

Delivered.

THE GLOBAL LOGISTICS MAGAZINE

ISSUE 03/2017

BUSINESS

GREAT PLACE TO START

Learn the secrets of Africa's vibrant new business scene

SOLUTIONS

WORLD POWER

Discover why globalization is more important than ever

VIEWPOINTS

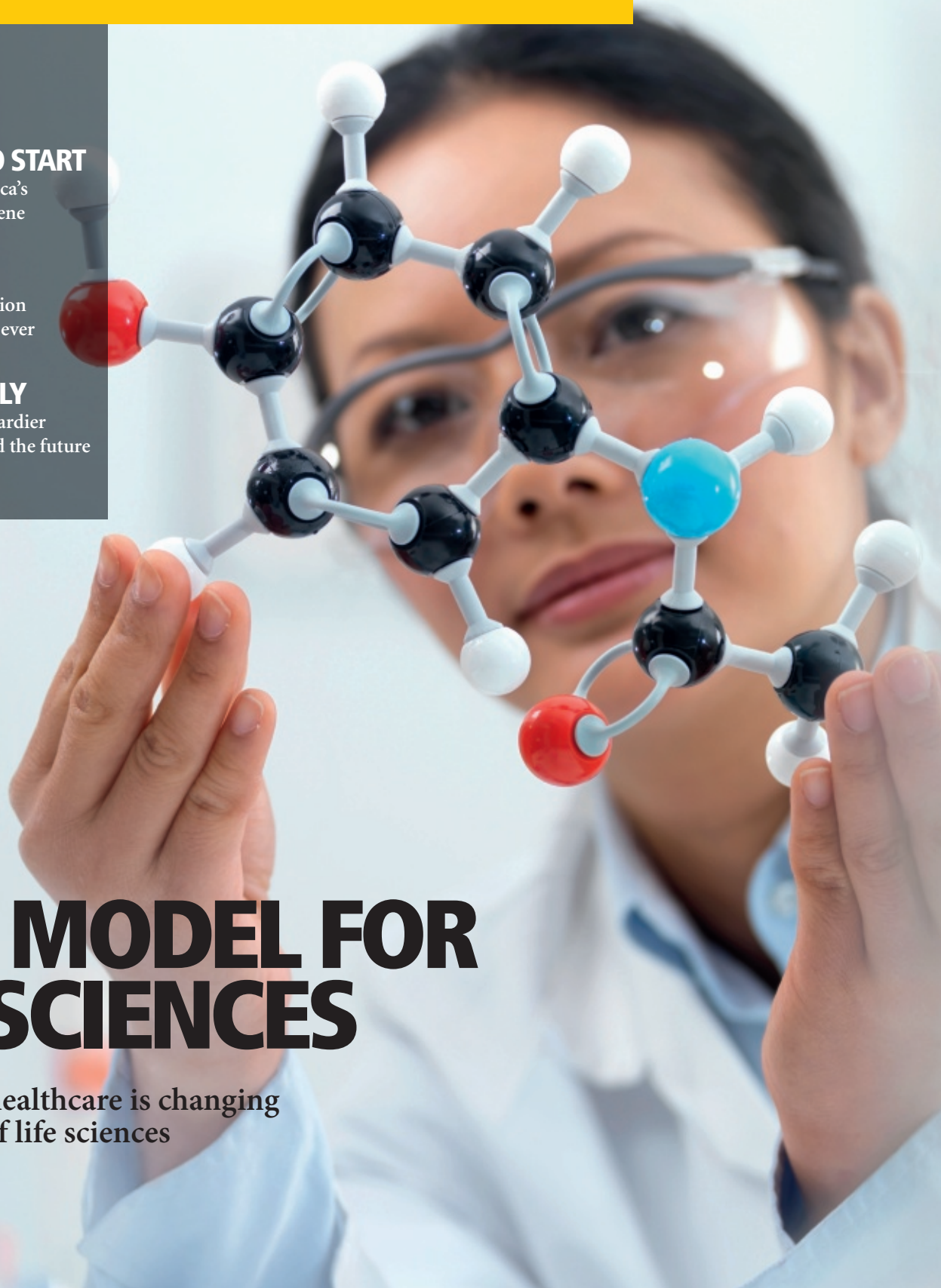
IT'S IN THE FAMILY

Inventor Charles Bombardier on his famous name and the future of innovation

FOCUS

NEW MODEL FOR LIFE SCIENCES

Why tailored healthcare is changing the structure of life sciences





DEAR READER,

We're all individuals. While this statement may be an obvious one, when it comes to life sciences and healthcare, it represents a fundamental change in mind set. Where "one drug for all" used to be the prescribed course for an illness, now, with the ever-growing understanding of an individual's genetics, lifestyle and the characteristics of their condition, the approach to treatments is becoming much more tailored. To provide this higher treatment efficacy while keeping down cost, the life sciences sector will have to rethink its business models – and its supply chains, as our Focus article **This time, it's personal** explains.

Africa is often hailed as "the final frontier" – a continent full of promise, and yet fraught with obstacles of many kinds. A young continent, it has an emerging startup scene that is beginning to gather speed and attract investment. So, can Africa's entrepreneurs create the solutions that will help "the final frontier" move towards a promising future? **Startups take Africa by storm** has the details.

Someone who certainly is an interesting individual is Charles Bombardier, engineer, inventor and grandson of the founder of aerospace and transportation giant Bombardier Inc. In **Delivered. talks to...** Charles reveals where his creative innovation comes from and talks to us about drone towers, pipe logistics and much more.

Enjoy your read!
Sincerely,

Bill Meahl
Chief Commercial Officer, DHL

Cover photo: Andrew Brookes AB Still Ltd



04 NEWS

FOCUS: LSH

- 08 This time, it's personal**
Tailoring treatment more precisely could lead to better outcomes for patients and lower costs for providers
- 14 Share and share alike**
The life sciences and healthcare sector offers the perfect opportunity for businesses to help meet social challenges
- 16 Latest life sciences trends**
When demographic pressures meet technology, the outcome can be revolutionary

PUBLISHED BY DEUTSCHE POST AG

Represented by
Prof. Dr. Christof Ehrhart
EVP Corporate Communications
& Responsibility

Anita Gupta
SVP Global Media Relations

Editor-in-Chief
Michelle Bach
michelle.bach@dhl.com

Project Manager
Salvinija Buiydaite

Editorial Assistant
Meribel Sinikalda

Address
Deutsche Post AG
Charles-de-Gaulle-Strasse 20
53113 Bonn, Germany
Tel. +49 (0) 228-18 20

Commercial Register No.
Registration court Bonn
HRB 6792

Turnover Tax ID No.
DE 169838187

Website
www.delivered.dhl.com

Editorial Production
TERRITORY
Content to Results GmbH
Bei den Mühren 1
20457 Hamburg

Editor
Richard Reed (freelance)

Project Manager
Birte Kleinebenne

Art Direction
Christina Götsche

Photo Editor
Katharina Werle



BUSINESS

- 18 Startups take Africa by storm**
Africa's vibrant startup scene is gaining momentum, with entrepreneurs creating solutions to meet Africa's challenges
- 21 An aerotropolis for Africa**
Africa's first aerotropolis, Dube TradePort, brings increased connectivity to South Africa
- 22 True romance**
In an age of machines, it's imperative that companies find their romantic side, argues bestselling author Tim Leberecht
- 25 Blockchain**
It's a buzzword sweeping the world of payments but it could transform the way everyone stores confidential data

- 26 What's in store**
It used to be bricks-and-mortar stores moving online. Now some e-tailers are setting up store on main street

SOLUTIONS

- 28 Dealing with disaster**
How Disaster Response Teams have been helping vulnerable communities deal with the aftermath of natural disasters
- 30 Embracing globalization**
With innovation and progress spreading globally, people, goods and information are enjoying unprecedented mobility
- 32 Team spirit: tech or tradition?**
Team spirit is a vital part of any business – but what's the best way to build it?

VIEWPOINTS

- 34 Delivered. talks to...**
Canadian engineer and inventor Charles Bombardier on why the future of logistics is, partly, airborne
- 36 Responding to disruptive technology**
An essay by Eleanor Musson
- 38 What's the story, Ms. Goodall?**
British sailor Susie Goodall is taking part in a solo round-the-world race that forbids the use of modern technology

Contributors
Simon Barker,
Tony Greenway,
James Jeffrey,
Eleanor Musson,
Angela Singleton,
Jonathan Ward

Paper
This magazine is made from
100% recycled paper.

We are committed to
protecting the environment
and the world's resources.

Print
optimal media GmbH
Glienholzweg 7
17207 Röbel / Müritz
Print Coordination
Heiko Belitz (resp.),
Matthias Richter



The icons above indicate additional online resources.

www.delivered.dhl.com



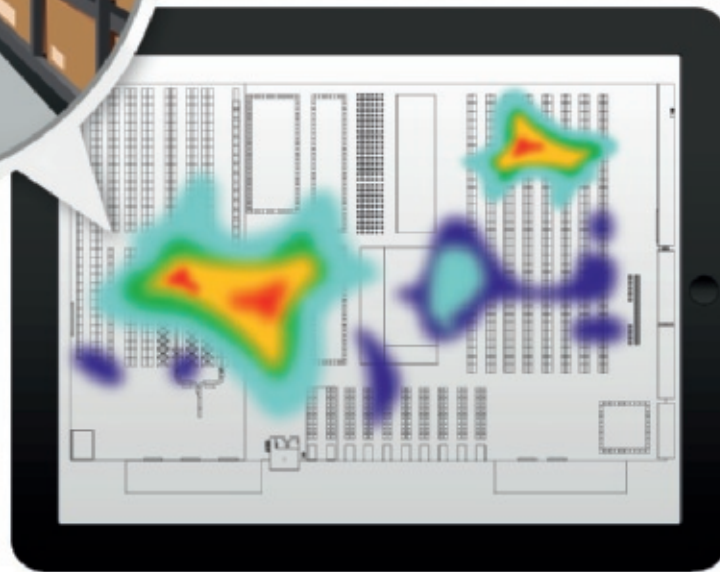
BRINGING THE INTERNET OF THINGS TO LOGISTICS

The internet of things is taking hold everywhere, including logistics. DHL Supply Chain, Cisco and startup Conduce have joined forces to bring IoT technology to warehousing, optimizing operational efficiency and laying the foundations for safer work practices. DHL is currently testing the technology at three pilot sites in Germany, the Netherlands and Poland.

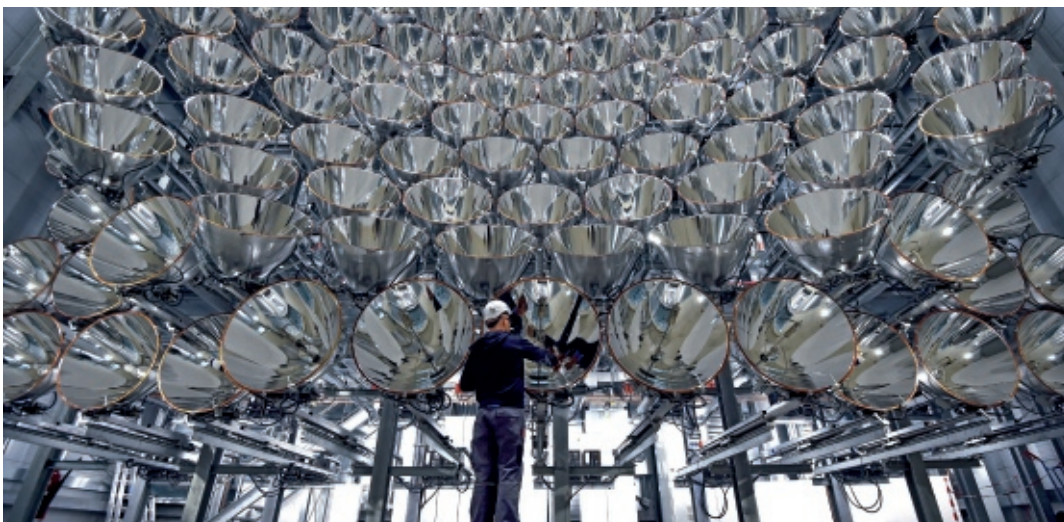
The solution enables the monitoring of operational activities in real time through a responsive graphic visualization of operational data aggregated from sensors on scanners and material handling equipment, and DHL's warehouse management system. Visualizing operational data with heat maps has changed the way data is analyzed and used at the pilot sites, and is expected to contribute to operational efficiencies and improve employee safety.

"By monitoring operational activities in real time rather than retrospectively, we can interpret data more meaningfully, and immediately re-engineer processes or warehouse layouts to boost operational efficiency and address potential safety blind spots in a warehouse," says Markus Voss, Chief Information Officer & Chief Operating Officer, DHL Supply Chain. DHL customers will benefit from Cisco's

and Conduce's industry expertise in Wi-Fi infrastructure and operational data visualization respectively. The pilots have revealed valuable insights on activity peaks, warehouse layouts and processes by displaying concentrations of pickers and material handling equipment against a backdrop of warehouse orders in real time.



 bit.ly/iot-technology



HERE COMES THE SUN

German scientists have switched on the world's largest artificial "sun" in a bid to generate environmentally friendly fuel. By concentrating the light from 149 supercharged film projector lamps onto a single spot, the Synlight experiment hopes to power a reaction to extract hydrogen from water vapor. The lamps produce light 10,000 times the intensity of natural sunlight and create temperatures of about 3,500 degrees Celsius – about three times as hot as a blast furnace.

POLAR EXPLORATION

DHL Supply Chain is strengthening its capabilities in the key emerging market of Latin America by taking control of the Brazilian road carrier Polar Transportes. The life sciences and healthcare carrier, which specializes in temperature-controlled transportation, has been working as a service provider for DHL for more than 15 years and has a strong reputation in terms of technology, quality and regulatory compliance. DHL Supply Chain will retain the company's existing management team, who oversee a fleet of more than 300 trucks and a workforce of 400 full-time employees. DHL Supply Chain has found that temperature-controlled transportation has been the top priority among its customers for three consecutive years, and the sector is only expected to grow as more drugs and vaccines requiring such handling are developed. The acquisition of Polar Transportes bolsters DHL Supply Chain's existing global network of specialized pharmacists and quality managers in 160 dedicated facilities across 44 countries.



6,792 SQUARE FEET

The size of DHL's expanded warehouse in Puerto Rico, which now has three independently controlled cold chambers operating at 15 to 25 degrees Celsius with a combined capacity of 480 pallets. The warehouse, now six times its original size, also has a hot gas injection system to maintain required humidity levels and a further 90-pallet chamber operating at two to eight degrees Celsius

CALLING ALL INNOVATORS!

DHL has launched its second Innovation Challenge, calling on students, startups and inventors to submit ideas for two logistics-based challenges. The Robotics Challenge is to create a mobile piece-picking robot that can navigate through a traditional warehouse and autonomously pick items into a cart, then steer back to a packing area. The Sharing Economy Challenge asks entrants to develop ideas that will leverage a sharing economy business model, creating value for all stakeholders, and society. Winners will have their ideas displayed at the DHL Innovation Centers in Germany and Singapore and get the chance to develop their concepts with DHL. "Dell EMC is delighted to co-sponsor the DHL Innovation Challenge," says Timmy O'Dwyer, Vice President, Global Service Parts Operations, DELL. "As a global technology leader helping our customers on their digital transformation journey, we are constantly delivering new solutions in areas such as IoT, AI, virtual reality and augmented reality. Innovation is at the heart of what we do. Therefore, we welcome the opportunity to encourage and nurture innovation amongst students, the startup community and inventors. We are looking forward to seeing the ideas and creativity that are entered for the competition." For more details visit:



www.dhlinnovationchallenge.com

THE TRAIN IS NOW ARRIVING...

DHL Global Forwarding is helping to ensure Riyadh's new Metro system is a success by delivering 47 trains built by Bombardier to the Saudi Arabian capital for use on the 40 kilometer Orange line. The driverless, two-car Innovia 300 trains are "break-bulk" cargo – items that, due to their size or shape, cannot be transported using standard shipping containers. Under the management of the DHL Industrial Projects team, DHL ships them from Bombardier's factory in Sahagun, Mexico, by ocean to the Saudi port of Dammam before handling last-mile delivery to Riyadh, a total journey of 14,000 kilometers.





WILL THE ENDLESS RUNWAY TAKE OFF?

Airports are facing a similar problem the world over: to grow they need more capacity, but to achieve this they need to build extra runways, a move which is rarely popular. But with the sector doubling in size every 15 years, a solution is needed. And the “endless runway” could be the answer. This idea for a circular runway, about three kilometers in diameter, allows aircraft to stagger their takeoffs and landings around its circumference, always making use of headwinds, which are favored by pilots. The airport’s infrastructure can also be built within the runway circle – enough space, says the EU-funded project, even for a hub airport.

bit.ly/endless-runway

MISSION 2050: ZERO EMISSIONS

SAFE WATER FOR HONDURAS

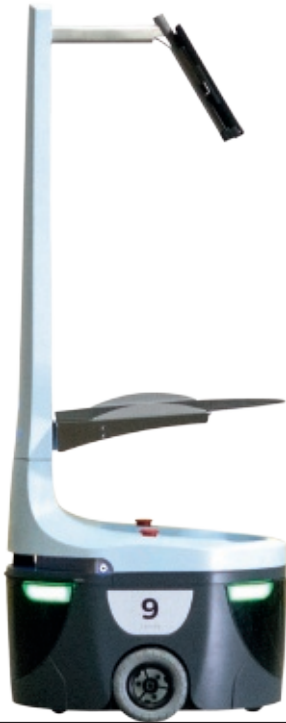
One of the common difficulties facing the developing world is access to clean drinking water. The Central American Republic of Honduras is no stranger to this problem and many low-income households in Honduras boil drinking water on wood-fired stoves in an effort to limit the risk from waterborne diseases. But this has the added problem of generating CO₂ emissions and air pollutants, which can result in health problems – especially when the stoves are indoors. The firewood itself is also often



obtained from unsustainable sources, and the impact of this can be felt globally as well as locally. As part of its GoGreen Climate Neutral service, Deutsche Post DHL Group is helping to promote a safe, zero-energy water filtration system that will help to protect the environment and the health of the local population. The Hydraid® BioSand water filter consists of enclosed layers of sand, gravel, and biological organisms such as algae or plankton that consume pathogens to purify the water. The filter has a 10-year lifespan and needs little servicing once installed. It can produce enough safe drinking water for a family of 10 every day and it generates no CO₂ emissions. It also reduces the need for these families to use fuel, freeing local people from the unhealthy toxins contained in the smoke given off by wood-fired stoves. The filter program also creates local jobs, both selling and maintaining the equipment. Through the purchase of carbon credits, DHL Climate Neutral customers offset their transport and logistics greenhouse gas emissions and help to ensure a healthy future for Honduras. Reducing emissions is something that Deutsche Post DHL Group takes very seriously: the company recently announced its ambitious aim to reduce all logistics-related emissions to net zero by the year 2050.

AISLE ROBOT

DHL Supply Chain is testing a new robot at a life sciences facility in Mississippi, U.S. The LocusBots, which will work as picker companions, are designed to work collaboratively with warehouse staff, helping to locate and transport items quickly so pickers don't have to push carts or carry bins. The test run will assess the robot's ability to communicate with the picker and the warehouse management system, how it navigates the warehouse and its overall versatility.



TURF IN YOUR TANK

Scientists in Belgium have developed a way to turn grass into biofuel. Researchers at Ghent University pretreated grass to improve its biodegradability, then exposed it to bacteria to turn sugars into lactic acid, which could then be used to make other compounds such as biodegradable plastics or fuels. The latter include decane, which can be used in aviation fuel. Way Cern Khor, who researched the method as part of his PhD at Ghent, said: "Due to its vast abundance, grass is the perfect source of energy." The process is currently expensive and limited to producing a few drops of fuel, but Khor believes cooperation with the business world can help to bring costs down and yields up. "Maybe in a few years, we can all fly on grass," he adds.



BILLION

The potential savings that could be made by the life sciences and healthcare industry embracing plug-and-play models in their supply chains. To view the article and download the plug-and-play paper click here:



bit.ly/dhl-plug-and-play

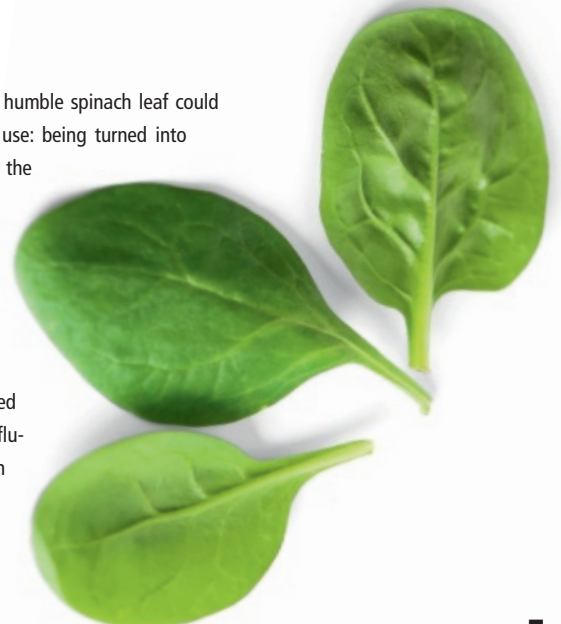
IT'S A SINGAPORE THING

Retailers in Singapore will have the chance to tap into the lucrative U.S. market using a new service from DHL eCommerce. Parcel International Direct U.S. is geared towards the burgeoning e-commerce market, allowing Singapore-based e-tailers, online merchants, manufacturers and traditional bricks-and-mortar businesses to ship their products to the U.S. in a simple and cost-effective way. The product offers end-to-end tracking and a competitive delivery time of four to six business days.



A HEARTY VEGETABLE

Regularly hailed as a superfood, the humble spinach leaf could have an altogether more surprising use: being turned into human heart tissue. Scientists from the Worcester Polytechnic Institute in Massachusetts have used spinach leaves to replicate the delicate cardiac veins and say the technique could help grow layers of healthy heart muscle in heart attack patients. The researchers stripped the plant cells from the leaves, sent fluids and microbeads similar to human blood cells through the remaining vessels, and finally seeded it with the cells that line blood vessels.







THIS TIME, IT'S PERSONAL

Tailoring the choice of therapy and the delivery of treatment more precisely could lead to better outcomes for patients and lower costs for providers. To do that, the life sciences sector will have to rethink its business models and supply chains.

**ON THE PULSE:**

The Philips Azurion system allows surgeons to monitor heart performance in the operating room without taking sterility breaks.

In 1899, German dye-maker Bayer started the manufacture of synthetic acetylsalicylic acid. Sold under the brandname Aspirin, the company's tablets, complete with embossed logo, ushered in a new model of standardized medicines, produced and distributed on an industrial scale. It was a model that built the global pharmaceutical industry into a giant. Worldwide prescription drug sales reached \$777 billion in 2016, for example.

More than a century later, is this model beginning to crumble? Overall, the pharma business seems healthy enough. Prescription drug makers are expected to enjoy continued annual growth of 5 percent or more over the next three years, and sales are forecast to pass the trillion-dollar mark by 2020. The industry is facing pressure from multiple directions, however, forcing companies to rethink some of their most well-established processes.

The symptoms are well understood. Demand for healthcare products and services is rising faster than

society's ability to pay for them. Ageing populations and the rapid rise in noncommunicable, lifestyle-related diseases are stretching the health services of developed countries. In emerging regions, billions of people now expect – and deserve – access to better healthcare. The very success of the global healthcare business is compounding the pressure. As new products and treatments become available, people naturally want the best available, regardless of the price.

Getting healthcare costs under control has become a pressing political issue in many countries. But while the price of healthcare products may be grabbing headlines, it's only one element of a bigger picture. Increasingly, the industry is recognizing that changes in other areas can have a decisive effect on both costs and outcomes for patients.

We're all individuals

One significant driver of this changing mindset is the growing understanding of the very different ways that different patients respond to treatment. An individual's genetic makeup, lifestyle and the characteristics of their condition can have a fundamental effect on the efficacy of a drug or treatment approach.

“The next 10 years will see a transformation in the design and operation of many life sciences supply chains.”

Scott Allison, President, DHL Life Sciences & Healthcare

Doctors have always known this, but in the past, they had little choice but to take a trial-and-error approach. If the most common treatment didn't work for one patient, they would try another. That meant more money spent on drugs, higher risks for patients and more time spent in treatment.

Now some players are applying the power of big data and artificial intelligence techniques to accelerate the identification of the best treatment approaches for individuals. IBM has partnered with the Memorial Sloan Kettering Cancer Center to build a decision support system for oncologists using its Watson artificial intelligence system, for example.

The system reviews patients' digital medical records and genetic information about their tumor, and uses what it finds to suggest potential treatment plans for that individual, based on data from thousands of studies from hundreds of medical journals and textbooks. Watson has been designed to analyze both structured and unstructured data, including natural language, important because an individual's medical records are likely to contain large quantities of both.

The use of digital technologies to improve the speed and effectiveness of treatment holds huge potential in healthcare, but capturing that potential will require plenty of challenges to be overcome. Not all of them are technical. Providers, and society at large, will have to make some careful decisions about how data is used and shared, balancing the need for individual privacy with the opportunity for broader good.

In such a highly regulated, risk-averse industry, steps toward digitalization have so far been tentative.

When researchers at the McKinsey Global Institute analyzed the degree to which industries in the U.S. have adopted digital tools and business processes, for example, they ranked healthcare fourth from bottom, ahead of only hospitality, construction and agriculture.

It's no surprise the life sciences sector is increasingly looking for help from digital natives. The healthcare arm of Netherlands-based technology company Philips, for example, has entered a joint venture with Salesforce.com, a pioneer of cloud-based software in the customer relationship management sector. The two companies are developing platforms that combine data from multiple sources – from medical imaging equipment to hand-held and wearable devices – to help patients and doctors manage chronic conditions.

Using technology to improve communication between patients and healthcare professionals has been shown to be very cost-effective. "Telehealth" delivery models help patients to comply with treatment plans and let doctors intervene more quickly if the patient's condition changes. That means less unnecessary prescription of expensive drugs, and fewer costly complications.

Better off at home

Another way healthcare is becoming more personalized is in the location of treatment. In the U.S., inpatient stays account for around 7 percent of all healthcare services, but 30 percent of costs. The average inpatient stay in a U.S. hospital costs around \$10,000. Hospital visits are stressful and inconvenient, especially

\$1 TRILLION

The expected value of the sales of prescription drugs by 2020

BEAM ME UP:

New technology allows doctors to "beam" themselves into hospitals to diagnose patients.



**ON THE SPOT:**

LocusBots allows large numbers of robots to operate seamlessly and collaboratively alongside workers in a warehouse.

for patients whose condition may require multiple trips over an extended period. Going to the hospital is risky, too. In 2011, for example, 6.4 percent of patients staying in a hospital in England acquired an infection while they were there. Treating those infections can mean extended stays, and more costs for providers.

To chip away at these high costs, there is increasing interest in the delivery of treatment to patients in their local communities or at home. Studies of chemothera-

py treatments offered in hospitals, local doctors' offices or the patients' home have shown no significant difference in clinical outcome, for example. Treatment in the community can be cheaper, too. One U.S. study found that the cost of chemotherapy was between 20 and 80 percent lower if it was delivered in a local doctor's office rather than at a hospital.

Then there's e-commerce. The internet has transformed the way people around the world buy and receive many categories of products. The life sciences industry has been relatively slow to make that shift, mainly due to tight regulatory constraints in many markets.

That's likely to change, however. Consumers, especially those managing long-term conditions, want the convenience and simplicity of receiving their medication via home delivery. Drug companies, meanwhile, see direct-to-consumer sales as a way to boost margins in price-sensitive categories by cutting out supply chain intermediaries, while also fighting back against counterfeiters and gray-market providers.

Emerging markets could see the most dramatic changes to drug distribution through e-commerce, as they have millions of customers that are not currently well served by hospitals or pharmacies. Consultancy Deloitte, for example, suggests that China's pharmaceutical e-commerce market could grow from 10 billion RMB (\$1.45 billion) to 150 billion (\$21.8 billion) as the government eases distribution controls.

**PICKING ROBOT:**

A fully automatic picking robot in use at the pharmacy of the University of Mainz.

Supply chain at the forefront

For pharmaceutical companies and medical device-makers, this emerging world of personalized treatments, delivered direct to patients, will have profound implications for the supply chain. To understand something of the challenges involved, they can look at other industries that have made similar shifts. The automotive industry's transformation from mass production of uniform product to just-in-time and just-in-sequence production of vehicles tailored to individual customer needs, for example. Or the retail sector's development of omnichannel supply capabilities, with flexible distribution infrastructure capable of handling truckload deliveries to stores, alongside packaging of individual items for direct deliver to e-commerce customers.

Supporting the delivery of complex services such as cancer treatments or kidney dialysis in community settings will have a lot in common with the field service supply chains used by technology companies supporting critical assets. They will require the delivery of equipment and materials to the patient's home to be tightly synchronized with the arrival of the medical professional who will oversee the treatment.

Other characteristics make healthcare supply chains even more demanding, however. Some of the products involved are delicate and short-lived. They must be shipped and stored under tight temperature control. Security and traceability are critical concerns.

Some healthcare products have supply chain demands rarely seen elsewhere. Autologous cell therapies, for example, use tissue extracted from the patient, processed by a pharmaceutical company and then reinfused. That requires a carefully choreographed, circular supply chain between patient and manufacturing site. Similarly, the growing use of 3-D printing in medical devices such as implants used in reconstructive surgery requires the ability to manufacture and deliver fully customized products with very short lead times, while still meeting demanding safety and quality standards.

To meet its coming supply challenges, the industry will have to innovate. Like all innovation, that's going to involve some borrowing of ideas and approaches from elsewhere. But it is also going to require those ideas to be adapted and recombined to create entirely new solutions.

"The next 10 years will see a transformation in the design and operation of many life sciences supply chains," says Scott Allison, President, Life Sciences & Healthcare, DHL. "New technologies and new supply chain models will help companies provide a faster, more personal and more cost-effective service. The exciting thing for the industry is that many of the capabilities they need are there already. Now it's going to be about making the business case." ■ Jonathan Ward

\$21 BILLION

The size of China's pharmaceutical e-commerce market could grow to in the next three to five years from its current level of \$1.45 billion

3 QUESTIONS FOR

Scott Allison,
President,
Life Sciences
& Healthcare, DHL



1. How do you see the supply chain priorities of life sciences companies changing over the coming decade?

The industry has always prioritized quality and security in its supply network, and those attributes are still going to be vital. The big emerging challenge for companies is going to be finding ways they can use their supply chains to reduce the cost of healthcare delivery, while improving service to patients and providers. That's going to require increased emphasis on agility, flexibility and the creation of innovative new offerings.

2. How can the sector address those challenges?

Technology is going to help. Just as big data and advanced analytics are transforming healthcare itself, so those techniques have huge potential to help supply chains work better. At DHL, for example, we've now moved more than one million smart shipments using tags that monitor the location, temperature and handling conditions throughout the journey. We're now starting to use that data to give customers insights that go beyond the status of individual shipments and let them make smarter decisions about route selection, packaging and handling procedures.

3. Where do you see the biggest opportunities for life sciences companies to use their supply chains for competitive advantage?

Everywhere! Downstream distribution to patients and providers is receiving a lot of attention just now, because that part of the business is changing so fast, with new distribution models and new channels to market. But I see big upstream opportunities, too. Many companies are still managing their inbound supply chains at the plant level, for example. As other industries have already shown, there is a lot of potential for cost savings and performance improvement by taking a more integrated approach.



SHARE AND SHARE ALIKE

“Shared value” is about finding better ways for businesses to help meet social challenges, and the life sciences and healthcare sector provides an ideal opportunity to put that into practice.

Healthcare is one of the most pressing issues of our times. Nearly 29,000 children under five years old die every day, mainly from preventable causes – that’s one child every 20 minutes.

Of the almost 11 million child deaths each year, the vast majority are in the developing world – two-thirds in just 10 countries. An Ethiopian child is 30 times more likely to die by their fifth birthday than a child in Western Europe.

Tackling the crisis gives life sciences and healthcare businesses the chance to show not just that they care, by making a few grand philanthropic gestures, but to actually reinvent their business models and put sharing at the heart of what they do as a company.

The road map for that restructuring has already been laid down. In a 2011 Harvard Business Review article, management strategists Michael E. Porter and

Mark R. Kramer asked whether capitalism was equipped to address the real needs of society and the planet. Their conclusion was simple: over the long term, the interests of corporations and society are closely aligned.

They argued that companies need to stop thinking about social responsibility as something they bolt onto their current practices and start building it into their business models. Finding the overlaps between business opportunities and social needs could benefit everyone. But to qualify as a “higher form of capitalism,” companies must make creating social and economic value part of the same core business activity.

The authors called the idea “shared value,” and together with the Clinton Global Initiative, they launched a program to encourage businesses to adapt the approach.

They highlight three opportunities for shared value. First, companies can improve the way they meet society’s needs by creating better products and addressing unserved customers. Second, they can rethink their value chains to make better use of resources and engage with employees and business partners in a way that benefits society as well as the company. And third, they can promote the wellbeing of the communities in which they operate by improving the available skills, supplier base and supporting institutions.

Huge opportunity

Healthcare represents a huge opportunity – and test – for the shared-value concept. While improving the wellbeing of individuals is a central goal for life sciences companies, their efforts have traditionally been focused on the

delivery of products and services to wealthier parts of the world.

Roughly 80 percent of the lives lost due to noncommunicable diseases such as cancer occur in low- and middle-income countries, for example, but these regions account for only 4 percent of global spending on cancer treatment. And where large global healthcare companies have supplied emerging regions in the past, they often thought about them very differently to their home countries. Their customers were usually charitable foundations, multilateral bodies or nonprofit organizations, and their motivations as likely to be philanthropic as commercial.

Now attitudes are beginning to change. The sheer size of emerging country populations, and the huge range of their unmet medical needs, means the healthcare markets in these regions are growing at twice the rate of their developed economy counterparts.

A report by nonprofit consulting firm FSG, founded by Porter and Kramer, makes four recommendations for life sciences companies:

- Be transparent about ambitions in low- and middle-income countries and explain your strategy clearly.
- Share lessons that have been learned about marketing drugs, vaccines and medical devices in hard-to-reach populations.
- Measure progress with shared value, and set targets for areas such as health system strengthening and disease indicators.
- Invest early to gain first-mover advantage – companies that take the initiative, such as GlaxoSmithKline in India and Novo Nordisk in China, can achieve a major competitive advantage as new markets develop and mature.

Healthcare programs

Pioneering players in life sciences and healthcare are already adopting shared value principles in emerging markets, aiming to build new business that simultaneously generate profits and improve social welfare.

Pfizer and GlaxoSmithKline created a new joint venture, ViiV Healthcare, to help treat the estimated 36 million people worldwide living with HIV/AIDS. In Kenya, it has partnered with SOTENI to promote the prevention of mother-to-child transmission of HIV.

GE wanted to grow its business in India, and noticed the rapid growth in cardiovascular disease. The company developed a low-cost electrocardiograph machine suitable for mobile use in difficult environments that sells for as little as \$500. GE has so far sold 10,000 units, mostly to individual doctors.

South African health insurer Discovery runs a program for customers that offers discounts from retail stores and travel companies as a reward for activities such as taking exercise, buying nutritious foods or undergoing preventive health screening. The company offers mobile

phone apps and a credit card to make tracking simple for customers. If the scheme encourages lifestyle benefits that make customers healthier, Discovery should benefit from lower costs.

Pharmaceutical giant Novartis, meanwhile, is running a pilot program in Nairobi and Mombasa, Kenya, to improve the efficiency of its medical supply chain. Under the scheme, pharmacists register their patients for surveys delivered by mobile SMS message. The company is using the results to map patient locations and reposition its inventories in the areas where they are needed most.

DHL-Gavi partnership

Shared value in healthcare is also an area where DHL is taking action. In January this year, Deutsche Post DHL Group and Gavi, the Vaccine Alliance, announced a global partnership to help improve vaccine supply chains in Gavi-supported countries.

As immunization programs expand to include new, life-saving vaccines and strive to reach more people, often in remote areas, they are increasingly constrained by outdated supply chains. With vaccine volumes continuing to increase and the persistence of often weak or broken health systems, there is a critical need for improvements in immunization supply chain infrastructure.

Over the next three years, the new partnership will be vital in helping to provide countries with efficient supply chain solutions to improve healthcare delivery. DHL's logistics expertise in life sciences and healthcare, combined with its global transportation network, will help countries overcome challenges and make the vaccine supply chain more efficient. This can help countries increase immunization coverage, reduce vaccine wastage and better ensure vaccine availability and potency – and ultimately help reduce child mortality.

Kenya is one of the first countries to benefit from the new partnership. DHL, Gavi and the Kenyan Ministry of Health are testing a dedicated transportation management solution for the efficient distribution of vaccines throughout the East African country.

The aim is to improve the speed and reliability of vaccine deliveries to hospitals, clinics and medical professionals. The new network will use DHL's own global transportation network, together with a new Transport Support Hub that will act as a central control to better manage and coordinate third-party transport carriers.

The project is part of Gavi's private sector engagement strategy, which seeks to build a cluster of a private sector partners to address critical bottlenecks to immunization coverage in Gavi-supported countries. By focusing the skills, expertise and technology of the private sector on the immunization supply chain, data quality and demand generation, Gavi aims to accelerate progress and achieve lasting impact. ■ Jonathan Ward

11
MILLION

The number of children who die each year globally – the vast majority of them in the developing world

TRENDS, TECHNOLOGY AND TRANSFORMATION IN LIFE SCIENCES

When social and demographic pressures meet technological opportunity, the outcome can be revolutionary.

The life sciences industry has grown into its current form by addressing unmet healthcare needs with scientific rigor and steady technological evolution. Now the sector faces disruptive forces on both sides of that equation, with new care challenges and new technology-driven tools with which to address them. The result is likely to be a transformation in the way medical products and services are produced, distributed and consumed.

This disruptive environment has particularly profound implications for healthcare supply chains. They are the topic of a new report from DHL, which looks at the way an evolving patient-centered healthcare approach will require more complex, capable and cost-effective supply chains, and how technology is helping those supply chains to become a reality.

The report identifies six key trends and technologies that healthcare supply chains can leverage to help the sector thrive in an environment where demand is set to rise faster than the funds available to pay for it.

Data analytics (big data)

Healthcare providers are increasingly turning to data to make more informed decisions about the management of their operations. The development of powerful analytical systems allows participants in every part of the healthcare system to mine multiple sources of data, from network-connected diagnostic devices to patient records, and use that information to predict changes in demand for products and services. The same technologies are cutting costs and improving efficiency in logistics and supply chain operations, ensuring products are delivered by the most cost-effective and reliable routes, for example.

The internet of things

IoT-enabled tagging technologies will enable tighter control of product inventories across the supply chain, reducing loss and waste while increasing service levels and availability. Stronger links between physical prod-

ucts and data will also aid the industry in its ongoing battle against theft and counterfeiting. New product serialization and identification technologies will aid the tracking of products through the supply chain, allowing end users to verify the source of their products and facilitating the management of product lifecycles.

Direct delivery models (on-demand delivery)

Manufacturers will build up direct delivery models to respond to increasing online and home care channels. The online pharmaceutical market will grow to \$128 billion by 2023. These trends open up new opportunities for manufacturers while requiring new delivery concepts, especially an increase in direct-to-consumer delivery models. Life sciences manufacturers will also go further downstream into hospitals to enable on-demand delivery of devices from medical parts to surgery kits.

Robotics and automation

To meet increasing complexity and service requirements without adding excessive costs, healthcare supply chains will turn to advanced automation solutions to reduce the labor required in repetitive tasks, from the picking of products in warehouses to the sorting and analysis of laboratory samples. In logistics operations, aerial drones will be used to enable faster, cheaper last-mile deliveries in remote areas.

Augmented reality

Data needs to be accessible to be useful. New ways of displaying and presenting information will make supply chain operations more accurate and more efficient, and support faster, more effective management decision-making. Perhaps the most exciting of these technologies are augmented-reality systems that present relevant information or instructions in the user's field of view. These technologies have potential application in a host of areas, aiding the selection of

the right product from warehouse shelves, for example, or providing frontline medical teams with relevant patient information at a glance.

Additive manufacturing

As treatments become increasingly personalized, new manufacturing technologies will enable medical devices and even drugs to be manufactured on demand using

advanced 3-D printing systems. These technologies won't just change treatments, they could also transform supply chains, with more products manufactured close to the point of use and the development of new, decentralized production networks. ■

The report will soon be available for download at:



bit.ly/dhl-lsh-trends



STARTUPS TAKE AFRICA BY STORM

Africa's vibrant startup scene is gaining momentum, with talk of big investment numbers and entrepreneurs creating deft business solutions spanning the full technological spectrum to meet Africa's unique challenges.

After grabbing the ringing phone at Acapulco Mexican Grill and Bar in the center of Addis Ababa, owner Abel Wondowsen quickly scribbles an order for quesadillas and tacos on a pad of paper. Soon a bundle of wrapped food is on the counter awaiting a motorbike dispatcher from Deliver Addis.

Western-styled restaurant home delivery – especially involving Mexican food – is a relatively new concept in the Ethiopian capital, even more so across the country. Hence when Deliver Addis founder Feleg Tsegaye moved to Ethiopia from the U.S. five years ago, he despaired at being unable to order home delivery after a long work day.

“So I put together a quick website, talked to a couple of restaurants, hired a motorcycle for a month and invited about 30 people to use it,” Tsegaye says of his experiment in March 2015. “I just wanted to be lazy and not have to cook in the evening. It backfired badly as this is the most busy I’ve been in my life.”

Tsegaye is far from alone in finding his business idea take off. Across Africa a vibrant startup scene is transforming economies and lifestyles. Tech startups alone raised \$129 million in Africa during 2016, representing a 16.8 percent rise in the number of successfully funded startups over 2015, according to a new report from Nairobi-based Disrupt Africa, an online media site providing news, information and commentary on Africa's tech startup and investment scene.

While South Africa, Nigeria and Kenya are the continent's three most popular investment destinations, securing just over 80 percent of funds, entrepreneurial vigour is evident everywhere.

“We see increasing activity in other countries, such as Egypt, Ghana, Rwanda, Morocco, Tunisia, Zimba-

bwe,” says Gabriella Mulligan, co-founder of Disrupt Africa. “So it's fair to say markets are developing [and] incredible ideas and innovations are popping up continent-wide.”

Going high and low

The tech scene is only part of it. Characteristic of Africa's startup scene is how people are building both high-tech and low-tech business models around impact projects geared toward a similar goal.

“The end game remains the same: we are building home-grown solutions to address challenges peculiar to Africa,” says Robert Kimani, President of FUZU, a Kenyan career development startup launched in late 2015 and one of 12 African startups to watch in 2017, according to Disrupt Africa.

“We have seen more funding delivered to impact projects addressing common global challenges that need to be solved, such as unemployment, education, health and financial services, to name a few.”

While Africa's startup scene is accelerating, distribution is uneven across the continent, centered around entrepreneurial hubs such as Silicon Cape Initiative in South Afri-

16.8
PERCENT

The rise in the number of successfully funded tech startups in 2016 over the previous year



Photos: PR

ca, iHub in Kenya and Impact Hub Harare in Zimbabwe.

“These hubs help startups move from idea to market, through training, mentorship and coaching,” says Gift Gana, co-founder and CEO of Dr CADx, a Zimbabwean startup developing a computer-aided diagnostic system to help doctors diagnose medical images more accurately – another of Disrupt Africa’s 12 to watch.

“Bringing budding entrepreneurs into a community helps in forming networks, acts as a magnet that draws other entrepreneurs and encourages those who are struggling to keep going.”

The result, says Temitope Ekundayo, Head of Business Development and Strategy for Nigerian digital printing startup Printivo, also on Disrupt Africa’s 12-to-watch list, is increased economic diversity and productivity, as well as increased economic penetration and job creation – all with that crucial African flavor.

“[This provides more] locally relevant, culturally and economically accepted and faster solutions than Western counterparts,” says Ekundayo, adding that the biggest reason behind the startup extravaganza is “the rising opportunities and changing buyer behavior of Africans.”

Drawn back to Africa

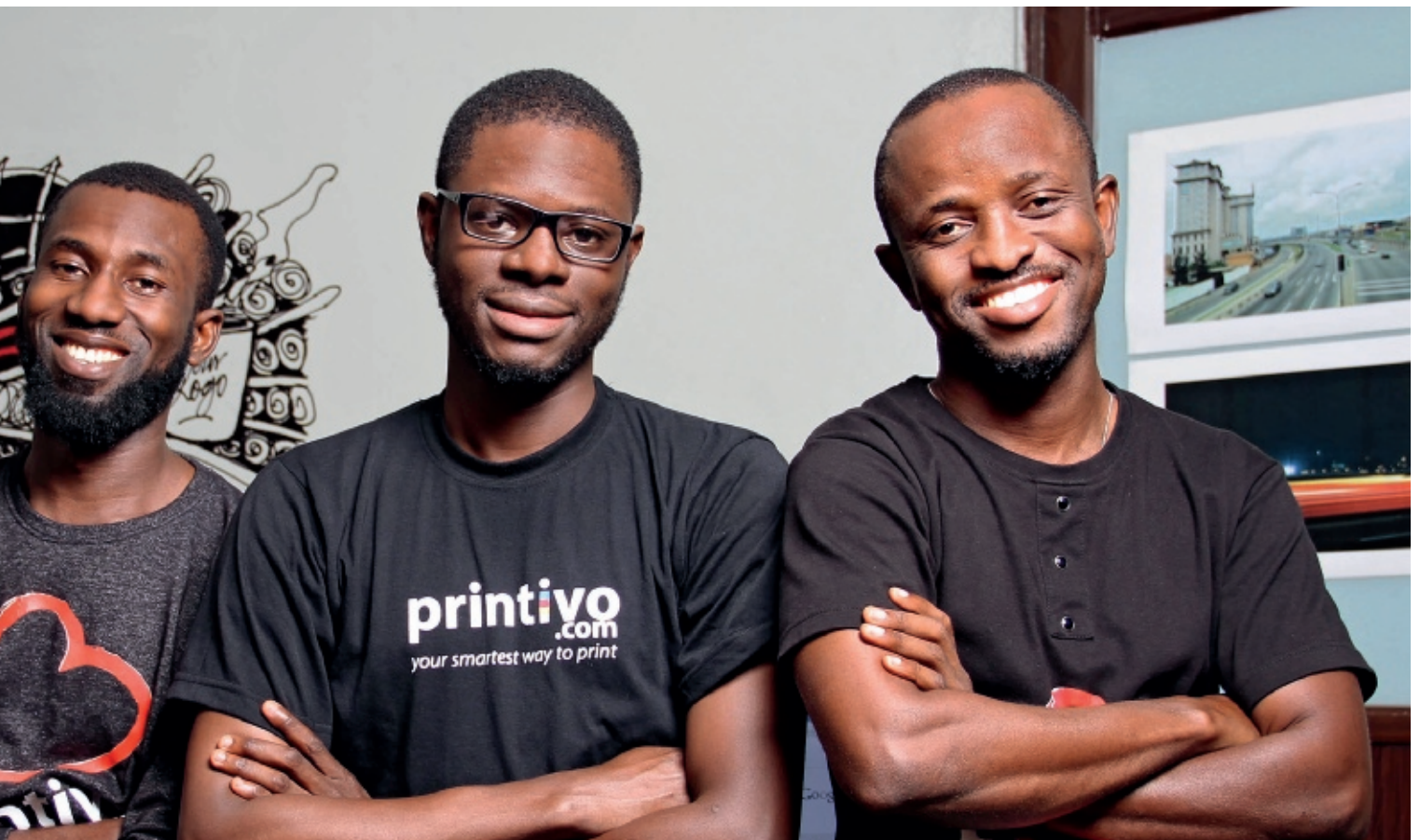
“Returning entrepreneurs have the unique position of understanding local business context and having access to global professional networks in the U.S. that can be leveraged,” says Ghanaian Fred Swaniker, who after studying economics in the U.S. returned to start the African Leadership Academy in South Africa, a two-year high school program for developing young leaders. “They can therefore be effective intermediaries in enabling capital flows and the exchange of ideas and innovations between the two regions in ways that are symbiotic and mutually beneficial.”

Trying to map startup trends across the continent is complicated by the variety and scale at play, and risks missing finer details.

“Africa is a massive continent and the dynamics tend to revolve more around the local markets in each country and their respective regulatory environments,”

BUSINESS BRAINS:

The co-founders of Nigerian startup
Printivo – Ibukun Oloyede,
Oluyomi Ojo and Ayodeji Adeogun.



\$129 MILLION

The amount raised by African tech startups in 2016

says Tsegaye, inspired to leave the U.S. after a 2000 visit to Ethiopia during which he met people who, like him, were interested in information technology but had no opportunities to pursue it – hence Tsegaye’s decision to help create such opportunities. “The trend across the continent so far has been an influx of mobile-enabled services due to the high mobile penetration rates in many African countries.”

As with mapping trends, nailing down the brightest startups in Africa appears an impossible task in the face of such variety and talent. But, as with Disrupt Africa’s 12-to-watch list, indicators are out there. Swaniker says that through his work with the Africa Awards for Entrepreneurship he’s been impressed by Cellulant and Zoono in the mobile payments space, Nova Pioneer in education, and Zimbabwe’s Astro Mobile, which manufactures affordable but stylish smartphones suited to African markets.

“And there are many others,” Swaniker says.

Adopting the right attitude

All the buzz shouldn’t mask how startups across Africa still must contend with typical frontier-market-related problems: difficulties accessing financing, logistic frictions, weak infrastructure, unfriendly regulation and political uncertainty. The good news, however, is African entrepreneurs aren’t letting this put them off. “These are not new challenges and any business that is here for the long haul will surmount and survive with the

right leadership and attitude,” Kimani says. An example is soleRebels, handcrafted fair trade footwear made in Ethiopia. Founded in 2004, the brand was turned into the fastest growing African footwear brand by its owner, Bethlehem Alemu. The company makes stylish shoes from recycled materials and sees itself as “Africa’s answer to Nike.”

Foreign investors are responding enthusiastically with seed capital, Kimani explains, due to growing internet and technological maturity enabling new larger markets to emerge that enable investors to get more bang for their buck in terms of impact and return on investment.

They’re also being impressed by another essential factor: human capital.

“Here there is an eagerness to learn,” says Matt Davis with Renew Strategies, an impact investment and advisory firm managing and serving a global network of socially minded investors focused on Africa. “That’s not necessarily so in the West, where it’s more about innovation and trying to break into new frontiers.”

If the current trajectory continues, it appears Africa’s list of cities known for innovation and fostering startups – Nairobi, Kigali, Lagos and Cape Town – will only get longer.

“Going forward, Africa will continue to innovate both for itself and for the world, and create solutions to local and global challenges,” Mulligan says. “Startups will without doubt transform Africa’s economic narrative over the coming years.” ■ James Jeffrey

SOLE TRADER:

Bethlehem Tilahun Alemu, founder and CEO of soleRebels, at her workshop in Addis Ababa.





AN AEROTROPOLIS FOR AFRICA

Africa's first aerotropolis, Dube TradePort, brings increased connectivity to South Africa.

Dube TradePort is taking advantage of its prime location beside Durban on the South African Indian Ocean coastline in a bid to become Africa's first aerotropolis, connecting business, people and goods to global markets.

Upon completion, this air freight and passenger hub surrounded by industrial and agricultural zones aims to be the continent's only facility combining an international airport, dedicated cargo terminal, warehousing, trade and agrizone. The ultimate aim is to develop Durban as a major logistics gateway, acting as a seamless road, rail, air and sea platform to serve the subcontinent.

Occupying a 2,840 hectare greenfield site 30 kilometers north of Durban, Dube TradePort is strategically located between South Africa's two primary seaports – Durban, Africa's busiest cargo port, and Richards Bay – abutting major road and rail links.

"The backbone of South Africa's economy relies heavily on transport for the movement of our natural resources," says Hamish Erskine, CEO of Dube TradePort Corporation. "By investing in transport infrastructure, South Africa is creating efficiencies in its logistics and supply chain management systems, which improve overall competitiveness and the cost of doing business, all in a coordinated effort to spur sustained economic growth."

Conceptualized more than a decade ago, the history of Dube TradePort stretches back to 1968, when land was expropriated for King Shaka International Airport. Its 3.7 kilometer runway currently capable of carrying 7.5 million

passengers per annum is expected to carry 45 million by 2060 as Dube TradePort expands around it, including road and rail links extended to Durban's harbor.

"We have seen Dube TradePort, together with the local government, work to attract new airlines flying directly to Durban," says Ricky Dos Santos, Regional Head, DHL Global Forwarding South Africa. "With the increase in both regional and international air services directly to and from Durban, Dube TradePort brings efficiency and security to the regional supply chain – especially relevant for time sensitive and high-value consignments."

Dube TradePort's lofty ambitions coincide with South Africa finding its previous regional gateway role under increasing pressures. "Our neighbors, who are rapidly expanding their ports and inland road and rail facilities, are replacing South Africa as the gateway to the other Southern African Development Community states," says Patrick Corbin of the International Chamber of Commerce South Africa.

If Dube TradePort can achieve its goals, however, South Africa could make up for lost ground.

"Dube TradePort strengthens South Africa's competitiveness by ensuring that the KwaZulu-Natal Province has increased regional air connectivity," Dos Santos says. "For consolidators this is an advantage as it enables us to offer a direct service to and from Durban to worldwide destinations and origins."

Dube Cargo Terminal handles automotive goods, fashion items, electronic goods, pharmaceutical products and components for machinery, amongst other commodities.

Durban is currently serviced by Ethiopian Airlines, Qatar Airways, Emirates, Air Namibia and Air Mauritius, with daily feeder services into Zimbabwe, Zambia, Mozambique, Botswana and Namibia as well as every other province within South African borders.

"New international and regional air routes open up new opportunities across a full spectrum of sectors including tourism and leisure, business and commercial, and cargo and manufacturing," Erskine says. ■

James Jeffrey

45 MILLION

The number of passengers expected to be using Dube TradePort by 2060

TRUE ROMANCE

In an age of machines, it's imperative that companies find their romantic side, argues consultant and bestselling author Tim Leberecht.

Tim Leberecht is on a mission to bring more “romance” into business. He’s not – emphatically not – encouraging office affairs. Instead, he believes that organizations have to make their operations more exciting, dramatic, mysterious... and human.

The human side of business is increasingly vital in a world where artificial intelligence and big data are becoming ubiquitous. Yes, technology is making the workplace more efficient, says Leberecht; but he stresses that it has the capacity to make it more mechanical and soulless, too. “Our humanity is being challenged like never before,” he wrote recently.

His approach may sound unusual, he admits. After all, most businesses run on routine, thrive on efficiency and want to minimize risk; whereas romance is all about deviating from the routine, losing control and experiencing the world – and yourself – in a different way.

Yet businesses could learn a lot from that approach, he insists. Those that don’t – the ones that only strive to deliver utilitarian value and efficiencies – will find it difficult to attract and retain talent, and foster customer loyalties. Meanwhile, workplaces that are “more surprising, interesting and romantic – not repetitive and boring” will “enhance their capacity to be human,” says Leberecht. As a result they will “forge a deep, lasting commitment to their customers, employees, and partners who will want to stay engaged with them.”

All a business needs is the courage to try something different.

That’s where Leberecht comes in. San Francisco-based, he is a consultant, speaker and the founder and CEO of Leberecht and Partners, a global collective of strategists, designers, producers and artists that helps organizations bring out their “romantic” side. The “lightbulb” moment for him was becoming CMO of a global business and realizing that its fixation on data, efficiencies and the bottom line was squeezing the humanity out of the firm.

“Later, after 10 years of holding senior leadership positions, I felt confident enough to write down my own truths,” he says, publishing a bestselling book in 2015 called “The Business Romantic: Give Everything, Quantify Nothing, and Create Something Greater Than Yourself.”

To find joy and productivity, organizations should take people out of their comfort zones. “For example, you could hold ‘speed meets,’ where a new employee sits across the table from an established employee for a minute before moving on to greet another; or you could change the configuration of your workplace to introduce an element of surprise; or establish ‘walking’ meetings, where calendar invites are sent out with a map featuring a walking route. There’s also technology you can employ to enable lunches between colleagues who may never otherwise meet.”

Keeping the mystique is also vital. “Organizations generally believe that the more they know, the better they will perform,” he says. “But there is a tremendous power in the unknown, and the most meaningful experiences for customers and employees alike has to do with mystique. For example, I know of one company that fosters this by holding meetings in the dark; plus they arrange meetings without the agenda being published beforehand.” To illustrate the power of mystique, Leberecht points to Secret Cinema, a hugely popular U.K. events company that specializes in mystery movie screenings. “The audience doesn’t know what the film is going to be until the last minute, or even where it’s going to be held; but the whole point is that they are attracted by the mystery of a surprise movie in a surprise location.”

Companies shouldn’t be afraid to show their ‘ugly’ side, either. “Take Silicon Valley and the startup culture that is so glorified across the world,” says Leberecht. “Much of it is cosmetic. It’s about nicer offices with lots of perks and convenience, and workplaces that look like campuses. That’s all fine and, of course, people will appreciate it to some degree. But studies show that what they are really looking for is purpose and mission in a company, and how that is expressed within its culture.”

A business must accept its ability to be ugly, too, he says, which means acknowledging that not everything in the workplace will be happy, light and productive; it can also be sad, dark and turbulent. This is key because showing your ugly side is the pinnacle of intimacy and vulnerability – and a business that does so becomes true and authentic in the eyes of its workforce. For example, he recalls a company that created ‘an ugly room,’ where staff could name all the issues that had plagued them

63
PERCENT

The number of employees worldwide who are not engaged and lack motivation in their work



during a recent infrastructure redevelopment. “Simply calling it ‘an ugly room’ was a really unusual step that worked out really well for them and created a strong bond between the leadership and employees.”

Also, as with any romance, workers need to suffer – a little. “The most meaningful life experiences are usually the ones that require us to take on a challenge or overcome an obstacle,” he says. “It could be a difficult assignment or an event that requires effort to attend. Sometimes you need to have the courage to say: ‘No – I’m not going with the more efficient solution. I’m going with the more human solution.’ The fact that more and



WALKING THE WALK: Holding “walking meetings” is a way of motivating staff by deviating from the routine.

more organizations are listening to me tells me that the time is right for this change. I see lots of organizations experimenting with romantic formats. One prime example is Airbnb, who have reconciled their data-driven business with a very romantic business model: ‘We find great meaning in unpredictable, serendipitous connections with strangers.’”

Ultimately, Leberecht believes that romance is a strategic imperative for organizations who want to create cultures of innovation. “If you want to consistently produce ideas, challenge the status quo and make new products and services, you have to give room to the romantics at work,” he says.

INTERVIEW WITH TIM LEBERECHT

When you talk to companies about putting romance into their businesses, what is their reaction?

It’s either horror or awe because I’m challenging conventions. But, overall, what I’m saying has lot of resonance for organizations. That’s because I’m advocating an alternative, humane way of working that shakes up their narrow, linear view of business. It’s also quite timely because, in the future, everything that can be done efficiently will be

automated, and “romantic” tasks – those that require emotional interaction – are the only ones that will remain. So it will be critical for organizations who want to stay human and not become fully automated.

Has technology taken the romance out of business?

I’ve been living in Silicon Valley for 14 years and noticed that there is a romantic ideal here, because people do want to use technology to change the world. They’re not simply out to make money from it.

At the same time, I’m skeptical of the notion that smart engineering can solve every single problem in the world. If we quantify everything that makes us human through applications – our relationships, fitness, and social value, for example – it will simply turn us into smarter machines. We will lose that part of us that makes us inherently human and it could lead to the convergence of man and machine which, as a humanist, I find a threatening thought.

Are you calling for a rethink of our reliance on technology?

I don’t think we can turn back the clock, and I’m not saying we should return to a Luddite, pre-connected, nostalgic state of being. Tech is too fascinating. I’m a big fan of it. I would, however, caution against using technology to make everything more convenient for us. I’d like us to use it to help us create a more romantic, mysterious experience in the workplace. For example, the rise of augmented reality and virtual reality allows us to commute between different worlds and expand our identities. There’s even a company that offers VR-based internships so that people can immerse themselves in another company’s culture for a day. That’s a romantic thought.

Why do companies put such emphasis on technology?

It’s a fear of missing out on something that gives a business the opportunity to become more efficient. Plus, digital transformation always seems like a safe bet, because it’s easier to implement than examining the intricacies of human nature and creating more human-centric cultures in the workplace.

What’s the greatest challenge ahead for organizations?

They have to realize that digital transformation isn’t the holy grail. The greatest challenge will be transforming themselves in an emotional and spiritual way, so that they can collaborate with robots and AI, yet still stay in control. They need to balance technology with a deep belief in humanism, and so protect that part of themselves which is poetic and ambiguous and not simply surrender themselves to more mechanistic, predictable, machine thinking. I think that will be the greatest struggle of this century, actually. ■ Tony Greenway

**\$5
BILLION**

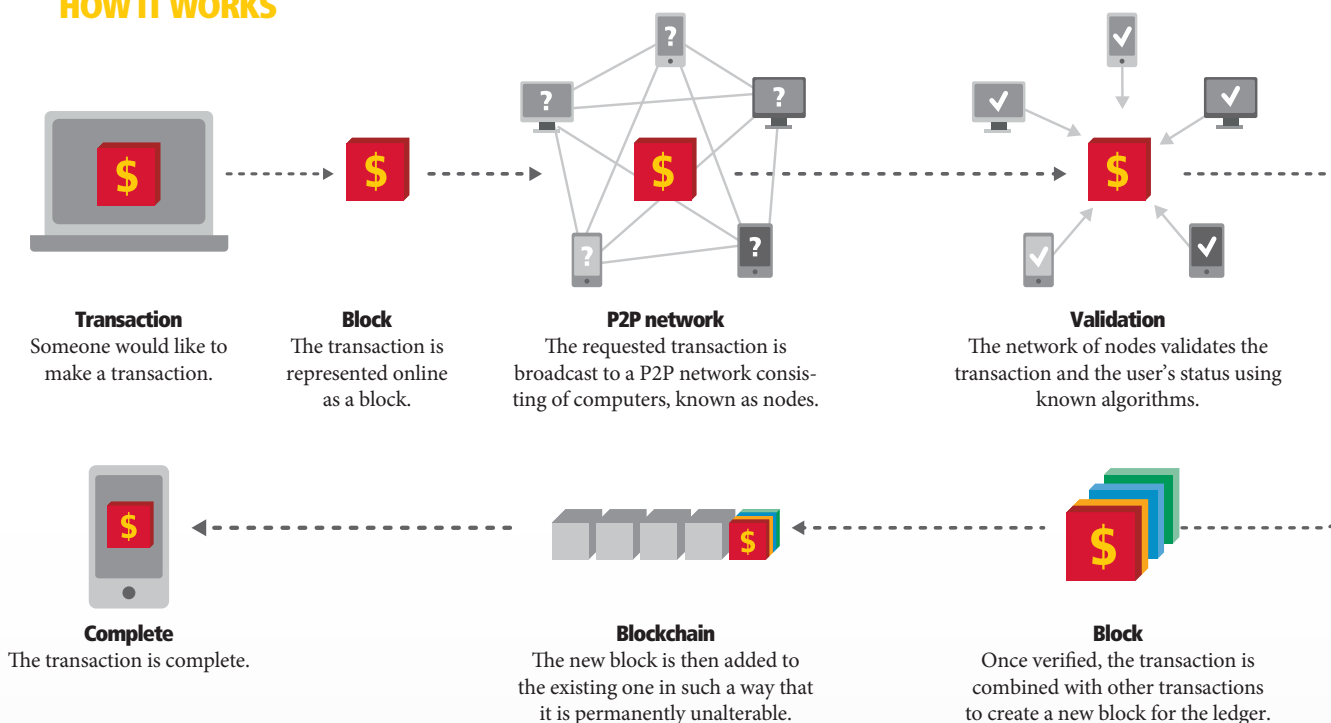
The estimated market opportunity for virtual reality



www.timleberrecht.com

EXPLAINED: BLOCKCHAIN

HOW IT WORKS



POTENTIAL APPLICATIONS



Logistics



Financial services



Voting



Healthcare

There's a new buzzword sweeping the world of financial transactions: blockchain. Pioneered by bitcoin, the virtual currency, this new financial model has potential uses that extend far beyond digital currencies.

At present, the most common model for financial transactions is still using a trusted institution such as a bank. Blockchain, however, allows customers and vendors to connect directly, eliminating the need for a third party to complete the transaction.

Through the use of cryptography that keeps exchanges secure, blockchain establishes a “digital ledger,” a decentralized database of transactions that everyone on the network can see. This network is essentially a chain of computers that must all approve an exchange before it can be verified and recorded.

The beauty of blockchain is that it works for almost any type of transaction that involves a value, such as money, goods and property. This opens up the potential for myriad uses – potentially including logistics. ■

WHAT'S IN STORE?

It used to be brick-and-mortar stores making the move to trade online. Now, some e-tailers are setting up shop on main street. What makes them explore selling outside the digital space?

Step into an Indochino showroom and you are greeted by a bright and airy space dotted with leather sofas, designer armchairs and the odd computer screen. Tied to racks, like giant neckties, are swathes of exquisite fabrics; next to them mannequins display slim-cut suits in a variety of hues.

Ranked among the Top 500 in the Internet Retailer's 2016 Guide, made-to-measure suit company Indochino is one of a growing number of online businesses setting up physical stores.

Founded in 2007 by then-university students Kyle Vucko and Heikal Gani, Indochino quickly made its mark, enjoying triple-digit growth in its early years and eventually emerging as the world's largest made-to-measure men's apparel company. Customers shop by appointment with a "style guide," an in-house suit expert, who will advise on fabric selection and customizations, and take their measurements. The finished suit arrives on their doorstep around four weeks later.

So, with 13 stores in Canada and the U.S. and plans to open more, is Indochino moving on from online? Not at all, says co-founder Heikal Gani: "Our online business remains one of the main drivers of the business. However, early on in the business, we recognized that a customer's experience can be further enriched with our multi-channel platforms. For some of our customers, they would prefer to walk in and get measured by one of our tailor specialists or touch, see and compare the various fabrics



INDO





CHINO



available. Also, from a marketing perspective, a person who walks by one of our stores, and later on sees an ad on Facebook, may be enticed to find out more about us.”

Data analytics drive Indochino’s development, with data collected online from Indochino.com used to determine new store locations. While the online business is the main driver for Indochino, sales in stores actually tend to drive higher-value sales, with customers spending an average of \$100 or more, which Gani puts down to the fact that customers can feel the fabrics, see sample suits and are assisted by staff – something the online world cannot offer.

Indochino is not alone in its move to the bricks-and-mortar world. According to the Guardian, in the past few years some 20 online retailers have started opening physical stores in the U.S. alone, among them Birchbox and eye- and sunglasses merchant Warby Parker.

The biggest stir was undoubtedly caused by Amazon when, after decades of successful online trading, the company opened a physical bookstore in Seattle’s University Village in 2015. To date, Amazon has opened ten book stores, with more in the pipeline. However, like at Indochino, these bricks-and-mortar stores are part of an omnichannel strategy and also serve as showrooms for devices such as the Echo and Echo Dot.

Then there’s Amazon Go, a checkout-free grocery store piloted in Seattle in 2016, which the company describes as “No lines. No checkout. Just grab and go.” Customers use an app, simply select their products and go, with purchases charged to their account. Currently only open to Amazon employees, a rollout is predicted for this year. While some media such as geekwire.com report that beta testing is facing some challenges, experts reckon that the concept might be a true game changer for the retail industry.

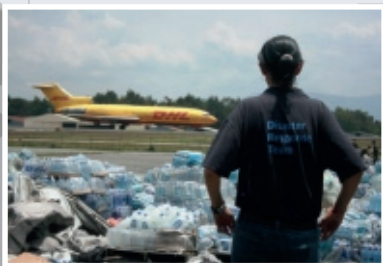
So, after a decade that saw many bricks-and-mortar retailers building up an online presence, it looks like the reverse may now also be the case – if you’re an online retailer, it may make good business sense to expand into the physical realm.

Perhaps, far from being past its sell-by date, the good old-fashioned store might actually emerge as a key building block in a winning omnichannel strategy. ■

Michelle Bach



SOLUTIONS



Guatemala

Tropical storm, 2010
Earthquake, 2012
Mudslide, 2015

Honduras,
Turks & Caicos Islands

Hurricanes, 2008

Haiti

Earthquake, 2010
Hurricane, 2016

Costa Rica

Hurricane, 2016

El Salvador

Hurricane, 2009
Floods, 2011

Panama

Floods, 2008
Floods, 2012
Water contamination, 2014

Ecuador

Earthquake, 2016



Peru

Earthquake, 2007
Floods, 2017

Brazil

Dam burst, 2015

Chile

Earthquake, 2010
Floods, 2012
Forest fire, 2013
Forest fire, 2014
Floods, 2015





DEALING WITH DISASTER

Hurricanes, earthquakes, floods – these are just some of the natural disasters to hit often vulnerable communities, claiming thousands of lives around the world. To help respond, Deutsche Post DHL Group has set up its Disaster Response Teams (DRT).

In cooperation with the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), the company established a network of over 400 specially trained staff who volunteer their time to help out when catastrophe strikes. There are DRTs for the Americas, the Middle East/Africa and Asia Pacific regions. When called up by

the United Nations, DRTs can be on the ground and operational at a disaster-site airport within 72 hours. Using core logistics skills, they help to unload air freight pallets and make sure incoming supplies are received by the appropriate relief organizations.

To help distribute much-needed supplies, the teams often prepare DHL Speedballs – waterproof bags filled with vital relief supplies that can be airdropped from helicopters as survival kits. ■

 bit.ly/dhl-drt



WHY WE NEED TO EMBRACE GLOBALIZATION NOW

We live in fascinating yet ambivalent times. New discoveries and technologies continue to amaze us, while people, goods and information enjoy unprecedented mobility. Innovation and progress are spreading globally.

Over the past decades, life expectancy has increased rapidly around the world; more than one billion people have been lifted out of extreme poverty; more children are in school than ever before; and vaccines have saved millions of lives from some of the world's deadly diseases. While we put more and more power into ever tinier computer chips and send gigabytes of data across oceans in seconds, we are inventing new and greener technologies to make things go even faster and protect our planet at the same time. Collectively, the world has accumulated an unprecedented level of knowledge and insight that can be used to improve the lives of future generations.

While today's era of innovation and dynamism has brought prosperity to many parts of the globe, it has also ushered in a pace of change that can breed a sense of being left behind. The world is becoming more unpredictable. Progress has been uneven. Some have been left out by the spread of economic opportunity. This fuels feelings of dissatisfaction, vulnerability and anxiety about the future. I am particularly concerned about the lack of optimism and the polarization that is increasingly taking root in Western countries. As a result, populist sentiment is on the rise. The specter of nationalism and protectionism has returned to the forefront of political discourse. Major new trade deals have been abandoned and existing ones are being called into question. In a year that marks the 60th anniversary of the Treaties of Rome, the foundations of European integration seem more fragile than ever.

To be sure, there are many legitimate reasons why some citizens feel anxious, left behind and therefore validated by populist movements and protectionist action. But protectionism certainly isn't the right answer – new borders won't bring back jobs and will not enhance prosperity. It is worth recalling that a few decades ago it was mainly nations in the developing world that resisted more openness to trade. Instead, they sought their salvation in the pursuit of national economic solutions. Before long, many of them recognized that they had maneuvered themselves into a dead end and changed course.

Now that the roles are somewhat reversed and the temptation to opt for national solutions has become more prominent among the OECD countries, we are well advised to remember that nationalist and protectionist agendas ultimately have negative consequences. The fact is: there are no examples of long-term economic success based on protectionism. This can't be our long-term vision for our countries and for the world.

The good news is that globalization is still alive and a force to be reckoned with, regardless of the many



premature proclamations of its death. The latest ray of hope is the groundbreaking World Trade Organization's Trade Facilitation Agreement (TFA), which came into force in February of this year after being ratified by more than two-thirds of WTO members. The TFA is the most significant multilateral trade deal since the WTO was established in 1995. At its core, the TFA aims to simplify and speed up the cross-border movement and clearance of goods. By reducing costs, complexity and inefficiency, it will make life easier for a lot of companies that hope to expand their customer base abroad. And it will encourage many more micro-sized, small-sized and medium-sized enterprises to trade with the world.

The TFA illustrates why policymakers who wish to boost domestic prosperity would be best served by working with the international community rather than against it. We have seen in many places how increased trade and interaction have raised incomes, reduced poverty, created large middle classes and cultivated diversity. Globalization in the digital age benefits everyone. It's easier and faster than ever to seize upon groundbreaking innovations in a world where new ideas can easily cross borders. As a result, the global economic pie is not shrinking but expanding.

This, of course, doesn't mean ignoring those who have suffered from or feel threatened by disruption through trade and technology. In fact, we have to do significantly more to support those that need it in a targeted and effective way. Disruptions may uproot existing business models, but they shouldn't uproot people. To ensure that no one is left behind, we need new efforts to achieve equality of opportunity and maintain the chance for everyone to participate.

In this digital and interconnected age, I believe education will become the biggest success factor if we want to future-proof our economies – and thereby our communities. Our goal must be to empower people. Better access to high-quality education tailored to the changing world of work will enable them to keep pace with change. Everyone can contribute to this. Companies by constantly investing in their workforce, employees by committing to lifelong learning, politics and society by mobilizing additional resources for the education system – and by ensuring that the results benefit everyone.

Also, while we need to arm people with knowledge and skills, we can certainly do more to ensure that all segments of society benefit equally from economic progress. First and foremost this calls for effective social systems to help people when they are in need. By cushioning entrepreneurial failure, these systems also encourage entrepreneurial risk-taking, thereby creating new employment opportunities.

But most of all, I believe we need more optimism. The world is indeed changing at an unprecedented pace. In the current environment, it is up to us to set the right course and remain in charge of our own destiny. Fear is a bad guide, and protectionism is not a recipe for success. To lead the changes ahead of us, we need to embrace global connectedness, welcome new technologies and make sure we tap into the worldwide flow of ideas and knowledge. Armed with this kind of attitude, I am very hopeful that we can give an even better world to future generations. ■



DR. FRANK APPEL
CEO, Deutsche Post
DHL Group

TEAM SPIRIT: TECH OR TRADITION?

Team spirit is a vital part of any business – but what's the best way to build it? Some prefer traditional methods, while others are taking the high-tech route.



Building a great team is becoming a science with companies like Google reinventing HR by using people analytics, a highly sophisticated data analytics system that uses feedback to improve HR processes and alignment with the company's work culture through the use of quantitative and qualitative data.

According to the Global Human Capital Trends 2016 report from Deloitte University Press, people analytics is set to become an even bigger part of how business is done. Thirty-two percent of the more than 7,000 companies surveyed said they were ready to start using people analytics, an increase from 24 percent of companies in 2015.

When looking for the perfect formula for creating effective teams for one of its projects, Aristotle, researchers interviewed and collected data from more than 180 active team members.

According to Google, the basic premise of the people analytics approach is: "Who is on a team matters less than how the team members interact, structure their work, and view their contributions."

Successful teams are clearly vital to the company, as each Google employee generates nearly \$1 million in revenue, according to a 2013 figure quoted by Dr. John Sullivan, an HR thought leader from Silicon Valley.

Project Aristotle revealed that "psychological safety" – a shared belief that it is safe to take risks and share ideas without the fear of being humiliated – is the most important factor to building a successful team. Team members can also count on each other to do high-quality work on time, have clear goals, roles, and execution plans, work on something that is personally important and believe that the work they do matters.

"From sales teams in Dublin to engineering teams in Mountain View, California, we've seen that focusing on this framework helps all types of teams improve," says Julia Rozovsky, an analyst at Google People Operations.

High-tech approach

Data-based decision-making programs are also used to create teams at major companies such as ExxonMobil, Ford Motor, E.ON, KPMG, Hewlett Packard, McDonald's and IBM.

"Historically, HR decisions used 'gut and intuition' to drive decisions. Now the use of data in the form of people analytics is providing value, allowing better decisions to be made," says David Green, People Analytics Leader at IBM.

He cites an example of a large, global company that was considering opening in China. The head of analytics looked at the data and discovered that it was not an ideal place to locate the company "as talent in the region was considered very thin." As a result of the data, the company decided not to open in China, thus saving money and potential future recruitment problems.

However, Green says that there are still areas where the use of people analytics may be questioned by the business community, such as whether the business can adequately analyze the data and can they afford to invest in it.

Green's response is that people analytics is a long-term investment. He suggests starting small. If an organization has an idea of what might be valuable information to gather – start there.

"Don't waste time and money on predicting for something that is not a problem for the organization, so give it some thought before you make time and money investments," he advises.

Traditional team building

There's no doubt technology is adding exciting new options for engaging the workforce, but some traditional team-building methods such as helping an employee fulfill long-held ambitions are also in operation.

At home services firm O2E Brands, the company's employees are encouraged to share a life goals program of 101 activities they wish to complete.

"We hold team meetings where we share life goals and the successes we've had, and give updates about

**\$1
MILLION**

The amount each Google employee generates in revenue each year

how we help others accomplish their dreams,” says Brian Scudamore, founder and CEO of O2E Brands.

He recalls getting a text from one of his IT workers who was terrified of water. Scudamore says: “I told him, ‘I will help you conquer that fear. I will buy you your first three swimming lessons – let’s get you going.’”

“When people feel more personally fulfilled and supported in their personal goals by their employer, they feel more respected, more psychologically safe and do better work,” he adds.

These points are echoed in the “Twelve Cs for Team Building” – a checklist for managers and executives by human resources expert Susan M Heathfield to identify areas that need attention in the teams they lead or work with.

According to Heathfield, consideration of all 12 Cs – cultural change, communication, control, consequences, creative innovation, coordination, collaboration, charter, competence, context, commitment and clear expectations – is needed to build the perfect team.

Heathfield explains: “Executives, managers and members of staff are constantly exploring ways to improve their business results and profitability. Since at least the 1980s, many organizations think that team-based, horizontal organization structures are the best way to involve employees in helping their organizations to create business success.”

However, Heathfield says that few organizations are totally pleased with the results that their team improvement efforts produce. “They must pay attention to at least these 12 areas of team development to ensure success from the time and energy they have invested in teams,” she says.

Dr. Maxine Craig of Hart Consultancy in Hartlepool, U.K., was listed as a Top 50 Innovator by the Health Service Journal in both 2013 and 2014 for her innovative work on team performance with the South Tees Hospitals National Health Service Trust.

32 PERCENT

The percentage of companies surveyed that are looking to use people analytics as part of their business processes

“Good team building is where all team members understand, believe in and work towards a shared purpose,” says Craig, a certified coach and psychometrician, and Visiting Professor (Leadership and Management) at Sunderland University.

Now advising both the public and private sectors, Craig says team leaders should develop a “teaming strategy” to plan how people will act and work together, including effective use of communication technology to help them make better use of face-to-face time.

“Many team leaders think a monthly meeting and occasional away day is sufficient to ensure a healthy team; experience tells us it is not,” she says.

Craig believes a teaming strategy should hold a diverse group of individuals together, ensure they communicate effectively and raise issues of concern. “It is also how you as a group deal effectively with conflict and pressure, and develop and maintain relationships.”

Irregular working hours and shift patterns in sectors such as healthcare can make it extremely difficult to bring large numbers of people together to discuss issues as a team.

“We need a different mindset about face-to-face leadership work and how communication technology can help us,” adds Craig.

She says communications such as policy updates and performance indicators can all be shared on secure social media. While larger organizations can make use of networks such as Yammer, Craig says healthcare teams can make good use of file shares, closed Facebook pages, inexpensive digital workspaces and WhatsApp groups for personal real-time messaging.

“Opening your mind to what is possible, acceptable and accessible to your organization can give you a whole new approach to teaming,” says Craig. ■ *Angela Singleton*



VIEWPOINTS

DELIVERED. GETS INVENTIVE WITH...

CHARLES BOMBARDIER



The Canadian engineer and inventor on the innovation that runs in his family – and why the future of logistics is, partly, airborne.

Invention and innovation is in Charles Bombardier's blood. If that name sounds familiar it's because his grandfather was Joseph-Armand Bombardier, founder of aerospace and transportation giant Bombardier Inc. – and the man who invented the snowmobile. "I feel as though I'm carrying on a family tradition," says Bombardier. "Ever since I was a kid I've been tinkering with things to find out how they work. I've been coming up with ideas for amazing machines all my life."

After he finished his engineering degree, Bombardier – who is based in Montréal, Canada – began working for the family business at spin-off company Bombardier Recreational Products. In 2006, after managing a team of engineers at the company's research and development center, he decided to set up on his own and "try to reinvent the world" by working independently on various electric vehicle prototypes.

In 2013, he began writing a vehicle concepts column for Canada's Globe and Mail newspaper, and he founded Imaginative, a nonprofit organization that has the aim of inspiring the next generations to "dream, believe and build the vehicles of tomorrow." Bombardier does this by coming up with concepts – he aims to think up one a week – and then sharing them openly online. He doesn't patent them so that others can work on the ideas, too.

"I want feedback from people," he says. "I want to know: do you like the idea? Is it good? Stupid? Workable? Can it be improved? I don't have time to ask every expert or drive market studies on all the concepts I'm working on. So I rely on social and mainstream media to carry my ideas and generate reactions." Concepts include an autonomous ski and snowboard delivery vehicle, a cross between a quad bike and a tractor that transports barrels of water to villages in Africa, and even a space-themed hotel that simulates the experience of living in a planetary colony.

Bombardier isn't afraid to let his incredible imagination run wild, although telling the world about his ideas can be unnerving. "That's because they are unfinished thoughts, so I'm putting my neck on the line to get the discussion going. But you have to stay the course. If you don't, nothing gets created."

What is your idea of a successful idea?

When it makes headlines around the world. An example was my idea for the Skreemr supersonic jet, which could travel five times the speed of Concorde. It was picked up by the press and someone from NASA read about it and called me to say: "I have an idea that could reduce its sonic boom and solve the heat problems on the fuselage." That led to its successor, the Antipode aircraft, which in turn led to the Paradoxal, which would be capable of flying on a suborbital parabolic trajectory, traveling from Los Angeles to Sydney in less than three hours.

Where do you get your ideas from?

Everyday life. Every time I travel, or work, or use a product, I always try to find a way to improve the experience. For example, I was at the airport when it occurred to me that I have to wait in line to get my ticket. Then I have to wait in line again to go to the security checkpoint, and again for border immigration – and again to board the airplane. So I thought: "Why not do all these things at once?" I came up with the Nexovia people mover – a train that takes passengers through all these steps and then delivers them directly to their gate.

How easy is it to turn that sort of idea into reality?

The problem is regulation that blocks the imaginations of inventors and innovators. Take the electric vehicles that we all want to see in our cities. We could use them right now because we have the technology. But because of existing infrastructure, laws and red tape – and people who make a fuss about every small detail – it'll be a while before we get rid of combustion engines in our cities.

Does logistics ever figure in your thinking?

Yes, all the time. For example, there's my UPEX concept: a driverless truck that delivers packages around cities at night; and the Hypership, a high-speed autonomous magnetic and hover train system built to ship merchandise cross-country, powered by forests of solar trees. Then there's the Ecotran-zit, a shipping robot that carries packages on urban sidewalks and cycle paths; and a food drone called the Foxtrot which is designed to deliver ingredients from the supermarket to your location while you're watching a cooking show.

Will delivery drones ever take flight in a meaningful way?

Yes. I think the main market for drones will be surveillance, but they'll play a big part in logistics. Customers want direct delivery to their doors, but they will increasingly be living in city apartment blocks; so my idea is to have a delivery drone – like the Foxtrot – that can land on their balconies. This is what I call the Drone Tower concept. The balconies are basically large landing pads with guardrails that move down so the drone can drop off the package, then move back up again. Maybe the first step would be to design a tower block with a rooftop that could receive the drones, and then a robot could deliver the package to your door. Regulation, again, is the challenge. Safety is an issue, and drones create a lot of noise so we need to find a way to make them quieter. We also need to develop batteries that last longer.

Would a pipe system be viable – one that delivers parcels to your door, even if you live on the 50th floor?

For sure. Those kinds of compressed air pipe delivery services used to exist in the 1930s. Hmm. Let's see. The pipes would have to be visible either inside or outside of the building... and they'd act like a mini Hyperloop. Maybe that's a good idea! I'll try to work on that! ■ Tony Greenway



www.imaginative.org

The challenge of responding to disruptive technology

These are challenging times for many industries, not least manufacturing – and as disruptors take advantage of new technology to enter the market, existing players need to raise their game.



AN ESSAY BY ELEANOR MUSSON

Eleanor Musson is a servitization and advanced services specialist in the Advanced Services Group at Aston Business School in the U.K.. She manages a research partnership of global manufacturing companies who are transforming to compete through advanced services. The partnership provides research and practical support to help these companies to transform.

Rising costs of raw materials, skills shortages, competition from cheaper suppliers, changing consumer habits and expectations are among the many factors affecting the competitiveness and sustainability of manufacturing businesses.

A recent study by KPMG found that 77 percent of surveyed U.K. CEOs are worried about the relevance of their products or services three years from now. The study highlights that, of these CEOs, many of those who are leading manufacturing businesses have recognized the need to think about how technological innovations, big data and the internet of things are providing opportunities to develop new business models.

“By the year 2000, some two billion gigabytes of data had been accumulated worldwide. Today, the same volume of information is generated in a single day. [...] Siemens was one of the first companies to identify the opportunities provided by the megatrends [...]

and to rigorously align its business activities accordingly,” says Joe Kaeser, President and CEO, Siemens

Manufacturers are realizing that to develop sustainable revenue streams and exploit their advantage as innovators of complex products in order to fend off the threat of disruptors entering their markets, they need to harness technology and data to enable them to become much more responsive to customer demand, understand the “job to be done” and provide a combination of products and services that meet this need.

These services are designed to improve the efficiency and effectiveness of the customer’s use of the product, their wider business processes or their entire value network. MAN Truck & Bus UK, for example, focuses on the customer’s “job to be done,” which is moving goods from A to B, and provides services to help them do this with minimum hassle and most efficiently, such as managed repair and maintenance, driver behavior assessment and training

(using data capture), and route optimization. The transformation of a manufacturing company to become a provider of product-enabled services is known as servitization.

The organizational transformation needed for a manufacturing company to successfully compete in this way is extensive. To change from being a provider of transactional product sales to being a provider of long-term services that are highly integrated into the customer's operations touches on many aspects of the organization.

The key attributes of a manufacturer that competes successfully through services are:

Facilities that are co-located and distributed

Proximity aids responsiveness: localized facilities enable quicker fault diagnosis and speed of repair, impacting on product availability.

Proximity also increases reliability: stronger relationships are built between the manufacturer and customer at the level of day-to-day operations, enabling the manufacturer to witness and improve their understanding of how the user operates the product. This knowledge can be used to modify the design or make recommendations about product operation.

Airbus, for example, has installed a final assembly line in Mobile, Alabama, to be closer and more responsive to its customers in North America. This is in addition to the 11 production plants, four engineering centers, five training centers, 10 materials and logistics centers and three other final assembly lines that it already has distributed around the world.

Vertical integration within the value chain

Availability and distribution of stock becomes even more critical under an advanced services contract. If a manufacturer is guaranteeing product availability (and potentially has financial penalty clauses in its contract if the product is not operational), then they need a responsive and reliable logistics infrastructure to ensure they can carry out repairs as quickly as possible.

Manufacturers competing in this way need significant logistical support from a responsive partner who understands the business model they are operating to ensure all these decentralized facilities are supplied with the parts they need.

Exploitation of ICTs for remote asset management

Data is used to monitor the performance of products, predict and schedule maintenance and identify unexpected failures likely to lead to breakdown. Moreover, manufacturers who successfully provide services use data to assess the customer's operations and identify opportunities to help the customer to improve efficiency, or even identify opportunities for new offerings to their own customers.

Processes that are proactive and integrated with customers

The concept at the core of servitization is that manufacturers develop a much closer relationship with the customer in order to understand their operations and how the manufacturer can provide services that help the customer to be more efficient or productive, or to reach new customers or new markets.

This in turn means the manufacturer needs to have staff that are service-centric, adaptable, resilient and skilled in building relationships. These staff need to be responsive to the needs of the customer and focused on their operations and processes rather than on the internal production processes and product features.

Performance measurement systems replicating those of customers

These services arrangements generally have outcome-based contracts with performance measurement and KPIs that reflect the needs of the customer. They often guarantee "uptime" or "mobility" and can be penalized if their products don't operate to contractual agreements.

In all, manufacturers are responding to threats from technology-enabled disruptors by changing the way they do business. Manufacturers are becoming more knowledgeable of, ingrained into and responsive to their customers' businesses. ■



WHAT'S THE STORY, MS. GOODALL?

SUSIE HAS THE WIND IN HER SAILS

British sailor Susie Goodall is currently one of two women taking part in the 2018 Golden Globe Race – a solo, non-stop, round-the-world race that forbids the use of modern technology.



I was three when I started sailing. My parents got me into the sport – we always sailed as a family and my brothers and I grew up around boats. I love the fact that no two days on a boat are ever the same. And I still get a big thrill from watching the land disappear until I have the ocean all to myself.

30,000

The total length of the Golden Globe Race in miles

I'm currently preparing for the 2018 Golden Globe Race. This means sailing non-stop, solo, around the world, without outside assistance, against 29 competitors. I've always enjoyed the physical and emotional challenge of sailing, but the hardest part of this race will be spending nine months on my own at sea. I've never been on a boat for that long before.

The rules of the race mean that I have to sail in a yacht designed before 1988, and without using modern technology such as autopilot and a Global Positioning System (GPS). Sailing with GPS is hard enough! Without it... well... there will be times when I simply won't know where I am. I'll have a good idea, hopefully; but I'll be guided by the stars, so if I can't get a celestial fix because of cloud, there could be days or weeks when there's not much that I can do. I can't tell you how daunting that seems!

Sleep will also be difficult. If I'm near the coast, I'll jump on deck, scan the horizon and if there's nothing around I'll go to sleep for 20 minutes. Offshore and away from shipping, I'll go to sleep until, say, the wind picks up and the boat wakes me. Even then, I'll never be asleep for more than an hour and a half at a time.

I'm being sponsored by DHL, so my boat – a Rustler 36 class yacht – is sure to feature some red and yellow! I've also got to stow 10 months' worth of food and supplies on board, which will be packed and shipped by DHL.

I've got mixed emotions as the start of the race approaches. My family and friends have been so supportive and I know they're all behind me, which is a massive boost; but I'm dreading saying goodbye to them all and I'm expecting the first week at sea to be tough.

Then again, I'm also really excited to be going. During the race, I know there will be scary moments. The trick is thinking about the worst-case scenarios – losing the boat or the rig coming down, for example – and having a strategy to deal with anything. It's better to be prepared in this sport. That said, I usually find the frightening part of any difficult situation is afterwards, when you realize what you've just been through! But, scary or not, this was an unmissable opportunity for me because I've always wanted to sail solo around the world. When I get back, I'll be able to tick that one off my list...

About the race

To mark the 50th anniversary of Sir Robin Knox-Johnston's historic 1968-69 world first solo non-stop circumnavigation in the Golden Globe Yacht Race, a new Golden Globe Race is being staged on 30 June, 2018. It starts from Plymouth, U.K. down the Atlantic, past the Cape of Good Hope, Tasmania and back up the Atlantic again, past the Falklands and back up to Plymouth. ■



www.susiegoodall.co.uk



\$6
BILLION

The estimated size of the 3-D bioprinting market by 2024, according to research by IDTechEx.

3-D bioprinting works by inkjet-printing proteins, enzymes and other biomolecules, and the technology is being developed at a fast pace. With 3-D printing already extensively used for the manufacture of implants and prosthetics, some experts predict that bioprinting will be the next big trend in the life sciences and healthcare space. While bioprinters are currently only used in R&D environments, there is potential for them to be deployed in other areas quite rapidly.



bit.ly/3d-bioprinting

For a view of 3-D printing and logistics read DHL's Trend Report:



www.dhl.com/3dprinting



MISSION 2050: **ZERO** EMISSIONS

By 2050, we want to reduce our logistics-related emissions to zero.
To get us there, we've set the following four milestones for 2025:

- We want to increase our **carbon efficiency** by 50% over 2007 levels.
- We want to operate 70% of our own **first and last mile services** with clean pick-up and delivery solutions.
- We want more than 50% of our sales to incorporate **Green Solutions**.
- We want to train and certify our employees as **GoGreen specialists**.
And together with partners we will plant **one million trees** each year.

dpdhl.com/gogreen

GOGREEN

Deutsche Post DHL
Group