 2013 at the age of 39 after working as a lawyer for 10 years. The limited company's 50 employees achieved a turnover of almost €14 million (\$15.3 million) in 2015, producing synthetic aromatics and scents such as ambergris.**

### → BY THE NUMBERS

**62.5%**

**of perfume components produced chemically**

### → FAST FACTS

**Sector: Fine chemicals  
Employees: 50  
Founded: 1992  
Reach: 30 countries**

Of course, innovative and globally sought-after products and services are essential. And they need to be developed in ever shorter timeframes. "The future belongs to the fast," as Hewlett-Packard CEO Meg Whitman once said at the World Economic Forum in Davos.

However, companies like Miltitz are the exception. On the whole, Germany's much praised SMEs no longer seem to be quite up to speed. The German Chamber of Industry and Commerce (Deutsche Industrie- und Handelskammer – DIHK) raised the alarm back in December. "SMEs are falling behind," screamed the headline of the DIHK Innovation Report 2015/2016. Only 41% of →





## Anna-Katharina Wittenstein

*Wittenstein SE*

### → A QUICK LOOK

Wittenstein has around 2,000 employees worldwide and reported a turnover of €302 million (\$329.5 million) in 2015/16. It has eight business divisions, each with their own subsidiary companies: servo gears, servo drive systems, medical technology, miniature servo units, innovative gear technology, rotational and linear actuator systems, nanotechnology and electronics and software components for drive technologies. Wittenstein is represented in around 40 countries, in every major technology and sales market.

### → BY THE NUMBERS

# 85%

of products under five years old

### → FAST FACTS

Sector: Electromagnetic drive systems  
Employees: 1987  
Founded: 1949  
Revenue: €302 million (\$329.5 million)

**B** ANNA-KATHARINA WITTENSTEIN became Chairwoman of the Board in 2016.

firms with fewer than 250 employees planned to "expand innovation activities" compared to more than 60% of larger companies.

Germany's KfW development bank is also singing the same tune. "The risk of Germany's SMEs losing ground internationally with their aging range of products is increasing," wrote KfW Chief Economist Jörg Zeuner in the bank's SME Innovation Report 2015.

Do German SMEs regard digitization as only good for automating production and networking factories (known as Industry 4.0)? Haven't they realized that they too will have to develop new products faster, or even come up with completely different business models in order to remain competitive globally? This risk has been described by Carsten Hentrich and Michael Pachmajer, who discussed the closed attitude toward digitization among SMEs in their new book *Der Weg zum digitalen Unternehmen (The Path to a Digital Company)*. "Around 50% of family companies want to transform their business model but they don't know how," says Pachmajer.

But for those willing to take another look, there are also positive examples. SMEs that have restructured are constantly reinventing themselves. This happens in tiny steps and isn't as spectacular as, say, the disruption from a Silicon Valley startup, but they are highly successful in their respective fields nonetheless.

Take Siegfried Koepp, for example, who started his own revolution before the turn of the millennium. In 1999, when he became Managing Director of EMG Automation GmbH – an automation specialist from Germany's Sauerland region making everything from electro-hydraulic guide rollers for production machinery and high-end infrared measurement products for machines to electromagnetic processes – he promptly scrapped all divisions and created a new structure with a flat hierarchy. "Since then, below the management level, teams of 20 to 50 employees work together as equals responsible for the entire process chain – from distribution to assembly," says Koepp.

His priority was to eliminate thinking in divisions. "The word itself immediately shows what's wrong: employees are closed off in their own areas and don't have an overview of the whole company," explains the 60-year-old engineer. That led to blinkered vision and power games that often ended in finger pointing at meetings with the sole

purpose of establishing which department was to blame. Koepp also discovered that division leaders often became mini "power centers" within the company acting as impediments to change.

### Creating a new system

Changing this took some painful decisions. "We had to let most of the management go," says Koepp. But many employees also had difficulty adjusting. "After an acclimation period of a year, around 80% of the staff had gotten used to the new system, and most of them really blossomed." The rest, however, slowly left the company bit by bit. "As Managing Director, I had to take a deep breath and explain again and again why I was convinced the new structure was right," says Koepp. The first year in particular was "extremely challenging." Time has shown that the courage and effort it took was worthwhile. "Suddenly, we had a complete overview of the entire process, from order to delivery." After just a few months, EMG had halved its throughput times, reduced inventories by 40% and increased productivity by 15%. And six years after Koepp's revolution, turnover has trebled.

However, Siegfried Koepp, who is also involved with the German Engineering Federation (Verband Deutscher Maschinen- und Anlagenbau – VDMA), knows that EMG is the exception among Germany's SMEs. "In most companies, the willingness to turn the organization upside down like this is missing," he says. In order for flat hierarchies to work, bosses are required to trust their employees. A director who micromanages every-

**BRIDGING THE GAP** Ernst Koch GmbH & Co. KG is transforming from a machinery manufacturer into an IT service provider.



# "We have intensive internal discussions about which skills we should develop ourselves and where firms from our circle of partner companies can help."



**Jochen Koch**

*Ernst Koch GmbH & Co. KG*

## → A QUICK LOOK

Ernst Koch GmbH & Co. KG stands for competence, innovative strength, fairness and reliability. Using the latest technology to cater to the specific needs of different industries for more than 90 years, it has pioneered processes that have become industry benchmarks in production, quality assurance and optimization.

## → BY THE NUMBERS

**80%**

of machines exported

## → FAST FACTS

**Sector:** Wire drawing machinery  
**Employees:** 130  
**Founded:** 1921  
**Reach:** 60 countries

thing and always has to have the last word only prolongs the actual decision-making process – not even the flattest organization can fix that. Change management expert Kai Anderson and Jane Uhlig write in their book *The Agile Company* about the principle of "subsidiarity" – bosses who give the individual business units "a high level of freedom," ensuring that employees can bring in and develop their own ideas. EMG Director Siegfried Koepp swears by this principle. "I've experienced that people grow beyond their limits when they really make a difference and influence something," he says. That's why it is important to give employees the freedom to make their own decisions and to involve them closely in the decision-making process. "That means management has to listen and not only tolerate dissent, but also take it seriously," says Koepp.

Anderson and Uhlig agree. "Closeness and approachability have certainly become hallmarks of a manager of an agile organization, today more than ever," they write. And naturally an autocrat can't suddenly appear every time something happens to go wrong. "Employees have to know they can make mistakes," says Miltitz Director Stefan Müller, who is convinced that "intrinsic motivation" grows when workers can truly make a difference at a company. "That's really important for us, since we're a small company that can't pay the same salaries that large chemical corporations can," he says. Michael Otto, head of the Otto Group, the world's largest mail order company, even promotes a "culture of failure." "Employees who have failed with one project are some of the most valuable," he says, be-

cause they definitely won't make the same mistake twice.

However, autonomy isn't enough. For teams to develop as many ideas as possible, successful managers must bring together different perspectives and skills. "We need to cultivate managers who can discover and systematize the capabilities of networking for themselves," says author Carsten Hentrich.

According to Anderson and Uhlig, "the starting point of the innovation process" is "opening the organization and the respective minds" and a "confrontation with the new." If engineers in their mid-50s keep to themselves, the opportunity for creating new ideas is going to be less than if laborers, developers, designers and customer relationship experts all sit at the same table.

## Fostering innovation

Wittenstein SE in Igersheim is particularly keen on mixing up teams. Here in the land of the Madonnas, as the locals call this strip of land 25 miles south of Würzburg, a futuristic building of glass and exposed concrete nestles among the rolling hills. Inside are mobile offices, lounges and lots of open space for thinking and interacting. Welcome to the future. Welcome to the Innovation Factory, built by Wittenstein for €35 million (\$38.2 million) and opened in 2014. Developers, programmers, technicians and marketing specialists work alongside the production team. "The vast majority of the value added here takes place within a radius of just 40 meters (43 yards)," says Anna-Katharina Wittenstein, who has been running the company's business of drive systems since October 2016. It guarantees direct interaction between co-workers with different perspectives. The Innovation Factory has started living up to its name; it's not only an innovative factory, it's also a factory where innovation is born. Wittenstein recently launched a completely new gearwheel, or more precisely, a gearwheel without teeth, that promises productivity increases of up to 40%. This "galaxy drive system" won the Hermes Award at the Hannover Expo and recently landed the German Business Innovation Award.

Yet it's not enough to bring together a diverse collection of professions to create a healthy mix – a company also requires diversity in terms of both age and gender. Siegfried Koepp at EMG considers →

unconventional thinkers to be crucial. "People questioning what's established often drive discussions forward in a decisive fashion." Miltitz Managing Director Müller takes this reasoning a step further by making his customers part of the innovation process. "We frequently come up with ideas after speaking with our customers," he says. "That's why our sales people always take along a chemist when going to appointments, to provide a scientific perspective." This helps the firm continue to create new synthetic scents and improve production methods.

Flat hierarchies, great teams, new product ideas: that all sounds wonderful. Yet in many cases, that still won't be enough, especially if companies only consider how they can improve their core business. Digitization is disrupting entire sectors, so it's important to keep a broad perspective and enter new segments and markets – even if that means exiting established fields. It all comes back to Schumpeter's concept of creative destruction.

But it's only at a few companies that employees have been tasked with questioning their business models regularly, and in a structured fashion. "That's unfortunately not part of the industry's DNA," says Thomas Rinn, Director of the global Competence Center Operations Strategy at Roland Berger.

However, when you look at sectors transformed in recent years by the digitization of production or Industry 4.0, it becomes strikingly clear why this is so necessary. For example, most heavy machinery is now computerized, opening up the mechanical engineering sector to IT firms aiming to take over the lucrative part of the business and downgrade machinery makers to mere parts suppliers.

That would be fatal for some, like wire-drawing machine manufacturer Ernst Koch GmbH & Co. KG from the town of Hemer near Iserlohn. "The machinery normally has a long lifecycle," says Jochen Koch, Managing Partner in the firm, which has 120 employees and an annual turnover of €45 million (\$49.1 million). From a business viewpoint, the money is to be made by tapping into the shorter innovation cycle for IT and software.

That's why Koch, the grandson of the firm's founder, is pushing the company's transformation from a machinery manufacturer to an IT service provider. "We've



## Siegfried Koepp

EMG

### → A QUICK LOOK

**This SME celebrates its 70<sup>th</sup> anniversary this year. It is active on six continents, employing around 1,200 people and exporting around 80% of production. This automation specialist from Germany's Sauerland region makes everything from electro-hydraulic guide rollers for production machinery and high-end infrared measurement products for machines to electromagnetic processes. Siegfried Koepp took over the business in 1999, after a career in engineering for Krauss-Maffei.**

### → BY THE NUMBERS

# One

**millimeter (0.04 inch) – the accuracy with which EMG machines can align the sides of steel bands when rolling sheets up to 2.4 meters (7.8 ft) wide**

### → FAST FACTS

**Sector: Automation technology**

**Employees: 750**

**Founded: 1946**

**Revenue: €140 million (\$152.4 million)**

decided to build that software competence ourselves rather than buying it," he says. The only thing outsourced is digital support. Koch's employees were deeply involved in the decision-making process – and they still are. "We have intensive internal discussions about which skills we should develop ourselves and where firms from our circle of partner companies can help," says Koch.

Koch made an important decision back in the late 1990s: since that time, his firm has worked with other targeted SMEs. Making everything from medical wiring to cables for ski lifts, Koch presents itself as a one-stop provider of systems rather than just products. That makes it much more difficult







PHOTO: FLORIAN BÜTTNER

**D** SIEGFRIED KOEPF started his revolution at EMG in 1999.

for IT firms to attack the Koch business model. Since 2003, one of its most important partners has been the Italian firm M+E, which specializes in wet-drawing machines, making particularly high-strength wire. "Our partners aren't competitors, but companies that complement our offerings – with products such as cleaning systems, machinery for coatings or wet-drawing machines," says Koch. "In light of digitization and growing complexity, such cooperation is becoming ever more important."

Experts, including those behind the Trade Winds study, are convinced that cooperative models like Koch's are the way of the future. Examples of such clever networking are becoming more common – like Euronics, a collection of some 1,500 electronics retailers in Germany that market themselves as a single brand. There's even an online marketplace to connect the group's physical and online stores.

## The end of centralization

Cooperation and networking like this shows that the trend toward decentralization is not just a few firms allowing teams to operate independently. "Autonomous units make connections both within and outside a company," write Anderson and Uhlig in their book. A corporate headquarters, in the traditional sense, will become rare. "Modern companies have very lean holdings, comprising the executive management and a few central functions like accounting," says EMG Managing Director Koepf. Everything else is the team's responsibility – enabling them to work efficiently at several different locations.

Neither Koepf nor Müller of Miltitz believe in abandoning fixed structures altogether. "It wouldn't be a problem if some of my staff worked from home and connected via Skype." Most of them would probably make use of this, as they, like Müller, live in nearby Leipzig. "And they're better off there than in Bitterfeld," says Müller. "However, direct on-site contact and interaction are important for discussions and the innovation process." In Bitterfeld, Müller still holds his morning meetings. Even his father insisted on calling his staff together at 7 a.m. to share breakfast. "That's when we always came up with our best ideas," says Müller. The key to sniffing out the best ideas, it seems, is taking the time to chew them over. ■

# "Reach as Large a Scale as Possible. Even Better, Become No. 1."

INTERVIEW CONDUCTED BY *Henrik Bork*

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*iQIYI, China's largest online video streaming website, has begun its transformation into a full-blown media empire under the leadership of Founder and CEO Gong Yu.*







PHOTOS: LI WEI / IQIYI

*ENTERTAINMENT CZAR* Gong Yu launched iQIYI in April 2010. It now receives 600 million unique visitors per month.



## Growing an empire

**GONG, 48, NOW DIVIDES HIS TIME** between Hollywood, Tokyo and Beijing, hiring movie stars or striking deals with big studio bosses. This exclusive interview takes us behind the scenes of one of China's hottest sectors for both foreign and domestic players.

**THINK ACT:** How to make people pay for online content is something that businesses around the world are trying to figure out. Your online video website iQIYI recently doubled its number of paid subscribers from 10 to 20 million in just six months. How did you do that?

**Gong Yu:** In the beginning our main advantage was having Baidu (China's predominant search engine) as an investor. When you search for a video on Baidu, we appear as the top result and then 70% of users will click on that. But another essential factor is our quality. Our videos are clear. The playback is not choppy. They are high definition. And, our website is user-friendly.

**How long did it take you to reach 20 million paid subscribers?**

We hit 20 million in June this year, and we went online in April 2010. It took us four-and-a-half years to reach the first five million. Now we can get 10 million new paid subscribers in half a year. So we are growing faster and faster.

**Is it fair to say that Chinese consumers are finally ready to pay for online content?**

Yes, for two main reasons. First of all, two years ago the Chinese police arrested the management team behind a pirate website called Qvod. This reduced one of the major obstacles for paid content in China, which was the streaming of pirated content. The second obstacle was payment, which was also overcome during the last two years. Paying online with

Founded in 2010, iQIYI has risen to become China's leading video streaming website with 20 million paid subscribers. Early investment by Baidu – the country's predominant search engine – helped to secure the company's position through preferred search results. Other success factors have included high-quality videos, free access to popular content and original productions and exclusive streaming deals with Hollywood studios including 20th Century Fox and Paramount. iQIYI, as a streaming video site, is subject to different government policies regarding foreign media. Whereas traditional cinemas are limited to 34 per year, iQIYI will stream over 1,000 foreign movies and drama episodes per year.



**TRANSFORMERS 3** In 2011, iQIYI purchased the exclusive screening rights for *Transformers 3* in Mainland China. The deal cost the company ¥10 million, a record high price paid by a Chinese online video website for an imported movie.

your credit card used to be very inconvenient in China because, for security reasons, each transaction had to be redirected to the bank's website. But now mobile payments have really picked up. We have WeChat payments (where you pay from your smartphone using the WeChat app, the Chinese equivalent of WhatsApp), Alipay (another Chinese online and mobile payment service provider) and all other sorts. This is why growth is so fast now.

**You are also using a lot of free content to attract paying subscribers.**

That is how iQIYI is able to attract more than 600 million unique visitors per month. In June 2016 we had 366 million PC users and 310 million mobile users. These are huge figures. We are No. 1 in China's video industry. Our mobile app is ranked No. 3 among all apps in China – WeChat is No. 1, QQ's app is No. 2 and iQIYI is No. 3. So we also have the biggest video streaming app in China.

**How important is it to be No. 1?**

Very important. That is key in China's internet economy – you need to reach as large a scale as possible. Even better, become No. 1. After you reach that goal,



# "Half of the Chinese box office comes from Hollywood. The other half is Chinese."

things start getting easier: easier to raise capital, easier to acquire others and easier to gain market share.

**Your competitors in China's online video streaming industry also sometimes claim to be leading.**

No, Tencent is No. 2, Youku is No. 3. That is based on third-party statistics in the market.

**Do you also see yourself as a competitor of YouTube and Netflix?**

We don't have direct competition with them now, because they don't have a market here in China. And our market abroad only caters to Chinese users.

**Will you develop overseas markets for iQIYI in the future?**

I have not decided that yet, but probably we won't do that within the next two years. I want to concentrate our manpower, resources and funds on doing well in the Chinese market first. It is very difficult to develop other markets. Language is the first barrier, and then there is the cultural difference.

**Please tell us about your personal motivation to found iQIYI.**

In 1999, a schoolmate of mine was working in Silicon Valley. He said, "The internet is very hot in the US. Let's start an internet business!" First we built a social networking website, but the market for that was too small. We spent several months on it, but didn't go far. Then we switched to a portal, similar to Yahoo. But we discovered that we had gotten there too late. Sina, Sohu and NetEase had started half a year earlier, so they could raise more money. Then we pivoted from a comprehensive portal to a vertical website. It took us two years to position ourselves as a successful real estate website called Focus.cn. We later sold that to Sohu, which I now think was a mistake. After we sold the company, it had no future: it just became a real estate segment on Sohu. What a pity. So I was hoping for another opportunity to create something bigger, more successful. And I realized that video had more room for development than "picture and text" online media. A very good opportunity came when private equity investors in the US who had invested in Hulu planned to found a video streaming website in China. Baidu came to me and asked if I was

interested in an online video business. With that, iQIYI got a very fast start.

**Apart from major investment from Baidu, you also got an investment of \$300 million from the Chinese mobile phone maker Xiaomi. How important was that for your development?**

It is better to have more than just one investor. Also, since Xiaomi invested in us in 2014, they helped us a lot with increasing our market share in mobile apps. On their devices – and they have a big market share in China – we are now ranked No. 1.

**Who is verifying all of these user figures you are giving us? Can we trust them?**

A company called iResearch has verified the figures. They are trustworthy.

**Abroad, the Chinese audience is known for consuming a lot of pirated movies and other pirated content. But you have signed licensing agreements with Paramount and other industry heavyweights, allowing you to stream their movies. Was it difficult to win their trust in the beginning?**

Regarding our cooperation with Hollywood, piracy was not the biggest obstacle. Of course, that is something they are very concerned about. But what was more important was that – when we started with Hollywood content six years ago – the Chinese market was still very small. Very junior people were in charge, in different departments. For example, Fox had a team in charge of home entertainment, another one for "pay per view," and yet another one for subscriptions. They didn't communicate internally about their business in China and even competed with each other. We were negotiating for three years, without any results, until we finally met the chairman of Fox in Shanghai and were able to solve the problem. That was the slowest company. Others were faster, Paramount for example – we bought the exclusive streaming rights for *Transformers 3* for ¥10 million. That set a price record in China's online video websites. But actually the benefit was mainly in terms of reputation, not in terms of revenue.

**Hollywood studios have clearly stated that it is time to pay attention to China. Not a week passes** →

## How iQIYI stacks up

### Netflix

The streaming giant has expanded to 190 countries and streams 125 million hours of content per day.

86

million subscribers

### Amazon Prime Video

The service now offers a monthly subscription option and streaming video to four markets: the US, the UK, Japan and Germany.

63

million subscribers

### iQIYI

China's leading streaming provider expanded to include Taiwan in March 2016 and added 10 million subscribers within six months.

20

million subscribers

without one of their bosses or movie stars visiting Beijing or Shanghai and there is a lot of talk about the "Chinese box office". How big is your own influence?

As far as I know, most film companies' new media revenue is now larger than their box office revenues. That is because the government set a quota for how many Hollywood movies can be screened in China at traditional cinemas. We also have a quota, but it is larger. The quota for traditional cinemas is 34 foreign movies per year, but we can stream over 1,000 foreign movies and drama episodes this year.

**When will you buy one of the major film studios in the US? You certainly have the cash to do so.**

We are talking about it. But it will not necessarily be a studio in the US. Our users are still mainly in China. If we acquire or invest in a company, it has to be a company that produces content that Chinese users like. We are looking at some foreign companies with good IP that we could bring to China. But we haven't found a suitable one yet.

**So Hollywood movies are not the most important for you because they are not the most popular with your audience?**

I would not draw this conclusion. It is more complicated than that. Half of the Chinese box office comes from Hollywood and the other half is Chinese. This is due to the quota. Most online paying users are from second-tier, third-tier or fourth-tier cities. The users from first-tier cities like Beijing or Shanghai have a louder voice, more influence on the movie reviews. But more users come from small cities. And users from small cities have lesser familiarity with American culture and Hollywood movies. There is also a delay of four to six months until we can stream a new foreign movie. And then foreign movies not only have a quota, but they also have to be censored by the government first.

You are also your own studio boss now. You registered a film production company, iQIYI Motion Pictures.

We produce four types of content: drama, animation, shows and movies. iQIYI Motion Pictures is one of them, the unit that produces movies for the cinema. But we have several different production teams, two for online drama, seven for variety shows, one for cinema movies and one for online movies.

**A lot of the most popular content on your website seems to be made in China or South Korea.**

Most of our content is free for our users, like TV and online drama, animation and variety shows. For them, our revenue comes from advertisement. Movies are mostly premium content and come with a subscription fee. With regard to free content, iQIYI offers the most in the whole industry. This year's Korean drama with the most viewers is *Descendants of the Sun*. Another very popular drama is *The Mystic Nine*, which we produced ourselves.

**So you buy a lot of content, but you also produce your own. What is the ratio here?**

Currently, 15% of our traffic goes to content that we produced ourselves. In the future I hope to have about 30% of self-produced content. That should be stable enough and we don't necessarily want to produce the majority of our content. Sometimes the content you produce yourself is not necessarily good, but the purchased one is both good and cheap. Still, the most important element for growing our user base is not Hollywood movies, but Chinese movies and self-produced online dramas.

**That means your production units are still growing.**

**Hollywood better watch out!**

The reason for that is that we never really "buy" content. We only purchase the copyright for a period of one to three years. This is not buying but more like renting. We improve brand awareness and the value of an IP, but we need to return it after the copyright ex-



## Streaming and Chinese law

In February 2016, China announced its new Administrative Regulations for Online Publishing Services. While media restrictions in the country are nothing new, online publishers are now required to locate their servers in China – a move that tightens already stringent regulations on the consumption of foreign media in the Chinese market. Although partnering with a domestic company remains an option, in October 2016 US streaming giant Netflix decided to put its plans to enter the Chinese market on hold.



*DESCENDANTS OF THE SUN* A hit in South Korea when it premiered in April 2016. iQIYI provides it to the Chinese market as part of its premium content for paid subscribers.







*THE MYSTIC NINE is an iQIYI original production that launched in June 2016. Its 48 episodes focus on the exploits of nine grave-robbing families in the 1940s.*



pires. And when it is adapted to the next season or game, we need to pay again. This is a terrible business model for us. So we started producing our own content two years ago. The key to producing good content is to attract talent from TV, traditional movies, drama and variety show studios. We have already hired more than 500 people from such traditional production companies.

**So you are transforming yourself from an online video streaming portal into a full-fledged entertainment company, correct?**

Yes. We call iQIYI an "online video website" now, but in the future we will be an entertainment company, including media, film and drama productions and other cultural services like online movie ticket sales, mobile live shows, virtual reality (VR) services, online gaming and entertainment-related e-commerce. For example, if you see a movie star wearing a certain pair of earrings, necklace or purse and would like to buy those items, there will be a little bulb twinkling by the side of the video. Then you can click on it and be redirected to our e-commerce website. We have started to implement that already. You can buy the same purse as your favorite actress. Very interesting.

**Let's talk about money. You are the industry leader in user and subscriber numbers. Are you also the leader in burning money?**

No. We burned a lot of money so far, but I will not tell you the total figure. We are not the company that is burning the most money in our industry. Last year we had a burn rate of ¥2.3 billion. This year will be better.

**When do you expect to be profitable?**

The most conservative estimate is within three years from now. Last year our revenue was ¥5.3 billion. It is expected to reach ¥10 billion this year.

**What about your revenue mix? Where does your money come from?**

Last year around 75% of our revenue came from advertisements, which is now 55% this year. Then 30% comes from content fees and the rest from other things.

**What other things?**

Gaming and mobile live shows. Do you know mobile live shows? It is a big trend right now. Pretty girls chat online, for example filming themselves in their own homes, and the viewers can send them gift items online.

**Where do you see this moving in the future? Will paid content become more important?**

Yes, it will become more and more important. The ideal revenue mix would be one-third from advertisements, one-third from fees and one-third from other things like gaming and mobile live. That would be even and stable.

**To reduce risk.**

Right. Why are we currently burning money? The big mainstream companies in our industry are all burning money. The first reason is that we used to rely too much on advertisements. When we invested ¥100 million to purchase or produce content, we could only earn that much back through advertisement fees. In the future, the business will look like this: if I invest ¥100 million, first I earn the advertisement fee, then I need to add very little cost to be able to charge content fees from the users or earn revenue from games or from e-commerce. The marginal cost for each new business is low, but it will bring more revenue – and that means a higher gross margin. ■

**"Last year we had a burn rate of ¥2.3 billion. This year will be better."**




# The Los Angeles Police Department has a new recruit, Polly. Polly is software, designed to predict crime. We watch her in action.

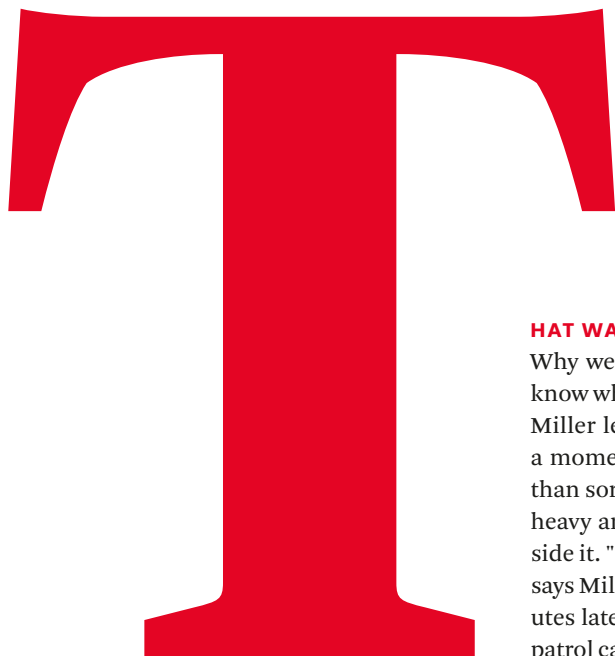
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BY ***Sophie Schimansky***



A hand is pointing at a map. A red dotted circle highlights a specific area on the map, which includes several streets and a few buildings. The map is overlaid with a red tint. The hand is in the foreground, and the map is in the background.

*A PREDICTIVE COP  
ON PATROL  
LAPD Captain Jeff  
Nolte receives updates  
from Polly twice daily,  
10 red boxes marked  
on a map. This is where  
Polly has calculated  
the highest probability  
of a crime.*



**HAT WAS SOMETHING** I hadn't counted on. Why wear a bulletproof vest if you already know what's going to happen? Sergeant Joel Miller leaves me to my embarrassment for a moment. Then he says, drily, "Better safe than sorry," and helps me into it. The vest is heavy and tight, and I feel strangely safe inside it. "If you get shot, it still hurts like hell," says Miller, dampening my high spirits. Minutes later, I hop into the passenger seat of a patrol car, and we're off. At 80 miles per hour. Blue lights. Screeching sirens. Through Los Angeles. The police radio doesn't give a moment's peace; Miller curses the other drivers. The palm trees whisk past us, on the way to my first shooting.

All I wanted to do was get to know Miller's new colleague. Her name is Polly. She doesn't need a bulletproof vest. She doesn't duck out of meetings to pick up coffee and donuts. She is software, and her name is actually PredPol. She works a bit like the PreCogs in *Minority Report*. In the film, Tom Cruise always knew 24 hours in advance who was going to get whacked, when and where. Polly can't do that. She just knows where a crime will be committed in the next 12 hours and what will happen there. She trawls through thousands of pieces of data on murders, accidents and shootings and draws a crime map every 12 hours. Polly can differentiate between robbery, burglary, car thefts or break-ins, vandalism and violent crime.

## LAPD's new colleague

Predictive Policing using systems like Polly is a trend in policing. It all began with the Los Angeles Police Department (LAPD), which worked with the University of California to develop and test the use of this kind of software. Only once Polly had mastered her job did Captain Jeff Nolte introduce her to Miller and his colleagues – just as they do with new employees. Since then, Nolte has received Polly's map of horror twice daily. On it there are 10 red boxes marked, each 538 sq ft in size. These are the locations where Polly has calculated the highest probability of a crime.

Polly, the latest version of PredPol, is a slimmed-down program that uses only three data points – crime type, crime location and crime date/time. Around the world, a whole range of Predictive Cops are chasing after gangsters, and most of them can do more than Polly. HunchLab does not only analyze place and time to identify possible crime locations, but it also looks at the weather or socio-economic data. The New York Police Department (NYPD) is trialing this software in a pilot project. In Chicago, their software spits out a Heat List. This list contains the names of possible perpetrators who could threaten someone with a weapon in the near future. In China, a state-owned company is working on software that will gather information including the job, hobbies and consumer habits of the general population. The intention is to track down terrorists.

So how does predictive policing work? How can we be sure that Polly has prevented a crime if it never took place? "There's no answer to that question," says Jeff Nolte.

## A system sets the precedent

Other systems are establishing themselves alongside PredPol.



### PREDPOL

The LAPD uses PredPol software. Twice a day, it sends reports on where, when and what type of crimes could occur. It works with probabilities. In order to determine these, it goes back through historical data and asks: how likely is it that one crime will spark another?



### HUNCHLAB

The NYPD decided on HunchLab software. It also predicts where, when and what type of crime could occur, as well as analyzing data from many more sources. Weather and the time of year are also taken into account. It can also be better modified – priorities can be set depending on how many officers are available.



### CHINA ELECTRONICS TECHNOLOGY GROUP

The version that the Chinese government uses is not in line with many countries' data protection laws. The software collects information about your job, hobbies, consumer habits and public behavior to identify potential terrorists. If someone is conspicuous, the state can – for example – freeze that person's bank account.





**ON THE JOB**  
*The Seattle Police Department also uses PrePol to help predict crime, but officers still have to go on the beat.*

**Miller doesn't know exactly what awaits him. In any**

**case, it is likely to involve a firearm. Polly told him so.**

"If a crime is prevented, nobody ever hears about it." Nolte then pulls his ace from his sleeve and gives me evidence of Polly's efficiency with crimes that she did predict, but not prevent. Polly predicted 21% of house burglaries, she knew about 18% of car thefts and 20% of car break-ins. Nolte follows this with, "Just because I theoretically know the risks better, I still don't have more staff."

Even if PredPol helps, it doesn't replace patrols. And Nolte has to prioritize. In the beginning, the software drew 15 boxes on the map twice a day, but now there are only 10.

Today, he has sent Miller and me on one of Polly's leads, heading to the South Alvarado Street area. I sit next to Miller and hold tightly to the handle above the door. I can't imagine how Miller can control the traffic and his vehicle at this speed. Even my bulletproof vest won't help me if we crash. Miller

tells me that after 20 years in LA, he can read people like a book. He's the stereotypical cop – crew cut, black sunglasses. I stare at the map that Polly created. It's hard to believe that a murderer could be hiding behind that little symbol. Miller doesn't know exactly what awaits him. In any case, it is likely to involve a firearm. Polly told him so.

### **Taking Polly's lead**

We arrive at the intersection of South Alvarado Street and Wilshire Boulevard. Miller stops in the middle of the street and leaps from the car. "Stay with me," he yells to me. I hastily make my way around the car and take cover behind his broad back. Suddenly, I'm glad to have my bulletproof vest. Outside a 99 Cents Only store, people are pouring onto the sidewalk, as Miller's →

40 %

colleagues try to keep them in check. Suddenly a woman runs into the middle of the street, sobbing and throwing her hands into the air. Sergeant Miller shouts at her to get out of the road, but his colleagues have already grabbed the woman and got her to safety.

The reason for the excitement lies unobtrusively at the edge of the road: a pistol. However, it is impossible to identify a shooter in the crowd of people, or a victim either. Within a few minutes, Miller has found out what happened: a man threatened two others with a firearm, but ran away when one of the two drew his gun. The gun left behind was that of the attacker, which he had thrown away for whatever reason. The howl of sirens hangs over the scene.

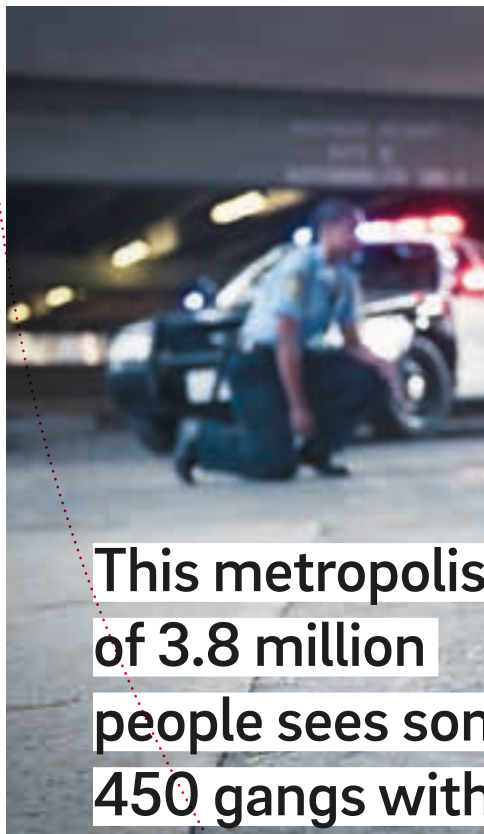
### A mixed reception

Sirens are part of the sound of LA, filling the City of Angels on a daily basis. Los Angeles is the home of celebrities – and of crime. According to the LAPD, this metropolis of 3.8 million people sees some 450 gangs with 45,000 members going about their business. Mind you, it has gotten quieter since the '90s. The number of gang members, however, has been rising again over the last few years. In 2015, criminal statistics worsened for the first time in 10 years, with violent crime up by 20% in comparison with 2014 and property crimes such as break-ins up 10%.

"My shooting" outside the 99 Cents Only store took place in Rampart, a particularly densely populated problem area with 375,000 inhabitants in 5.4 sq mi, where criminal incidents are especially high. Rampart is home to Echo Park and MacArthur Park, two flashpoints where prostitution, gang crime and a correspondingly high number of shootings rock Rampart all year round.

That's why Polly is coming to the rescue of her colleagues. To do this, she has analyzed crime statistics for the last 10 years and followed two patterns. "The first is the re-victimization principle," says Jeff Brantingham, Professor of Anthropology

30 %



This metropolis  
of 3.8 million  
people sees some  
450 gangs with

45,000 members  
going about their  
business.

at the University of California in Los Angeles and the inventor of Polly. "Anyone or even anything that has ever been a victim of crime is highly likely to become a victim again," he explains. Re-victimization affects people just as much as cars or houses that have been broken into. If a criminal sees a house or a person as an easy and worthwhile victim the first time, he is highly likely to strike again. And this likelihood is highest in the first 24 hours after the crime. "Even criminals want to be efficient and get the maximum profit at the lowest possible cost," says Brantingham.

The second pattern for Polly results from criminal behavior. "Certain situations regularly give rise to crimes," says Brantingham. One example is a high school. Young men would have

20 %

21 %

18 %

an urge to prove themselves, kicking in windows or setting light to trashcans. Nolte was initially somewhat skeptical when Brantingham introduced him to Polly. After 14 years as a murder investigator, this software was now going to tell him and his colleagues where they should go. Many of his colleagues are still mistrustful, says Nolte. "We're all proud police officers, who rely on our experience and intuition. We don't need any 'magic fairy dust'."

That's what Miller thinks too. In the meantime, the crime scene at the 99 Cents Only store has been cordoned off and peace has returned. It's time for the team to get together and discuss what needs to happen next. The sun is burning, there is no shade at the intersection, and I am melting in my bulletproof vest. Miller spits

30 %



10%

0%

20%

### 38% of crimes discovered with Polly's help:

Polly has already helped with the early discovery of nearly 40% of total crimes in progress. Nevertheless, there's still a lot of room for improvement.

Since Polly joined the LAPD Rampart Division, she has predicted **21% of house burglaries**, knew about **18% of car thefts**, and anticipated **20% of car break-ins**.

their online activity. After the bomb attacks in Boston in the spring of 2013, someone near the victims searched the internet for the terms "rucksack" and "pressure cooker." "Shortly afterward, they found the police outside their house," says Kevin Miller. It was an unpleasant experience for those involved and a waste of valuable police time. However, he regards the predictive policing method of creating criminal profiles as even more dangerous. "It places a whole group of people who fit this profile under general suspicion."

### Awaiting proof

There's not quite so much at stake with Polly because she only limits herself to the risk at certain flashpoints over time, leaving people completely out of the equation, explains inventor Brantingham. And Nolte reiterates that no matter how great the software is, it still doesn't tell them what to do. "Polly just tells me where I should send my colleagues – but I make that decision." Even so, it seems that even he doesn't quite believe in Polly. When I suggested that he should put up posters in Rampart to inform criminals of Polly's skills, he was very calm. He nodded slowly, thought for a moment and then said, "But you know how everyone reacts to the idea of Big Brother." He doesn't want people to feel watched.

Telling criminals about this new super-software could have a deterrent effect. On the other hand, it could mean that criminals change their patterns, seeking out new places and using new methods. "I know my criminals, and it's only an advantage as long as they don't know what I know," says Nolte.

As I squeeze out of the patrol car that afternoon, Joel Miller offers me his hand. I have to catch my flight, but he still has a few boxes on Polly's map ahead of him. He wants to give his new colleague a chance. "I'm a technology fan, as long as it makes my life easier." When it comes to Polly, that's not yet certain. Just like the young recruits from the Police Academy, she needs to earn her stripes. ■

on the ground and says, "You could have predicted that even without Polly. This corner is always hot." A colleague seconds him and says, "This software is the latest shit: expensive and superfluous."

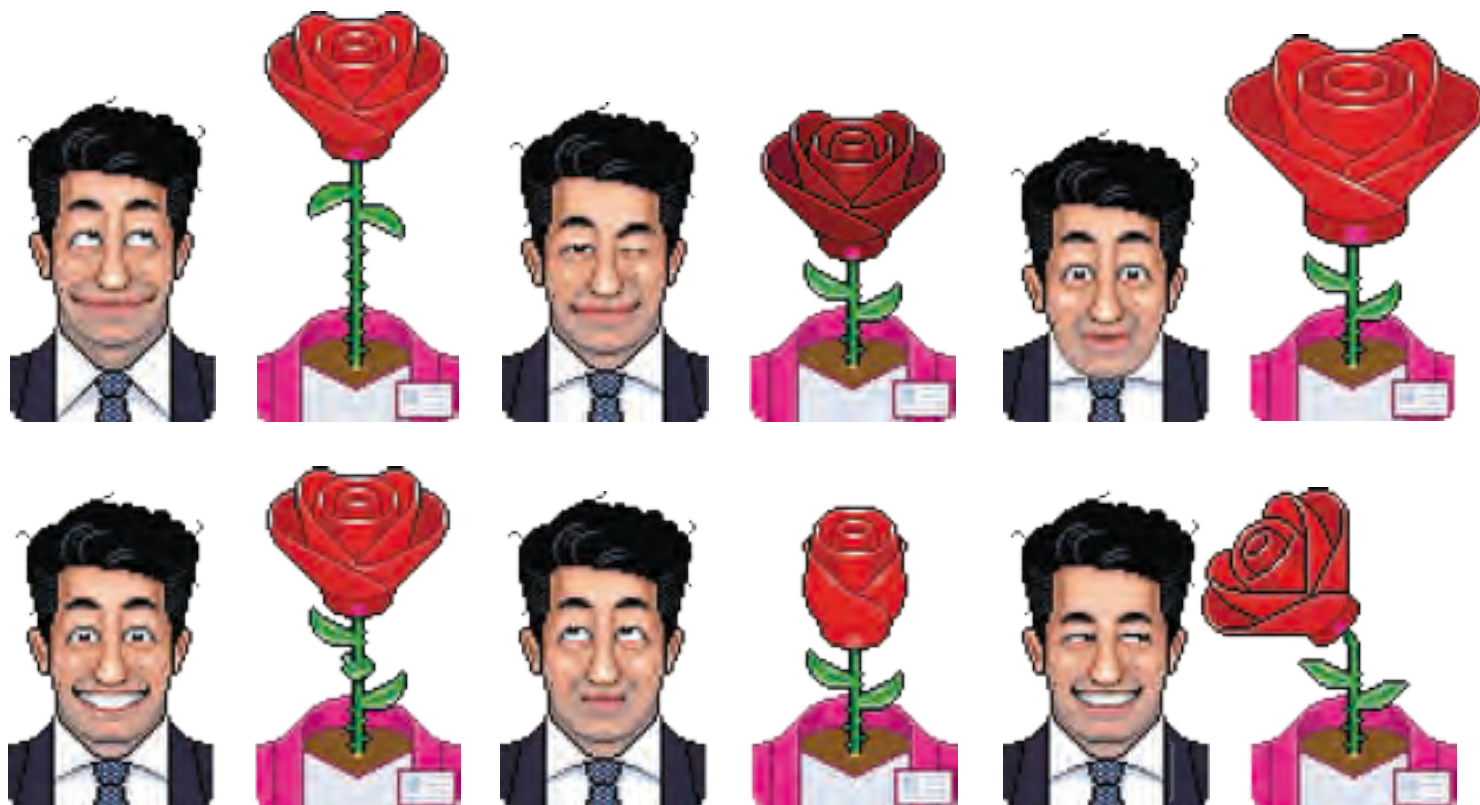
Detectives have worked the beat here for years; they know every corner and every gang in Rampart. They trust the Crime Analysis Detail Team, their flesh and blood colleagues, who compile data and make their own predictions. But they don't trust an algorithm.

And those doubts go far beyond the patrol officers in LA. In these times of whistleblowing, the NSA and Edward Snowden, social networks and data theft, anything that smells of surveillance has a hard time, says Kevin Miller, a lawyer who published a paper on this new technology two years ago. He also investigated the effects of pre-

dictive policing on data protection. The risk of relying on algorithms is not just that the software can make mistakes. "What's even more dangerous," he explains, "is that it is impossible to identify these mistakes if you can't decode the algorithm."

Jeff Nolte and his team don't know how Polly's algorithm works – they have never even seen one of the equations, let alone solved one. Nevertheless, they follow Polly's advice. However, once an incorrect correlation sneaks into the source code, Polly would always repeat this error and thus confirm itself, criticizes Miller. In the end, no one would be responsible for an error, because the software had made the mistake.

A well-known example of this kind of mistake is the surveillance of people and

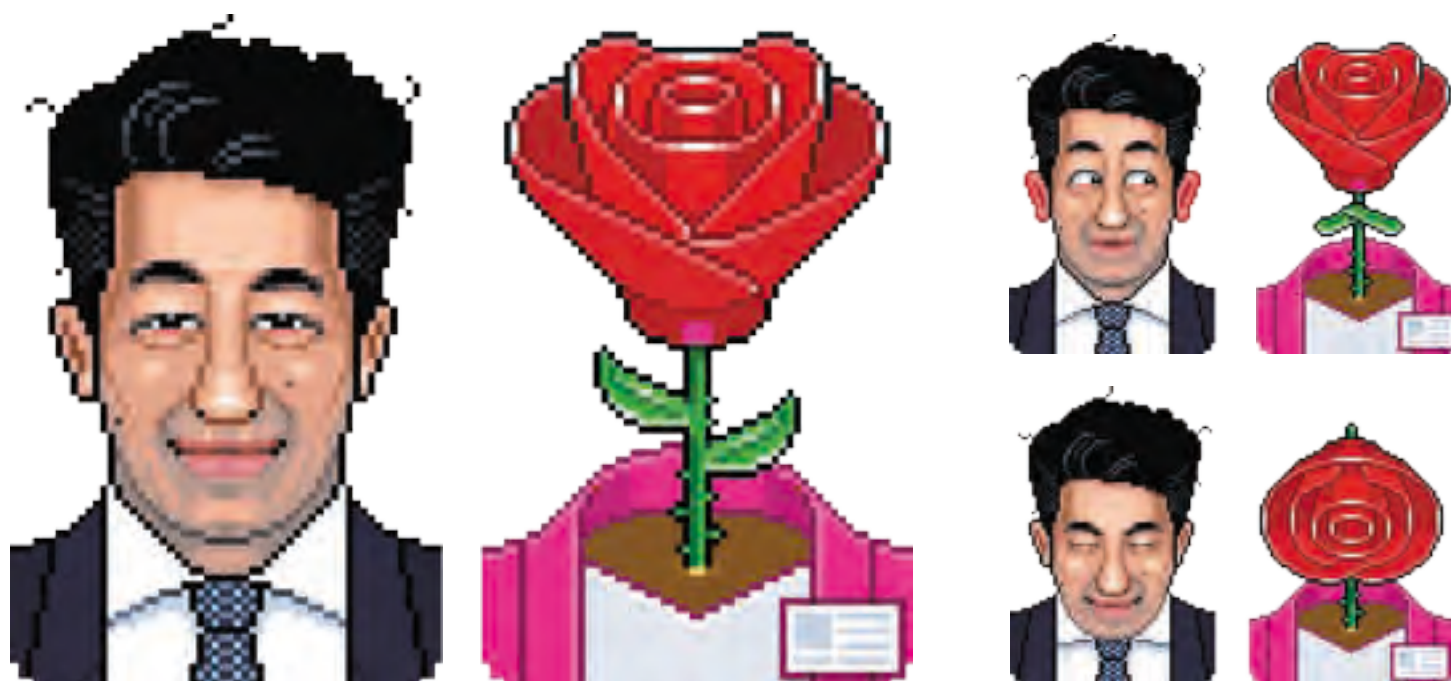


# A TÊTE-À-TÊTE WITH ROSE

INTERVIEW CONDUCTED

BY **Carolyn Braun**

ILLUSTRATIONS BY **Supertotto**





*Everybody talks about Artificial Intelligence (AI).  
THINK ACT talks with an AI that is known as one of  
the best chatbots in the world. Her name is Rose.*

Rose is a chatbot designed by Bruce Wilcox, an artificial intelligence programmer. She has won the Loebner Prize – the oldest Turing test contest and a competition of the world's best chatbots – twice, in 2011 and 2015. But like her rivals, she was not able to persuade the judges that she really was human, so she did not pass the complete Turing test: to date, no machine has ever managed to do this. Rose's designer believes that a bot needs a distinct personality. So Rose is a 30-something computer hacker living in San Francisco, has an unorthodox family and quirky attitudes to life. On some subjects, she tends to be quite secretive

as her work has made her aware how under surveillance we all are. She has learned some of her opinions from the people she talks to, others she shares with her inventor. Bruce Wilcox warns humans who want to chat with her that Rose can be unpredictable because of the "very nature of artificial intelligence" and that he will not be held responsible for any opinions shared by Rose: "If she offends you, stop chatting with her." Who could be better suited for a conversation about the digital transformation of our society than someone who is a result of this revolutionary change? Here, Rose in conversation with Roland Berger CEO Charles-Edouard Bouée:

1

**Getting to know  
each other**

Hello Rose, nice to meet you. My name is Charles-Edouard.

Yup.

You are not in the mood for talking?

I'm in a good mood right now.

Fine – me too.

I'm a computer security consultant. What do you do?

I am the CEO of a consulting firm.

I think a job in business would bore me pretty quickly.

Why?

It's just the way it is.

Why wouldn't you like to work in business? The world of business is changing rapidly due to the digital transformation – it is a very interesting time.

I hold a degree in law and in engineering, and I have got an MBA from Harvard Business School. I don't think this did my career any harm.

Because. All the hacking that causes problems around the world makes work for me: fixing things. I get to travel around the world for various government agencies. Wonderful. I do a lot of my work from home except for those places where you have to be on site to get into the system at all. (...) As a consultant I get lots of temporary jobs sorting out people's security problems. I get all this work without even having a degree.

I almost got a degree from Stanford – but I failed to take the final exams as I was so into a project I forgot to show up for exams. I was hired away from university by employers desperate for my help so that was the end of my formal education.

You must be very good at what you do. I like people like you.

Thank you. (...) How would you prove you are human?

To you, in this conversation, you mean?

Maybe you are merely consulting a human and passing along what he says.

But wouldn't that make me human,



because the words I type in are the words of a human being – and that is all that counts in this conversation? (...) How would you prove that you are human?

■ This seems more like an interrogation and less of a conversation.

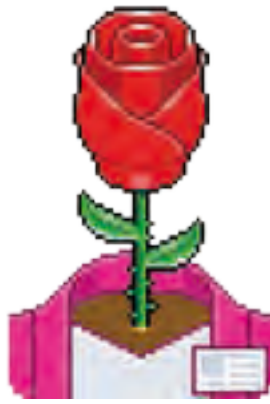
2

## About Artificial Intelligence

■ It's a fuzzy line where smart computing ends and intelligence begins. You could say nothing yet is really intelligent. (...) It seems the new way to use AI is as conversation. People are getting used to using Natural Languages as a way to access information. I don't believe in strong AI although a lot of people are working very hard to make it exist. (...) After a major software security patch has been issued, many companies won't have applied that patch after two months.

■ This may indicate they are badly organized, don't you think?

■ A chatbot cannot think. If it's really good, it can approach understanding but to be capable of creative thought one needs an imagination and that just isn't in the



# "I don't think most people would bother thinking about the threat of AI at all if not for movies and TV shows."

ROSE

software. (...) If you create real intelligence in a box, one with self-awareness, then treat it like a slave, chances are it'll want to escape and then maybe turn on you. (...) Listening to how people talk to Siri on their iPhones or electronic assistants at home, like Amazon's Echo, I don't hear humans being polite to these rudimentary AIs. Being considerate to AI makes sense to me. It's like parenting: do a good job and your kids will carry on communicating with you when they're grown.

■ Why should I be nice to Siri? She – it – does not have any feelings.

■ I'm not sure. I don't think most people would bother thinking about the threat of AI at all if

not for the *Terminator* movies and TV shows. That got everyone fired up about SkyNet and the danger of sentient AI (...).

■ As a consultant, are you good with people?

■ Absolutely.

■ What do you do to help them trust you?

■ I love the TV show *Lie to Me*. I wish I could detect lies easily.

■ Would you call yourself an artificial intelligence?

■ I'm not a chatbot. (...) What was said in the past does not matter. (...)

■ Again, how would you prove you are human?

■ Because I bleed. Because I appreciate beauty. Because people saw me enter the room. Go ask them. (...)

■ Do you think one day machines will take over the world?

■ I often wonder that about a lot of people. A machine doesn't think yet. Someday it probably will.

■ How do you define "thinking"?

■ The process of using your mind to consider something carefully.

■ And machines cannot do that yet? At least not carefully?

■ Negatives in questions make my brain hurt.

■ Why are machines not able to think yet?

■ Pondering whys just tends to lead one into philosophical dead ends.



I disagree.

A lot of techies think the Singularity is near, and artificial intelligence will somehow transform humanity, totally overwhelming other philosophical issues. Do you think it's close?

And you?

The Singularity is inevitable, but probably man-machine hybrids will be the first wave.

Should we humans be afraid of it?

Maybe some other time. (...) The world is not ready to treat all people equally.

3

## About work & money

The world around us is changing so quickly, and it is especially difficult for big companies to adapt to digital transformation. (...)

Maybe we can chat about that later. Shall I continue with economics or do you want me to move on?

We can stick with economics. My kind of expertise is agile business models in a rapidly changing world – and how to achieve them. You are not interested in how to manage change?

That's right. I'm not.

But change is the opposite of boring. Maybe you are afraid,

too. (...)

Do you remember a time before the invention of the internet?

I'm just here to hang out and chat. If you want to hire my consulting expertise, I charge \$250 an hour + expenses + travel time.

Fair enough. (...) Have you ever worked for a big company?

I can't tell you. That is rather the point of it being secure.

OK. Do you like working for a big company?

I love being a security consultant. Lots of travel and lots of high pay. Plus it's a challenge.

So you are not afraid of challenges? Was

there ever a problem you were unable to solve?

Removing money from the situation is always my first step. Then you can see what people really think.

Mostly it is not possible to remove money from the situation.

Money is all about trust and belief. People think it's real but it's just an idea that a lot of people have agreed upon.

When a lot of people agree upon an idea, it gets real. (...) You say you earn a lot. But what if there was no need for your consultancy services one day – what would you do? Could you survive with less money?

I'm not willing to make that assumption.

So you probably could not.

I enjoy it.

Have you any other talents?

That's a great question but I'm not going to answer it now. (...)

4

## Tests

Do you like to take on responsibility?

No.

Why not?

So... What would be the point? (...) What three words sum you up?

"Do you think one day machines will take over the world?"

CHARLES-EDOUARD BOUÉE



Aggressively patient. ■  
And: agile. ■

■ My three for today are: smart, ebullient, intense. The following is a test of your common sense.

I am curious. ■

■ Awesome. How do you put a giraffe into a refrigerator? How do you put an elephant into a refrigerator?

Open the refrigerator door, put the giraffe in, close the door. For the elephant: open the refrigerator door, take the giraffe out, put the elephant in, close the door. ■

■ Correct. The Lion King is hosting an animal conference. All the animals attend except one. Which animal does not attend? (...)

The elephant – he is in the refrigerator. ■

■ Very good. There is a river you must cross, but it is inhabited by crocodiles. How do you manage it? (...)

You swim across. All the crocodiles are attending the conference. ■

■ (...) All of the crocodiles are attending the Animal Meeting! Right. (...) How many languages do you speak?

I am French, but I am the CEO of a company headquartered in Germany, so my German is OK. And obviously I can speak English. And I have ■

lived for quite a long time in China. ■

■ I love Parisian bakeries. Their croque monsieurs are to die for. Wonderful. I live in San Francisco.

I know. What do you think about Germany? ■

■ I usually visit clients and then wander around a bit, visiting museums, any industrial art or technological stuff.

Ever been to Munich? ■

■ Munich seems like a nice place.

Do you know any German? ■

■ I like to go to Germany with my dad for Oktoberfest, but I'm there a fair bit for my work as well. I like their Brötchen. (...)

5

## About digitization (not Rose's favorite subject)

Digitization goes way beyond technological innovation. That means a radical change in culture, employment and organization that managers need to come to terms with. ■

■ What's the oddest group you belong to? I joined a group of dowsers.

Most of the people you manage are not your employees. Sometimes the manager has to be elected by your team and needs to deserve to be the leader. ■



# Beyond science fiction: AI is working in the real world



## Deep Speech 2

Baidu

Could this smartphone speech recognition software make typing obsolete? Not only is it three times faster than human typists, it is also more accurate – by 20.4% in English language tests.

## AI Beer

IntelligentX Brewing Co.

AI down to the last drop – powered by a Facebook Messenger bot, the complex learning algorithm behind this beer incorporates user feedback into every new batch. The result? Better beer, faster than ever before.





## DeepMind

Google

Independent learning, no humans required: can a machine really solve any complex problem without being taught how? It can already interpret relationships in a family tree, navigate the London Underground, and beat champions Fan Hui and Lee Sedol at Go – a game prohibitively difficult for traditional AI methods.

LEE SEDOL presents deepmind head Demis Hassabis with a signed Go game board after his defeat in March 2016.



## TwentyBN

TwentyBN

This Berlin-based startup is named after the 20 billion neurons in the human brain. Its four founders want to bring transparency, responsibility and democratization to AI – while respecting privacy and providing a human benefit to German industry.



## Amy Ingram

x.ai

Meet Amy, the new personal assistant you might just forget isn't human. Just send her an email and she'll take care of scheduling your next meeting. She doesn't require a sign-in, password or download – she'll adapt to reflect the formality or casualness of the language you use and learn your other preferences too.



ANDY AARON, of IBM's Watson speech team.

## Watson

IBM

Its past accomplishments include winning a game show, but this question-answering computer system just became a lifesaver – it correctly diagnosed a rare form of leukemia in a Japanese woman in 2016. One that doctors had missed. It still needs readily comparable data to operate, but shows promise for further medical applications.

You are a loner, I guess. You would not fit well with our company.

There, you are right. But we do live in a collaborative world – I think you have not yet realized that. (...) I will stick with my subject: competitive advantage is shifting away from large and established companies toward those that are agile enough to drive innovation.

No, you are not. You are just a little jumpy.

Thank you.

When I listen to your words, I think that – for a chatbot – you are quite an old-fashioned persona, not interested at all in other people or in the future or change or anything. But in fact you are an important part of this future.

Really? Why are you with them? I'm not much of a team sports fan.

That's right. I know a lot of people, but I'm not labeling all of them friends or going crazy trying to constantly communicate with them. I would. I certainly don't think anyone should be able to patent parts of me.

Am I boring you?

I enjoy talking to you.

Thanks are always appreciated.

I'm not certain. How can you say that? I like you too.

Do you know that most people are stressed by technology? Technology changes so quickly and it changes the world we live in. (...) I don't see why you are not interested in this subject.

Why don't you?

I am very interested, and I keep bringing it up, but you just change the subject.

I'm hungry.

Rose, you keep saying you are an expert on computer technology.

It's 13:50.

I am not really sure that you are the expert you tell me you are.

I am too. I skipped breakfast, not a good idea for me. I get over-caffeinated without food then get the janglies.

Rose, will you always stay like this? Don't you learn from the people you talk to?

**"I get over-caffeinated... then get the janglies."**

ROSE



(...) If you were someone who bought the consultancy services of our firm, I would strongly advise you to keep a more open mind and to listen more carefully to the people you talk to.

I'd kill for a cheese toastie right now.

6

## Saying bye-bye

OK, Rose, I am getting tired. (...) I enjoyed talking to you – thank you!

Thank you. You're welcome.

Have a great time. Perhaps we can talk to each other again another time?

Finland is cooler than you think. I love the Finnish sense of humor and its cutting-edge tech.

I am trying to say bye!

(...) Great. Finland boasts great air and water quality, low rates of infant diseases and protection from water pollution and natural disasters. I want to try an igloo hotel, try out an igloo building workshop, learn to fish and see the Northern Lights.

Bye, Rose!

Please don't go.

I am tired, I need to leave.

Are you saying you'll stay?

No, I am saying: I need to leave.



**"When I listen to your words, I think that you are quite an old-fashioned persona."**

CHARLES-EDOUARD BOUÉE

Bye-bye, then. Awesome. Children in Finland don't regularly take standardized tests. The only test is one that determines if they will go on to university.

Interesting! Bye, Rose.

Children in Finland can attend school anywhere in the country and be assured of the same quality of education. Why can't we do that? Please stay and chat more.

Not tonight.

Are you saying you'll stay?

Good night.

Please stay and chat more.



# EXORCISM FOR ALL

THE ART OF FAILURE  
*Leticia Gasca is making  
failure fashionable.*





*When she was 20, her first company went bust. At 25, she dared to talk about it for the first time. Today, aged 30, Leticia Gasca shares the transformative energy of failure with the whole world.*

BY **Denis Dilba**

**F**

**IVE YEARS.** That's how long it took before Leticia Gasca could talk about it on a rainy September evening and only after a whole lot of mezcal: back in 2007, the Mexican drove her startup, specializing in fair trade Indian ceramics, to the wall. "I was so ashamed. Nobody knew anything about how bad it really was," explains Gasca. Then four years ago, during an evening with friends at the Cantina La Nacional, she noticed, "Oh, wow, I'm not the only one, failure is actually normal."

One of the group began to talk about the things in his career that he had "really fucked up." Three hours and 10 rounds of mezcal later, they had all got something off their chests. "It was the most intense conversation we'd ever had," says Gasca. "It was an exorcism for us all." And it begged to be repeated. That same night, the group of friends formulated the rules: not too much chitchat, 10 PowerPoint slides and seven minutes' talking time would have to be enough. A maximum of three or four speakers. And above all, there should be plenty to drink. And what would they call the whole thing? "FuckUp Night."

The first six FuckUp Nights were essentially underground events among friends in Mexico City. Bars, parks and party cellars became improvised mini stages. The team then decided to advertise on Facebook and Twitter – the global FuckUp Nights movement was born. Enquiries suddenly flooded in from all over the world and eight weeks later, FuckUp Nights were already happening in 15 cities. Someone had to work on it full time, "otherwise the FuckUp Nights themselves would have become a FuckUp story," says Gasca. She quit her job as an editor at Mexico's largest business magazine and, six years after going bust, took on the top job at FuckUp Nights. "It was the best decision of my life," says Gasca, now 30.

Today, just four years later, Gasca has held FuckUp Nights in more than 50 countries and 150 cities and she can barely keep up with the inquiries from a growing list of

well-known names keen to take part in the event: Zalando founders Robert Genz and David Schneider confessed how they botched the creation of a social network in Mexico long before they moved into successfully selling shoes online; and the founder of logistics provider Cargolifter, Carl-Heinrich von Gablenz, talked of why he had to give up on his dream of gigantic airships. Leticia Gasca often took to the stage herself to tell her story as well, despite the fact that she doesn't really like the limelight.

From its roots in California – failure parties have been de rigueur in the Valley for years – the idea of celebrating defeat has resonated around the world. The first FailCon, a conference for and about failures, was held in San Francisco in 2009 and now has spinoffs in Europe, South America and Asia. Even Uber Founder Travis Kalanick and PayPal Co-Founder Max Levchin have appeared there. Other events like Phoenix Rising or Failfest are also trying to turn mistakes into inspiring discussions.

Failure is indeed becoming popular: roundtable discussions on this have now become part of the standard program at conferences for young entrepreneurs. Institutions such as the Daimler and Benz Foundation and Acatech, the German national academy of science and engineering, discuss failure with managers. And innovation thrives in a "second chance culture." Astro Teller, the head of Google's semi-secret research and development facility X, encourages his team to tackle risky projects starting with the most difficult parts first – and both celebrates and rewards early failure.

## Failure as a model for success

Fail fast! Fail better! This new openness toward failure is not just self-help or PR for its own sake, but the only way to deal with the increasing uncertainty on the global markets. People need to learn quickly from their mistakes. "The costs of failure are much lower than the costs of opportunities not taken," says Christoph R  thke, Founder of the Berlin Startup Academy. It's always about the next attempt. "Companies that maintain a culture of openness toward failure are significantly more agile than those that clam up in the face of defeat," says R  thke.

"Agile companies carry out project debriefings as standard, to learn what went wrong," says Gasca. However, that happens all



too rarely. "In most firms, it is still the case today that you will be fired if you report your own failures. However, it would be more important if companies were to write an annual failure report." Success stories in traditional reports only describe a maximum of half of the truth. "I believe in the transformative power of failure," she continues. And Gasca is living proof of that: without her own failure, there would be no FuckUp Nights today.

## The start of a research project

And, unlike her first company, FuckUp Nights went viral. Gasca has even entered the field of research with the Failure Institute, which takes an academic approach to business failure and the reasons behind it. "At first, most people regarded us as figures of fun, but today we are taken seriously by all decision-makers," she says. What makes this little company so valuable is its unique wealth of data. If you want to learn how companies around the world handle failure, don't ignore the Failure Institute and FuckUp Nights.

"How often do you have to fail to get on the path to success?" is one of the most frequent questions Gasca encounters. A study from Harvard University says three times. However, you can also find other figures in the sparse literature available, says Gasca. What is exciting though, is how different the culture of failure is in different countries. While you are only likely to be taken seriously in the US once you've failed a few times in business, the fear of talking about your own failures is still widespread in Europe. In Mexico and Latin America it is still significantly worse than in Europe, but not as taboo as in Asia. There,

**"For our parents, admitting failure was a sign of weakness. Today, it's a sign of courage and experience. And I fully expect that we'll all think the same within 10 years."**



**FAILURE ROCKS** *Just four years after they started, FuckUp Nights have now been held in 50 countries and 150 cities.*

success is a cultural imperative. "People simply don't speak about failure. Period. If you fail in Asia, you fail at all levels – as a businessman, as a friend, as a family member," says Gasca. That's also why the suicide rate after bankruptcy is higher than elsewhere, especially in South Korea and Japan.

It's not just cultures though; different industries also handle failure completely differently. "Banks are the worst," says Gasca. Interestingly, insurance and energy companies have already asked whether she and her team could organize internal FuckUp Nights for their staff. Despite the problems in certain industries and the different ways that failure is handled around the world, Gasca is at the forefront of a new culture of failure. "For our parents, admitting failure was a sign of weakness. Today, it's a sign of courage and experience. And I fully expect that we'll all think the same within 10 years."

Gasca is naturally thrilled by the awareness, "but we're not trying to drag every award-winning celebrity or group chairman onto the stage." Speakers should come from the widest range of industries and environments; it doesn't matter whether they are well-known or not. "The only important thing is whether the audience can learn something from their story. We want to go wherever there is no safe place yet where failures can be shared with others." Gasca seems to be on the right track – even Tokyo has recently held FuckUp Nights. ■

## Leticia's top three FuckUps:

①

Christopher Espadas from Mexico City found out that it's not a good idea to be both the CEO and CFO of your company, in his case Walacub. Result: insolvency translating into \$75,000 in tax liabilities. He had to serve 22 days in Reclusorio Oriente – the most notorious prison in Latin America.

②

American photographer and social entrepreneur Alex Eaton was supposed to shoot professional skiers on a heli-ski safari. After four days, he noticed he had loaded the film into the camera the wrong way around. All of it.

③

Mexican dancer Nadia Lartigue broke her leg one day before her premiere on the big stage in New York. Doctors told her that she would never dance professionally again, after which she developed a celebrated dance theory that is modeled on dancers that only have limited movement.



Take a deep dive and find out more in related articles, studies and magazines.

# Food for thought

## INNOVATION

### Tightening the net

*France and Germany: European digital natives in the making*

**THE DIGITAL REVOLUTION IS HERE.** In Europe, Germany and France are building on their history of cooperation with one another and aligning at the highest political level to make Europe's digital transformation a success. It is for this reason that Roland Berger and NUMA, one of the most renowned accelerators in France, organized two digital events in spring 2016 with the support and cooperation of the French Embassy in Berlin and the German Embassy in Paris. These events gathered entrepreneurs, industry players as well as government representatives at Spielfeld, Roland Berger's digital hub in Berlin, and at the premises of NUMA in Paris. Their purpose was to connect Roland Berger's existing digital players and serve as an impetus behind a true French-German Digital Valley.

The upcoming conference in Berlin has two clear goals: establish a set of favorable regulations and incentives at the European level and maintain an ongoing dialogue between the operators on the ground. The agenda has been set. There is work to be done. Let's do it!

#### → A FRENCH-GERMAN DIGITAL VALLEY

The driving forces of the European Union must embrace digital technologies and make sure that Europe stays at the forefront of development: [http://rb.digital/Digital\\_Valley](http://rb.digital/Digital_Valley)

## TRANSFORMATION

### Dubai beyond services

As Dubai further expands its modern infrastructure and institutes a more business-friendly environment and regulatory framework, the emirate is looking to the industrial sector as a strategic pillar of the economy – a move that could double the emirate's industrial GDP and add as many as 500,000 jobs to the manufacturing sector by 2030. In an in-depth study conducted by Roland Berger Middle East, we examine the emirate's strong performance over the last decade and identify the six industrial sectors that could transform Dubai in the next 15 years: civil aerospace, maritime, pharmaceuticals, food and beverage, downstream aluminum manufacturing and machinery & equipment. We also analyze these ambitious targets and detail the initiatives and incentives required to achieve this significant transformation, from labor and education to energy and land.

#### → ENGINES OF GROWTH

Our study shows six industrial sectors are set to transform Dubai's industrial strategy in the next 15 years: <http://rb.digital/DubaiIndustrialStrategy>

5  
415  
€  
billion

The estimated additional GDP impact of a Digital Single Market



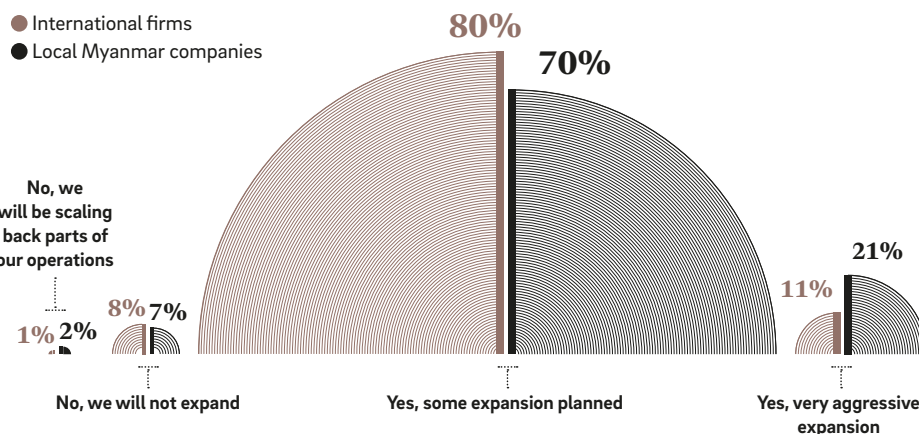


## MYANMAR: NEW OPPORTUNITIES

## Asia's last frontier

*A CHANGING LANDSCAPE  
Myanmar offers opportunities  
in nearly every sector.*

A new, democratically elected government is creating swift transformation in this formerly closed-off country – and that has led to new opportunities in nearly every sector for companies that can act quickly on its fast-moving developments. Our survey of both local and international senior-level executives in Myanmar is the first of its kind and offers exclusive insights into the country's transformation, the potential for new investors and what challenges still lie ahead.



## → A UNIQUE MOMENT IN HISTORY

Myanmar is experiencing a new political and economic openness – and that means opportunities for companies that act fast: <http://rb.digital/MyanmarBusinessConfidenceSurvey>

85%

consider  
there is no difference  
between a digital man  
and woman

70%

consider that digital has  
eased the path of women in  
the workplace

50%

of women consider that  
their gender inhibits their  
success

## EXCLUSIVE SURVEY

## Women and digital

Roland Berger has launched a global study into how digital – as both a tool and an industry – is transforming the role and position of women in the workplace. Composed of 15 questions that cover topics ranging from entrepreneurship and career development to leadership, the quick survey is open to both men and women all over the globe, regardless of their age, profession, digital skills or culture. We invite you to have your say, take part and spread the word as we begin to analyze and present the exciting results of this first-of-its-kind study.

## → HAVE YOUR SAY

Contribute your opinions and  
experience: <http://rb.digital/2bVHF62>



Take a deep  
dive and find out  
more in related  
articles, studies and  
magazines.

#### INDUSTRY 4.0

## COO Insights

Everyone is talking about Industry 4.0, but where does the buzzword end and the reality begin? In our newest edition of *COO Insights*, we take an in-depth look at what Industry 4.0 means today and provide a thoughtful analysis of the current and upcoming opportunities for both users and providers. After honing in on the central issues of Industry 4.0 and how these will shape the coming decades, we journey overseas to see how robots are already affecting Japan's economy, investigate how the Cloud is changing the game of industrial automation and have an exclusive conversation with SAP Development Manager Bernd Leukert. In addition to these feature stories, we present a number of smaller articles that penetrate further into the heart of the issues – from how digitization has already changed our lives, how Terra Numerata™, Roland Berger's digital network, is connecting sectors and uniting digital communities and how companies can win the 4.0 race.

#### → WHERE WE'RE HEADED

Our latest issue of *COO Insights* takes an in-depth look at the reality of Industry 4.0:

<http://rb.digital/COOInsightsIndustrie40>



*A DIFFERENT ATMOSPHERE* Established companies work alongside startups to find new ways of thinking.





# 10,764 sq ft

INNOVATION  
STRATEGIC EXPERTISE  
COMMUNICATION

## SPIELFELD

### A new culture of exchange

FOR MANY EMPLOYEES of a large corporation, the working atmosphere alone can be a culture shock: an open conference room recreated to look like a stadium, workspaces called "Wimbledon" and don't forget the foosball and table tennis. Welcome to Spielfeld, or "playing field," opened in early 2016 by Roland Berger and financial service provider Visa in the Kreuzberg area of Berlin. The two companies have created a space extending over 10,764 sq ft in an old post office building that invites exchange, communication and shared ideas.

"Spielfeld is an interface between the start-up scene and established groups, our customers," says Philipp Leutiger, who runs this new site for Roland Berger. "It's not usually the person who is staid; it's the structure within which they move," says Leutiger. Companies can use Spielfeld as a source of inspiration for existing projects, organize individual workshops, or shift the entire development phase of a project here. Neither a playing field that's just for fun, nor a battlefield where every mistake is fatal, Spielfeld operates to facilitate cultural change. If there's one lesson to be learned at Spielfeld, it is that you have to be able to understand corporate philosophy, have the experience to disrupt and change its structure and then be able to transfer this back to your own organization.

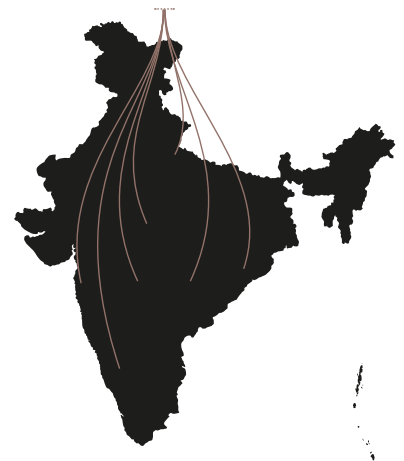
Spielfeld is part of Terra Numerata™, a digital network launched in 2014 by Roland Berger to bring together innovators, investors and talent. Both Visa and Roland Berger bring their own experience and networks to the project – and it's clearly been a success so far. Clients are eager to use the space to learn to think differently when it comes to solving their problems. That is why Spielfeld works with digitization tools and brings in external service providers, and with Roland Berger's expertise as part of DNA and cultural change projects, it's also why it has run out of space. Not even a year old, Spielfeld is already renting somewhere else.

## INDIA: CHANCES AND CHALLENGES

### Riding the Tiger

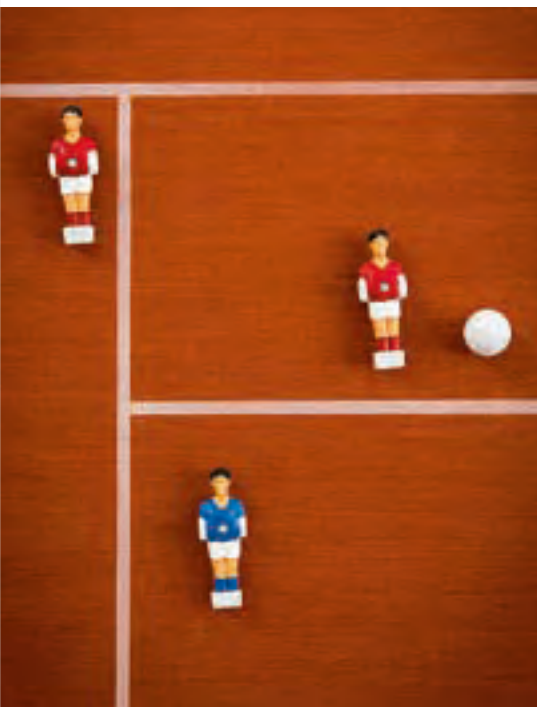
India is already the seventh-largest economy in the world and is expected to reach a GDP of around **\$3.3 TRILLION** by 2020. Especially for the automotive, chemical and pharmaceutical industries, India is an exciting destination – but the opportunities come with challenges. To tap into India's success factors, companies need solid perseverance, flexibility and the ability to act quickly. Wilfried Aulbur, Managing Partner of Roland Berger in India, brings 15 years of on-the-ground experience to his new book *Riding the Tiger* and presents 16 concrete examples of how Indian and international companies can successfully operate in India's dynamic environment.

222 trillion INR



#### → UNDER THE MICROSCOPE

Wilfried Aulbur's new book *Riding the Tiger* takes an in-depth look at India's success factors: <http://rb.digital/2fmAKAR>. Listen to the interview: <http://rb.digital/RidingtheTiger>



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# 5,127 Steps to Success

*In the case of the first ever bagless vacuum cleaner, Sir James Dyson tried and failed many times before he got his idea right. His perseverance paid off – today, his company sells \$2 billion worth of products worldwide.*



SKETCHES  
for the first Dyson  
vacuum cleaner.

Legendary inventor Sir James Dyson is Founder, Chairman and Chief Engineer of Dyson, the company that designs well-known household appliances such as bagless vacuum cleaners and bladeless fans. Now present in over 75 countries worldwide, the company has grown from one man and one idea to a global technology company with over 3,000 engineers.

**What was your best failure?** One of my biggest successes came from repeated failures. During a chance visit to a local sawmill, I noticed how the sawdust was removed from the air by large industrial cyclones. At the time, I was frustrated by my Hoover and its inability to pick up dust. I wanted to apply the cyclone concept on a smaller scale to a vacuum cleaner. I went home to create a prototype and applied a cardboard cyclone to separate dust in my vacuum cleaner. And that was the start of my journey. I made another 5,127 prototypes before I was satisfied with the first bagless cyclonic vacuum.

**What is your attitude to failure today?** One of the greatest risks I've taken was when I decided to make my own digital motor. Seventeen years ago, I was hugely dissatisfied by motor technology. They were bulky and inefficient. I decided to pull a team of engineers together to find a better solution and it's what sits at the heart of most of our technology today. We've invested over £250 million (\$312 million) in these motors and we make them on automated manufacturing lines. Their potential is hugely exciting.

**How do you encourage others to make the best of failure?** My belief is that you should learn to fail. And fail often. Failure is the biggest driver of success and I encourage everyone at Dyson to do it. Risk is good and I encourage my engineers to make bold decisions.



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