Think:Act

Think:Act #29 10 | 2019 DIGITAL DARWINISM PRICE $ 19.95

CHANGE. SURVIVE. THRIVE.

WHAT YOU NEED TO KNOW TO PROSPER IN THE NEW DIGITAL AGE

+

Thinking outside the box
In conversation with Agco's CEO Martin Richenhagen

Saving for the people
James Mwangi and Kenya's banking revolution

Roland Berger

"There are lots of logical reasons not to change and that's what you have to fight against."

TOM GOODWIN
Innovation expert and author of *Digital Darwinism*

→ PAGE 30

PHOTO: KYLE DOROSZ

"By participating in the common language ... a company has the capacity to transport their culture across the world."

TSEDAL NEELEY
Author of *The Language of Global Success*

→ PAGE 66

PHOTO: ALAMY / YOSHIO TSUNODA / AFLO

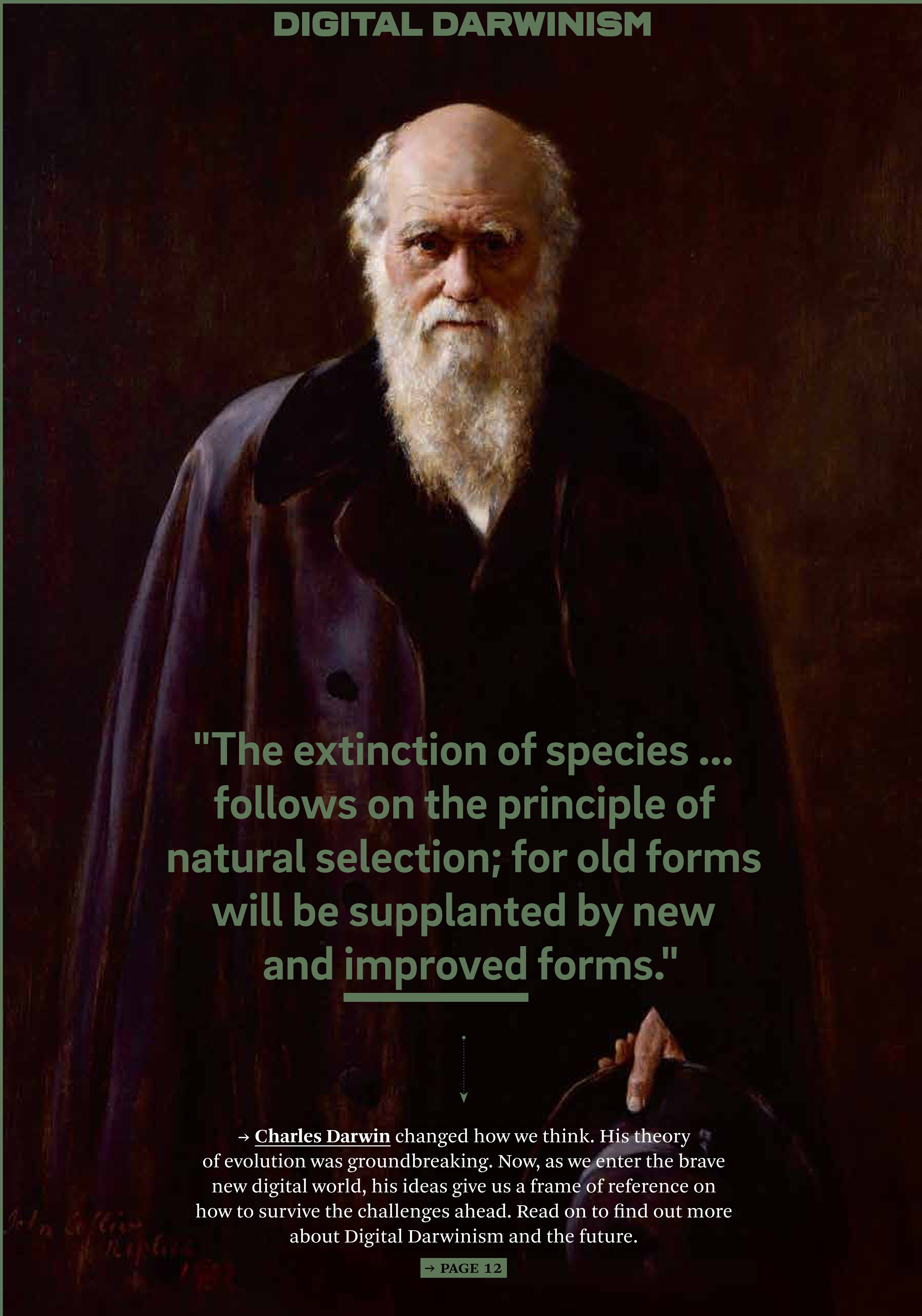
"Every manager should do something that helps him to get away from his daily job. I think it makes you a better leader and also more creative."

MARTIN RICHENHAGEN
CEO of Agco and former member of the US President's Advisory Council on Doing Business in Africa

→ PAGE 70

PHOTO: WOLF LUX / BILD

DIGITAL DARWINISM



"The extinction of species ... follows on the principle of natural selection; for old forms will be supplanted by new and improved forms."

→ **Charles Darwin** changed how we think. His theory of evolution was groundbreaking. Now, as we enter the brave new digital world, his ideas give us a frame of reference on how to survive the challenges ahead. Read on to find out more about Digital Darwinism and the future.

→ PAGE 12

PHOTO: CHARLES DARWIN BY JOHN COLLIER OIL ON CANVAS, 1883, BASED ON A WORK OF 1881, NATIONAL PORTRAIT GALLERY, LONDON

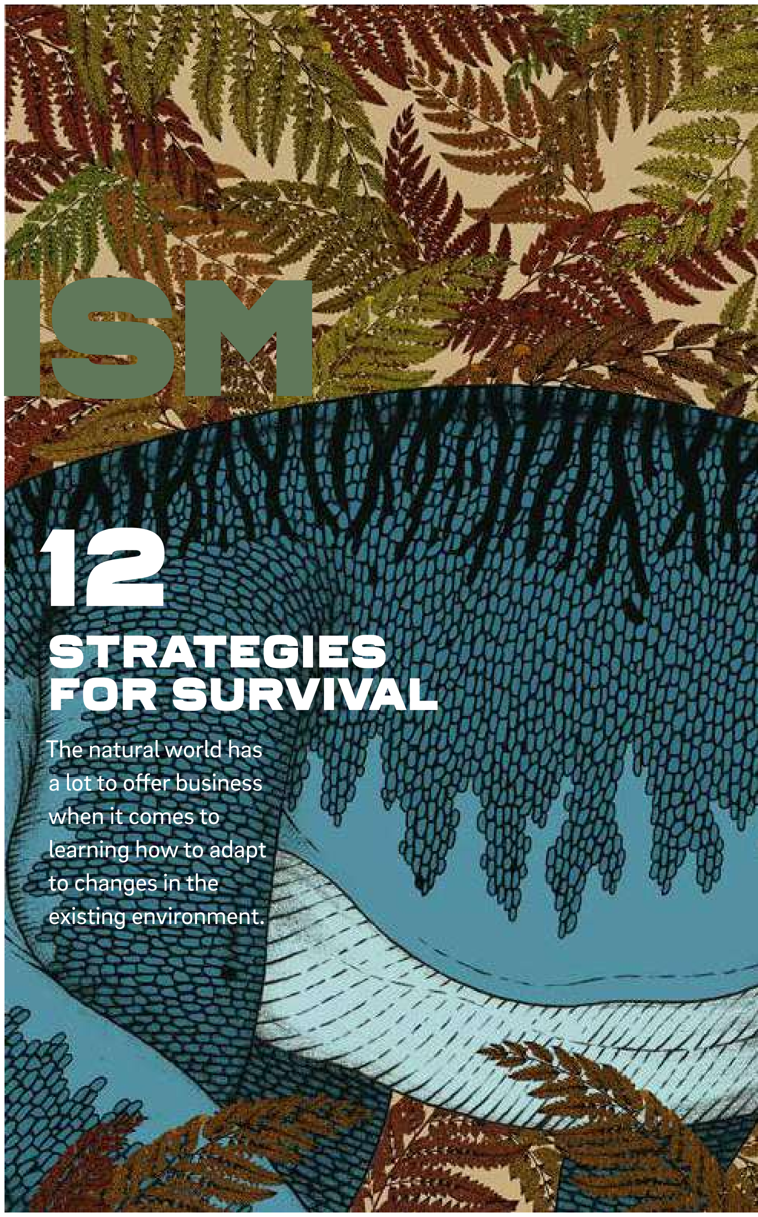
Think:Act 29

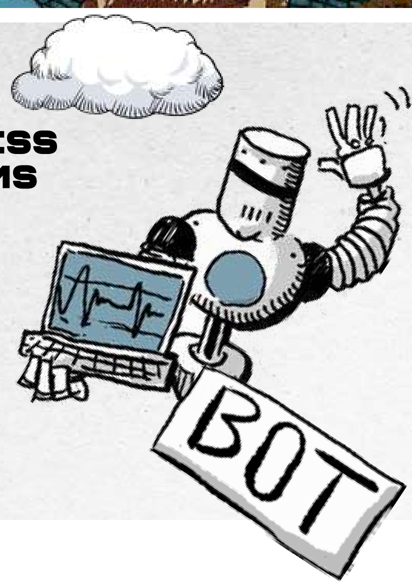
In focus

DIGITAL DARWINISM

"Celebrate your uniqueness, exploit your niche and thrive."

The oldest record label looks to the future.





DIGITAL DARWINISM

COVER + BACK COVER ARTWORK: SUTHIPA KAMYAM | PHOTOS: MATT FARROW, PATRICK STRATTNER | ILLUSTRATIONS: SUTHIPA KAMYAM, SASAN SAIDI

Wide angle

Think, act and stay informed

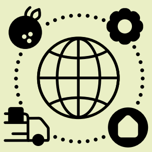
DIGITAL DARWINISM

Think:Act online

Curtis Carlson, former president of SRI, talks about how to build an organization that creates one game-changing innovation after another.
www.rolandberger.com/tam

Think *in* *numbers*

PUTTING A FIGURE ON ...
the US-China trade war



0.3 %

OF GLOBAL GDP
could be lost in 2020 as a result of new tariffs announced in 2019 alone.

$12.2

BILLION
is projected to be the end cost to US consumers on purchases of apparel, footwear, toys and household appliances.

2.3

MILLION
American jobs could be lost in a one-time impact as a result of tariffs and Chinese retaliation.

5.4 %

GROWTH
in industrial production was reported by China at the end of November 2018, the lowest in 10 years.

SOURCES:
INTERNATIONAL MONETARY FUND;
TRADE PARTNERSHIP WORLDWIDE;
SOUTH CHINA MORNING POST

Food for thought

WITH *Zeynep Ton*

Traditional economics suggests that it doesn't make sense to pay more than the market-clearing price for labor. You argue otherwise. So why should I pay more?

COMPANIES SHOULD PAY workers more if they want to attract and retain the kind of talent that can create high performance and great customer value. The best companies I've studied, like Costco, QuikTrip and Mercadona, pay frontline workers higher than market wage. But that is not all they do: They also make smart operational choices that show respect for worker time, capability and knowledge and help generate stronger employee productivity, contribution and motivation. This system of higher wages, more investment in people and smart operational decisions that improve work is what I call the Good Jobs Strategy.

If you want the status quo for your company, pay the status quo. But if you want to be the best, you should pay your workers enough that they can provide for their families and help your company thrive. As my business hero, Costco founder Jim Sinegal says, "Paying employees more is not altruism. It's good business."

ZEYNEP TON, Professor of practice at MIT Sloan School of Management and author of *The Good Jobs Strategy*.

PHOTOS: ED COLLIER, GETTY IMAGES / STR / AFP

Thin

AT A GLANCE

Thoughts to *live by*

"Make every detail perfect and limit the number of details to perfect."

— **Jack Dorsey**
Co-founder of Twitter

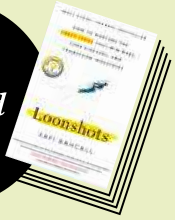
Re- **think***ing* *buzzwords*

Get to grips with new industry lingo in a flash with our stripped-down explanations of the latest jargon.

"Management tax"

It was almost a decade ago when Gary Hamel declared "management is the least efficient activity in your organization." Management tax is a burden paid by companies. Think about how much more a manager is paid than those she manages; now think how much more her managers are paid. It's time to use the term again to address how layers of management might be peeled back to create efficiency – and liberate all those other hard-working employees.

The redacted read



The physics of serendipity and group mentality

Too busy to read the hot new books? We've got you covered. Here, cut down to the essentials, is physicist Safi Bahcall's latest offer: Loonshots.

THE MOST IMPORTANT breakthroughs are the result of successful "loonshots," seemingly crazy projects that worked. The good news is that their success owes more to physics than chance.

Many organizations succeed wildly in one decade only to fail in the next, even when the people and the culture haven't changed. The real keys are structural: Just as the same molecule behaves like a liquid in one context and a solid in another, people behave differently depending on the structure.

Keep your team small to make sure your next loonshot hits its target: A group of 150 people or less will be aligned toward the success of the organization. Over 150, and the "return on politics" increases with more focus on jockeying for individual success.

Focus on maintaining a dynamic equilibrium. Salt on the sidewalk can stop rain from freezing. In the same way, prizing both your "artists" and their "soldiers" (that is, product makers and product sellers) can prevent your organization's processes from freezing.

And don't forget to consider the system. When you fail, don't just look at the result. Examine the chain of decisions that led you there.

→ ***Loonshots: How to Nurture the Crazy Ideas That Win Wars, Cure Diseases, and Transform Industries*** by Safi Bahcall. 368 pages. St. Martin's Press. **$29.99**

Chain Reaction

LAYING WASTE TO THE STATUS QUO

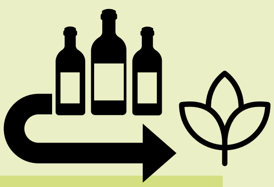
It was a system that seemed as cyclic as the recycling symbol itself: Western households dutifully sorted their trash, where recyclables were collected, baled into one-ton cubes and shipped to China for processing, often sent back in the very containers that had carried Chinese imports over to their countries. Until China changed the script, that is. Here's how a change in policies triggered the world to start rethinking its relationship with waste.

2013 China launches Operation Green Fence, an inspection campaign aimed at curbing the import of poorly sorted or contaminated scrap. Impossible or too expensive to process, a contaminated bale's fate was often China's landfills.

2017 Operation National Sword is announced, banning 24 types of scrap and setting the contamination standard at 0.5 %. Typical curbside collection boxes are 15–25 % contaminated.

2018 China bans 32 more scrap materials, effective by the end of 2019. As the world looks to other countries to take China's place, Malaysia, Thailand and Vietnam also move to restrict the import of plastic waste. Bales pile up in storage facilities in countries like the US and the UK.

2019 To meet its new environmental goals, China plans 100 new recycling bases to effectively process its own increasing levels of domestic waste. Its plastic imports are reported to have dropped 99 %.



LOOKING FORWARD:
Only 9 % of plastic was recycled before 2017, but now even more is being incinerated or dumped. Many hope China's ban will be a wake-up call for consumers, manufacturers and governments alike, driving a movement for better local waste processing and sustainable packaging materials.

PHOTOS: PR / BEYOND MEAT, GETTY IMAGES / MARTIN BARRAUD

Best practice

How to ... fight your email fire

DISTRACTED BY EMAIL PINGS? Stressed by 10, 100 or 1,000 unread messages? Busy CEOs work 62 hours a week on average and attend 37 meetings – so what tricks do they use to keep focused and fight the email fire? One requests that any emails include a deadline for a reply, claiming it makes prioritization faster. Another suggests sending fewer to receive fewer replies – since your emails generate replies and replies from those subsequently copied in. Sending fewer emails means answering fewer emails. Or you could just ignore email for a bit by downloading an app and website blocker to limit your computer and smartphone activity. Alternatively, answer your emails with a two-word reply: "I'm thinking." That buys you time and lets you move on to the next task, while also being true and honest. It's also likely to provoke an interesting response.

Economic impact

Putting the pea into profits

THE BURGER: It's as American as apple pie. Which is why a staggering 32.2 million cattle and calves were processed in the US in 2017 alone, adding up to 26.3 billion pounds of beef. And despite growing concern about climate change and greenhouse gas emissions, our appetite is only increasing. The global meat industry is estimated to be worth $1.5 trillion by 2022 – but the same year that projection was made, 2016, a plant-based competitor hit the grill with unrivaled similarity to meat in both taste and texture. Beyond Burger, the flagship product of the US company Beyond Meat, is a lab-created patty containing a similar amount of protein and fat as a standard beef burger. The patty may "bleed," the result of added beet juice, but the protein is derived from peas, rice and mung beans. And while the jury may still be out on whether the coconut oil and higher sodium levels found in a Beyond Burger are better for your health, Beyond Meat and competitors like Impossible Foods are set to take a bite out of those traditional meat industry trillions: Beyond Meat expects 2019 revenue to hit over $200 million, driving share prices up 21%.

k:Act

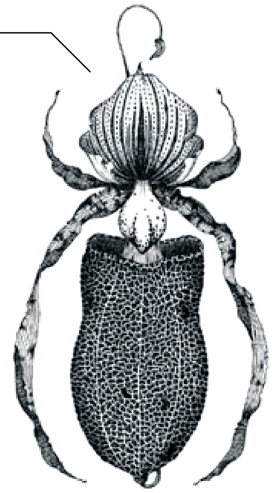
AT A GLANCE

In focus

In this issue we take a close look at how business can evolve and adapt in the digital era.

Fig. 1

Fig. 2



→ *Fig.1* THE INDIAN PEAFOWL (PAVO CRISTATUS) MALE USES ELABORATE PLUMAGE TO ATTRACT A MATE.

→ *Fig.2* THE LABELLUM (LOWER PETAL) OF THE ORCHIDACEAE FAMILY DRAWS POLLINATORS WITH BOTH COLOR AND SHAPE.

DIGITAL DARWINISM

Life on Earth is a history of adaptations to the existing environment. From the successful species to the now extinct, what can the natural world teach business about strategies for riding out the threat of the digital era?

BY ***Detlef Gürtler***
ILLUSTRATIONS BY ***Suthipa Kamyam***

STRATEGIES FOR SURVIVAL

Fig. 3

THE SPECIFIC FACTOR FOR SUCCESS IN A SPECIFIC SITUATION CAN ONLY BE SEEN IN HINDSIGHT.

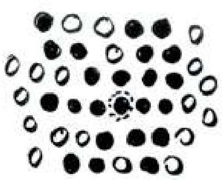
Survival of the fittest. When it comes to anything about the natural world, those four words sum up what many of us think matters most. We think of the phrase as a summary of Darwinism, expressing the battle for life which has been fought simultaneously by billions of creatures over billions of years.

The phrase, however, is not in fact Darwin's. And it wasn't first applied to the natural world, but to business. It was coined by British intellectual Herbert Spencer in 1864 to draw a parallel between Darwin's ideas and Spencer's own economic theories. It's an apt phrase, because the economy, just like the natural world, is all about survival of the fittest. Charles Darwin liked the phrase – and he adopted it for the fifth edition of his book *On the Origin of Species* in 1869. It has been a key subject in biology ever since. In economics, though, it is now used less frequently – mostly during stressful events that change the basic conditions, such as depressions or major disruptions. Like the one we are living through right now: the digital era. The magnitude of today's economic disruption is similar to the effects that an ice age or a supervolcano eruption have had on ecosystems. With that in mind, a closer look at biosystems and the evolutionary mechanisms that have been developed by species might be helpful to develop or alter the strategies of companies in the business ecosystem.

Unfortunately, it is difficult to define who might be the "fittest." Fitness may derive from strength or flexibility, from speed or size, from fairness or cheating. The specific factor for success in a specific situation can only be seen in hindsight: The fittest is the one who survives. But underneath this diversity of qualities, there are in fact just two main selection concepts. In biology they are called natural selection and sexual selection and they lead to two diametrically opposed survival strategies. Although the economy has less to do with nature and sex, and much more to do with markets and money, the two concepts nevertheless have their equivalents in business. Let's call them the Peacock Strategy and the Mountain Hare Strategy.

THE PEACOCK STRATEGY emphasizes the power of sexual selection: Genes are best spread by impressing females. The (male) bird displays the beauty of its plumage. "Hey," it says, "mate with me, I am the cutest, I have the best genes!" Darwin himself used the peacock as an example for animals that "excite or charm those of the opposite sex, generally the females, who select the more agreeable partners." The peacock is shiny and flamboyant, he attracts females – but also predators. If the female →

Explosive growth



BE PREPARED TO SCALE UP

When there's room, fill it. As fast as you can and before someone else does it. That's what human beings do in a gold rush, that's what companies do after a technological breakthrough and that's what most life forms are prepared to do in favorable conditions. If all baby rabbits survived or all fish eggs became fish, it would result in an exponential, explosive growth. Usually, growth is limited by predators or by scarcity of resources. But the potential to grow exponentially is helpful after a sharp population decline. One of the fastest-growing life forms on Earth is a bacterium: clostridium perfringens. They can double their number within nine minutes. Mathematically, with this growth rate there would be more of them than atoms in the universe after two days. Biologically, the growth period ends as soon as the infected animal or person dies.

DIGITAL DARWINISM

→ *Fig.3* MYCELIUM PRODUCES TWO TYPES OF SPORES, ONE FOR SEXUAL REPRODUCTION, THE OTHER ASEXUAL.

→ *Fig.4* THE MOUNTAIN HARE (LEPUS TIMIDUS) IS BROWN IN THE SUMMER AND MOLTS TO A WHITE WINTER COAT TO AVOID PREDATORS.

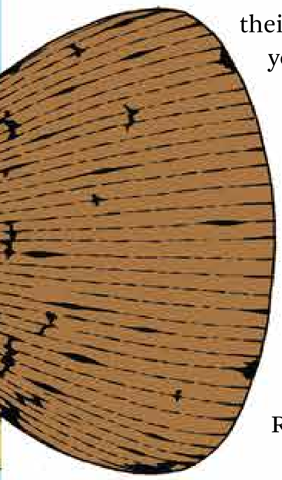
→ *Fig.5* A GUPPY (POECILIA RETICULATA) MALE ADAPTS ITS BRIGHTNESS DEPENDING ON THE RISK PRESENT IN ITS ENVIRONMENT.

→ *Fig.6* THE ROSE (ROSACEAE) USES COLOR TO DRAW IN POLLINATORS WHILE THORNS DISCOURAGE PREDATORS.

Fig. 5

THE MORE BANG FOR THEIR BUCK THAT YOU PROMISE, THE HIGHER YOUR CHANCES TO "EXCITE OR CHARM."

Fig. 6



peacock comes first, it's a winning strategy; if the predator comes first, it's a less fortunate outcome.

In business, the analogy to the peacock isn't, thankfully, all about male managers showing off how attractive they are. This is more about companies which have their own "beauty contests" where they compete for the attention and affection of potential partners, namely venture capitalists or institutional investors. The more bang for their buck that you promise, the higher your chances to "excite or charm." In today's business world, startups and unicorns like Uber, WeWork or SpaceX come to mind. But overblown behavior to appeal to investors can be seen at well-established companies, too: General Electric was proud as a peacock for raising dividends year for year since the early 1980s – and was hit especially hard by the Great Recession of 2008-09.

For the French economist Michel Albert, the US was the natural habitat for business peacocks. In his 1991 book *Capitalism Against Capitalism* he compared the "Neo-American" business approach with "the glamour of the Crazy Horse Saloon," the legendary Paris cabaret. Flamboyance and immaculate beauty give an evolutionary advantage in these circumstances. That's how your company should look to impress investors; that's what your equity story should sound like for an IPO; that's what your elevator pitch should feel like, when you've got those precious 10 seconds of a venture capitalist's attention. And, of course, that strategy is not only endemic in the US: When a mayor or governor wants their region to become "a new Silicon Valley," they have a metaphorical peacock sitting on their shoulders.

Michel Albert located the opposite of the Neo-Americans in the heart of central Europe. "Doing everything for success, but nothing to appeal" is a characteristic trait of his so-called "Rhenanian Capitalism." And the headwater regions of the Rhine, the Alps, are the natural habitat of the mountain hare – who we can say is the biological opposite of the peacock.

THE MOUNTAIN HARE STRATEGY emphasizes natural selection: Genes are best spread by hiding from and evading predators. Instead of being all loud and look-at-me, the hares try to blend in with their environment with a brown coat in summer and a white one in winter. They are fast, they are vigilant and, above all, they count on their inconspicuousness. The longer they don't fall prey to predators, the higher their chances to mate and pass on their genes to a new generation. →

Mimicry

ILLUSION IS A POWERFUL TOOL

Sometimes it's better to look like someone else. For example, if you're weak and vulnerable, it will help if you pretend to be strong and dangerous – like the peacock butterfly with the big eyespots on its wings. The same mimicry technique is used the other way round, too. Mantises are disguised as leaves or branches to deceive their prospective victims. In business, mimicry is a common practice in heavily regulated industries. "Shadow banks" – a strong business sector, especially in China – are entities operating outside the banking industry and its regulations, but offering financial services just like the banks. And the two most successful media companies on earth, Google and Facebook, try to look like search algorithms or communication platforms to circumvent obligations media must meet for the content that they publish.

Inconspicuousness and camouflage are business virtues that are indeed often seen in central Europe. The "gnomes of Zurich" is a common nickname for Swiss private bankers who try to keep their business as secretive as the accounts of their clients. Another natural habitat for business mountain hares are family-owned companies. Without the need to excel in investor relations, a lot keep a low public profile. This can even be true for highly visible global players like Italian chocolate producer Ferrero, owner of the Nutella brand. In its 70 years, the company has never held a press conference; and in its production facilities which are spread all over the world, no media visits are allowed.

The key element in the Mountain Hare Strategy is resilience. Companies following this approach prepare for every possible eventuality of crises. In the short term, this kind of cautiousness can limit growth opportunities – but it's meant to pay off in the long term: If the going gets tough, the resilient get going. One of the oldest management guidebooks, the Italian *Pratica della Mercatura* of 1340, advises merchants to act cautiously: "What every true and honest merchant must have within himself. / Integrity always suits him, / Long foresight keeps him well, / And what he promises doesn't come lacking; / And he should be, if able, of beautiful and honest behavior."

WHICH OF THESE TWO TOTALLY OPPOSITE strategies is the better one for the survival of the fittest? Well, obviously it depends. The world is full of peacocks, full of hares and full of hundreds of thousands of other species: birds and mammals, fish and insects, predators and prey. They mate and fight and hide – sexual and natural selection, flamboyant and resilient strategies can be seen everywhere in biological ecosystems. So none of them can be the "fittest" in absolute terms.

In business, the management can decide which kind of strategy to choose in a given situation. The company can adapt to changes in its environment. In nature, species can do the same.

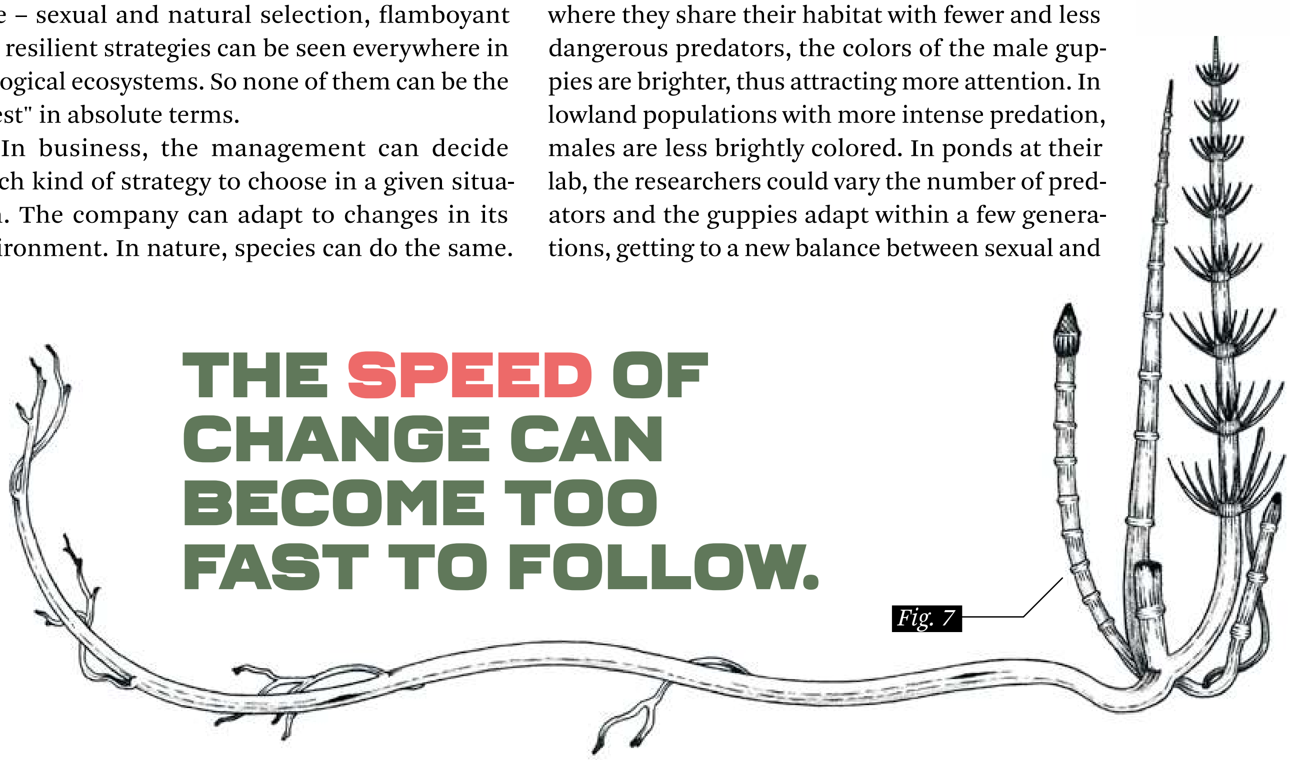
Symbiosis

A PARTNER WITH A COMPATIBLE GOAL

It can be mutually beneficial when two species cooperate; like the oxpecker bird who "grazes" on the back of large mammals, freeing them of parasites. Symbioses with equally positive outcomes for both sides do not happen frequently – neither in biology nor in business. But they happen. An example for a symbiotic relationship was called "Wintel": Intel and Microsoft synchronized the use of computing power and technological growth for decades. The more performance the Intel chips could offer, the higher the Microsoft software demands became.

Like the poeciliidae family – guppies living on the Caribbean island of Trinidad. John Endler, biologist at the Deakin University in Australia, has intensively studied how the appearance of these fish changes at different degrees of selection pressure.

He showed that the brightness of male guppies varies widely, depending on the number of predators in their environment: In highland populations, where they share their habitat with fewer and less dangerous predators, the colors of the male guppies are brighter, thus attracting more attention. In lowland populations with more intense predation, males are less brightly colored. In ponds at their lab, the researchers could vary the number of predators and the guppies adapt within a few generations, getting to a new balance between sexual and

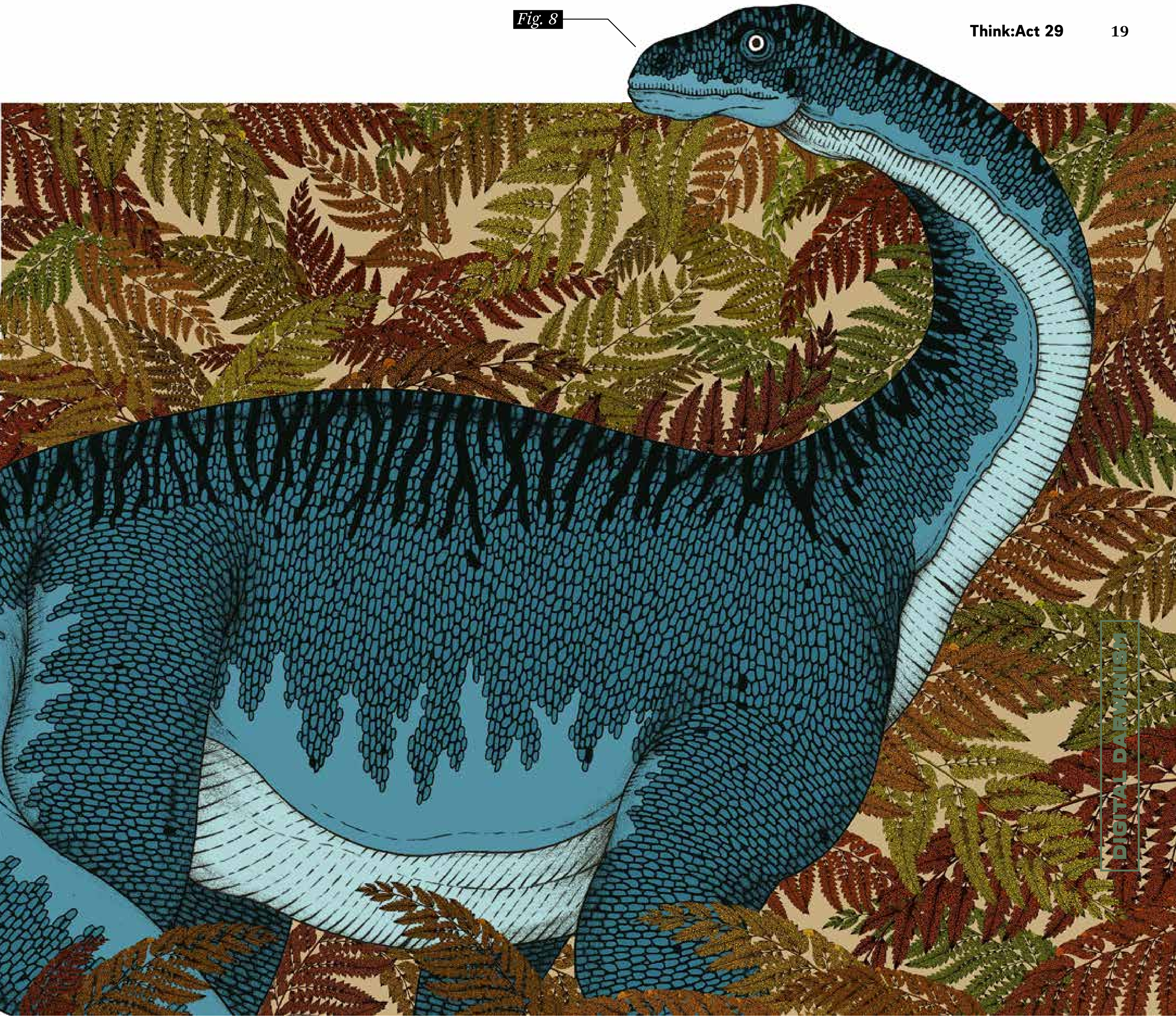


THE SPEED OF CHANGE CAN BECOME TOO FAST TO FOLLOW.

Fig. 7

DIGITAL DARWINISM

Fig. 8



natural selection. One company that was and is fairly successful in adapting to changing environments is IBM. From hierarchical dominance to open connectivity, from supercomputers to PCs and the other way round, from hardware to software to systems, the tech giant has managed to stay ahead of the curve.

THE FEWER THREATS THERE ARE out there, the better the environment is for being flamboyant; in more challenging environments, resilience offers better chances. And if you opt for more of the one, you get less of the other: "One trait can only be increased at the expense of another," Endler says. "Time, energy or any other resource can be spent only on one." And the guppies of Trinidad can give us a hint of what will happen in the digital era. Because one of the main characteristics of digitalization is new competitors. The barriers to entry into single markets or whole industries are getting lower and lower, and companies from seemingly unrelated fields can become powerful rivals in a short time. An internet search engine has almost annihilated the markets for city (and in fact all) maps and the address book, has swallowed the better part of media advertising revenues and is about to enter the automotive industry. A computer manufacturer has taken large chunks of the markets for →

→ *Fig. 7* THE NOW EXTINCT CALAMITE ONCE GREW 30 METERS HIGH WITH A ONE METER DIAMETER.

→ *Fig. 8* THE APATOSAURUS' ROBUST BUILD COULD NOT SAVE IT FROM EXTINCTION.

THE E. COLI BACTERIUM REACTS TO STRESS WITH BEHAVIOR OPPOSITE TO OUR OWN.

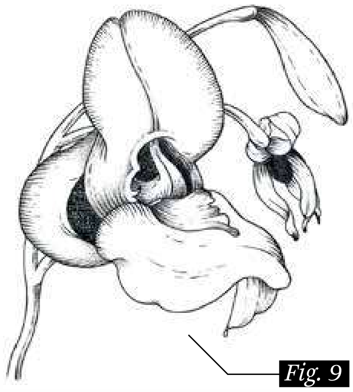
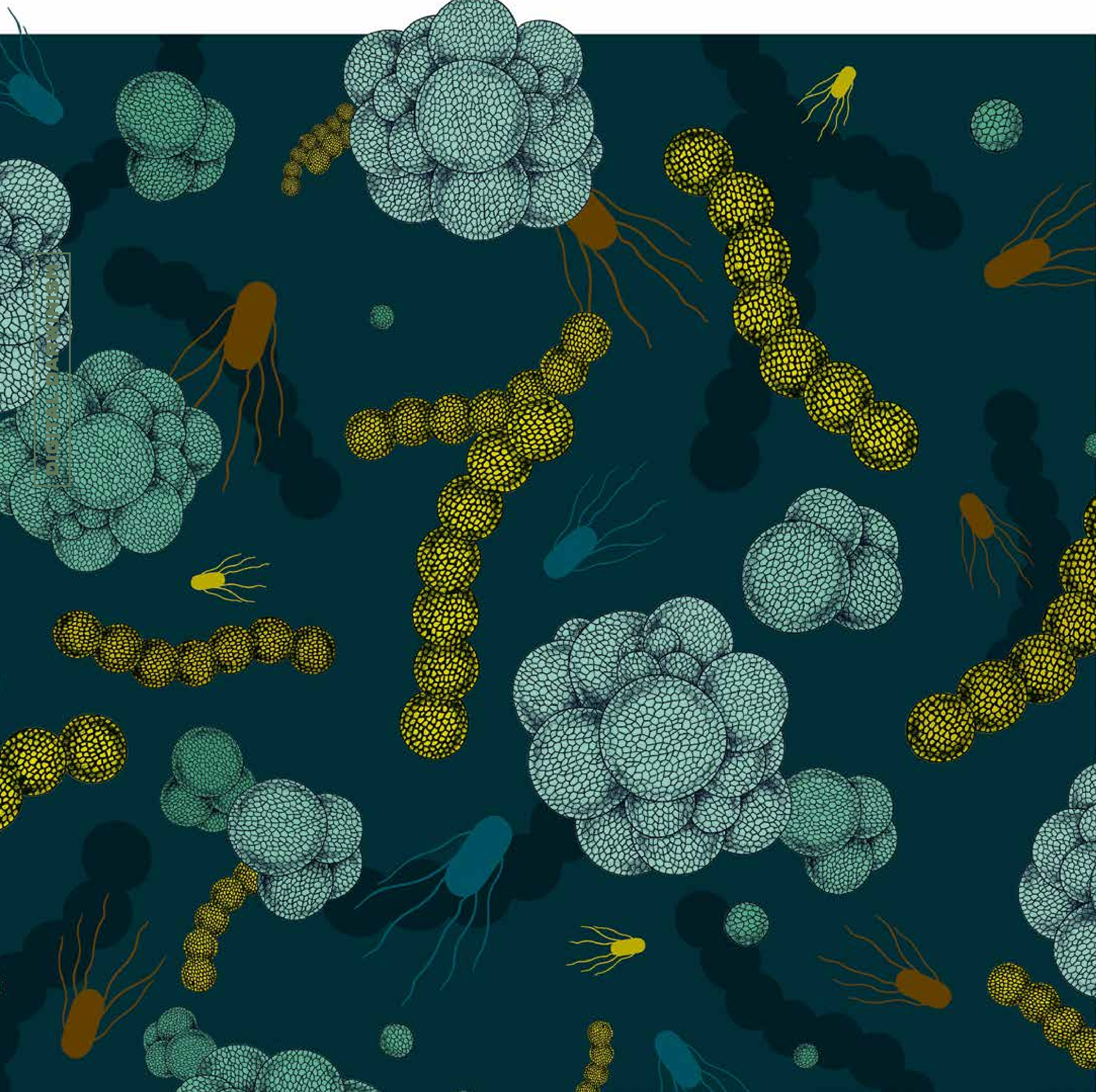


Fig. 9



→ *Fig.9*
IMPATIENS (BALSAMINACEAE) HAVE EXPLODING SEED CAPSULES THAT CAN DISPERSE OVER SEVERAL METERS.

→ *Fig.10*
ESCHERICHIA COLI (E. COLI) SPREADS GENETIC MATERIAL HORIZONTALLY THROUGH AN EXISTING POPULATION.

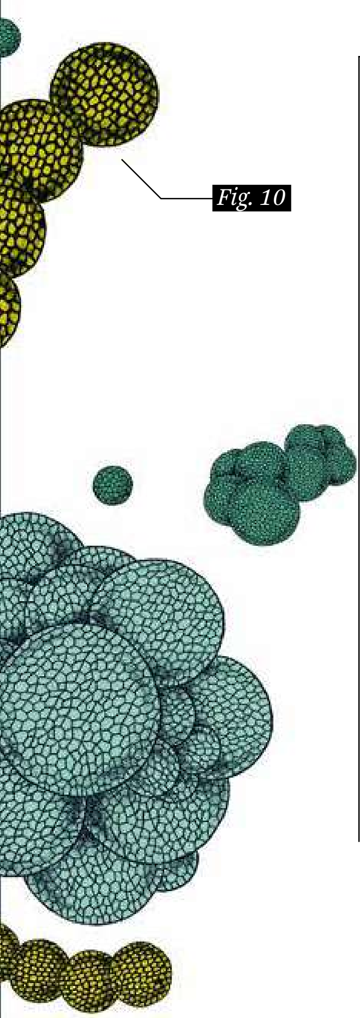


Fig. 10

mobile phones, watches and music, to name just three of many disruptions.

For some industries, these new players are not just additional competitors – but the only ones. Energy suppliers, regional newspapers or the train sector have been de facto monopolies for decades or centuries. The advent of competition appears as if a once-in-a-lifetime event, that seems to strike as a complete surprise.

BIOLOGY TEACHES A BITTER LESSON about what happens to species that were used to living in isolated ecosystems and suddenly become exposed to competitors: They are wiped out. The dodo of Mauritius or the passenger pigeon of North America are examples of extinction caused by just one new competitor: us. One of Homo sapiens' strongest drivers for innovation has always been the desire for more and better food. For a considerable number of big – and tasty – animals the adaptation to this new competitive environment was too slow to be successful.

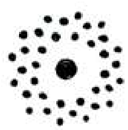
Even for highly successful species the speed of change can become too fast to follow: The dinosaurs dominated the global ecosystems for almost 200 million years, but did not survive the disastrous asteroid impact and its aftereffects. The harder and faster disruption hits, the bigger the changes that are required. For disruptions of the natural environment the logical or better biological answer is less flamboyance and more resilience. Translated into today's business environment in the digital era: less "growth at any cost" and more "focus on the bottom line." This leads us to consider that most economic ecosystems should tend towards a new, less peacocky balance. But how do you find a new balance, if you're not a guppy, but a multinational company?

ANOTHER BIOLOGICAL ANALOGY might be helpful here. We can call it the Bacteria Strategy, as it was first observed by the German microbiologist Regine Hengge of Humboldt University Berlin when she put E. coli bacteria under stress. For a strain of bacteria, a drop of acid in the petri dish or rising temperatures are similar to the business challenges for an incumbent company facing the market entry of Google or Amazon.

The E. coli bacterium reacts to stress with behavior opposite to our own. When we are under stress, we produce adrenaline, the fight-or-flight hormone. Adrenaline is a powerful survival tool – but unfortunately it's useless when we are facing multiple and/or unknown threats. If the adrenaline-powered brain wants to fight or flee, but can't decide how to react, it goes into panic mode. Bacteria, however, go into an experimental mode. "They prepare themselves for the unknown," says Hengge, by opening up for a myriad of potential solutions. E. coli's opener of unknown doors is a substance called Sigma S that activates its entire DNA strand. Like humans, most bacterial DNA is usually dormant. But when under stress, the whole DNA is unleashed and starts to produce whatever substances it can. Most of them are useless – but one may, by pure coincidence, lead to survival. It's anarchic and chaotic, but at least it's a chance.

Sure, companies aren't E. coli bacteria. They don't follow biological instincts, but they can decide how to act. And if confronted with multiple and/or unknown threats, it may be less wise to go into panic mode like human beings do, but instead switch to experimental mode like bacteria. Survival of the fittest? Or the most attractive? Maybe. But in the new digital landscape ahead it might, ironically, not be quite so binary. If the bacteria can teach us anything, it might be that survival depends on being the most resourceful. ■

Group protection



SUCCESS THROUGH SAFETY IN NUMBERS

The power of the herd is a very common defensive strategy of animals. Swarms of fish or herds of antelopes are better protected against predators than individual animals. Maybe the weakest or slowest get caught, but a big part of the group will survive an attack. In business, the "united we stand" approach has always been a key success factor for trade unions. And sometimes it is used by industry incumbents to keep a potential enemy small –or keep them out. Collective actions of taxi drivers against new competitors like Uber or Lyft are the latest example for this strategy.

DIGITAL DARWINISM

SURVIVAL OF THE WEIRDEST

Evolutionary theory is often misunderstood. Rather than fighting to be the strongest, focus on what makes you unique instead.

BY **Kat Arney**

In the fast-moving business world "survival of the fittest" is usually assumed to mean that only the strongest, quickest, leanest or meanest companies will succeed. It implies you should survive at all costs. In evolutionary theory, this phrase actually means that organisms which are the best fit for their particular niche are more likely to survive and thrive in a changing world, often favoring quirks and peculiarities over conventional notions of fitness.

As Charles Darwin and his fellow 19th century naturalists combed the world in search of species to study, they built a deep understanding of how each might have come to occupy its branch in the tree of life. Similarly, a more nuanced view of the power and process of evolution holds valuable lessons for companies looking to assert their position and thrive in an ever-changing business environment. It may sound like a cringeworthy cliché for a company to talk about something being in its DNA – whether that's people, ideas, infrastructure or anything else – but it all adds up to a kind of corporate genetic makeup. And where there are genes, there are variations and mutations.

IN THE SAME WAY THAT WE EACH INHERIT our own set of genetic idiosyncrasies from our parents, each company is born with its own unique mix of traits. From the personalities and peccadilloes of the founders and the C-suite to the ideas underpinning products or services and geographical location, no two businesses are the same. By way of example, the environmental values and adventurous nature of Patagonia's founders Yvon and Malinda Chouinard are woven deep into the fabric of the outdoor clothing brand, shaping its mission as a business that focuses on sustainability and social responsibility as much as the high-spec properties of its products.

Then there are mutations – the chance events that create new differences. For a company, this could be as simple as stumbling on a great new supplier or the CEO making an unexpectedly useful connection with a fellow passenger on a plane. Perhaps there's a server outage or loss of a key employee just ahead of a major launch. Or something with unknown potential, something from the R&D department which you don't quite understand yet how it might fit in with your business plan. Just as genetic differences drive evolution in the natural world, it's the inherited variations and random mutations that become fuel for adaptation in a rapidly shifting business landscape.

IF EVERYBODY LOOKS THE SAME, that's fine in a constant environment as there's no pressure to change. But shake things up and a lack of diversity can become critical. For example, global dependence on one type of banana – the bright yellow Cavendish – has left the industry teetering on the brink of collapse as a devastating fungus threatens to wipe out the world's crops. Ironically, exactly the same situation happened in the 1960s with a banana species called Gros Michel, which is virtually extinct today. Growers are now desperately sifting through unfamiliar local varieties in search of resistant alternatives – something that should have happened decades ago.

A business that understands and then embraces its unique characteristics to exploit an emerging niche has a better chance of thriving in the face of change than one that tries to survive by copying everyone else. Actively mapping out the distinctive traits within your organization could reveal key insights about the best direction in which to pivot in changing circumstances. When Twitter first started, nobody could see the point of an SMS-based public messaging service. But as the world became ever more connected, the leadership realized that the platform was uniquely placed to feed a growing hunger for instant information rather than social connection. Other players may have had the idea before – and there are plenty of imitators since – but none had the unique mix of people, technology and timing that Twitter has capitalized on during its rise to online dominance in that niche.

Evolution is exploitative by positively selecting for characteristics that provide a competitive advantage. It's also ruthless in getting rid of unnecessary traits. Cave fish have lost their eyes after millions of years of living in the dark, relying on other senses to survive in a murky habitat. The ancient predecessors of whales swapped out legs for fins after returning to the ocean, while we humans lost our stabilizing prehensile tails when our primate ancestors moved out of their treetop homes an estimated three or four million years ago.

A MORE RECENT EXAMPLE comes from stickleback fish living in the predator-packed sea, which are equipped with sharp defensive belly spines attached to a large, bony pelvis. But while these spikes are essential in the dangerous marine environment, they are unnecessary in predator-free inland waters. Their lake-dwelling relatives look almost identical yet have evolved to live without these protective features in just a few thousand years – the blink of an eye in evolutionary terms.

"SHAKE THINGS UP AND A LACK OF DIVERSITY CAN BECOME CRITICAL."

Equally, there may be features in an organization that seem to be essential – the business equivalent of eyes, legs or tails – but are an unnecessary expenditure of resources, money and effort. The obvious examples are low-cost airlines, which have dispensed with the frills, but other companies also shun conventional views of a successful business in their field. Software company Basecamp, for example, famously ignores the conventional rules of expansive growth in the tech sector, preferring to stay small and nimble instead.

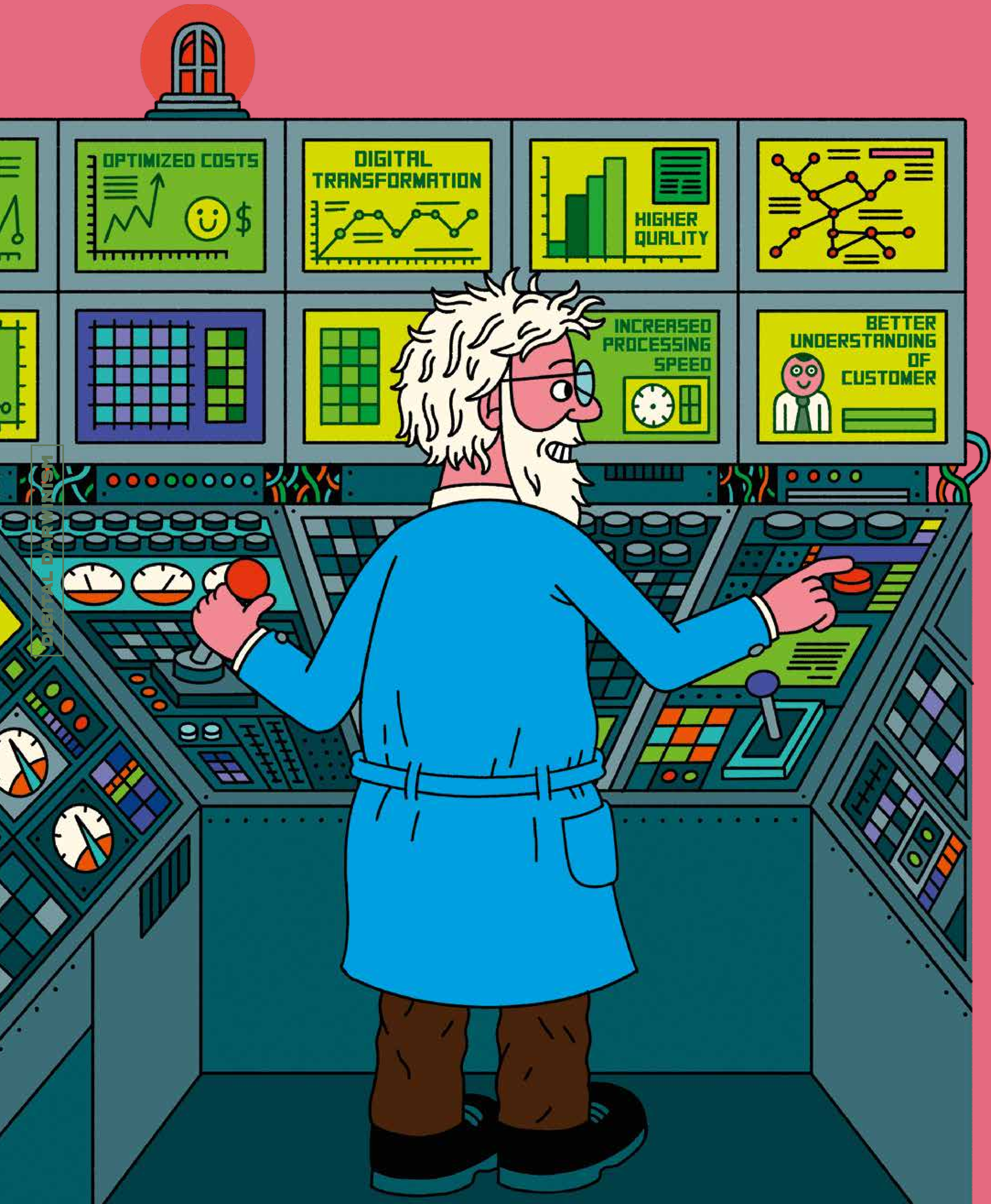
Charles Darwin published *On the Origin of Species* 160 years ago, but his insights are still as relevant for business as for biology in today's changing world. And here's the vital Darwin takeaway you need. It's not to be the fittest. Or to survive at all costs. It is: celebrate your uniqueness, exploit your niche and thrive.

Kat Arney

Kat Arney is an award-winning science writer and BBC radio host. She has written two books about genetics, *Herding Hemingway's Cats* and *How to Code a Human*.

DIGITAL DARWINISM

PHOTO: MATT FARROW


OPTIMIZED COSTS
DIGITAL TRANSFORMATION
HIGHER QUALITY
INCREASED PROCESSING SPEED
BETTER UNDERSTANDING OF CUSTOMER
DIGITAL DARWINISM

HOW TO CHANGE YOUR COMPANY

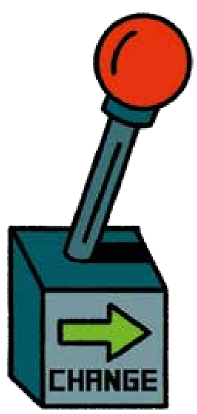
Some large traditional companies are succeeding in transforming themselves to flourish in the digital economy. But adapting to radical change requires taking a long view of how technology can work for you – and adopting an equally radical mindset.

BY ***Geoff Poulton***
ILLUSTRATIONS BY ***Serge Seidlitz***

Change is hard. And transforming a legacy company into a digitally savvy enterprise is one of the hardest changes there is. A recent survey named it the number one executive risk in 2019. But it's a shift that's unavoidable. "With digital transformation, it's not a question of whether you should change or not," says Sunil Gupta, a professor at Harvard Business School and the author of *Driving Digital Strategy: A Guide to Reimagining Your Business*. "The main question is: How do you change?" That's because operating digitally enables companies to improve efficiency, learn more about their customers and deliver better service. It's not just about websites and apps now; digital technology is fundamentally altering business models and consumer behavior.

But certain fundamentals facilitate success. "It sounds simple but having a clear sense of direction is perhaps the hardest thing to master," says Gupta. "Understand the issue you're trying to address. Think of the customer. If you don't know where you're going, then you've no idea what can take you there, and you'll be distracted by all manner of diversions along the way."

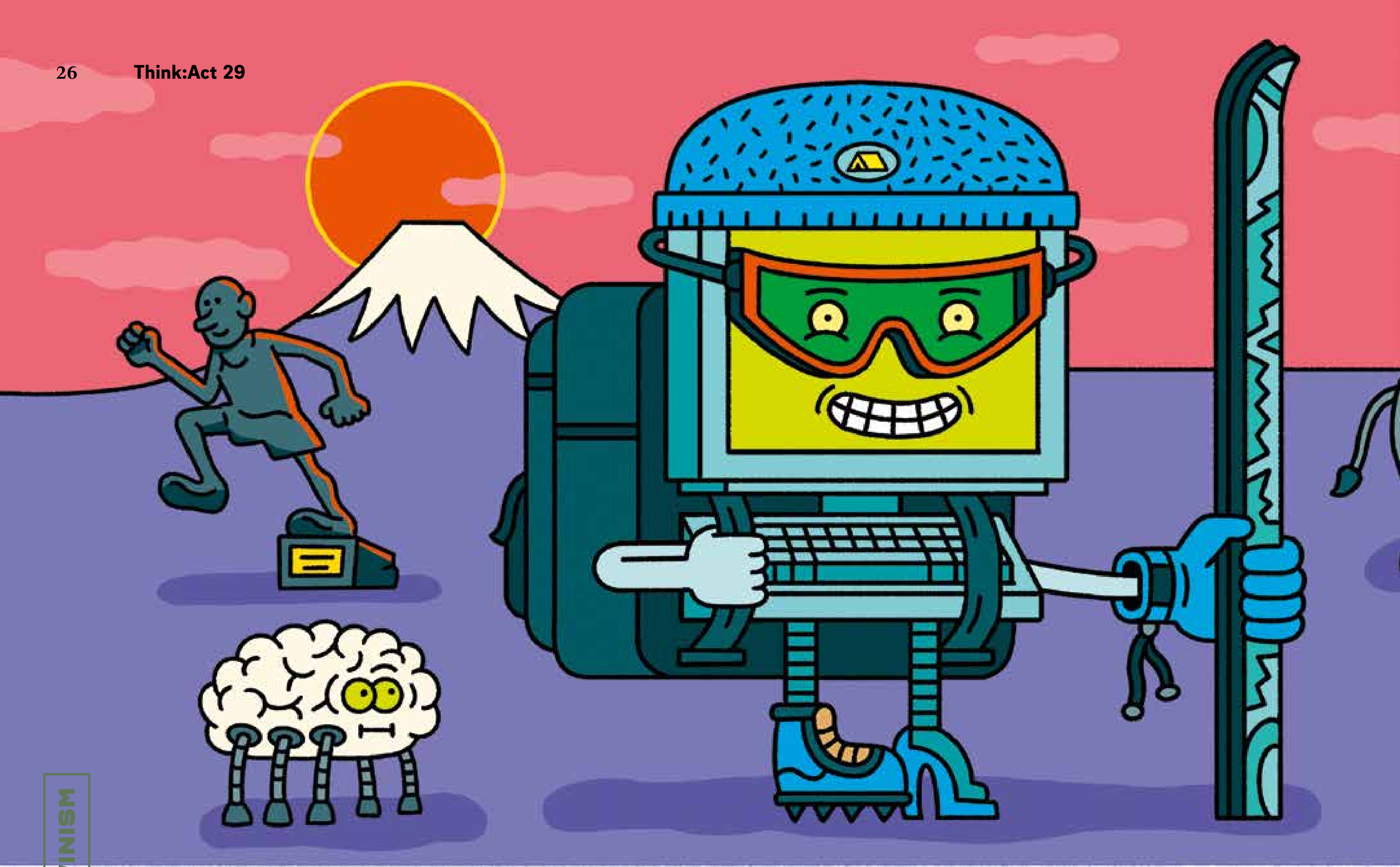
According to Chris Skinner, fintech expert and author of *Digital Bank* and *Digital Human*, that direction then has to become part of the entire company culture. "A lot of companies just assign budget to delegated projects, but the leadership must be fundamentally invested in changing the company and ensure it's understood by the entire workforce – not just the IT department."



THAT MAY REQUIRE RETHINKING skills and processes that have been successful for decades. But tread carefully, Gupta warns. "You want to create change, not animosity. Don't try and replace an entire company culture from one day to the next, and look after your employees – retrain and reskill them where necessary."

There are numerous examples of companies that have failed to heed these principles in recent decades, from Kodak to Blockbuster to Toys "R" Us. Rather than analyze those established examples, we are going to focus on three key areas where digital transformation was a threat to existing businesses. First with time, where speed and efficiency is everything. Then quality, where an ever-tighter focus on the customer is vital to staying on top. And finally: cost, where new technology can allow for savings and radical change. ■

IT'S NOT JUST ABOUT WEBSITES AND APPS NOW.



DIGITAL DARWINISM

WALMART:
GETTING UP TO SPEED

Walmart was once the classic low-cost bricks-and-mortar store, and it became the world's largest company. Then along came e-commerce, and for years it watched as the likes of Amazon muscled in on its territory, unsure how to adjust its previously successful approach. Sunil Gupta says the strict separation between Walmart's online platform and its physical stores cost the company early on. "For a long time, you couldn't even return an online purchase at a store because they were running as separate entities."

Then Walmart appointed Doug McMillon as CEO in 2014. Aged 48, the company's youngest ever chief executive started by focusing on Walmart's strength – its thousands of stores – and introduced in-store pick-up for online orders. But he also knew that to compete with Amazon, speed was crucial, so Walmart ramped up the expansion of automated e-commerce fulfillment centers to ensure rapid delivery to customers and stores. To transform Walmart into an attractive e-commerce option, however, McMillon needed to bring in external expertise and expand the brand's portfolio. So in 2016, Walmart bought e-commerce site Jet.com for $3.3 billion and made founder Marc Lore head of e-commerce operations. Many analysts saw it as a huge gamble, one that appears not to be paying off. A June 2019 Reuters report said Jet had "failed to become a driver for online grocery sales and growing market share in urban areas."

But did Walmart learn its lesson? To broaden its global appeal, in 2018 the US retailer paid $16 billion for a majority stake in India's Flipkart and is partnering with Japanese e-commerce giant

MANY ANALYSTS SAW IT AS A HUGE GAMBLE.

Rakuten. Integrating these online companies into the Walmart family will not be easy, as its experience in China showed. Walmart sold its Yihaodian subsidiary in 2016.

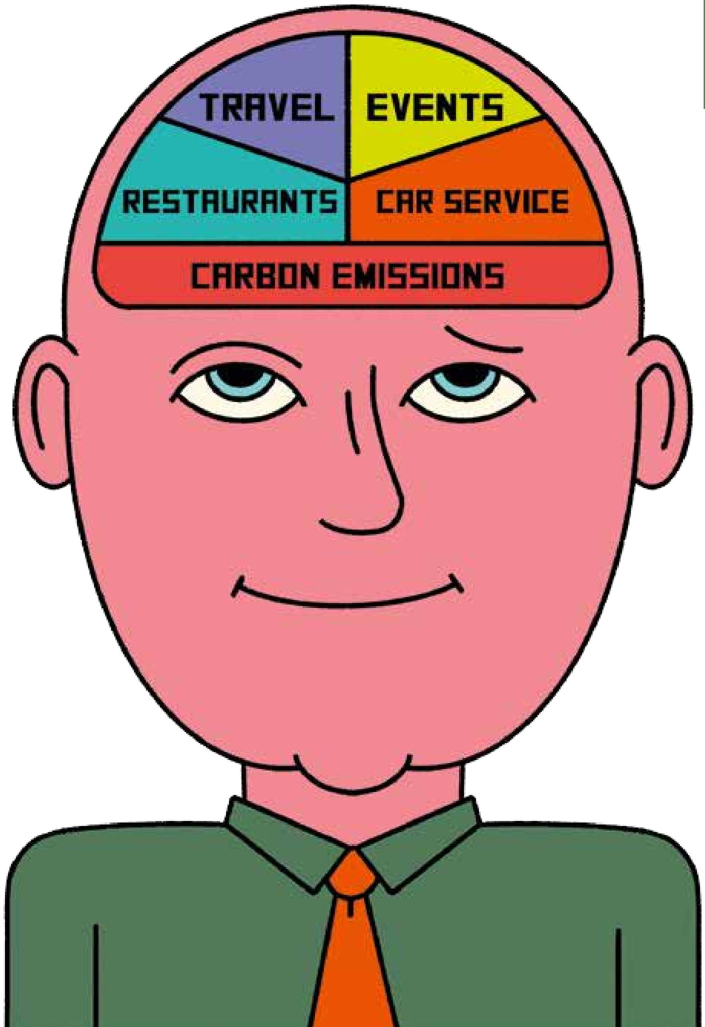
BEHIND THE SCENES, Walmart is also optimizing its underlying digital infrastructure. In a five-year partnership with Microsoft, Walmart will benefit from Microsoft's Azure cloud platform and the two will work on projects in machine learning, artificial intelligence and data platforms. To back it up, in May 2019, Walmart appointed Google, Amazon and Microsoft veteran Suresh Kumar as CTO.

The company's hard work – not to mention considerable investment – is starting to pay off. In the first quarter of 2019, it announced its best US store sales figures in nine years and a 37% jump in US e-commerce sales. Last year, it overtook Apple to become the third-largest online retailer in the country, behind Amazon and eBay. That may be promising, but Walmart's e-commerce turnover is still less than 10% of Amazon's. After dragging its feet for so long, McMillon knows that speed is crucial. "We're thinking in the right way and we're moving," he told *Harvard Business Review*, "but not fast enough."

PORSCHE: SHIFTING INTO DIGITAL GEAR

For almost 90 years, Porsche has stood for finely engineered, quality sports cars. But in focusing all its attention on its products, the Germans dropped the ball in their customer management. In 2008, the company found itself languishing in 26th place in market researcher J.D. Power's Customer Satisfaction Index.

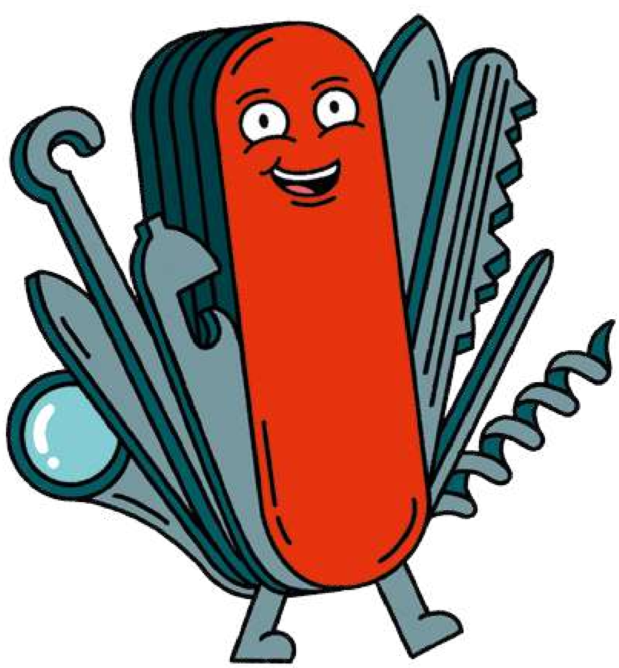
In response, Porsche began transforming its customer relationship management with a wealth of new digital services. "Porsche will become a platform provider as well as a mobility provider," said Porsche CFO Lutz Meschke in March 2017. "This will enable us to branch out beyond the boundaries of the automotive sector. We must not lose sight of Porsche customers when they shut the car door. Instead, we must accompany them in the rest of their life too." →



To do this, Porsche assigns each customer a unique ID, which is used in every interaction between the two parties, from showroom visits to Porsche's suite of apps. This helps the company build up a comprehensive picture of each individual and analyze product performance.

PORSCHE CONNECT IS A VIRTUAL CO-PILOT that handles everything from navigation to news, music or smart home management as you return from work. An extension of this service is Porsche 360+, a virtual personal assistant designed to make life easier for customers and provide access to exclusive experiences. The more the AI-powered service learns about a customer, the more tailored its suggestions become, from travel and restaurants to exclusive events and car services. And if that's not enough, Porsche Road Trip provides curated route suggestions, while Porsche Impact helps customers measure and offset their carbon emissions.

That the car company is complementing these customer service innovations by ensuring its core skill remains state of the art is to be expected. "Our corporate culture has been shaped by the field of engineering, and we are very good at continually optimizing things further," Lutz Meschke told porsche.com in January 2019. But the need for new solutions will become greater. At the heart is the customer: "You need to develop products that treat people as unique individuals. It's no longer the case that people need to adjust to technology; rather, technology needs to serve people – which means that we need to understand people better." ■



DEVELOPMENT BANK OF SINGAPORE:

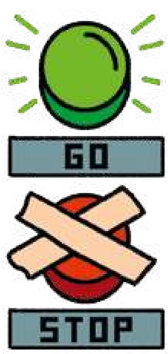
THE COST OF NEW BANKING

When was the last time you went to a branch of your bank? Physical interaction used to be the bedrock of banking, but now technology has made it increasingly rare. That's allowed new, digital-only banks to thrive thanks to lower costs and more flexible customer service innovations. Legacy banks are under pressure to respond – but that's not easy, says fintech expert Chris Skinner. "Their business model and infrastructure are designed for a different generation. Digital transformation is a mammoth task." No one knows that better than Piyush Gupta, CEO of the Development Bank of Singapore (DBS). When Gupta joined DBS in 2009, he was tasked with turning around a conservative, bureaucratic institution full of outdated technology.

He divided DBS's digital transformation into two phases. First, the bank revamped its back-end technology, building in-house expertise. Then he was ready to build the digital bank. "Our aim was to be the ‘D' in GANDALF – a term we coined to refer to Google, Amazon, Netflix, Apple, LinkedIn and Facebook. We wanted to operate more like a tech company." To do that, he had to change the mindset of 26,000 employees. Training programs were revamped, experimentation encouraged across every department and partnerships forged with startups and universities. "It was the mandate of the entire organization," Gupta says.

BUT IT WASN'T WITHOUT CHALLENGES. "Because we wanted to get the whole organization on board the transformation agenda," says Gupta, "this can create a strain on organizational resources. To prevent this, we do have to constantly weigh competing priorities, and balance trade-offs. In 2016, we

acquired the retail and wealth business of ANZ in Asia – the transaction has yielded good results, but because of the scale of the integration and management time consumed, this set us back about a year in our digital transformation. It is imperative that we reimagine banking but managing for the short term while investing for the long term is a delicate balance." But DBS is nevertheless succeeding, believes Chris Skinner. "The board has given top management breathing space to change the entire company culture. They've removed the stress



HE HAD TO CHANGE THE MINDSET OF 26,000 EMPLOYEES.

of shareholder return and investor relations for a specific period and allowed them to focus on what they need to succeed."

DBS has gone from 85% outsourced IT to 85% insourced; 80% of its systems are cloud-enabled, while testing is almost completely automated. It's launched property, car and electricity marketplaces as well as a digital-only bank in India. Since 2015, Gupta says the increased digitalization of the bank's consumer and SME businesses has lowered the cost-income ratio by half a percentage point each year. It's brought DBS a slew of awards, from World's Best Digital Bank to Global Bank of the Year and Best Bank in the World. But Gupta says DBS is still a long way from operating like the leading technology companies he believes will become increasingly involved in financial services. "The pace of change is relentless. We cannot afford to stand still even momentarily." ■

DIGITAL DARWINISM

STAND OUT FROM THE CROWD
To survive today's complexity, Tom Goodwin suggests "self-disruption."

TIME TO RETHINK THE CORE

Many voices offer guidance for our increasingly complex digital age. Yet one stands out with unique common sense and humanity. Tom Goodwin, author of *Digital Darwinism,* assesses the challenges and opportunities, the need for radical change and what it is that people really want.

BY ***Janet Anderson***
PHOTOS BY ***Kyle Dorosz***

What do today's teenagers in Montenegro think about the digital world? If you want a glimpse of the consumer of the future, there is no better place to start than by asking Generation Z. Tom Goodwin has been finding out how this age group views technology, and the answers might come as a surprise. "I was giving a talk at Spark.me in Porto Montenegro. It's a technology and business conference that's become an annual draw for the industry," he says. "Afterwards, chatting with a group of 17- and 18-year-olds, they said they liked my talk about the role devices play in people's lives today, but I should be aware that for them it's not like that. They said they see their mums come home and spend time on Facebook, and it appals them."

For the executive vice president and head of innovation of Zenith Media, this was gold dust. Goodwin spends his time traveling the world, speaking, writing, talking to people and, most importantly, observing and listening – gathering evidence from different regions across the planet on what people with different perspectives really want. "What I saw in these teenagers is a behavior that not many are talking about yet," he says. "They didn't have the latest smartphones; they had dumb phones. They are in some ways rebelling against the digital world."

32%

of the global population belongs to Generation Z (2001 onwards) as of 2019. The next largest group, millennials, (1980-2000) now make up 31.5%.

$143 billion

is one estimate of Generation Z's direct spending power in the US alone, according to a 2018 research study.

Goodwin is back in his apartment in New York, where he is touching down briefly between travels. "To call it a home would be an overstatement," he says. "It's where I keep my stuff." Goodwin grew up in a village in 1980s England, when free time was spent roaming the streets with friends and it was still possible to experience boredom. In many ways, he is well placed to understand and comment on the radical changes that the digital age is bringing to our lives. Young enough to be a digital native, yet old enough to remember what life was like before, he spans the digital divide. He is a rare voice among digital disruption commentators, combining inspiration and common sense in his analysis of where we are and where we should be going.

Digital Darwinism: Survival of the Fittest in the Age of Business Disruption is a synthesis of all these layers of experience. The book is intended as a wake-up call to businesses that have failed to grasp how fundamentally the digital revolution is changing our world. It looks at the past, present and future of the digital age, challenges our preconceptions and provides a guide to survival. Far from wishing to instill fear, Goodwin is excited by the opportunities that digital transformation has to offer and wants to help business leaders make sense of what is happening, embrace the new possibilities and successfully navigate what he calls "this moment of peak complexity." →

Real change is hard. And the problem, Goodwin argues, is that most businesses are still failing to understand and adapt to the new paradigms of our digital world. They are focusing too much on technological advances while making merely incremental changes to the way they do business. What is required, instead, is radical change – a rethinking of the core of the business to focus on making people's lives more comfortable, using digital technology as a means to this end. If the teenagers in Montenegro are anything to go by, companies that fail to grasp this risk being swept away into irrelevance. Evolution is not kind to losers.

THE PROVOCATIVE QUESTION at the heart of the book is one that Goodwin says all businesses need to ask themselves: "What would my business look like if it was created today?" The answer will probably be very annoying – it is likely to turn out that the assets and skills that have taken years to acquire may no longer be fit for purpose. In a world where the biggest taxi company owns no vehicles, the most popular media owner creates no content, the most valuable retailer has no inventory and the largest accommodation provider has no real estate, as Goodwin put it in 2015, "something interesting is happening."

The barriers to real change, however, are many. To understand how high these are, Goodwin describes modern businesses as skyscrapers – they are built on deep foundations that represent the best thinking at the time. Their steel structures are the company's culture and processes. The easiest thing to change in such a huge building is the superficial layer, the visible part that faces the outside world. But such change is "illusory," he says. If all you do is embrace a new communication platform or add a gimmick to your website, you are failing to address what really matters. The world is changing fast and it may be that your skyscraper is no longer in the right location – the purpose for which it was built is no longer relevant. How are you going to move it?

Addressing this level of change involves time, expense and risk: in a word, "self-disruption." But Goodwin believes businesses cannot afford to ignore these issues if they want to own their future. "People don't like change – especially if it is going to take a long time and is not judged by current calculations to be essential – and they hate risk," says Goodwin. "The problem is that, often, you can't see the cost of not doing it yet. There are lots of logical reasons not to change and that's what you have to fight against." Part of the reason for

Tom Goodwin

Tom Goodwin is executive vice president and head of innovation for Zenith Media, one of the world's largest media agencies.

He has twice been voted to LinkedIn's Top Voices in Marketing and Social Media and was named one of 30 best people in advertising to follow on Twitter by *Business Insider*.

Digital Darwinism is his first book. He has contributed to *The Guardian*, *TechCrunch*, *Forbes*, *Ad Age*, *Adweek*, *Marketing Week*, *Inc.*, *Digiday* and the World Economic Forum.

this lack of change is that we are still only in what Goodwin calls the "mid-digital age." As he explains it: "We are still using pre-digital thinking and pulling it through a digital lens. It's like electricity. In the early days people just thought about how to electrify existing things. It was a long time before new things were created around the potential of the technology."

So, it's not enough to put an iPad next to the cash desk and think you have created a modern retail environment. The whole concept of the cash desk has to change. "The focus should not be on technology, but on people and providing them better service," says Goodwin. "People don't care what the technology is that does this, they just want things to happen." As he says this, you can feel his excitement about what is possible but also his empathy for real people and their everyday problems. He knows their aspirations and their frustrations. He knows how annoying it is when you can't get Wi-Fi, are forced to wait at a service desk or confronted by a confusing interface. When he looks at a new gizmo, he tries to imagine how he would use it, and then how other people might use it: Would it be a help to a woman on her way to work in Shanghai, for example?

It's a very non-technological skill that comes into play, one that Goodwin exudes: empathy. He is a keen observer of human behavior and a clever marketeer, but also a person who you can have a genuine conversation with – he listens as much as he talks. Goodwin warns that many companies have not realized how important these skills are. "They are still praying at the church of code and algorithms," he says. "They need to understand that the skills that will matter in the future are softer skills: thoughtfulness, pondering and serendipity. We're a long way from that."

THIS MAY SOUND WAY OUT THERE, but Goodwin is passionate in his belief that what is required is radical change – based not just on copying what has been done before, but on a vision of the future. How do you see the future? "You have to look for the things that resonate with and drive people. The rest is insignificant – just a fad," he says. These kinds of insights cannot be delivered by studying data alone. "You have to feel and smell your way into understanding the future," he says. "The evidence for what drives us is out there. It's about looking at a high street or shopping mall, and observing how people behave, listening to what they say and what they don't say." If you do this, he says, you can "feel" how the economy works.

WATCH AND LISTEN *Goodwin believes that economic insight is more about observation than looking at data.*

"LOOK FOR THE THINGS THAT RESONATE WITH AND DRIVE PEOPLE. THE REST IS INSIGNIFICANT."

The future is not a leap in the dark, in this case, and the answers are around us if we look and listen carefully and with empathy. "A lot more information comes to us than we realize. Our gut instincts are actually based on billions of data points that we're processing without realizing it," he says. For now, Goodwin believes we are in an innovation lull. "We've had mobile apps for well over nine years and yet some big companies' apps are still terrible. There are banks that still presume that the customer experience is about the quality of the marble in the lobby and the solidity of the safe. In fact, it's about how easy it is to pay people and whether the app saves your password," he says. "Airlines think their KPIs are about on-time performance, but they should be about how people feel about their on-time performance."

Many of the things that will go into bringing about transformative change are still a ways off from being reality, things such as self-driving cars and artificial intelligence. But for Goodwin, the true test of digital transformation will be when its benefits are felt across societies all around the world. "It needs to solve more real problems for women in Rwanda and families in Rio de Janeiro; to create a sub-Saharan bus network, or help people in Africa stop corruption," he says. "We also need to figure out a way to pay for content properly, because many of the problems that we have in the world today have come about from the need to monetize content with our attention and that has led to the rise of fake news and a more extreme political environment."

We still don't have lightbulbs that come on automatically or fridges that can cook meals. But Goodwin believes passionately that digital technology will bring about profound changes in the way we live our lives – and when it does, it will change our entire conversation on the topic. "When that happens, we won't be talking about digitalization anymore because digital technology will simply be assumed," he says. "We'll know we've got there when the idea of employing a chief digital officer sounds as ridiculous as employing a chief electricity officer today." ■

THREE BUSINESS ECOSYSTEMS

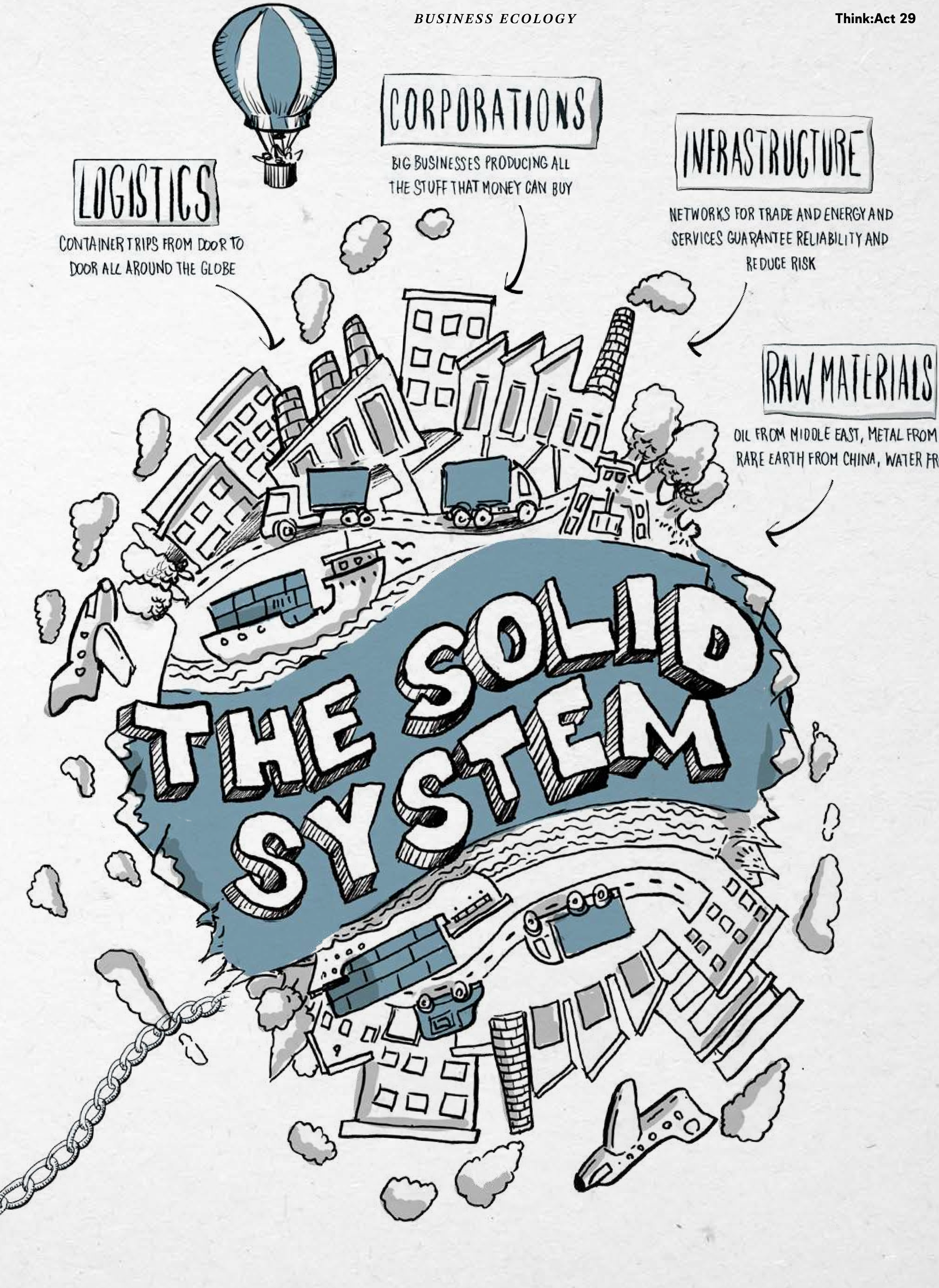
In the natural world, the three big ecosystems depend on land, water and air. We can also apply those environments to present and future business ecosystems: the solid, fluid and airy.

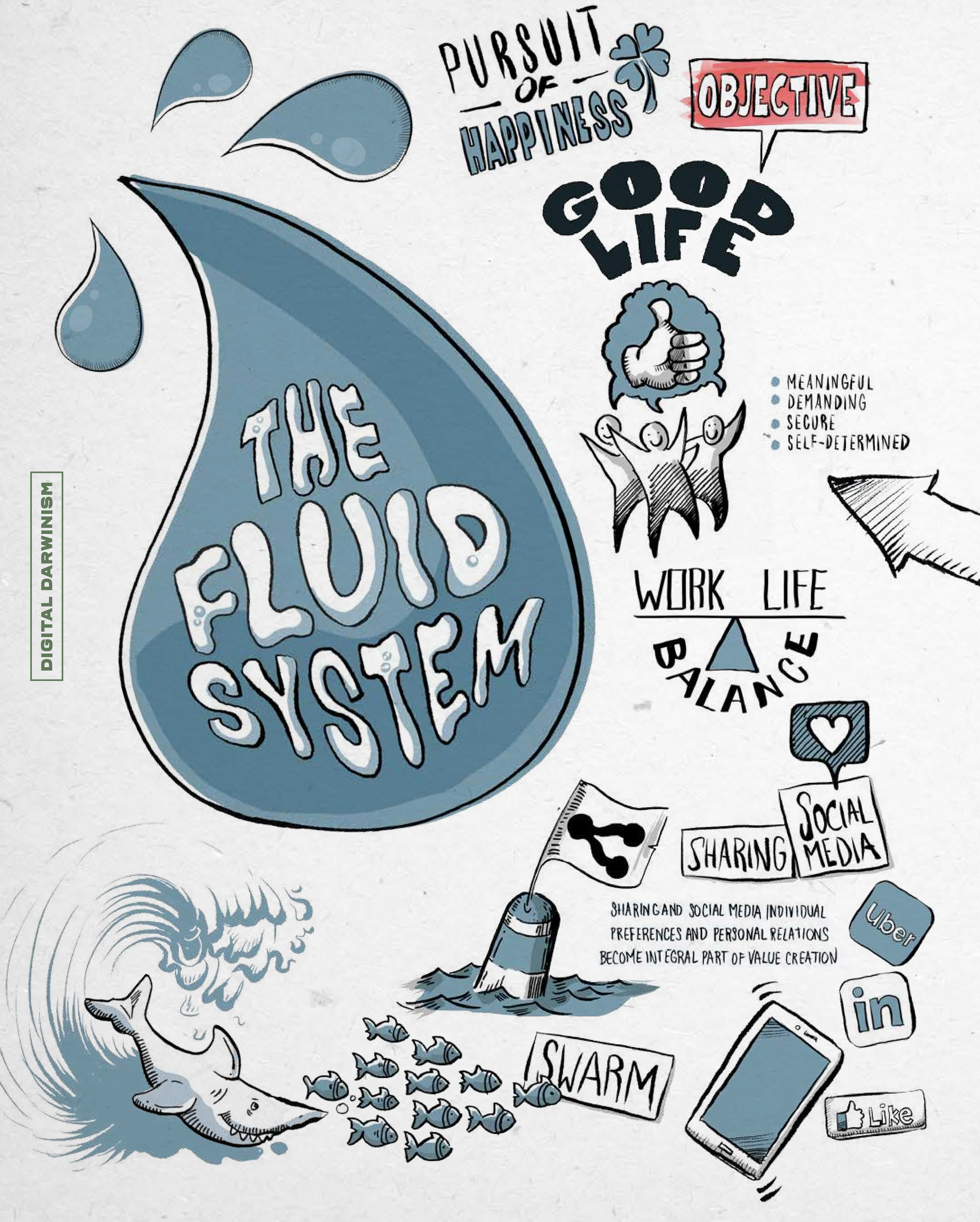
BY ***Detlef Gürtler***
ILLUSTRATIONS BY ***Sasan Saidi***

THE SOLID SYSTEM

In this ecosystem, business is based on companies and value chains. Products are manufactured and distributed by collaborating entities in complex processes. Every part of the production process can be planned and calculated, and at every point along the value chain the buyer, maker or seller are all clearly defined. And for the species thriving in this ecosystem there's one common objective: profit.

That's as solid as you can get, and this is the ecosystem that has dominated from the beginning of the Industrial Revolution and throughout the last two centuries. It is still the most important ecosystem globally, but it is getting weaker and its dominance is being challenged.


CORPORATIONS
BIG BUSINESSES PRODUCING ALL THE STUFF THAT MONEY CAN BUY
LOGISTICS
CONTAINER TRIPS FROM DOOR TO DOOR ALL AROUND THE GLOBE
INFRASTRUCTURE
NETWORKS FOR TRADE AND ENERGY AND SERVICES GUARANTEE RELIABILITY AND REDUCE RISK
RAW MATERIALS
OIL FROM MIDDLE EAST, METAL FROM AFRICA, RARE EARTH FROM CHINA, WATER FROM TAP
THE SOLID SYSTEM


PURSUIT OF HAPPINESS
OBJECTIVE
GOOD LIFE
THE FLUID SYSTEM
MEANINGFUL
DEMANDING
SECURE
SELF-DETERMINED
WORK LIFE BALANCE
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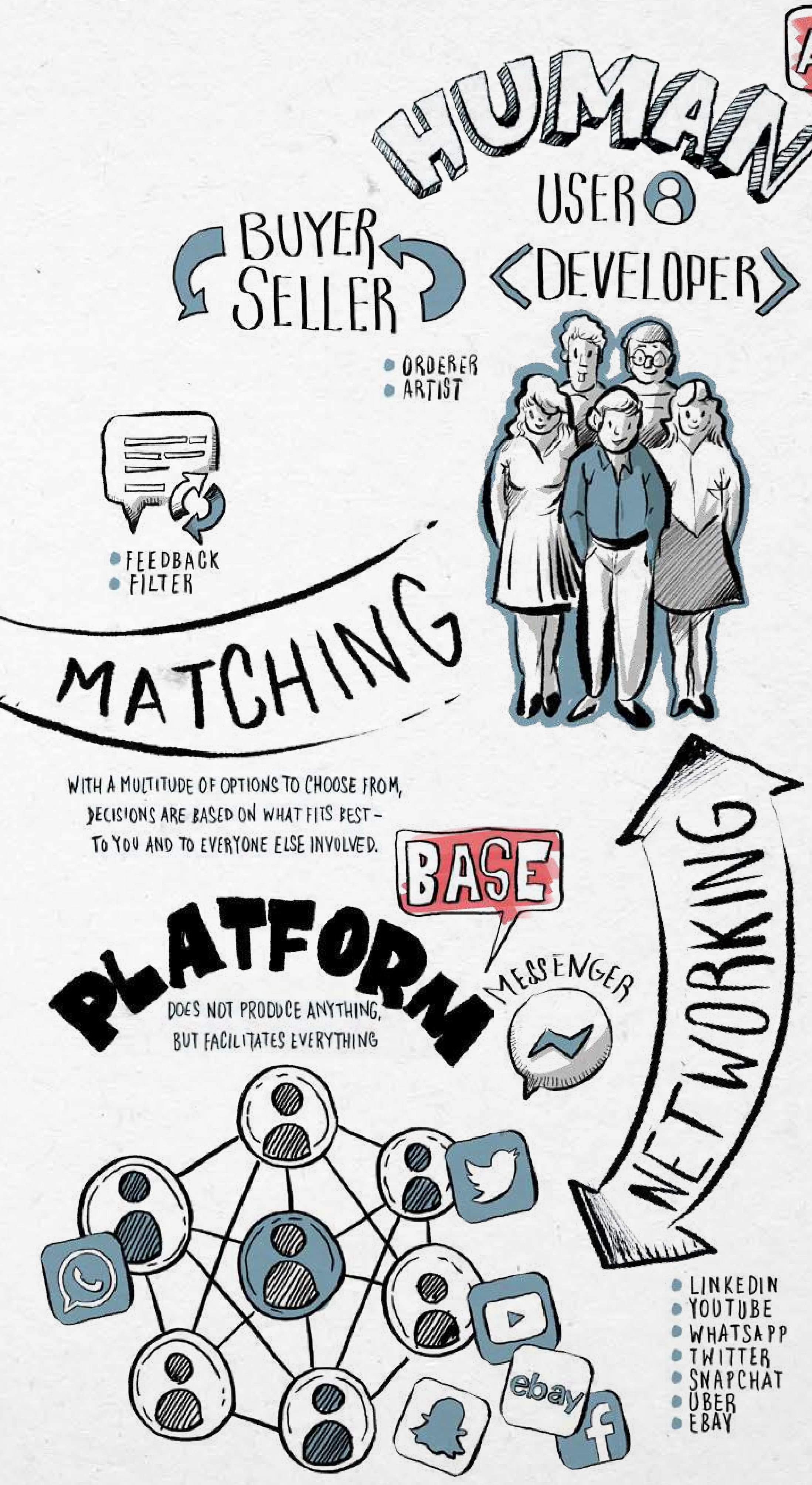
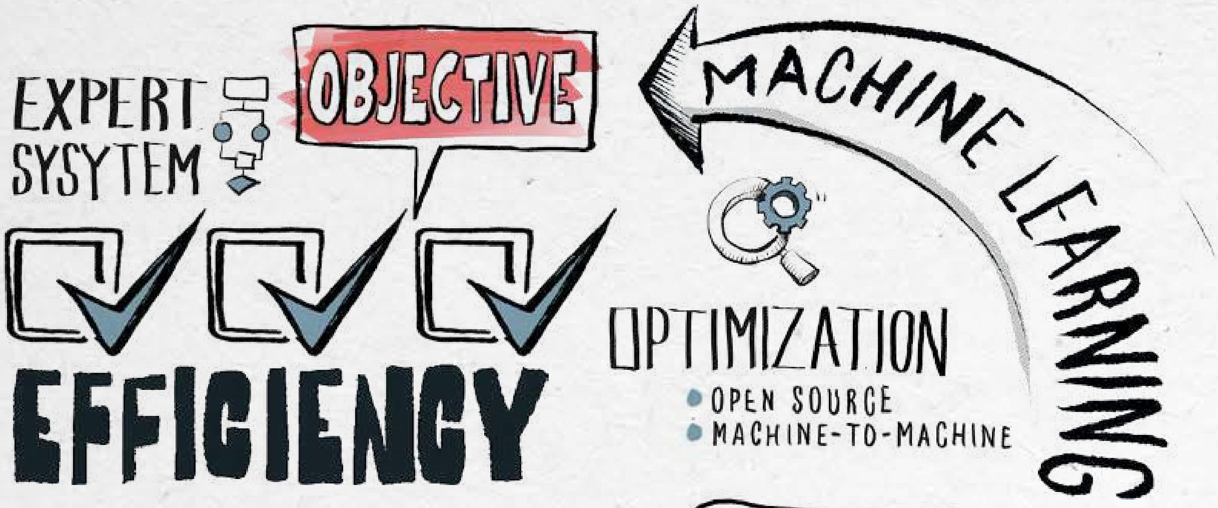


THE FLUID SYSTEM

In the last two decades, a new kind of business ecosystem has emerged. It is based on platforms and people. There are swarms of players that are doing something on platforms such as eBay, Airbnb, YouTube or Uber, and this "something" can be buying, selling, making, communicating or just watching, and all of it is happening at the same time.

So there's a constant flow of people, products and institutions. Processes are neither planned nor predictable, they are not shaped by value chains, but by connections – it's more like a permanent pairing up than some kind of industrial production.

As a lot of the participants in fluid ecosystems are not companies, but individuals, their main objective is not profit, but a good life. So these objectives as well become more liquid and incalculable than in the solid system: Each person has a very specific idea of what is needed to live a good life and what this means for the actions on each platform – you can't do the math with the pursuit of happiness.

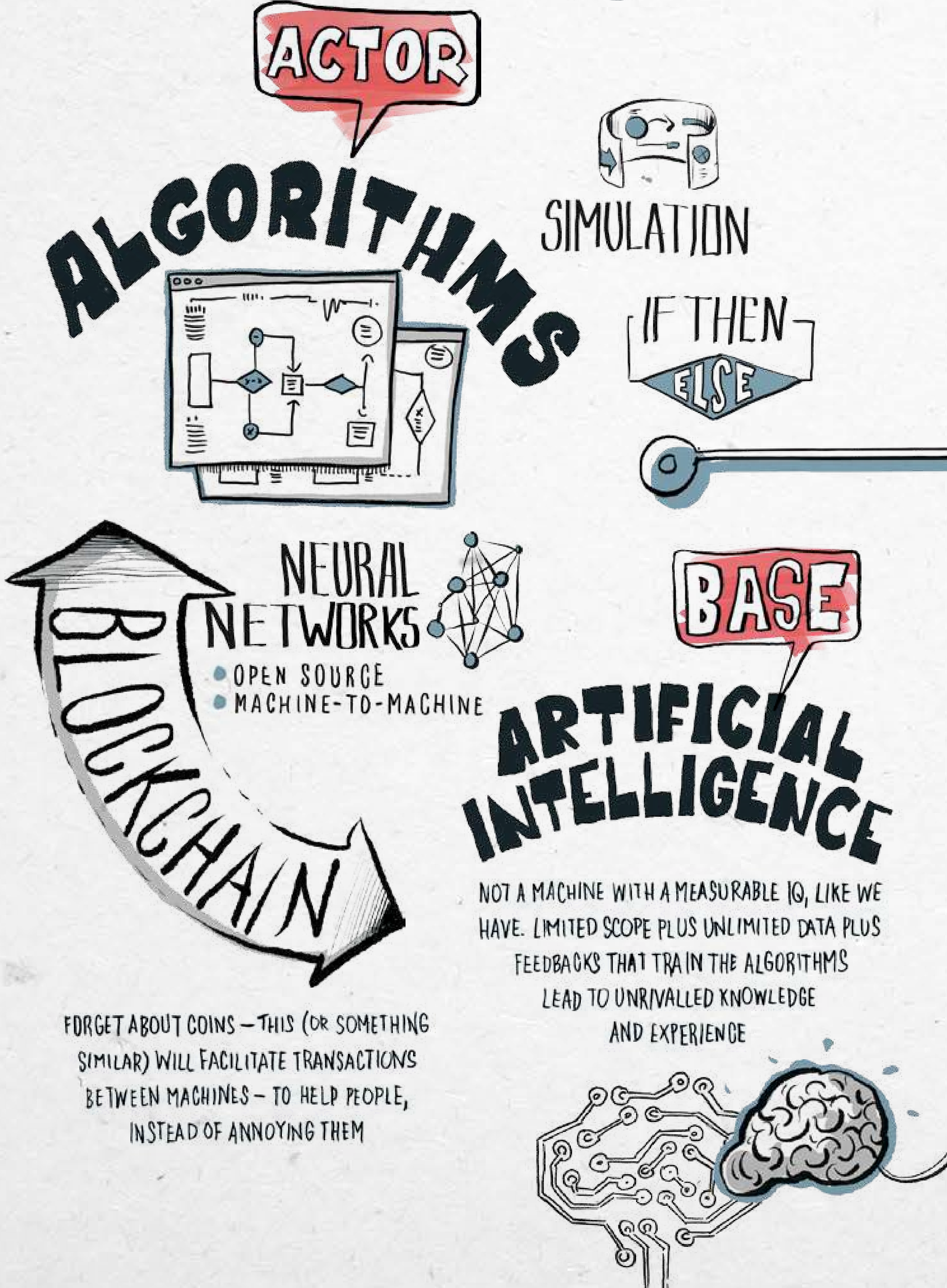


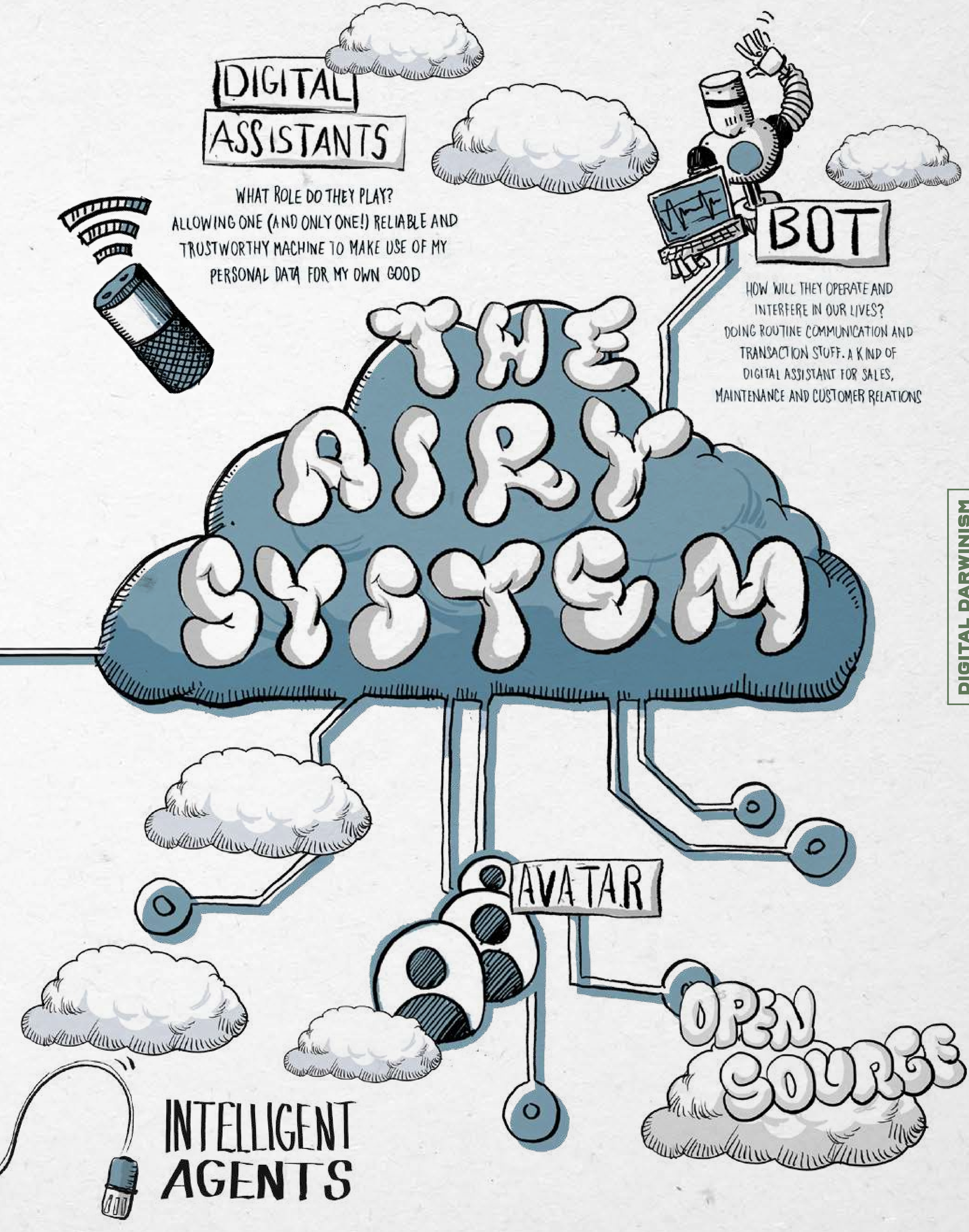
THE AIRY SYSTEM

A third business ecosystem is just about to appear, even less calculable, less visible – almost as intangible as a cloud. It will be based on algorithms and artificial intelligence. Machines are communicating and transacting with other machines, in a lot of cases even without interference from humans – yet producing goods and services for them.

They organize themselves, probably via blockchain, and in a lot of cases they will be able to do that without belonging to a company. A lot of the ways in which transactions take place in the airy ecosystem will look and feel like magic: The system just works, the things just fall into place.

What will be the objectives of the algorithms that dominate this ecosystem? They may be programmed to deliver profit to companies or happiness to human beings. But the language algorithms understand best is neither profit nor happiness, but efficiency: the default objective for the airy ecosystem.




DIGITAL ASSISTANTS
WHAT ROLE DO THEY PLAY?
ALLOWING ONE (AND ONLY ONE!) RELIABLE AND TRUSTWORTHY MACHINE TO MAKE USE OF MY PERSONAL DATA FOR MY OWN GOOD
BOT
HOW WILL THEY OPERATE AND INTERFERE IN OUR LIVES?
DOING ROUTINE COMMUNICATION AND TRANSACTION STUFF. A KIND OF DIGITAL ASSISTANT FOR SALES, MAINTENANCE AND CUSTOMER RELATIONS
THE AIRY SYSTEM
AVATAR
OPEN SOURCE
INTELLIGENT AGENTS

DIGITAL DARWINISM

INNOVATION IS EVOLUTION

According to one of the first people to use the term, digital Darwinism is eradicating brands that do not innovate or adapt to the new and pervasive wave of connected consumerism.

BY ***Brian Solis***

During the rise of smartphones, social media, pervasive internet and real-time apps and services, digital Darwinism has become the new reality. As disruptive technology evolves and accelerates, so do its effects on markets and society. Some adapt, while others do not. All the while however, behaviors, norms and values, tastes and trends, expectations and preferences continue to progress. Our place in the future is decided by how we choose to respond today … right now. Business as usual isn't going to change your course in a positive direction.

Take a moment to remember some of your favorite brands that are no longer with us. So sad, I know – and the names are all too familiar. But their time has come and gone. It's hard to shed a tear when, in many ways, the very reason they're gone is because they chose not to stay with us. They were victims of irrelevance; their investments weren't in alignment with market and societal evolution, nor where they were headed and why. They assumed that if they continued to focus on profits, scale and shareholder/stakeholder value, that they would be around forever. But they, like so many, missed the humanity of it all.

Organizations all around the world are investing in digital transformation to combat digital Darwinism. What started as a migration to more agile technologies and infrastructures is now a global movement aimed at total modernization. One challenge businesses face – beyond the array of technology investments they need to make to compete – is understanding why. Too often, digital transformation overly emphasizes the digital aspect of change. If it were that easy, every organization would invest in leading technologies. Why companies are implementing certain technologies is what's most interesting and promising, because technology and humanity are entwined.

THE CONCEPT OF DIGITAL DARWINISM isn't new – it's the latest chapter in a saga of economic conditions that includes "creative destruction." Coined in the 1940s by Joseph Schumpeter, the term describes the "process of industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one." The theory of creative destruction also implies that social contracts must be destroyed to free up resources and energy for innovation.

They key word here is "social contract." According to the *Oxford English Dictionary*, social contracts are an "implicit agreement among the members of a society to cooperate for social benefits." And that's what digital Darwinism is all about – how technology is affecting people and in turn, how they are affecting one another, markets and the insights and possibilities they reveal along the way.

It isn't new to say businesses need to innovate or die. The difference though is in how leaders and teams iteratively and ultimately respond. Most absolutely say: "Yes! We need to innovate!" But the difference between success, failure and mediocrity is tied to leadership, empowerment and incentivization. Essentially, business as usual, with a dash of digital transformation, isn't going to change things much. Closing the gap between technology and humanity to understand the human side of change is vital. Understanding digital transformation in this framework helps to realize that it can create new value and experiences for customers, employees and stakeholders.

ONE REALIZABLE SOLUTION that builds a bridge between technology and humanity as a source of creativity and innovation and enables surviving – and thriving in – digital Darwinism is "experience innovation." Focusing on understanding customer behaviors,

"THE GREATEST CHALLENGE TO EXCELLING IN THESE TIMES IS OFTEN OURSELVES."

expectations and aspirations, experience innovators fast-track business growth with digital-first customer satisfaction and loyalty. The same disruptive technologies driving digital Darwinism have also had a positive impact on how brands can compete. This is modern customer centricity that leads to unforeseen opportunities for innovation, not just adapting with the times.

A modern digital customer journey means brands have access to a massive amount of real-time customer data – and the innovative ones are investing heavily in collecting, interpreting and understanding it in order to invest in experience innovation and become highly relevant for always-on customers. Empowered with real-time customer insights, they embrace disruptive technologies, from best-in-class mobile platforms to AI and machine learning, to completely innovate the dated and fragmented customer journeys of yesterday, make brands more available, deliver more personalized customer experiences and drive customer loyalty and business growth.

INNOVATIVE BRANDS are transforming conventional organizational models around disruptive customer data and experience. In the process they are evolving the role of marketing within the organization to help compete in an era of digital Darwinism. This sets the stage for next-level, experience-led innovation where the value proposition, the brand and the customer's experience are one by design and by execution. Experience innovators are driving growth through extraordinary, digital-first customer experiences and embracing the disruptive technologies. They're organizing around real-time data and focusing on customer experience as a catalyst for driving business performance and true customer centricity.

More specifically, experience innovators collect and interpret real-time data to better understand their customers – and they also deploy new technologies like AI and machine learning to quickly analyze and respond to it instantly and automatically. They focus on discoverability. Getting to customers first matters more than ever. Engage with customers in more personalized ways. By delivering relevance and usefulness to customers in important "moments of truth," brands become a valuable companion. What's more, they bring previously disparate and siloed functions together in an effort to deliver a cohesive and seamless customer journey. They become "tech companies" in their own way, embracing innovation to deliver faster, intuitive, and best-in-class customer experiences.

Ignorance is bliss – until it's not. And the greatest challenge to excelling in these times is often ourselves. We need to see things differently to react differently. It's more than a matter of "adapt or die!" We should do more than just survive. We should innovate because we're inspired by a greater cause. When we place people at the center of our work, we give our ideas and strategies purpose, and that places us on a path of relevance over obsolescence. So here's the mantra: innovate or die! ■

Brian Solis

Brian Solis is a digital analyst and futurist at Altimeter, a Prophet company. He helped popularize the term "Digital Darwinism," is a keynote speaker and the author of eight bestselling books, including *Lifescale* and *Engage.*

PHOTO: STUART TRACTE

YOUTH AND BEAUTY Lucas Cranach the Elder's 1546 painting **The Fountain of Youth** *still enthralls its viewers. The appeal of staying forever young is, it seems, endlessly alluring.*

DIGITAL DARWINISM

THE ART OF LIVING FOREVER

One hundred and sixty years after Darwin's famous tome, the question is not so much how nature shapes us, but whether we can influence our own evolution. That means increasing our years on Earth – and the quality of those years, as well. From the beginning of civilization, mankind has dreamt about immortality, and now with technology some are looking at real ways to extend our life span.

PHOTOS BY ***Alessandro Gandolfi***

FOOD FOR LIFE ***Ogimi village on Japan's Okinawa is renowned for its high population of centenarians. Some say it's their diet. But could their longevity be down to the local gene pool?***

FACING THE PAST At the Human+ exhibition at the Science Gallery Dublin, a kinetic sculpture by Donato Piccolo attempted to bring Leonardo da Vinci's Guerriero *back to life.*

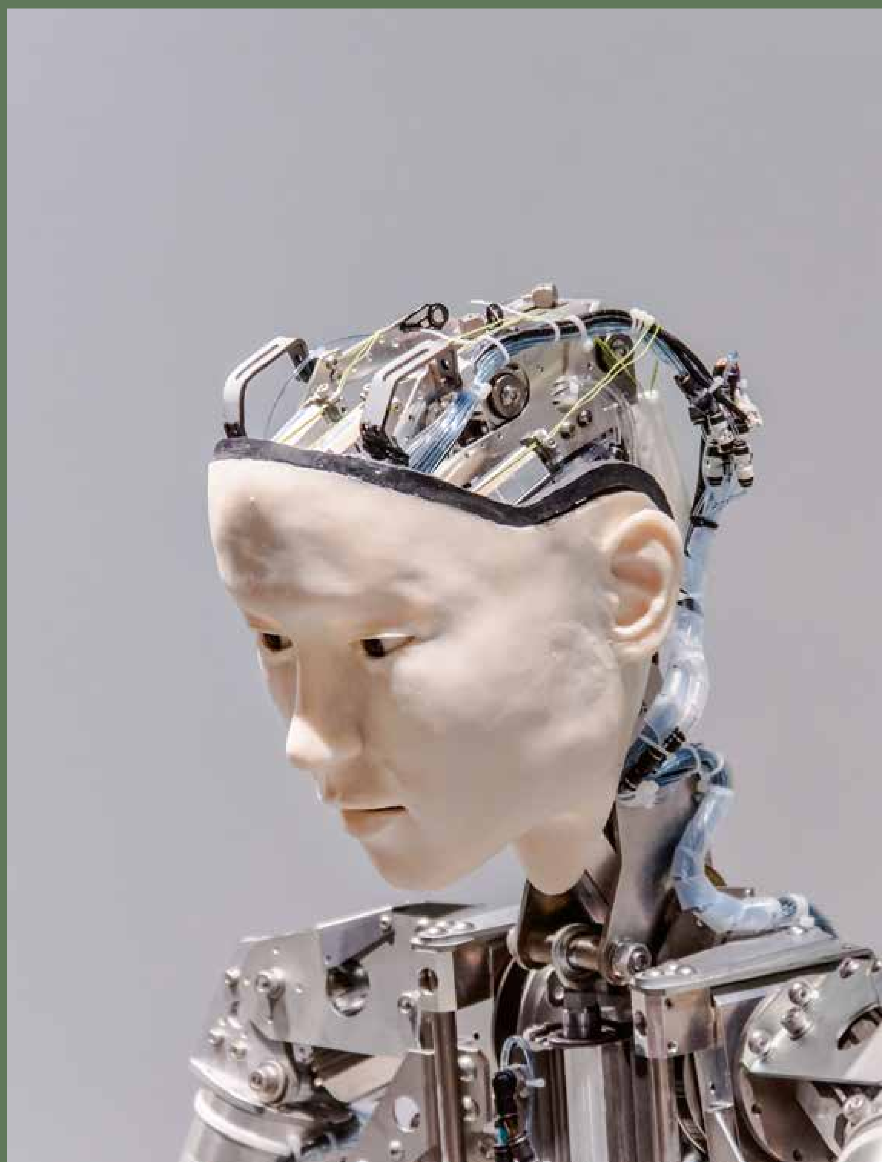
PUTTING AGING ON ICE Cryotherapy, which lowers skin temperature to between 5 and 12 degrees Celsius, claims to activate the body's regenerative mechanisms. Benefits are said to range from healing arthritis to slowing the signs of aging.

AT A CELLULAR LEVEL Scientists at California's Rubedo Life Sciences are working with mice to find if it is possible to eliminate senescent, or aging, cells from a living being. Their targets are to stop the aging of cancer cells and facilitate aging without the associated frailty.

jake_yukich@berkeley.edu
Open Terminal app (on Dock)
cd Desktop/vishum_mini
Type java -jar vishum.jar
Press enter.
Wait a few seconds.
ELECTRONICS
Serpentine format
Inlets → Channels → Falcon tube
Theoretical
BRAIN PLASTICITY
PEPROTECH
INTRODUCTION
METHOD

***HEALING POWER** Age-related diseases are at the center of most research into longevity. Steven A. Garan of UC Berkeley, who studies neuroendocrine aging, has spoken about the potential for biomedical science to make an impact within decades.*

DIGITAL DARWINISM



***BEYOND HUMAN** Some dream of "downloading" our minds into humanoids like Alter, a robot on display at Miraikan, The National Museum of Emerging Science and Innovation in Tokyo. Could man-made bodies be the key to immortality?*

MUSIC FOR THE GENERATIONS Emile Berliner shares his invention, the gramophone, with his granddaughter in 1927.

PLAYING TO A NEW TUNE

DIGITAL DARWINISM

Deutsche Grammophon, the leading brand for recorded classical music, is trying to adapt to new listening habits, new formats and a new age of consumers. How will it cope with the changes that lie ahead?

BY ***Shila Meyer-Behjat***

With 74 minutes of recording capacity, the modern CD was reputedly designed to be able to rival vinyl records and deliver Beethoven's *Ninth Symphony* without having to change discs. When renowned conductor Herbert von Karajan's baton came down well within that time limit in Deutsche Grammophon's 1982 recording, it more than met the challenge. The digital impact on music had just begun.

For Deutsche Grammophon (DG), new technology has always been a prime motivator. In fact, Emile Berliner, who started DG in 1898, invented the gramophone and the shellac record, and then satisfied the demands of his new invention by moving into the recording business. The pleasure of listening to music might not have changed, but the business of creating and delivering it has. Today, digital – in all its forms – has transformed the music world.

DG might be the world's oldest existing record label and an important reference for classical music, but the new digital landscape means it is now facing huge threats. Can DG continue as a premium brand while transforming itself to fit into the digital world?

ITS STRATEGY IS VARIED in addressing its threats. Firstly, it's trying to hold on to its base – loyal and older customers who still buy CDs. CD sales are declining, but old CD recordings could also provide a bridge to new digital streaming. Secondly, as its core audience grows older, who will replace it? What kind of classical music does this new audience want and how will they consume it? Thirdly, is there another way to attract both old and new into the classical world through technology? The answer to that could lie in digital education services.

These strategic questions arise as a response to the diverse problems facing DG: A slump in record sales paired with the oversupply in artists and recordings, a growing fatigue with new interpretations of the masterpieces, self-starters setting up recording studios in their basements and full concert recordings available for free online. Add the →

PHOTOS: GETTY IMAGES+ FREE3D/EGOSIMX, ADOBE STOCK

MUSIC FORMATS IN THE MODERN ERA

1963
Philips introduces the compact cassette in Europe and in the US the following year.

1979
Sony and Philips partner to create a standard format for the new compact disc.

1964
The Stereo 8, or eight-track cartridge, is introduced to the market.

DIGITAL DARWINISM

disruption in formats – CD, MP3s, streaming and now a nostalgic but undeniable revival of the vinyl record album – and packaging music is a completely different business now.

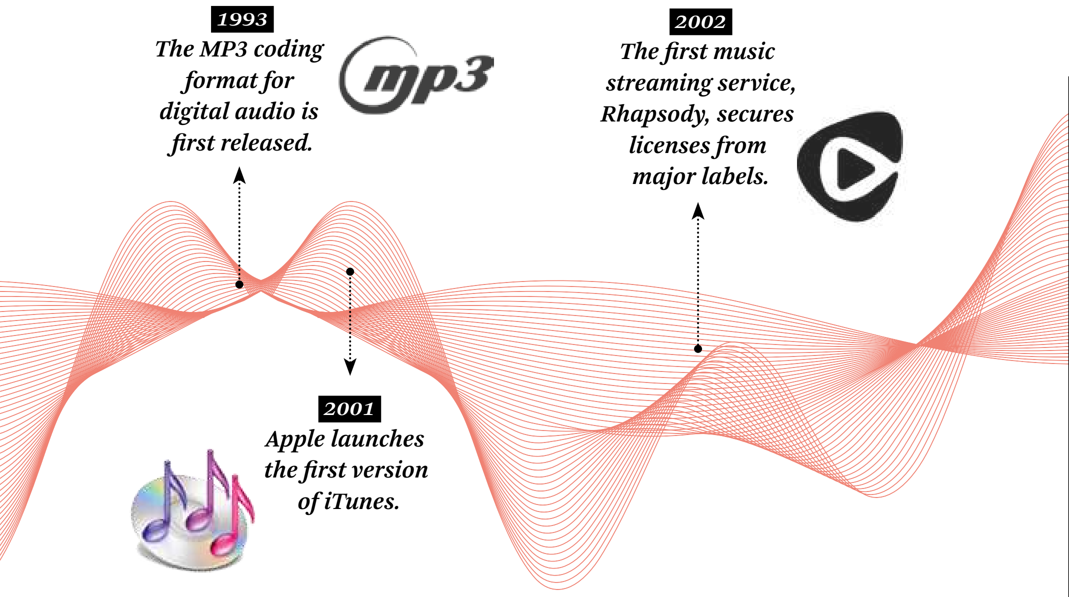
YOU CAN'T FAULT DG for setting out a broad response. "It would be wrong to assume that anything in the value chain – except the music-making itself, which will always be organic – remains exempt from the forces of digitalization," said DG CEO Clemens Trautmann in a recent interview. "And it is my philosophy to rather actively shape this development than be a late follower." That statement reflects a pattern over the past few years of DG being quick to recognize the need to face the challenges head-on.

Attempts to keep ahead of the curve have been accompanied by a few false turns. Trautmann's predecessor Mark Wilkinson merged the company's digital and non-digital departments, diversifying their portfolio with crossover artists and new genre collaborations. It was an attempt to build a new audience, but it brought criticism. "Many loyal fans ... are starting to see courageous crossover projects as signs of lacking respect towards the yellow brand," claims Hartmut Welscher of the digital classical music magazine *VAN*, referring to DG's iconic yellow label. "It is an open secret that the most successful recordings are still those of the Karajan generation. The label is still feeding off of them," he adds.

THERE IS A DATA ADVANTAGE WITH STREAMING.

Whether embracing digital change will pay off financially is yet to be proven. Right now, DG's management is hesitant to talk openly about digital innovation and its success, but its progress shows a degree of experimentation, in what seems like a dual approach of keeping focused on the present – with CD sales still being important – while also embracing new modes of listening and distribution to make it future ready.

A NEW STYLE
Max Richter's 2012 album Recomposed: The Four Seasons *on Deutsche Grammophon, topped the classical charts in 22 countries.*



For example, DG was the first classical record label with its own streaming app, DG Discovery, which it set up relatively early in 2014. That was followed with exclusive content for Apple Music in 2018. "Deutsche Grammophon really showed lots of creativity in the past few years to play to the tune of the new age of listening to music," says classical expert Teresa Pieschacón Raphael.

THERE IS A DATA ADVANTAGE with streaming: It can provide a greater insight into listening habits than CDs can. Companies can now see how frequently a song is listened to and by whom. Trautmann has not cited the data advantages, but in an interview with BR Klassik he highlighted the commercial positives of the streaming market: "If you compare selling new releases via CDs or streaming, the sale of the ... CD is far more lucrative in the first year. But [with streaming] the earnings cumulate with every stream over the years and decades."

This all points to an underlying strategy to prioritize streaming without losing its current audience, while potentially developing a new one. Research shows that more and more younger listeners are seeking out classical music – albeit a kind that might horrify older aficionados: 2018's most popular search term was "relaxing piano music."

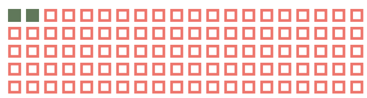
Leaving aside the benefits of focusing on a new audience, Pieschacón Raphael sees an alternative digital move from DG that could appeal both to its base and its new audience: "DG has understood that their audience is conservative and appreciates orientation but is not in denial of technological developments and advantages of new services. So they set their sight on educational services that only through modern means have become possible." One prominent example is the label's interactive masterclasses: Famous artists teach students all over the world how to improve their playing via livestream.

It is also stimulating new purchases by feeding off anniversaries: There was the CD box set release of Bach333 and a homage to Leonard Bernstein for his 100th birthday. It also made use of its own, if rather arbitrary, 120th birthday last year. Founded in Hannover, Germany, DG celebrated at the site of Beijing's Imperial Ancestral Temple. "We use this anniversary to demonstrate our strong ties with the Asian audience, where our brand is valued and regarded as the single reference for classical music and where the appreciation for classical music in general is much higher," Trautmann said. The sound of a new beginning, perhaps, or simply staying in tune with the times. ■

REPOSITIONING CLASSICAL MUSIC FOR DIGITAL AGE AUDIENCES

31%

According to a June 2019 report, 31% of 25- to 34-year-olds listed classical as a genre of music that they enjoy listening to.



Although classical only generated 2% of 2018 music sales revenue according to the International Federation of the Phonographic Industry, this figure represents an opportunity for wider reach.

100,000,000

On Spotify, which in 2019 reached 100 million paid subscribers worldwide, a Bach cello suite performed by Yo-Yo Ma has been streamed 90 million times as of July 2019.

One estimate puts classical at 1% of all music streams, but inclusion of a classical track in a curated playlist on streaming platforms, sometimes placed alongside other genres, can boost exposure and interest.

DIGITAL DARWINISM

ASSETS TO ASSETS, DUST TO DUST

TREASURE BOXES
The records held by Sherwood Partners after a wind-down may help identify the indicators of failure.

He's wound down countless startups and been dubbed Dr. Death along the way, but for Martin Pichinson and his observers, the failed venture-backed companies under his care offer a valuable opportunity: a chance to pick up the pieces and keep on innovating.

BY ***Steffan Heuer***
PHOTOGRAPHY BY ***Patrick Strattner***

When it comes to technology startups in distress, death takes them all – from the highfliers to those that were just stumbling along. Look at Jawbone, designer of sleek portable speakers and wearable fitness trackers. It raised more than $1 billion over its life and had a valuation of more than $3 billion but, alas, ceased operations in the summer of 2017. Or Pebble Technology Corp., a trailblazer in the smartwatch space that collected a record $30.6 million through two crowdfunding campaigns only to be shut down and have its remains acquired by competitor Fitbit.

Then there's Beepi, a Silicon Valley-based online marketplace for used cars that burned through $150 million in venture capital before winding down in early 2017. Or TellTale Games, which turned TV hits such as *Game of Thrones* into popular online games. It ran through a total of $54 million before using up its last life and shuttering operations in 2018. And finally, how about Theranos, a much-hyped diagnostics company that amassed a war chest of $1.4 billion until its false claims for a novel blood test blew up, leading to disgrace, lawsuits and one more tombstone in Silicon Valley's graveyard of failed dreams.

WHAT THESE FAILURES SHARE with hundreds of other startups that met a more discrete demise is their final caretaker. Martin Pichinson, a septuagenarian former music manager, runs probably the biggest operation for winding down failed companies in the Valley. For close to three decades, his firm Sherwood Partners has refined the process of taking over startups that are near death and selling off their physical and intangible assets to satisfy their creditors. With all the breathless reporting about mega-exits and serial entrepreneurs who strike it rich, the expeditious and efficient →

"WE ARE LIKE THE WASTE MANAGEMENT OF THE INDUSTRY."

Martin Pichinson,
Co-president of Sherwood Partners

disposal of Silicon Valley's dead rarely gets any attention beyond homilies on failure in general. "It's a golden rule of the tech world," Pichinson explains at his offices in Los Angeles. "If you have 2,000 to 2,500 new companies hitting the market every year, there is no way they can all be successful. And the ones who don't make it are not failures, they just didn't make it to the finish line. We are like the waste management of the industry," he says, part pained, part proud. "We are brought in to clean up, to salvage what's valuable so all parties can move on and focus on new things."

Pichinson bristles at the moniker that some in the industry have given him since the lethal dot-com crash of 2001 made him a household name: Dr. Death. He prefers to compare his services to a physician who brings bad news or a warden of an orphanage who tries to find new parents for ideas. In that sense, he defines one man's failure as another man's opportunity to get assets on the cheap and carry on innovating. "Every new segment in tech has companies that will not make it. Take the rush in spaceship companies. I am sure we will close down one or two of those."

DIGITAL DARWINISM

A HANDFUL OF CALLS COME IN every week seeking help from Sherwood to wind down companies after they've failed to raise new funds. Pichinson says he signs two to three deals each week that are either purely fee-based or take a cut from any intellectual property (IP) sold to the highest bidder. The latter category has been growing steadily as the hardware and furniture a dead startup leaves behind aren't worth much anymore. Pichinson focuses on slicing and dicing leftover patents and other intangibles through a second firm called agencyIP. That can be a bundle of patents or a single software module that a larger company wants to integrate into its existing service stack. "Today, a server is worth as much as a boat anchor. The real value is in IP," Pichinson explains.

Experts call what Sherwood specializes in ABC, a handy little acronym that stands for "assignment for the benefit of creditors." It's different from a traditional bankruptcy process as it can prevent such a filing and therefore be quicker and also force fewer company secrets into the open. Therefore a whole industry has evolved to handle last-minute loans and liquidations when all is lost. Companies such as Sherwood, Gerbsman Partners or Western Technology Investment are a natural flipside to the glorious image of Silicon Valley.

TAPPING A NEW MARKET Pichinson moved Sherwood Partners to its current Los Angeles offices three years ago.

Between San Francisco and San Jose, at any given moment an estimated 6,000 startups are busy trying to come up with the next big thing. For

DECADES OF EXPERIENCE *Pichinson's reputation grew during the dotcom crash of 2001.*

that, they raised almost $44 billion last year alone and another $9.2 billion in the first quarter of 2019, according to CB Insights. When those funds are used up and investors are unwilling to front more money, Sherwood recoups what can be recouped. "We are an extension of the venture capital and venture debt world when they have decided they won't get the returns they need," Pichinson says.

THAT KIND OF UNSEEMLY EXIT is more common than the industry lets on. Harvard Business School professor Shikhar Ghosh has been crunching the numbers of the tech ecosystem for years. Analyzing about 13,000 venture-backed companies going back two decades, he estimates that at least two-thirds of them are failures, not returning the initial capital put into them."VCs like to bury their dead very quietly. While something might be great for a small market with a nice $5 million business, venture capitalists don't want that. They want $5 billion," he explains. The herd of startups that VC firms bet on in their portfolios therefore needs to be culled fast to identify the few with the potential for a big exit. "Most companies should not exist," Ghosh says, defending the approach. If you do it quickly, it's not a bad outcome for everybody."

Sherwood has developed a well-oiled system over the years. After the call comes in, it takes about a week to compile a rough overview of assets and liabilities, followed by a timeline and budget for liquidation. Hardware auctions are outsourced, while the intangible assets are shopped around to a growing database of about 16,000 people in tech. Pichinson, in the meantime, sets up a temporary shell company to safeguard the remains, even taking over the domain name of a dead dotcom. "It pays to keep the lights on, pay the engineers and cloud services, keep filings up to date in order to have something marketable," he explains. Some IP might not find a new home, sitting on his shelves for a year. It will eventually be buried like the many other documents from the defunct company.

It may sound like most if not all items of value are recycled and repurposed under this system, but tell that to the entrepreneurs and founders in the trenches, and many beg to differ. They say the continuous die-offs create a lot of personal hurt and turmoil. Like this unnamed Valley veteran who started his own companies and has been brought in a few times to help find a buyer for a stalled startup or to prepare it for liquidation. He wants to stay in business and not rankle partners, so has withheld his name for this article. "If you are one of 20 companies in a portfolio that gets funding and this is your first time in the game, you don't realize that you're marked for death until it's too late – when investors avoid discussions about the next round or stop returning your calls."

He admits that selling a struggling company to a competitor that wants the team, or wants to bury their product before it becomes a threat, can save it some assets and yield money to repay investors or creditors. But it leaves staff and founders empty-handed because the liquidation preferences are stacked against them. "This system creates tons and tons of waste if you measure the vitality of a business by whether it can get to an aggressive valuation in a timeframe that may not align with the realities of the market," he says.

WHAT HAPPENS TO THE REMAINS of a business once the fancy desks and other hardware have been dumped and once other companies have acquired IP from Sherwood? They become a largely overlooked archive of Silicon Valley failures – picture a warehouse filled with document boxes up to the ceiling. Since Pichinson and other liquidators are legally required to keep pertinent records for seven years, his company is sitting on a mountain of papers and electronic records that economists and historians consider quite valuable. "We pay lip service to failures, but we haven't really done much learning from failure at the organizational level," says David Kirsch, a business professor at the University of Maryland. That's why he's →

More than
66 %
of venture-backed companies will fail, defined by Harvard Business School professor Shikhar Ghosh as not returning the initial capital put into them.

95 %
of new products will fail, according to Harvard Business School's Clayton Christensen.

$44 billion
was raised by the some 6,000 startups between San Francisco and San Jose in 2018 alone.

SILICON VALLEY SUPERHERO
Pichinson has assisted countless failed startups through the wind down process.

collaborated with Sherwood for the past eight years to save as many records as possible. Once a year, he would select a small fraction of Sherwood's haul and truck the pallets to the Hagley Center for the History of Business, Technology, and Society at the University of Delaware.

The goal is to preserve at least some records of the rich business history of Silicon Valley in the early 21st century. "Marty [Pichinson] has a unique window into the venture ecosystem that even top VCs don't have since they always look forward to the next deal. He's the undertaker, and corpses tell a story, too. A corporation is like a social corpse that we can study," Kirsch says. The collection has so far only released the digital remains of a single company that folded in 2006. Any researcher can access its one million emails or tens of thousands of other documents, but the company's real name has been masked. In the next year or two, Kirsch wants to open up another five company records, and eventually aims for many more. "If we get to 50 companies, we'd have something really valuable. We could use machine learning and other methods to identify the leading indicators of failure, perhaps the burn rate, structural features, communication patterns and types of market tests."

HANDS-ON ADVICE
One of the most noted firms in its field, Sherwood Partners takes two to three new clients every week.

ARTHUR DAEMMRICH, the director of Lemelson Center for the Study of Invention and Innovation at the Smithsonian Institution in Washington, D.C., has also been in touch with the liquidator to gain a new perspective on the circle of innovation. "Most stories about innovation we tell our children are success stories, but we know 90% never make it to market," says Daemmrich. Sherwood's dataset could help correct that popular misperception, he thinks. "Such an archive would be of tremendous value 50 years from now when we write about the era. Every university nowadays has a school of entrepreneurship and a startup hub," Daemmrich says. "That won't last forever, and we don't know what comes next." One thing will keep happening, however: death by attrition, with undertakers like Pichinson ready to shovel reusable assets back into the maws of Silicon Valley's machine. ■

THE GOAL IS TO PRESERVE AT LEAST SOME RECORDS.

"AS NEW SPECIES IN THE COURSE OF TIME ARE FORMED THROUGH NATURAL SELECTION, OTHERS WILL BECOME RARER AND RARER, AND FINALLY EXTINCT."

CHARLES DARWIN

Father of evolutionary theory

Wide angle

Read on for diverse insights into the wider world of business and ideas.

A MAN OF HIS TIMES
Mwangi transformed shared experience with inequality into a business model to serve his fellow Kenyans.

Banking on the people

Taking a 94 % pay cut to become director of a failing bank might sound crazy, but for James Mwangi, it wasn't about the money. Twenty-five years on and the Equity Group is proof that community can be the ultimate keystone of success.

BY ***Patrick Gathara***
PHOTOS BY ***Fredrik Lerneryd***

EQUITY TOWERS has a commanding view over Kenya's capital, Nairobi. Here, on the ninth floor, is where you'll find the domain of the near-legendary chairman and CEO of the Equity Group, James Mwangi – the charismatic banker who turned a moribund microfinance company into Africa's largest bank. The office itself is spacious and well appointed with large desk at one window, a row of trophies behind. Family photographs adorn the walls. The space has an intimate feeling of welcoming, almost understated luxury about it.

Equity is a real success story. Having started at the bottom of the pile, today it is now the top bank in East and Central Africa however you measure it: It's the largest bank by market capitalization, largest in Africa by customer base with 14 million at present and a target of 100 million by 2024 and it has won multiple awards both locally and internationally. It has also achieved something of a social revolution by bringing banking services to people who previously had little or no access to them. Yet despite being the man behind these not insignificant achievements, Mwangi has an easy, quiet confidence and a friendly welcoming mien. He looks like a man used to being at the top and winning. You might even think he was born to it. But his journey to these dizzying heights has hardly been conventional or easy.

$5.9 billion

was the Equity Group's reported total asset figure as of May 2019.

13 %

growth in loan book year on year is cited as the driver of the Equity Group's 7% growth in interest income.

These impressive offices are a universe away from the humble village in Central Kenya where he was born. His father died, leaving his mother to raise the family. Mwangi learned to pitch in to supplement the family's meager income. It was only with the help of the village community, who helped pay his fees, that he was able to go to primary school. Hard work and a government scholarship saw him through secondary, where he was introduced to commerce and accounting. It gave him a way to understand and organize his family's business activities. Looking back, it is easy to see that this ability to marry economic theory to the practical realities of village life led him to revolutionize the banking industry. As he puts it: "It's my background, it's my circumstances, it's my experiences that shaped the career that I pursued."

THE COUNTRY AROUND HIM was being transformed as he grew up. Kenya's economy had been largely run by a tiny minority of mostly British and Indian settlers. Three British-owned banks dominated the banking industry and they ignored the African majority. After independence in 1963, the government promoted an Africanization of the →

economy, employed more Africans in the civil service and drove rapid economic growth through public investment. A growing African elite was thus able to access banking services – but most African families, such as Mwangi's, remained peasants, constrained to subsistence agriculture and casual employment. Banks continued to ignore them. And little had changed by the time he graduated from the University of Nairobi and embarked on his career, first at PricewaterhouseCoopers and Ernst & Young before moving on to Trade Bank where he quickly rose to the position of group financial controller within three years, becoming one of the most senior bankers in the country.

BUT IT HAD NOT ALL BEEN PLAIN SAILING. As Mwangi was making his way to the top, indigenous banks were having a tough time. At independence, all but one were foreign owned. In the years that followed, the government established a number of banks but only one indigenous private commercial bank had been created by the close of the 1970s. The following decade would see the addition of seven locally owned banks and 33 non-bank financial institutions. Most were small and targeted the unbanked masses. Many were also poorly managed. Kenya had its first banking crisis in the mid-1980s and 12 of these institutions collapsed. A second wave of bank collapses in the early 1990s claimed 19 locally owned banks including a little-known building society set up a decade earlier and which had never turned a profit: Equity Building Society.

The Equity Building Society was established in 1984 to provide financial services to the *mwananchi* – the ordinary Kenyan. As Franca Ovadje described in her book *Change Leadership in Developing Countries*, the society "from inception … had a strong social mission. While profit was considered important, the founders were more concerned with contributing to the social and economic development of rural Kenya by providing the poor with access to financing." The bank initially did well. But after the tsunami of bank failures in 1993, a majority of Equity's loans were not being serviced and the company was in the red. Although it had nearly 3,000 accounts, three depositors accounted for 85 % of the deposits. The Central Bank of Kenya declared it technically insolvent.

At the urging of one of the founders, Mwangi had invested his savings in the society in 1992 in a bid to keep an indigenous Kenyan institution afloat and because he felt personally invested in its management team. He watched with trepidation as it threatened to go under. In 1994, he decided to do something about it. He exchanged his cushy Trade Bank job for a directorship at the failing society and took a 94 % pay cut. "My wife asked me how we [would] bring up a family on that income. I did not rationalize my decision … The cause spoke to my heart," he told Ovadje in 2011. He quickly recognized that Equity's heart was in the right place, but its model wasn't. Though it was giving out "mortgage loans," people were not using the money to buy housing. And the amounts were small and lent on a short-term basis. Mwangi recognized that Equity was actually in microfinance. Where others saw problems and despair, he saw the opportunity of a lifetime.

Mwangi does not come across as a reckless risk taker, and for him joining Equity was no gamble at all. The move could rather be described as the culmination of a life mission and the repayment of

James Mwangi

Named Person of the Year by *Forbes Africa* in 2012, James Mwangi took over directorship of Equity Building Society in 1994. Under his leadership, the bank has become the largest in East and Central Africa. His commitment to philanthropy and social work led to the establishment of the Equity Group Foundation in 2008 to enable access to gainful employment through skills development.

"Our colleagues in the industry ignored us ... We were snubbed because they considered us a village bank."

An Equity branch manager

a debt. The people Equity was looking to serve were the same as those who backed him when he had nothing but his self-belief. Now it was his turn to back them. "I went into banking as a professional ... but the opportunity of supporting my village to salvage Equity Building Society, which was failing, arose and that now demanded not managerial skills – there was nothing to manage – but entrepreneurial skills."

As a boy he had learnt to apply theoretical knowledge to the practical problem of turning a profit. Now, as the finance and operations director he brought to bear his considerable banking experience and training. "I brought professionalism into entrepreneurship," he says. He knew his customers in a visceral way – after all, he had been one of them. "I was among those who were excluded. My mother didn't have a bank account. No neighbor had a bank account. And so my vision

LOOKING AHEAD
Mwangi names Warren Buffett as his role model and hopes to serve the Equity Group and his community for another 30 years.

was to build a bank for my mother. Success looked like banking for my mother. Success looked like banking for my neighbor." He figured that if he focused on the 96 % of the population who, just like his mom and neighbors, had been ignored, then he wouldn't be competing against the other banks. His competition would be the domestic deposit bank otherwise known as "the mattress," under which many people stash their cash. But he also recognized that for his clients, having a bank account was about more than having a safe place to stash their incomes. Above all, it was about inclusion. For a population who had been sidelined, first by the colonials and then by their own government, having an account said their activity, their production, their ability and humanity were recognized and mattered. "It was a status symbol. It was an issue of esteem and dignity."

IT WAS ALSO A GAME OF NUMBERS. "I understood that profitability is a function of revenue and expenses and revenue is a function of price and quantity ... If we went with a model of large volume and low margin, we'd still be profitable ... I also understood risk. If we disaggregated our loan book into small loans, I was avoiding risk concentration." The foreign-owned banks did not hide their disdain for this group, and as Mwangi was helping the Equity staff rediscover their original purpose and drive, the bigger banks were closing branches and getting rid of what they considered low-value depositors. As one Equity branch manager said of those early days: "Our colleagues in the industry ignored us ... We were snubbed because they considered us a village bank."

Wanjeri Kihara, who worked at the bank from 2012 to 2014, says working at Equity was a →

culture shock for employees moving from other banks where the focus was on processes and structures. At Equity, it was all about the customer. That was reflected even in the choice of corporate color: brown, the color of the soil. "If you work at Equity, however senior you are, you have to relate with *mashinani* (the people at the grassroots) at the branches," she says, adding that staff were even advised against wearing bright clothing, because of the need to interact closely with farmers and traders who may come directly from their fields and shops. And Mwangi led the way. "He wears the gumboots," she says, referring to his impatience with protocol and eagerness to go directly to the branches and the customers.

Garth Saloner of the Stanford Graduate School of Business first heard of Equity during a trip to East Africa with his students to learn about the microfinance community in Kenya and Uganda in 2006. They had intended to focus on NGOs and other nonprofits, but Equity's name kept coming up. There was no model for what Mwangi and his team had done, he says. "They completely set out in a new strategic direction – one that was unproven." Though a lot of work had been done in microcredit in Bangladesh and in Asia, "the idea that you could build a for-profit organization around it at scale was very novel. That's difficult enough. But you also had a turnaround situation!"

The choice to focus on the bottom of the pyramid has been even more spectacularly validated by the astonishing growth of yet another corporate behemoth. By appealing to the same poor and undervalued customers when others targeted the

***PUTTING PEOPLE FIRST** Equity's success has been driven by speaking directly to the needs of its customers.*

Rather than transactional relationships, Mwangi says he is seeking to brand Equity as "an anchor of the community."

wealthier segments of the population, mobile telephony provider Safaricom has grown into the largest company in East and Central Africa and is today perhaps Mwangi's biggest challenge. Three years after Mwangi converted Equity into a fully-fledged commercial bank in 2007, Safaricom launched M-Pesa, Africa's first mobile money platform. The service took off and within a decade it had near-universal adoption. That M-Pesa and the mobile financial services it heralded would pose a challenge to established banks, and Equity in particular, was clear from the onset. According to a recent study, "in 2008, only 25 % of M-Pesa users were unbanked and 29 % came from rural areas, a year later these figures were 50 % and 41 %, respectively." These were the very people that Mwangi was building his business on. Today M-Pesa has over 27.8 million customers and 148,000 agency outlets countrywide.

44 thousand

enterprises have received help training from the Equity Group Foundation.

$300 million

will be contributed by long-term partner the Mastercard Foundation to support the Young Africa Works in Kenya initiative.

THE BANK EXPLORED SEVERAL STRATEGIES in response, including a partnership with Safaricom. However, seeking more control over the experience that its customers will have when they access its mobile banking services, in 2014 Equity acquired its own mobile virtual network operator license, which has allowed it to create its own telecommunications infrastructure to deliver services over the phone. But Mwangi is already looking beyond Safaricom. "If asked who my true competition is," he says, "it is the big tech firms and the platforms ... Facebook has jumped into the fray saying you can transfer money for free instantly using Libra." As it has done over the last 30 years, Equity will have to evolve. "It has to adapt to the environment in which it is operating. At the moment I would call Equity substantially a virtual bank, using mobile infrastructure to deliver services, having digitalized its back end. The future of Equity might require migrating towards a big tech and, who knows, eventually becoming a platform."

Providing services to the lowest strata of society remains Mwangi's focus. Despite the massive improvements in financial inclusion over the last three decades, the need remains great. Just 56 % of Kenyans over 15 have an account at a formal financial institution compared with 93 % in the US. And, although Equity today draws much of its revenue from the 21 % of its customers that are large corporates as well as small and medium-sized enterprises, Mwangi is quick to add that most of these have come up through the Equity ecosystem. Equity is not looking to attract wealthy corporate firms, he says. "We are a long-term investor ... The focus should be on investing, not extraction."

After 26 years at the helm of Equity, Mwangi is in no hurry to step down. He points out that his role model, the billionaire US business magnate and philanthropist Warren Buffet, is still CEO at 87. "By comparison, I still have another 30 years of service," he says. Equity recently appointed a new CEO for its Kenya operation allowing Mwangi to focus more on his dual role overseeing the Equity Group, which has recently extended its banking operations to eight countries in the region, as well as the philanthropic Equity Group Foundation.

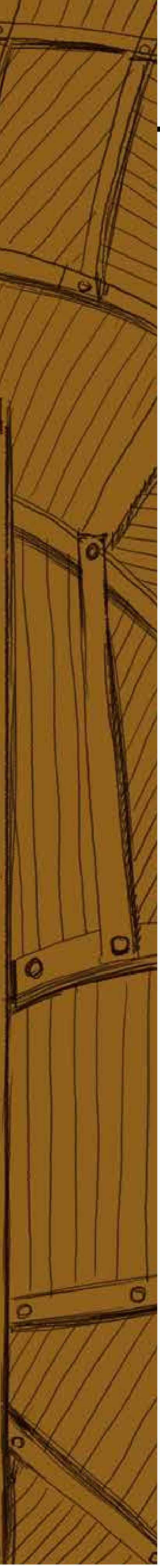
Mwangi calls it "the social engine" of Equity's brand, complementing its "economic engine," the bank itself. As the nature of banking changes, it becomes more transactional and experiential – and less dependent on the emotional bonds of trust that have unerpinned its success. The foundation is about helping Equity keep its relationship with communities. Rather than transactional relationships with individuals, Mwangi says he is seeking to brand Equity as "an anchor of community." And looking around his office, it all seems to make sense. For the boy who dreamed of being a teacher but conquered the financial world, and the billionaire entrepreneur who talks of reforming capitalism and reducing inequality, it has always been about family and community; about opening up the world to his mother and her neighbors. And about repaying the investment they made in him half a century ago. ■

Three ways in which Equity leveled the playing field for banking in Africa

1. **After abolishing minimum balances even on current accounts, within four years Equity became the fifth-largest bank in Kenya in terms of deposits, with 5.4 million clients in Kenya alone.**
2. **Doing away with documentation required by foreign banks, Equity only asked for a national ID, which every Kenyan adult possesses, and a photograph which one could take at the bank.**
3. **Expansion into rural towns and marginalized areas using low-cost and innovative means to reach customers included the use of four-wheel drive vehicles, which acted like mobile branches.**

Tsedal Neeley

A professor at Harvard Business School, Tsedal Neeley's trailblazing research is focused on multinational business and how firms can capitalize on the promise of global reach. She published her first book in 2017 and has also contributed to *Harvard Business Review*, the *Strategic Management Journal* and the *Journal of International Business*.



Language: your secret weapon

Visionary thinker **TSEDAL NEELEY** *is pulling back the curtain on what it means to be a multinational. Here, she speaks to* Think:Act *about language in the workplace and turning global teams into a cohesive unit.*

BY ***Neelima Mahajan***
ILLUSTRATIONS BY ***Jeanne Detallante***

PEEL BACK THE LAYERS, and a lot of companies that appear to be global just aren't. Simply having a token presence in countries outside of the headquarters with limited revenue contribution isn't all it takes to make a company global. "A global company is one where your share of revenue and your market presence is significant worldwide, outside of the headquarters, even though you will always dominate most likely in certain markets, depending on your products and services," says Tsedal Neeley, professor at Harvard Business School.

Having grown up all over the globe, Neeley speaks four languages fluently and is the poster child for the well-adjusted global citizen. She is also very well aware of the challenges that can be present when people find themselves working across national boundaries and, for a few years now, she has been focused on the role language plays in globalizing corporations.

In her 2017 book, *The Language of Global Success: How a Common Tongue Transforms Multinational Organizations*, she gave a blow-by-blow account of how the Japanese e-commerce giant Rakuten took a leap and made the transition to becoming a truly global company by making English the company's lingua franca – and giving everyone a deadline of just two years to become fluent in it. This announcement sent shockwaves around the company. Here, Neeley talks about how a common language can become the tool to harmonize corporate culture across countries, transcending even national identities. ⟶

At Rakuten, what was going on in CEO Hiroshi Mikitani's mind when he made English the company's lingua franca?
You can think of Rakuten as this online powerhouse. It's the Amazon meets eBay meets Expedia in Japan. At that time, Rakuten had near 90% market share in Japan. [It] had to go outside of Japan to grow. The second problem was the shrinking GDP in the country and constraints with human capital. When they were trying to grow, Japanese companies would compete for the exact same 36,000 engineering or technical graduates in the entire country. How do you hire if that's your pool? And you have all of these amazing Japanese companies competing for [talent] as well.

They needed to access a worldwide talent pool. Mikitani says the moment he moved to an English language company, which is the common language of business in the world, his company could access up to three million engineers from top schools across several countries. Human capital no longer is this incredibly scarce resource.

Rakuten is a services company, and that means the interdependence among people across the world would be high. Knowledge sharing was very important for the company – in fact, a big source of competitive advantage for them. But how do you get knowledge to move in the company when people can't speak to one another in any language?

So this is why he made this huge announcement in March 2010. But his move is not unique. He joined the 60% of multinationals around the world that had migrated to an English-speaking company long before he did. It was radical because it was Japan. It was radical because he said two years.

What is Rakuten like now?
They've gone from [approximately] 200 million users in 2010 to 1.2 billion users today. Clearly, the 1.2 billion users are absolutely not Japanese, right? That is a huge marker. The second thing is, they now have a presence, I think in 37 countries. For example, they own Ebates in the US. Many people in the US use Ebates; they've no idea that they are Rakuten customers.

They've become a global brand. Go to any airport and look at sports paraphernalia. One of the first things you will see is FC Barcelona's jersey with Rakuten on the jersey itself. Billions of people are looking at and recognizing their name. They're [now] able to strike these deals with sports institutions that view them as a global company and a global brand.

How do language, organizational culture and national culture connect, intersect and also impact each other in a global corporation?
Whenever you're dealing with language in an organization you're also dealing with national culture. Rakuten is headquartered in Japan, and now they're speaking English. Their national culture doesn't go away, but now they have to adopt a different language in order to operate. An intersection between these two is that because they migrated to English, they now have the capacity to transport their national culture worldwide and across all of their organizations in ways that they hadn't before. I call this the Trojan Horse of language.

The angst that people express often is: "Are you diluting people's national languages and cultures by introducing this common language?" Historically we've seen colonialism, we've seen imperialism, we've seen a lot of things. But in the commerce space this operates quite differently. The reality is that by participating in the common language of the world, a company has the capacity to transport their culture across the world as opposed to disappearing themselves. And Rakuten has done that.

Working across cultures isn't just about language; it's also about overcoming deeply ingrained biases. To what extent does language help in doing that?
There is a very huge research stream that has proven that contact with different cultures actually helps build

The types of expats in an organization

1

Linguistic:
Live within their native country, yet give up their native language within their workplace.

2

Cultural:
Native speakers of the lingua franca, yet struggle with organizational values.

3

Linguistic-cultural:
Non-native to both the lingua franca and the organization's home culture, they show the easiest time adjusting to language changes.

The case for a lingua franca

Meetings that require interpreters cost more time and more money, while translated documents can slow down transactions and remove nuance. When speaking the same language, global team members can collaborate freely to advance an organization's goals.

"There are some things that global headquarters can and should dictate, and some things they could never dictate for a local market."

empathy. Developing collaboration, or connection, or any kind of exchange, knowledge sharing, is one of the big ways in which Rakuten has shaped contact. These would be literally requirements for people in different parts of the world who are in charge of divisions, or areas, or customers, to speak to one another regularly. It could be about knowledge sharing or problem solving.

They have systematized these frequent contacts. These frequent contacts, in turn, reduce biases, increase relationship building and development among others. People begin to seek others on their own because they're exposed to the idea, "I know you're in Indonesia, or Taiwan or in Bamberg, Germany, but you can actually have a conversation with someone in Brazil who's really good at this thing." All these things decrease bias and increase contact and collaboration.

Global work orientation is not a trait where we say people are culturally intelligent or not, [or] they have the capacity to work across cultures or not. What we learned at Rakuten, with employees across many countries who possess global work orientation, [is that] they had several practices that allowed them to deal with cross-cultural tensions or differences. One is seeking contact and seeking commonality. Many people across cultures who have these biases, the moment they engage others they are looking for differences and overemphasizing the discomfort that they may feel. Those who have this global work orientation will actually sit with someone and immediately seek commonalities.

What kind of challenges did Rakuten face while they were rolling this out?
Hiroshi Mikitani underestimated the extent to which people would have strong emotional responses to such a mandate. He didn't realize how anxious people would become and how viscerally scary it is to make such a mandate. They addressed those issues head-on through massive increase of buy-in. People had to believe that what they were doing was a critical path for their future. So Hiroshi Mikitani started messaging the importance of this English language change and this global expansion imperative every single week for two years straight.

Beyond language, does your research have implications for how the corporate headquarters should see their role? Usually, they see themselves as close to the central resources, close to the decision-making, so they feel that they are in some way superior.
Yes, it is interesting because that is changing in a lot of places, by the way, depending on where the markets are, where sometimes certain regions have more power than the headquarters. So we are seeing a lot of changes. The online space is confusing those things as well. But the global-local tension is a tension that's not gonna go away.

Wherever the head of the company is, is going to be a power center. That's just not going to change. The question is how do companies deal with that healthy tension between global-local? I don't think companies necessarily deal with it well, whether it's through structural solutions, reward systems, recruitment and retention strategies. There's a lot that you need to do in order to make that really work for you.

There are some things that global headquarters can and should dictate, and some things they could never dictate for a local market. In fact, the best global leaders of various entities that are outside of their headquarters, are those who can yield to the expertise and knowledge of local representatives. This global-local tension, as we know it, might change some depending on how the configuration of work shifts because of the digital shockwave. ■

Thinking outside the box

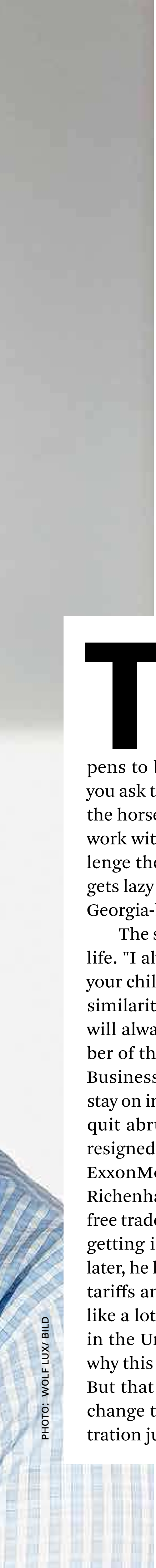


PHOTO: WOLF LUX/ BILD

When it comes to growing a Fortune 500 company, Martin Richenhagen knows success is all about taking the right steps. The Agco CEO speaks to Think:Act *about keeping things in perspective and why his interest in horses has shaped how he looks at business.*

BY ***Bennett Voyles***

THE KEY TO SUCCESSFUL horse training is giving the animal the right-sized lesson, according to Martin Richenhagen, CEO of Agco, the world's third-largest maker of agricultural machinery. He also happens to be a serious amateur horseman. "When you ask too much from the horse, you will see that the horse will show a lot of resistance and will not work with you anymore, but when you don't challenge the horse at all, you will see that the horse gets lazy and learns nothing," explains the Duluth, Georgia-based executive.

The same principle holds true for others in his life. "I always say whether you train horses, dogs, your children or your employees, there are a lot of similarities," says Richenhagen. Of course, there will always be the occasional hard cases. A member of the President's Advisory Council on Doing Business in Africa since 2010 who was asked to stay on in the Trump Administration, Richenhagen quit abruptly in March 2018 after Rex Tillerson resigned as US Secretary of State. After the former ExxonMobil chief departed, it became clear to Richenhagen that his advice on the advantages of free trade would not be heard. "There's no point in getting involved there," he told reporters. A year later, he has not changed his mind: "We do not like tariffs and so that of course means that we don't like a lot of things which are done right now here in the United States. We try to explain to people why this is the case, and some people understand. But that doesn't mean that you can successfully change things. Right now the American administration just doesn't listen to business."

$3.89

The adjusted earnings per share of Agco stock in 2018, a 29 % increase over 2017.

3.96x

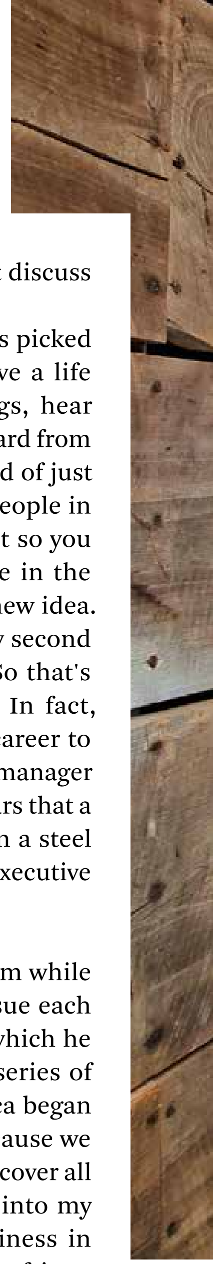
The factor by which the price of Agco stock increased in the 15-year period between July 1, 2004 and July 1, 2019.

To defend his firm against Trump and the other similarly uncoachable populists around the world, Richenhagen is focusing less on politics than improving the performance of those aspects of business over which he has more control, such as sales, operational efficiency, and innovation. "It doesn't help you if you are excited or emotional about all those political things. You just need to make sure that you try to handle it," explains Richenhagen, whose firm does business in over 140 countries.

THE TRUMP EXPERIENCE turned out to be somewhat unusual for Richenhagen, who has had a long, successful career coaching both two- and four-legged pupils. After five years as a high school theology teacher in Cologne, Germany in the early 1980s, the Cologne native rose through a succession of international business jobs to CEO of Agco in 2004, a global agricultural equipment conglomerate whose brands now include Fendt, Valtra and Massey Ferguson.

Ranked as one of the most-admired Fortune 500 CEOs by other Fortune 500 CEOs, Richenhagen has grown Agco from a company that generated about $5.3 billion in sales annually to $9.4 billion. Over the past 15 years, the stock has climbed from around $20 to over $70 a share, earnings have grown from $1.75 per share to $3.89 per share, and the number of employees has more than doubled, growing to over 21,000 worldwide.

Through all this business success, though, Richenhagen has stuck by his horses. A specialist in dressage, a complex and subtle equestrian event in which horse and rider perform a series of ⟶



pre-choreographed movements from memory, Richenhagen has judged dozens of international competitions and even served as coach of the German equestrian team for the Beijing Summer Olympics in 2008, bringing back a team gold medal and individual silver and bronze medals.

IT ISN'T JUST A HOBBY, though. Most importantly, Richenhagen finds the time he spends with his horses interesting, relaxing and occasionally even a source of inspriation. "I think every manager should do something that helps him to get away from his daily job. I think it makes you a better leader and also helps you to be more creative." And indeed, some of the ideas he is most excited about realizing first came to him when he was out riding. "The idea of developing an electric tractor came into my mind when I was at a horse farm because inside the buildings on farms you don't want to have noise and you don't want to have emissions," Richenhagen explains. That electric tractor should soon be shifting from an idea into a reality. "We have our prototype now and this year we will produce 30 of these and then we will hopefully go to market next year," he adds.

Another idea – smaller and unmanned farm vehicles that could operate in swarms – occurred to him after he noticed the popularity of small vehicles on farms. The new driverless tractor "is a small piece of equipment, which right now we have focused on the planting of soybeans," he explains. "And that's a new idea: Instead of getting bigger, and bigger and bigger, you get smaller and then you can work in swarms. Instead of having one big tractor in the field, you might have maybe five or 10 or 20 small ones."

Besides being able to operate 24/7 and not having to find tractor operators to run them, the swarms will be able to scale to the particular needs of the farm. "On a small farm, you might be fine with maybe three or four of those. On a big farm, you might want 20. We believe that this certainly will be a trend in the future. We are just at the beginning of this," he says.

Horse events are also good for networking. "I met Jeff Bezos at a horse show a few years ago," he confides, and then goes on to explain what he learned from this chance meeting. "He told me that they don't do PowerPoint presentations anymore at Amazon because they're so boring. Since then, only the CFO uses PowerPoint. Everybody else reads all the other presentations before the meeting, so instead of people leading us through the presentations in the meeting, we just discuss the ideas. It's far more efficient."

Martin Richenhagen

Appointed CEO of Agco Corporation in 2004, Martin Richenhagen has over the last 15 years nearly doubled annual sales, deepened the company's relationship with its African markets and endowed the Agco Agriculture foundation. German-born, he has held US citizenship since 2011 and served on the US President's Advisory Council on Doing Business in Africa from 2010 until 2018.

It isn't the only bit of advice that he's picked up away from his desk. "When you have a life outside your company, you learn things, hear things," he explains. "One idea which I heard from somebody was reverse mentoring. Instead of just having all our leaders mentor younger people in the organization, the idea is to reverse it so you have one of the very, very young people in the company teach you something about a new idea. And we're doing that now – I just had my second session on social media, for instance. So that's another idea I picked up on a horse." In fact, Richenhagen owes his whole business career to horses: It was while moonlighting as the manager of a dressage barn during his teaching years that a client, a fellow horse enthusiast who ran a steel company, invited him to join his firm's executive training program.

ALTHOUGH NOT EVERY IDEA occurred to him while out on horseback, he does seem to pursue each one with the same deliberateness with which he approaches his dressage training, as a series of "right-sized lessons." His interest in Africa began with a question about 10 years ago: "Because we are so global, I began asking, do we really cover all the markets of the world? And it came into my mind that we don't do very much business in Africa, so I hired a special assistant, an African, who helped me learn and understand Africa." He discovered that Africa has the world's largest reserve of unfarmed but potentially arable land, and yet sustainable production remains a major challenge. "The farming is mainly done by women because men don't want to do that hard work," he says, "and Africa is completely undermechanized."

Tractors could change that. "As soon as you mechanize your farm, you can normally produce 10 to 20 times as much as you can do manually," he explains. "And the farms are very small, so that means a tractor ... can be used for a village, not only for one farm." Next, he built a factory in Algeria where they assemble and build small tractors for farmers on the continent, and then a demonstration farm of over 350 acres in Zambia, a school that trains farmers, equipment dealers, university students and teachers.

The firm has also endowed a foundation, the Agco Agriculture Foundation, which is now offering a certified course, supported by Strathmore Business School in Nairobi and Harper Adams

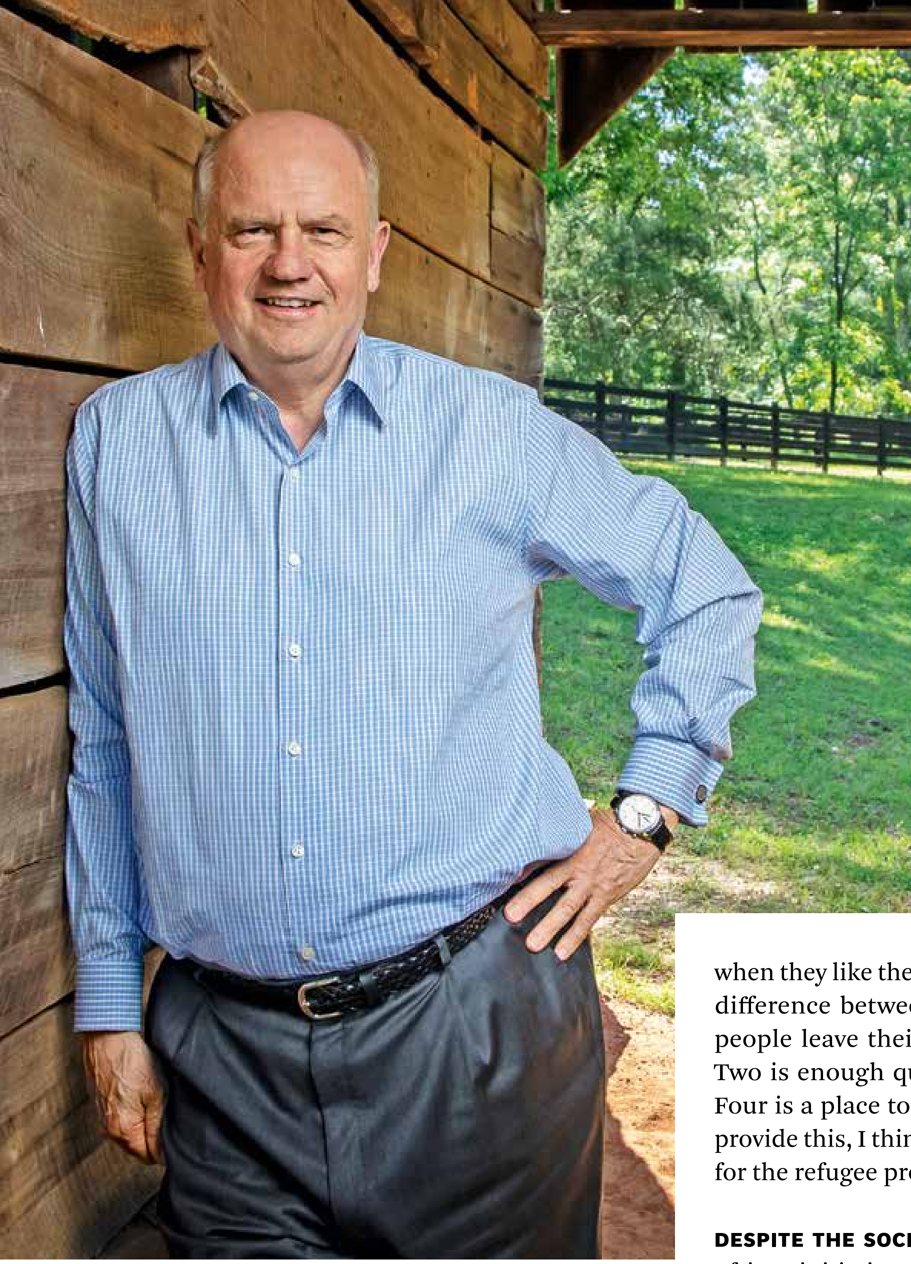


PHOTO: WOLF LUX/ BILD

"I think every manager should do something that helps him to get away from his daily job."

University in the UK, to teach a two-year course in agribusiness. "This year, the first 20 students graduate and the great news is they all will have a job at Agco," Richenhagen says proudly.

Now, Agco has taken that experience and designed a tractor that meets the particular needs of African farmers. The tractor has an engine simple enough that the farmer can service it himself; it includes a plow, seeding and tilling equipment and comes with its own container, a small barn that makes it possible to protect the tractor from theft. Inside the container, the farmer will find a small office and a computer, which he can run either with solar power or a generator. "It's a great solution for those markets," he says.

All of this will sell for about $20,000, he says, which should make it affordable, particularly once the company launches its financing partnership with Rabobank, the Dutch farmers' banking cooperative. And, he says, may even prevent future refugee crises. "People like to stay where they are when they like their environment – there isn't a big difference between people and horses. Why do people leave their homes? One reason is safety. Two is enough quality food. Three is education. Four is a place to live. And then a job. If you can provide this, I think you also have found a solution for the refugee problem," he says.

DESPITE THE SOCIAL BENEFITS he sees in Agco's African initiative, Richenhagen insists that he sees the organization's dealings not as philanthropy, but rather as good business. "I'm not the Red Cross or a charity organization – we are here to make money for our shareholders. We're already profitable in Africa; our Africa business is growing very rapidly – we have doubled our sales in Africa every year for the last five years," he explains. "We make money, which is good for our shareholders; we generate solutions for individual farmers, which is good for our customers; and we help the countries to develop," Richenhagen adds. "It's the perfect win-win situation."

But all rides have to come to an end – even the really good ones. And for Richenhagen, now 67, the end of the course is starting to come into sight. His retirement date is not yet set, but when he does step down, he says that he plans to spend more time serving on a few corporate boards, the Johns Hopkins German-American studies program in Washington DC, and maybe teach business in Africa. And, of course, spend a little more time with his horses. ■

1%

The average annual increase in crop productivity across sub-Saharan Africa since 1980. Population growth has averaged 2 % to 3 %.

85 million

The number of adults in the sub-Saharan region who reported being employed in agriculture in 2012.

The Far East rival to Silicon Valley

For decades, China's Pearl River Delta has been building up the foundations to emerge as a technological powerhouse on the global stage. Now with an ambitious new government master plan in place, many are asking if the region's time has finally come.

BY ***Henrik Bork***

A MODERN FEAT
At 55 kilometers in length, the Hong Kong-Zhuhai-Macao Bridge is the longest sea crossing in the world.

MOVE OVER, SILICON VALLEY. You now have a serious new rival in Asia. China's Communist Party is hard at work to make the Pearl River Delta the new economic powerhouse of the future. A master plan to develop what is known as the "Greater Bay Area" combining the two special administrative regions Hong Kong and Macao with Shenzhen and eight other Chinese cities has recently been published.

There is no doubt about the ambition. It is to make this bay area "the world's No.1." That's what the Chinese state media is saying, to quote Zhang Xiaoqiang, the vice director of China's powerful National Development and Reform Commission, or NDRC, adding that China's Great Bay Area will surpass "Tokyo, New York and the San Francisco Bay Area" by 2030. To experience the scale of the plan – and China's hard-edged resolve – drive over the Hong Kong-Zhuhai-Macao Bridge. At 55 kilometers in length, the new construction is the longest sea crossing in the world, spanning the waters of the Pearl River estuary and crawling across four artificial islands like a long dragon which, at one point, dives into a sea tunnel.

Going across is an experience. Most passengers are not allowed to take their own cars, but instead walk through security and immigration inside a huge terminal building that resembles a modern airport. After printing a pre-ordered ticket from a QR code on their smart phones, they are directed to a bus terminal and →

MASS TRANSIT OVER THE WATER Passengers crossing the Hong Kong-Zhuhai-Macao Bridge board a bus for a journey of about 30 minutes.

PHOTOS: JUSTIN JIN (2)

A WORLD-CLASS SKYLINE Hong Kong is now categorized as an alpha+ global city with a population of 7.4 million people.

asked to fasten their seat belts in one of the buses that leave every five minutes. Passengers are then driven from Hong Kong to the opposite side of the delta, situated between the cities of Macao and Zhuhai, in about 30 minutes. The bridge clearly serves as a political statement, heralding the final integration of Hong Kong with the Chinese mainland. But it has cut the travel time across the lower part of the delta triangle. Alongside high-speed rail links between Hong Kong, Shenzhen and Guangzhou, the bridge is the most visible part of massive infrastructure investments in the area. When Hong Kong's status as a "special administrative region," a colonial legacy, ends in 2047, everything needed for the free flow of goods and people will already be in place.

BUT "NO. 1 IN THE WORLD"? Is that really possible? "I think it may happen," says Professor Alain Bertaud from the Marron Institute of Urban Management at New York University. "The condition is that the Chinese manage to find the right means of transportation for the area, a combination of rapid rail and individual transport. Some people are already comparing this to London during the Industrial Revolution." Bertaud has studied megacities and city clusters around the world and found that their productivity is usually higher than that of other smaller cities. "The reason is the efficiency of large labor markets," he says. Even the internet can't replace the boost in productivity that happens when people meet in person or when workers can choose from a wide selection of employers within an hour commute radius. Combine that with what Bertaud learned on the ground when he worked as the principal urban planner for the World Bank in Shanghai decades ago: "The Chinese are extraordinary administrators."

The Greater Bay Area, or GBA, with its bridges and speed trains, is already a formidable economic powerhouse. About 70 million people currently

INNOVATIVE PRODUCTION A worker operates a machine at the Oppo factory in Dongguan.

70 million

people currently live in the area, in the 11 cities of Hong Kong, Shenzhen, Macao, Zhuhai, Guangzhou, Dongguan, Jiangmen, Foshan, Zhongshan, Huizhou and Zhaoqing.

$3.3 trillion

is how much the GDP of the Great Bay Area is expected to reach by 2030. In 2018 the GDP of the entire GBA was about $1.7 trillion.

live in the area, in the 11 cities of Hong Kong, Shenzhen, Macao, Zhuhai, Guangzhou, Dongguan, Jiangmen, Foshan, Zhongshan, Huizhou and Zhaoqing. The delta, which makes up only about 1 % of China's territory, already produces 37 % of the country's exports and 12 % of its total GDP. It already has more people than Italy producing a bigger GDP than Indonesia.

In a high-rise office overlooking the busy Hong Kong harbor, Kelvin Lau extrapolates such figures into the future. A senior economist with Standard Chartered Bank, he watches the GBA. "We believe there will be productivity gains due to the increase of the population, which some forecasts see growing from the current 70 million to 100 million by 2035," he explains. "It's about unblocking connections between people, information, goods and capital. The bigger the size of a city, the easier it becomes to match business needs."

A short subway ride from the financial district, in Hong Kong's Quarry Bay, analysts monitoring China for the Economist Intelligence Unit (EIU) are more skeptical. Nick Marro, one of their experienced China-watchers, points out the current hurdles for China's bay area integration, which are plentiful. "The government of mainland China has very strong capital controls in place. Hong Kong's capital account, however, is almost completely liberalized," he says. In other words, a lot of regulations will need to be relaxed in China – or tightened in Hong Kong – to achieve a better flow of capital in the region. "You can say the same about the movement of people (visas) to the movement of goods (customs) and so on," says Marro. "Until a lot of these technical questions can be ironed out, they will constrain the potential that this master plan could offer the region." ⟶

PHOTOS: JUSTIN JIN, DENNIS LETBETTER, GETTY IMAGES / AFP / NICOLAS ASFOURI

"Some people are already comparing this to London during the Industrial Revolution."

Alain Bertaud, *Professor at the Marron Institute of Urban Management at New York University*

Hong Kong, however, is only one part of the puzzle. Take the East Line subway north to Shenzhen. It was a simple fishing village a few decades ago, but now it's a modern city with over 10 million inhabitants and has become China's undisputed center for information technology and innovation. It is already home to a lot of China's most innovative technology companies, among them the controversial telecom giant Huawei, a leader in 5G technology, its rival ZTE, or DJI, one of the world's most successful makers of commercial drones, and China's leading internet services company Tencent. Shenzhen is also the home base for thousands of agile tech startups.

A VIEW TO THE FUTURE
Built in 2016, Tencent's $599 million Shenzhen headquarters project is aimed at creating a campus-like atmosphere.

WHEN BEIJING'S MASTER PLAN talks about turning the Greater Bay Area into "a global technology innovation center" and boosting its "advanced manufacturing and modern service industries," there is a foundation already in place. No wonder David Li, founder of the Shenzhen Open Innovation Lab, finds himself spending so much time introducing visitors to the ecosystem of startups, incubators and accelerators springing up in Shenzhen. "They come to have a look at the future," he says, "but what they find here is very different from Silicon Valley. Startup entrepreneurs here in Shenzhen do things, they don't talk. They don't run around in hoodies and give you fancy PowerPoint presentations." According to Li, who has worked in an internet startup company in the US, the typical founder story in Shenzhen could not be more different from what he calls the "Silicon Valley myth of two kids in a garage changing the world."

What sets Shenzhen apart is that it offers tech companies complete supply chains, from innovative ideas and new patents to industrial design and manufacturing. "Shenzhen has stopped long ago to be about copycats, there is huge innovation going on here, but it takes decades to change people's perceptions," says Li. "Take smartphones. All makers in Shenzhen together have about 65 % of the world market share, as opposed to Apple having about 19 %. And we are talking brands here, not production. Shenzhen not only has Huawei and ZTE, it has Oppo, Vivo, OnePlus, Tecno, and other mobile phone brands shipping millions of units that nobody even talks about."

A typical startup success story is Enmac, says Li. "Enmac was founded by a young Pakistani who came here, took a mobile phone and added a digital compass and an alarm that rings five times per day. For muslims, this phone can always tell them

"Startup entrepreneurs here in Shenzhen do things, they don't talk. They don't run around in hoodies and give you fancy PowerPoint presentations."

David Li, *Founder of Shenzhen Open Innovation Lab*

PHOTOS: GETTY IMAGES / BLOOMBERG, GETTY IMAGES / BLOOMBERG / QILAI SHEN

A COMPLETE SUPPLY CHAIN UBTech Robotics is part of Shenzhen's varied business landscape offering everything from innovation and patents to industrial design and manufacturing.

exactly where Mecca is, for their daily prayers. Now Enmac is shipping millions of units to the Middle East per year. You take something, you make it useful for others, you make money with it. That is how innovation works in Shenzhen," says Li.

JUST AS IN SILICON VALLEY, many young innovators in the Greater Bay Area today are graduates from top universities. Take Zhang Jiuzhou, co-founder of a flourishing Shenzhen startup. The 31-year-old receives visitors in a stylish white room complete with that requisite startup toy: table football. "I took the train to Shenzhen in 2010 while I was still a student in Shandong. Now our industrial design company Xivo has 80 employees and is one of the fastest-growing startups in Shenzhen," says Zhang, who invents and designs gaming robots for Tencent and stylish speakers for Maowang. Zhang admits he barely noticed the Greater Bay Area announcement, but tries to offer something constructive. Li gives more context: "Entrepreneurs here are too busy making money to worry about politics, and anyway, innovation in China happens mostly bottom-up, not top-down."

Still, with a tech powerhouse like Shenzhen, a global financial center like Hong Kong, a manufacturing hub like Dongguan and huge consumer markets like Guangzhou all growing closer through infrastructure and real estate developments, it is fair to assume that the plan is going to have some impact. While China's Greater Bay Area may not become the most affluent region on earth, it may very well become one of the most affluent. "In 2018 the GDP of the entire GBA was about $1.7 trillion, and we expect that by 2030 total GDP will easily exceed $3.3 trillion," says Marro. And with a growth trajectory like that, there is no denying that Silicon Valley now has a serious rival in the East. ■

Artificial cities: a recipe for success?

Cities designed on the drawing board have had mixed success in the past – sometimes the people just don't follow. Many planned utopias have failed, including a number of cities created by Soviet planners and which the Russian government would now love to shut down completely.

But what about the success stories? How to explain the sustainable development of places like St. Petersburg, Brasília or Shenzhen, all of which grew out of the idea of creating a thriving metropolis? "Their locations were chosen because of geopolitical necessities, and all of them had the backing of strong rulers", says Alain Bertaud, professor at the Marron Institute of Urban Management in New York. Sufficient funding is necessary for such "new towns" to nurture a diversified labor market that can support a healthy economy.

Bertaud, however, dares to predict that China's plan to develop the Greater Bay Area will belong to the winners among the artificial city candidates. "The Chinese are extremely good at this. Also, their plan is about adding the right infrastructure to an existing city cluster."

Deep dives

Immerse yourself in new ideas and find out more in related articles and studies.

INNOVATIVE MOBILITY

Teching up transport for the public good

MAKING PUBLIC TRANSPORT more profitable is the dream of most, if not all, governments. While there are general economic advantages of public transit, there is still room for public transit companies to achieve greater profitability. But that is only half the story. With a growing awareness about pollution and climate change forcing people to look for environmentally friendly solutions, there is more political will to alter how we travel. People's expectations of mobility are now also changing fundamentally. Customers are calling for integrated systems that combine different modes of transportation in a coordinated manner and allow them to switch from one mode to another at specific points or "hubs" without having to obey timetables.

So transit companies need to adapt how they think and focus less on developing new business models and more on exploiting the latest technology. They can start by immediately implementing existing technology and concepts such as predictive maintenance, real-time data and non-fossil fuels. Politicians – and legislators – can help by quickly establishing the frameworks needed so that public transit companies can implement these innovations. And if they do, profits can follow as well as happy customers and a cleaner city.

→ CHART A NEW COURSE

Get up to speed with today's paths to profitable public transportation: https://rb.digital/2ycbSGQ

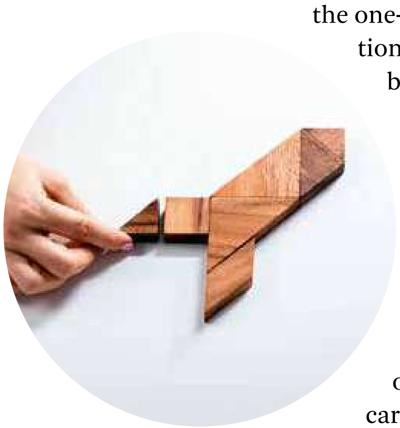
THE CARVE-OUT CHALLENGE

The difference between a value creator and a value destroyer

A NEW STUDY INTO THE BENEFITS of carve-outs and the challenges they present could help you chart a road map for success for your company. If you are not familiar with what a carve-out is, here's a quick crash course. As the name suggests a carve-out is a way of separating one part of a business from the rest of the operations. It could be a discrete business unit or a portfolio of assets.

But what you really need to know is that if you are attempting a carve-out you need to ask the right strategic questions, and in the right order. First, you should assess what your carve-out objective is. It is vital that management clarifies the specific aims of an envisaged carve-out – and creates an understanding of why this course is being taken – because each objective requires a different approach or emphasis. Then you should find out the scale or "perimeter" of your carve-out. For instance, what should be included and which functions; this will help balance the interests of the new company and the existing company. There could be implications, for example, in how to divide up R&D, or overhead functions such as IT, HR and finance. The next step is to identify buyers because it could benefit you to tailor the carve-out to whoever might purchase the business. There is also a distinction to be made between a carve-out to a strategic investor and a carve-out to the free market (IPO).

There will be inevitable trade-offs in whatever process is chosen. For example, speed of execution, the quality of the new company and its parent and the one-off costs from execution will all have to be borne in mind – and timing is crucial when tackling the most important strategic questions. To get more of an idea of how to chart the journey, read RB's new study which sets out a roadmap for carve-out success.



→ SET THE RIGHT PRIORITIES

Read more about how a clearly defined strategy can make or break the carve-out process: https://rb.digital/2GtYRNa

CUSTOMIZATION & MODULARIZATION

Get in the right mode – and make your customer feel really special

AI

is one of the components, along with robot automation, that will make customization easier.

"Any customer can have a car painted any color that he wants so long as it is black."

HENRY FORD, Automotive pioneer

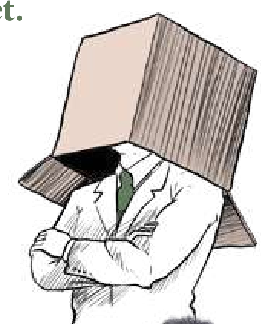
MASS PRODUCTION changed 20^{th}-century industry. In 1909, Henry Ford said his customers could have any color they liked, so long as it was black. No one cared. They wanted cars. But now, in the 21^{st} century, we are at the brink of a new era where products can be customized. It's the growing trend and multinationals and startups alike are luring customers by offering increasingly individualized products. AI, 3D printing and automation all help customize products while still bringing the benefits of mass production. This development is a provocation for businesses to ask themselves two questions: Is your business a good fit for customization? And how can you integrate it without endless complexity? Complexity can be reduced with a holistic approach and by embracing technology to move from the principle of "one design" to "design for one."

→ CREATE ENDLESS DEMAND

Find out how customization could fit into your business: https://rb.digital/2ZjvxRa

MAKING A CASE FOR THE NOMAD

Pioneering thinker GIANPIERO PETRIGLIERI *is helping professionals and organizations reweigh the meaning of leadership and success. Here he answers three questions concerning* **the future of the talent market.**



DIGITAL DARWINISM

1 The idea of joining a company and staying there until you retire is much less of a trend in 21st century business. What are your thoughts on that?

We are long past the time when people expected that kind of guarantee, and as a result many have embraced "nomadic professionalism." We have loose organizational affiliations but very strong bonds to our work. And the more portable we are, the more successful we feel. You can look at the rise of nomadic professionalism as an adaptation to ever more insecure workplaces. Or you can see it as an opportunity to participate in a more flexible labor market. Whether you take a more pessimistic or a more optimistic lens depends on whether you have opportunities to make yourself portable. Show me someone who sees mobility as opportunity, and I'll show you someone who is talented, privileged or both in the workplace. Most people are uncertain. But it takes resources for that uncertainty to become something that frees you up, rather than something that simply freaks you out.

Gianpiero Petriglieri
An associate professor of organizational behavior at INSEAD, Gianpiero Petriglieri was ranked in the Thinkers50 in 2017.

2 Nomadic professionalism. Doesn't that cause problems for holding onto talent in an organization?

"Talent magnets" make their talent feel portable. And the more portable you feel, the more likely you are to stay. You can leave an organization in one of two ways, thinking that the organization made it possible for you to move on to something interesting, or thinking that you are leaving because that organization made it impossible for you to have something interesting. In the former case, you will take the organization with you, and become an ambassador. In the latter, you will leave it behind, harming its reputation in the talent market.

3 How can organizations harness portability to their advantage?

By making – and keeping – the promise of developing people. The companies that really make people more portable allow people to forge identities and connections that make them feel committed but not captive, that make them feel they are leaders. And once I feel that the organization has made me more of a leader, more of who I wanted to become, I am going to remain loyal whether I stay there or not. I'm going to refer talent and business to them. [The organization's] influence grows, as well as [its] ability to sustain a pipeline of new talent, ideas and business. ■

PHOTO: PR | ILLUSTRATION: SASAN SAIDI

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→ PAGE 60

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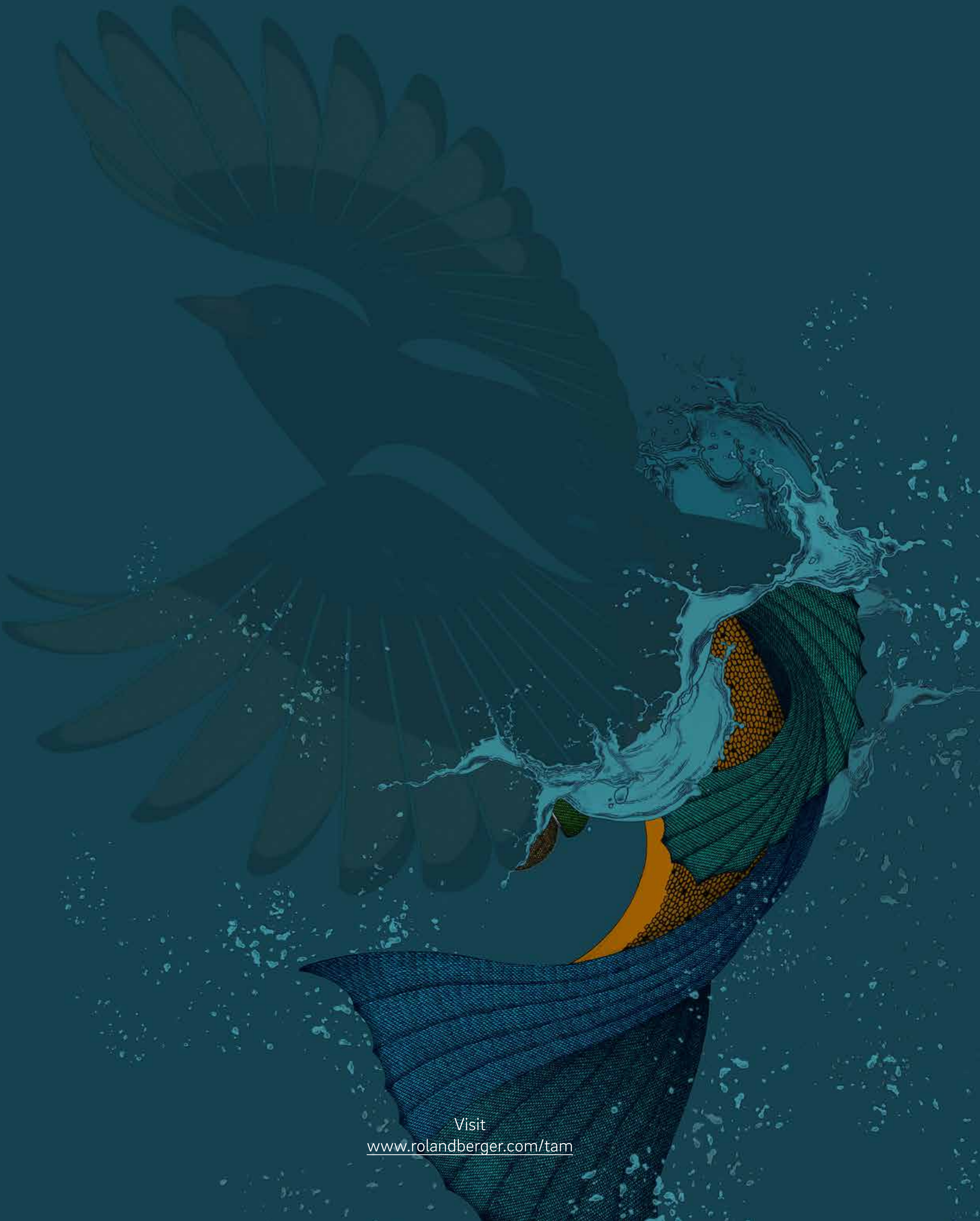

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