



Delivered.

THE GLOBAL LOGISTICS MAGAZINE

ISSUE 03/2019

BUSINESS

EAST SIDE STORY

Discover how to get ahead
in a changing China

SOLUTIONS

NO AGE LIMIT

How companies can learn
from their elders

VIEWPOINTS

GOING PLACES

Take a trip with Bangladesh's
ride-share entrepreneur

A MATTER OF DEGREES

Why big changes are coming to the
pharma cold chain



Dear Reader,

When it comes to the pressurized world of life sciences logistics, it's essential that companies in the sector keep their cool. That's easier said than done in an industry that produces temperature-sensitive products that have to be refrigerated or frozen during transportation or storage. Yet as we report in our **Life Sciences Focus**, big data and the internet of things are making it easier for pharma players to improve the cost, quality and efficiency of their cold chain operations.

That includes pharma company Bristol-Myers Squibb. In **Executive View**, Matt Schwartz, Head of Global Logistics, explains how new technology is making the firm's supply chains fast and flexible, and why the personalization of medicine is a new challenge for any logistics operation.

Personalization is nothing new in e-commerce. But as you can read in the article **Personal best**, hyper-personalization – which expertly tailors marketing content, products and services to individuals – is changing the online shopping experience.

Finally, we explain how businesses can navigate a changing **China** as the country transitions from export-oriented manufacturing hub to booming middle-class consumer market.

Enjoy your read!

Sincerely,

Katja Busch

Katja Busch
Chief Commercial Officer, DHL

Cover photo: Comstock/Getty Images

Photos: DHL; Frederic Sierakowski/Isopix/action press; Stringer/Imaginechina/ddp; Shohoz



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www.delivered.dhl.com





ELECTRIC DREAM MACHINES

The thrills and spills of Jaguar Racing’s exciting new I-Pace eTrophy series are set to wow spectators in nine cities around the globe this year. And helping ensure a seamless transfer between host venues is DHL, which has been announced as Jaguar’s official global logistics partner for what is the world’s first all-electric championship for production-based cars. And the race cars themselves are no slouches: Powered by 90 kilowatt lithium-ion batteries,

they can go from zero to 100 kph in just 4.55 seconds, with a top speed of 195 kph. DHL is transporting the 20 eTrophy race cars, charging systems, garages, spare parts and technical equipment by land, sea and air. It recently delivered the series to Berlin, Germany, and will continue in New York, USA, in July.



MEALS ON WHEELS

In a 21st-century update of the tea trolley that used to do the rounds in offices of yesteryear, students and staff at the University of the Pacific in California are having their hunger kept at bay by a six-wheeled mobile vending machine. The robotic refreshment cart, named Snackbot, brings workers a range of healthier PepsiCo products including Sun Chips, Baked Lays and Bubly sparkling water. Orders are placed via the Snackbot app, and one of a fleet of five self-driving trolleys – which can travel up to 20 miles (32 kilometers) on a single battery charge – then delivers to more than 50 spots across the campus.



CLEVER DOG

We know assistance dogs help people with disabilities to live more independent lives, but scientists have now discovered that they could also help those with epilepsy. They have found that dogs may be able to detect subtle changes in body scent that can warn a seizure is imminent, so it may be possible to train them to warn their owners to take measures to avoid injuring themselves, to seek help or take medication. Amélie Catala of the University of Rennes in France told the Scientific Reports journal there is anecdotal evidence of dogs warning their owners before a seizure, but she hopes to find some strong scientific data that man’s best friend can become even more useful.

LEASE FOR LIFE

Millennials want flexibility in their lives. Their living habits are more temporary, and this generation prefers to rent or lease rather than buy and own. With that in mind, Swedish retail giant Ikea is offering a scheme whereby customers can rent its furniture. Ikea announced a trial of the service in the Netherlands, Switzerland and Sweden, but will now roll out the idea to its 30 markets worldwide. Ikea is responding to pressure from online retail and a growing reluctance from customers to travel to its out-of-town warehouse stores. The rental model is subscription-based and Ikea hopes products will be used as many times as possible before being sent for recycling.



PSYCHEDELIC COMEBACK

Mention psychedelic drugs, and it brings to mind the hippy era with its “tune in, turn on and drop out” ethos. Remarkably, scientists now believe that psychedelic medicines could have a role to play in the treatment of mental illnesses, including addiction, depression and post-traumatic stress disorder. In the wake of the ‘60s counter-culture, the U.S. government classified most psychedelics as “drugs of abuse” with no real medical value. But recent clinical studies have provided evidence that they can help patients with certain mental illnesses.

German firm ATAI Life Sciences has raised more than \$40 million in new financing to fund clinical trials for what it calls “formerly stigmatized compounds” – including psilocybin, the active compound in “magic mushrooms” – as potential treatments for depression.

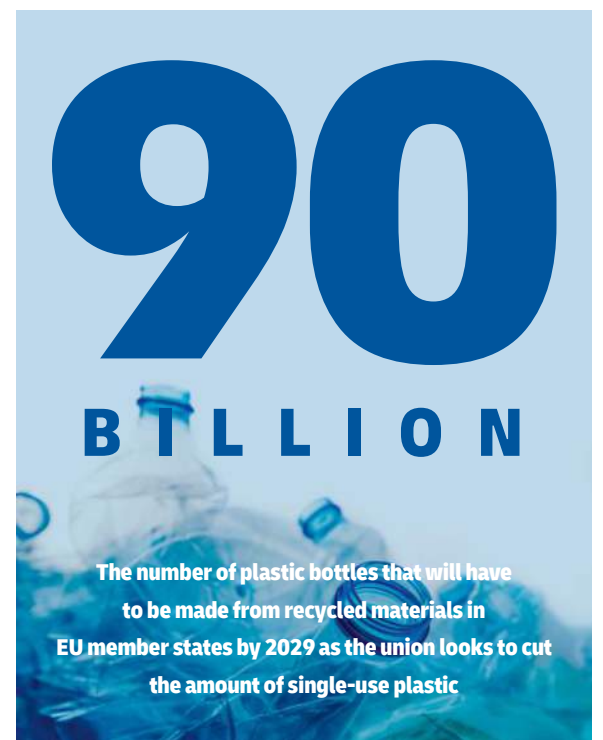


Photos: DHL (2); Ikea; Adobe Stock; Getty Images; Yoko Hirao/Stocksy; AP Photo/dpa United



TIME IS OF THE ESSENCE

The pharmaceutical and clinical research sector is one that is increasingly demanding fast and more predictable lead times. Regulatory complexities can delay exports, which can make or break clinical trials because shipments often involve temperature-sensitive biological products and patient-specific treatments. DHL Express has launched a new medical express service between Brazil and the U.S. to help ensure shipments arrive in the right hands, exactly when needed. Piloted in Brazil last November, DHL Medical Express Service is capable of transporting laboratory kits, medical devices, biological samples, research products, vaccines and drugs, and can manage the export and regulatory requirements for urgent temperature-sensitive shipments from several major cities in Brazil to most U.S. destinations in 24 to 48 hours. The Brazil trial included a dedicated customer service center with bilingual staff, dry ice supplies, temperature-controlled packaging, online booking tools and a web-based interface.



A SYMPHONY IN MANY MOVEMENTS

Among the highlights that will mark DHL’s 50th anniversary this year will be an innovative exhibition dedicated to Beethoven. The exhibition, which started its journey at Leipzig’s Gewandhaus in March, offers an insight into the great composer’s life, work and influence. It also features some unique exhibits from the Beethoven-Haus Bonn collection, such as an original ear trumpet used by the maestro and a print from Andy Warhol’s 1987 Beethoven series. The exhibition tour travels to the U.S. in May and then on to Europe and Asia in 2020, the year that marks the 250th anniversary of Beethoven’s birth. DHL will orchestrate its own logistical symphony, transporting the delicate and, in some cases, irreplaceable exhibits around 50,000 kilometers by air and road. They will travel in special containers that use DHL SmartSensor tracking technology to monitor temperature, humidity, light levels, vibrations and even air pressure, and then transmit this data via GSM and RFID technology. This ensures that the valuable exhibits arrive safely at their destination and return safely to the museum in the same condition.

 bit.ly/dhl-bthvn



CHINA IN THEIR HANDS

Leading Chinese logistics provider SF Holding has signed a 5.5 billion yuan (\$781 million) deal with Deutsche Post DHL Group to enter a 10-year strategic partnership to grow supply chain operations in China. DHL will transfer its supply chain operations in mainland China, Hong Kong and Macau to SF Holding, creating a co-branded business – SF DHL Supply Chain China – that



will be based in Shanghai. Yin Zhou, formerly head of DHL Supply Chain Greater China, has been appointed CEO of the new organization. It will have access to Deutsche Post DHL’s global expertise, network, operations standards and innovations across industries ranging from technology, healthcare, retail and automotive to e-commerce. Yin Zhou: “This landmark deal gives SF DHL Supply Chain China an unparalleled advantage when it comes to transforming the supply chain industry in China.”



50%

Half of U.S. startups valued at \$1 billion or more were founded by immigrants, according to a 2016 study. A separate study by researchers at George Mason University in Virginia this year found that immigrant-owned tech firms had “uniformly higher rates of innovation” than those run by U.S. citizens.



LATIN BEAT

Madrid is already renowned as an important center for international commerce, especially between Europe and Latin America. Now a new state-of-the-art €93 million (\$103 million) DHL Express hub at Barajas Adolfo Suárez Airport is strengthening the position of the Spanish capital. The facility quadruples capacity at Madrid, can sort 24,500 packages an hour and has created 200 extra jobs. Some 176 loading docks enable 160 road movements every day, as well as 10 daily flights by DHL Express’s own aircraft and 30 daily commercial flights servicing 20 international destinations, mostly in Latin America.

Photos: DHL (5), Adidas, AFP/Getty/images, Adobe Stock

BOX-FRESH TRAINERS... AGAIN AND AGAIN

Sportswear giant Adidas is joining the circular economy: It has created what it claims is the first 100% recyclable shoe for the mass market. The Futurecraft Loop is made from thermoplastic polyurethane, which is completely recyclable – with zero waste. So rather than your old, worn-out shoes being destined for landfill or ending up in the oceans, you’ll be able to send them back to Adidas, where the material can be washed and ground into pellets, then melted down to create new footwear. Adidas is testing the Loop with social media influencers and athletes and hopes to bring it to the high street by the summer of 2021.




BOXING CLEVER


In a new development for the European life sciences and healthcare industry, DHL Express’s Full Loop Service now includes a reusable return solution for refrigerated and controlled ambient shipments. Shippers are available in a range of sizes to allow for cost-efficient transport of patient samples or medicines. The “all-in-one” box concept provides customers with everything they need, from fully preconditioned packaging, return labels and any required shipping documents. The service keeps in mind DHL’s GoGreen initiative, helping to reduce our impact on the environment with the use of greener packaging solutions.



500

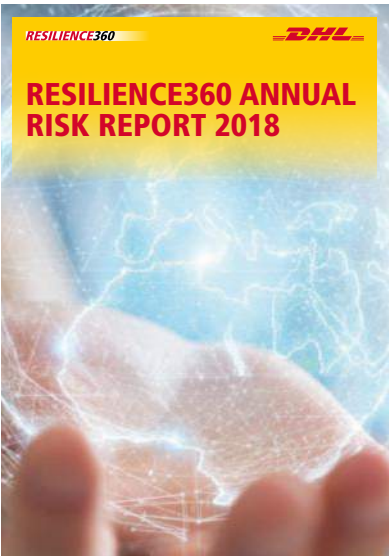


The number of environmentally friendly StreetScooters ordered by leading Japanese logistics provider Yamato

 bit.ly/streetscooter-yamato

RISK ASSESSMENT

Drawing on the expertise and insights of in-house risk analysts, DHL Resilience360 has released its first Annual Risk Report to help companies proactively manage disruptive events and minimize interruptions to their business. The report lists key challenges from last year and looks ahead to the potential risks to supply chains in 2019. Key events in 2018 included climate-driven disruptions affecting shipping, a higher-than-expected level of cyberattacks and industry zone shutdowns that had an impact on production. There was also uncertainty surrounding the trade war between the U.S. and China, and the ongoing question mark over the U.K.’s exit from the EU. Looking ahead, the report warns that companies may face raw materials shortages, product recalls, safety scares and tougher environmental regulations. Download the full report at:



 www.resilience360.dhl.com

COLD CHAIN 4.0

As temperature control in distribution becomes more important for more products, the internet of things is helping the pharmaceutical sector improve the cost, quality and efficiency of its logistics activities.

PRECIOUS CARGO:
Pharma products in
cold chain transportation
at Brussels Airport.



HANDLE WITH CARE:

Products such as insulin and vaccines require cold chain or temperature-controlled storage.

More worryingly, the cold chain is also a significant source of costs and quality challenges for pharma companies. The International Air Transport Association (IATA) estimates that the industry loses product worth \$2.5 billion to \$12.5 billion every year as a result of problems with temperature control in transit, with half those losses occurring while shipments are in the hands of airlines or airports. Add in other costs, such as the need to make and ship replacement products and to analyze and fix the root cause of temperature deviations, and the estimated total cost to the industry approaches \$35 billion.

Keeping your cool

The industry has developed a wide range of solutions to control the temperature of products in transit. Pharmaceutical companies and their logistics partners can choose active cooling systems, containers that incorporate a powered refrigeration system, or passively cooled containers that incorporate a phase change material such as frozen carbon dioxide. For short journeys or “controlled room temperature” applications, they can rely on packaging or containers fitted with thermally insulating materials or blankets.

Active systems tend to offer the most precise temperature control but are expensive and bulky. Passive containers are cheaper and easier to manufacture, but they can only provide cooling for a limited period before all the phase change material is used up. Active containers require regular maintenance to ensure reliable operations, while passive units must be preconditioned before use, a time-critical process that adds complexity to logistics operations. The batteries and other materials used in either container type may be considered hazardous materials, restricting the available transport options.

For pharma players, decisions about how cold chain operations are run are complicated by factors that go beyond the choice of technology. First, there’s the need to keep supply chain costs under control. The high price of the most advanced cold chain solutions might not be a critical consideration for an advanced oncology drug that costs thousands of dollars per dose, but it is highly significant for the delivery of large quantities of vaccines to emerging markets.

Then there’s agility. Pharma players increasingly recognize the value of having multiple logistics options available to them. The ability to use different routes and transport technologies can be critical in the event

of a natural disaster or supply chain disruption, for example. And agility can also help companies manage longer-term shifts in the supply chain, from demand fluctuations and the emergence of new markets to the impact of mergers or changes to manufacturing and distribution networks. In the search for solutions to these challenges, the industry is turning to the technologies of the fourth industrial revolution: big data and the internet of things.

Getting smarter

At the core of the new approach to cold chain technology is the use of sensors and smart tracking devices that can be attached to shipping containers to record environmental conditions outside the box through every stage of a journey. The concept is well established: DHL, for example, has been using such external devices as standard in its ThermoNet service offering across its temperature-controlled station network since 2013. What has changed is the quantity and the detail of the data available from those sensors. In part, that’s because the tracking devices themselves are becoming more sophisticated. They may contain GPS receivers that record their precise location, for example, or accelerometers to identify bumps and shocks.

Data improves the cold chain in several ways. Most simply, sensors provide an alarm function, alerting shippers when packages are being exposed to external environmental conditions that may exceed the protective abilities of the temperature-controlled packaging in use. Ultimately, this can compromise the acceptable

temperature range that the product requires to ensure quality, safety and efficacy. It can also prevent the unnecessary destruction of potentially critical shipments. Many products can endure short periods of above-normal temperatures without adverse effects. An accurate record of temperatures over time allows companies to make informed judgements about whether a temperature excursion in transit was within acceptable limits.

More significantly, however, the data accumulated from thousands of shipments allows companies to build up a detailed picture of the environmental conditions experienced by products in different transport lanes, at different times of the year and with different carriers. With the benefit of modern computing power and analytical algorithms, companies can mine that

10
PERCENT

The annual sales growth of pharma products requiring cold chain logistics



COLD STORAGE:

Temperature-controlled pharma products awaiting transportation.



IN THE ZONE:

Specialized cargo infrastructure for the transport and handling of pharma products at Brussels Airport.

\$14
BILLION

The annual expenditure on pharma cold chain logistics

Photos: Frederic Sierakowski/Isopixaction press (2); Bisual Studio/Stocksy United; Hatim Kaghat/Beiga News/utdp Agency/utdp

2x

The growth rate of temperature-sensitive pharma products compared to the overall market

data to spot trends and patterns that help them to improve supply chains. “Data analysis can reveal that, for nine months of the year, you could use passive cooling on a particular route, only requiring an active system at the height of summer or the dead of winter,” says Larry St. Onge, President, Life Sciences & Healthcare, DHL.

Companies can also incorporate data from other sources into their analysis. A new generation of supply chain risk management tools, such as DHL’s Resilience360 platform, can provide information on the frequency and severity of delays and disruption experienced on specific routes and key transport hubs, for example. Bringing multiple sources together allows companies to make better-informed decisions that balance cost, risk and flexibility in their cold chain planning.

People still matter

Data alone can’t ensure that a pharmaceutical shipment arrives at its destination in good condition, however. Ultimately, cold chains depend on multiple participants doing the right thing, from airlines and ground handling staff to warehouse operatives. Even the best packaging will struggle to perform if it is left for hours on airport tarmac at temperatures of 40 C/ 104 F.

Ensuring adherence to good practices in product handling is made more difficult by complex rules. Supply chain participants may have to comply with a wide range of standards and guidelines, established by bodies ranging from the World Health Organization (WHO) to regional and national regulators.

ON THE MAP:

Monitoring movements of temperature-controlled products in the supply chain.



COOL BOX:

A cooled sample case for pharma product transport.



SUPERSENSITIVE:

Pharma products in temperature-controlled packaging.



TAKING STOCK:

An effective cold chain will ensure shipments arrive at their destination in good condition.

The industry recognizes the importance of standardization and compliance, especially in long logistics chains with multiple stages and many different participants. Over the past five years, for example, IATA has developed and promoted a new accreditation scheme for companies involved in healthcare. The Center of Excellence for Independent Validators Pharmaceutical Handling (CEIV Pharma) certification scheme is a voluntary program that aims to “improve the level of competency, operational and technical preparedness” of organizations across the supply chain.

By mid-2018, IATA says 220 locations worldwide had received CEIV Pharma certification, with another 75 in the process of certification. DHL is undertaking a global rollout of the approach across all the locations it uses for pharmaceutical logistics. At the time of writing, more than 30 DHL facilities have been certified under the scheme.

New challenges ahead

Even as the industry applies new technologies and smarter management approaches to its existing cold chain processes, further complexity is on its way. Innovations at the front line of medical science are putting the patient at the center of the healthcare supply chain. Autologous cell therapies will require sophisticated two-way cold chains that can take samples from patients to manufacturing facilities, where they are used in the production of fully personalized treatments. The growth of e-commerce and at-home delivery of therapies may add complexity in last-mile deliveries of sensitive products. And across the developing world cold chains will need to scale up significantly to meet rising demand. One quarter of the world’s diabetic population lives in China, for example, but the country currently receives only 6% of global insulin production. The race to build more efficient, intelligent and reliable cold chain logistics operations is set to heat up as the life sciences sector prepares for the healthcare challenges of tomorrow. ■ Jonathan Ward

3 QUESTIONS FOR

Larry St. Onge,
President, Life Sciences
& Healthcare, DHL



1. What is driving demand for pharmaceutical cold chain logistics?

Most of the major trends that are shaping the pharma sector at the moment mean an increase in the need for temperature-controlled logistics. You have the huge on-going expansion in biopharmaceuticals, which tend to be products that are temperature sensitive, high in value and critical to patient care. Then you have the push to better serve patients and communities in emerging economies. That creates demand for reliable but cost-effective supply chains for a broad range of products. Finally, outside traditional cold chains, which handle frozen or refrigerated products, the desire to improve quality and compliance across the sector is leading companies to apply rigorous handling policies and monitoring strategies to controlled room temperature shipments too.

2. How is DHL responding to this demand?

For us, the development of a robust pharmaceutical logistics offering has been a 30-year journey. Our aim is to provide services that connect stakeholders more effectively, comply with the highest quality and regulatory standards and use innovative approaches to help our clients provide the best possible patient care. We have long recognized the need to provide a consistent, professional service that offers the right infrastructure, the right monitoring, the right process and above all the right people to handle pharmaceutical products at every stage in the supply chain. The operating environment in life sciences involves considerable complexity, especially when it comes to compliance with different policies, guidelines and regulatory regimes. We are fully supportive of the industry’s efforts to promote standardization, for example through the adoption of IATA’s CEIV Pharma certification.

3. Where are the major opportunities for improving cold chain logistics performance?

Right now, one big opportunity comes from big data. With our ThermoNet services and the large-scale use of temperature logging devices, you could say that we were early adopters of the internet of things. Now we have a large body of real-world data, and the computing power to draw new insights from that data. In the coming years, I think those capabilities will start to deliver real improvements in the quality, cost and reliability of temperature-controlled logistics services.

Photos: Ore Huying/Bloomberg/Getty Images; Frederic Sierakowski/Isopix/Action press; Volk, M./F1online; Kzenont DHL



STANDING APART:
Matt Schwartz, Head
of Global Logistics at
Bristol-Myers Squibb.

DIVERSITY AND SCALE IN BIOPHARMA

When your business is built on complex treatments for serious illnesses, you need a supply chain that is as agile as it is reliable.

With annual revenues of \$22.6 billion, Bristol-Myers Squibb (BMS) occupies a unique niche in the world of big pharma. The 13th-largest pharmaceutical company in the world last year, BMS is less than half the size of even the sixth-biggest player. At the same time, the company's focused product portfolio differentiates it from many of those larger competitors. BMS concentrates on sophisticated pharmaceutical and biological products for serious illnesses. Its drugs are used to treat cancers, cardiovascular and immunological diseases, for example. In 2018, 85% of the company's revenues came from just five "blockbuster" products.

According to Matt Schwartz, Bristol-Myers Squibb's Head of Global Logistics, this focus means the company stands apart from many of its industry peers. It shares many characteristics with small specialist biotech players, while its large size, global reach and broader product range are characteristics more commonly seen in traditional big pharma companies.

Portfolio complexity

For Schwartz and his team, those characteristics create significant complexity. Take volumes, for example. Some of the company's products, such as its highly specialized oncology drugs, are used by relatively small groups of patients for relatively short periods of treatment. The company may manufacture and distribute a few million doses of these products each year. By contrast, Eliquis, an anticoagulant drug, is a long-term treatment used by large numbers of patients, with annual production in the tens of billions of doses.

Then there are the characteristics of different markets. The U.S. is the company's home market, and still its largest, but 25% of its sales come from Europe and 19% from the rest of the world. The healthcare market of every region it serves has its own unique characteristics, and there can even be significant differences in approach within regions. That means, says Schwartz, that "We manage every model imaginable for pharmaceutical supply and distribution, from delivering

directly to the point of care in some markets to relying entirely on distributors and distribution partners in others."

In Germany, for example, BMS has agreements to ship directly from its distribution centers to around 600 hospitals across the country. By contrast, patients across much of Southeast Asia are served via a major regional distributor, with local subsidiaries taking over responsibility for logistics once product arrives in the destination country.

Handle with care

Regardless of their final destination, BMS products have to travel in a highly controlled environment. For many of the most valuable and important products in the company's portfolio, that means a cold chain with transportation and storage temperatures held between 2 C and 8 C (35.6 F and 46.4 F). Today, says Schwartz, cold chain products make up more than half of total sales by value, up from only one-fifth just a few years ago. Other products require controlled "room temperature" conditions. "I don't think we ship anything where ambient temperature is OK anymore," he adds.

Biological products and valuable oncology drugs receive "white glove" treatment at every stage of the supply chain, says Schwartz. "Logistics for these products is very much first class, with refrigerated storage or air-conditioned spaces in the warehouses." Speed matters too, and not just because some products have a relatively short shelf life. "The more time a product spends in transit, the more opportunities there are for something to go wrong," says Schwartz. "So we count on speed and on things being done correctly."

Today, technology is helping the company to ensure that its supply chains work as they should. BMS outsources supply chain execution to trusted partners across the world. It doesn't own or operate any of its own warehouses, for example. But the availability of smart data logging tags now gives it access to detailed data on conditions faced by its products during transportation and storage. Analysis of that data gives his team a better understanding of the risk profiles of each

\$22.6
BILLION

Bristol-Myers Squibb's
annual revenues

25
PERCENT

The percentage of
BMS sales that come
from Europe

Photo: Jeff Wojtaszek for Delivered.



MODERN SCIENCE:
BMS makes sophisticated pharmaceutical and biological products for serious illnesses.

lane its uses, Schwarz says, allowing it to decide when routes or processes might need to be modified.

Patients first

Despite the complexity and variety in its supply chain structure, BMS relies on a few basic principles in the design and execution of logistics. “Our overriding requirement is to be there for the patient,” says Schwartz. “The key objective is that when patients need our product, it’s there for them.” Putting patient requirements first in this way allows the company to be flexible in the solutions it chooses for different markets, he explains, prioritizing consistency of service over standardization of processes. “When it comes to decision-making and setting up distribution models, there is no one right answer for all our patients, so we work closely with our commercial organizations in each region to develop solutions that work for the patients in that market, with the right service, the right cost and, of course, the highest quality.”

A second governing principle is agility. “All of our great colleagues in BMS logistics have very specific objectives around agility,” says Schwartz. “That might be something as simple as the ability to bypass a risk to maintain supply to patients, so we need multiple options for transport lanes and we need storage locations

that have really strong business continuity plans in place.” At a higher level, he adds, the company pursues agility by taking careful decisions about where it holds strategic inventory, allowing it to be deployed rapidly if needed to fill gaps or meet unexpected demand. Some critical materials and services are dual sourced for similar reasons.

Agility is a critical capability internally too. BMS has a long history of acquisitions and divestments, buying smaller rivals and emerging biotech players to boost its development pipeline and gain access to promising technologies. As a result, the company’s logistics function has become used to the challenges of post-merger integration. “Our people really know how to integrate companies,” says Schwartz, “and a lot of that is about keeping an open mind, so that during an integration it is the best ideas from both companies that survive, not just the BMS way.”

A bigger future

The agility of Schwartz’s team might soon face a brand new challenge. At the time he spoke to *Delivered.*, Bristol-Myers Squibb had just announced that it was to purchase biopharma rival Celgene. The deal, valued at \$74 billion, is set to be the largest ever in the life sciences sector, and would push the combined company into the world’s Top 10 by revenue.

If the merger goes ahead, it will also create logistics challenges and opportunities that go far beyond the integration of a complementary product portfolio. Celgene is an important player in the development of autologous cell therapies, in which immune system cells are removed from a patient and engineered to bind to specific tumor cells. By training the patient’s own immune system to attack tumors, such therapies could revolutionize the treatment of certain cancers. They will also require entirely new approaches to logistics, with products tailored for a single patient and the need for complete control over two-way logistics loops between pharmaceutical company and end user.

This kind of precision, personalized therapy is “an absolute new world for any logistics operations in a pharmaceutical company,” says Schwartz. It’s also an area that his team has been thinking about for a while. Well before the Celgene deal, BMS was investigating the development of personalized medicines using unique combinations of existing drugs. “From our point of view, these kinds of treatment are absolutely game-changing,” he says. “For the first time, they bring formulation, packaging, kitting and logistics together, really close to the patient.” ■ Jonathan Ward

YOUR PRESCRIPTION IS IN THE MAIL

E-commerce is coming to the pharmacy business. Could it be the foundation of a treatment revolution?

When Amazon shows an interest in any new sector, incumbents get nervous. Last year, it was the turn of the pharmacy business to feel the heat, as the e-commerce giant announced plans to purchase U.S.-based online pharmacy PillPack for a reported \$1 billion. Within days of the deal becoming public, the market value of major pharmacy chains in the U.S. had fallen by around \$15 billion.

Should the industry feel so uncomfortable about the move? With annual sales of \$100 million, PillPack is a minnow in the huge U.S. pharmaceutical market. Total sales from the country’s pharmacies and drug stores were more than \$290 billion in 2018. They are expected

to pass the \$300 billion mark by the end of the decade. And PillPack isn’t even playing in the general pharmaceutical market. It provides a niche service for patients living with chronic conditions, repackaging multiple drugs into sachets containing specific doses, each marked with the time and date at which they should be taken.

For many observers, what matters is not the size of Amazon’s initial entry into the market, but the extent of its ambition. PillPack gives the e-commerce giant access to some potentially vital assets, such as licenses to deal in wholesale pharmaceuticals in all 50 U.S. states. It also provides the company with the opportunity to try new things and learn about the realities of the healthcare sector.

**\$290
BILLION**

The volume of sales in U.S. pharmacies and drug stores in 2018



“The key objective is that when patients need our product, it’s there for them.”

Matt Schwartz, Head of Global Logistics, Bristol-Myers Squibb

**\$109
BILLION**

The predicted value of the global online pharmacy market by 2025

Building momentum

It's hardly surprising that pharmaceutical e-commerce is on the rise. Across the world, consumers have switched in their millions to online purchasing for everything from clothes and holidays to gadgets and groceries. Why should drugs and other healthcare products be any different? Few people would claim that queuing to pick up a prescription or a packet of over-the-counter pills counts as a leisure activity. And patients living in rural areas can find it difficult to get to a regular pharmacy.

Yet the sector does face some significant barriers. The first of those is regulatory. Pharmaceutical markets are tightly controlled across the world, and different

kept even big brick-and-mortar chains out of the country. Europe's two largest online pharmacy players, Swiss Zur Rose (which trades online as DocMorris) and Shop Apotheke Europe from the Netherlands, have fought court battles for market access and freedom to set their own prices in the country.

Then there's consumer confidence. It's annoying to realize that an item purchased online is inappropriate, faulty or counterfeit. If that item is a critical medication, the outcome could be life-threatening. Yet it can be difficult for customers to determine whether an internet-based supplier is offering legitimate products. 2016 research on behalf of the Center for Safe Internet Pharmacies, an industry group, found that only 4% of more than 32,000 websites selling prescription drugs were operating legitimately. And even if they can find an online supplier they trust, some customers will miss the advice and recommendations they can get from in-person interaction with a trained pharmacist.

Overcoming these challenges will take time, but change seems inevitable. Brick-and-mortar pharmacy chains are increasingly developing their own online offerings in order to compete with new offerings from digital-only players. In January, Boots, the U.K. arm of the U.S.-based Wallgreens Boots Alliance group, announced it had bought software company Wiggly-Amps, which develops software for direct access to patient prescriptions from their medical records. Market researchers expect the global online pharmacy market to grow robustly in the coming years, exceeding \$100 billion in sales by 2025.

Delivered with care

Fast, efficient logistics is a critical element of any e-commerce offering, and the online pharmacy market will be no different. To achieve its full potential, the e-pharmacy sector will need logistics processes that ensure extremely high levels of accuracy and availability. It will also need speed. Today's online customers are often people taking medication long term, who know their requirements weeks or months in advance. If online suppliers are to support patients with acute or short-term requirements, next-day or even-same day deliveries may be a necessity.

Ultimately, fast, flexible logistics might even give online pharmacies a decisive advantage. PillPack built its business by packaging combination of standard drugs in a more convenient way. In the future, doctors may be able to modify prescriptions dynamically, perhaps on the basis of information gathered from internet-connected diagnostic and monitoring devices. With the right logistics systems in place, the updated dose could be delivered automatically, ensuring patients receive the optimum medication at exactly the right time. ■ Jonathan Ward

STACK SYSTEM:

Checking inventory at one of Europe's largest online pharmacy players, DocMorris.

jurisdictions have taken different approaches to the emergence of online players. The U.K. has broadly supported the trend, introducing a system that allows online providers to access patients' prescription information directly via a digital link. By 2018, the country's largest online player – Pharmacy2U – was dispensing almost 250,000 items per month. After growing more than 250% in a year and a half, the company plans to open a new distribution facility in 2019 that will have the capacity to dispense 7.5 million items a month.

In Germany, Europe's other largest online pharmaceutical market, the picture has been different. Tight rules on the ownership and control of pharmacies have

BUSINESS

INDIVIDUAL TOUCH:

Hyper-personalization offers a bespoke shopping experience to suit each user.

PERSONAL BEST

Personalized marketing on the internet isn't new – but AI is taking it to a whole new bespoke level that promises to revolutionize e-commerce. Welcome to the world of hyper-personalization.

**15
PERCENT**

The number of companies currently getting hyper-personalization right

Imagine knowing the shirt you've ordered will definitely fit, because you've already seen it on your body in virtual reality. Or that a delivery man could find you at your local cafe with a package because a mobile app tells him at the last minute you're out of the office. Or that your customer's return will be routed by a smart label algorithm to the region or store where that specific item is most likely to resell, rather than back to the main warehouse or shop it was originally sent from.

These are all examples of what is possibly the hottest thing in e-commerce and marketing right now: hyper-personalization. So, what is this "next big thing" about? Well, there isn't actually a single accepted definition. The concept is a broad-reaching umbrella term, much like its sister idea, omnichannel. And as such, it's still being developed, defined, and tested in the market – particularly in the consumer retail sector.

Generally speaking, it's a way of communicating and targeting individual online customers with tailor-made marketing and products and delivering on these promises, without fail.

Of course, personalized messaging and marketing has been around for some time, allowing retailers to lightly profile their customers, and sell and suggest items that more or less fit their needs.

This next generation version, hyper-personalization, uses data, artificial intelligence (AI) and advanced algorithms from multichannel sources and social media to expertly tailor marketing content, products and service offerings that suit each user like a custom-cut jacket, be it the design, manufacturing or delivery sectors. Today, approximately 63% of global consumers don't realize that they're now using AI on a daily basis.

The 2018 Epsilon study "Power of Me" found that 80% of consumers were more likely to do business with a company if it offered well targeted, meaningful and personalized experiences. Done right,

**\$800
BILLION**

The potential revenue gain for companies mastering the art of hyper-personalization

**80
PERCENT**

The number of consumers more likely to do business with a company if it offers personalized experiences

hyper-personalization is profitable, forward thinking and even expected by young consumers.

Done wrong, personalization is annoying and invasive. Who hasn't received a strangely personal bot-written email, or a birthday greeting that ends in a clumsy sales pitch, or ads that hunt you down from device to device?

Customer is key

Rule number one of hyper-personalization might be "know thy customer." And it's all about the data, gathering insights, and increasingly, machine learning.

Collecting and collating detailed information across multichannels and social media relating to previous orders, preference surveys and loyalty programs help predict trends, identify new market opportunities, increase inventory optimization and assist in the creation of really great customer experiences.

According to Boston Consulting Group's 2017 report, the potential revenue gain for companies mastering the art of hyper-personalization could be as much as \$800 billion. Yet only around 15% were getting it right, according to the research.

Data mining and prescriptive analysis are just part of the story. Algorithms that access photos on a mobile phone or tablet can be gleaned for hints, including anonymous location intelligence data.

For example, London and Tel Aviv-based Pixoneye builds profiles of consumers by accessing their mobile devices' photo galleries, location information and activities. They might predict a wedding, a birth or a home move and pass an anonymized brief to client companies, allowing them to expertly target their marketing efforts. Pinterest individual searches suggest other items the consumer might be interested in, based on photos taken by them or images liked.

The trailblazing techniques serve to confirm the old-fashioned notion of securing long-term customer relationships as the most reliable way to drive growth. Still, data gathering and analysis remain among the biggest challenges for companies, even as they hold great promise for innovation.

Trading personal data for personalization is worth it for 68% of consumers, according to Epsilon research

"So it's actually quite complex, but the emotions around the delivery robot are an important aspect of the customer service level, which can exceed expectations if we get it right."

Alex Hislop, Vice President Consumer Retail Sectors (MLEMEA), DHL Supply Chain

– as long as they get relevant offers, exclusive content, recommendations and the feeling of truly personalized communication in return.

At the same time, as more data is collected, privacy concerns may rightly be triggered. In a 2018 study of global chief marketing officers conducted by digital marketing and media group Dentsu Aegis Network, a data breach or misuse of consumer data was cited as their No. 1 strategic risk, and they expressed concern that European data protection regulations will make it harder to build direct relationships with consumers.

Blockchain technology and encryption can help assuage worries. Yet as hacking and data breaches turn into almost daily news items, established companies that are investing large amounts of money in ensuring they have very high security levels can reap significant advantages, says Alex Hislop, Vice President Consumer Retail Sectors MLEMEA, DHL Supply Chain.

"Some of our customers are moving around highly sensitive, expensive or delicate consumer retail products that are extremely time critical. So, they need companies that they can be sure will protect their data, protect their products safely and securely, and protect the integrity of their product. And that is to the detriment of some of the startup businesses disrupting the industry, because they don't have the long trading history of being able to service customers and properly secure data," Hislop says.

Tailored offerings

Where hyper-personalization has so far excelled is in the luxury consumer retail market. Upscale brands and retailers realized they had to offer the VIP service experience buyers of high-end goods were accustomed to from elite boutiques. And they use information tools to do it, says Luis Teixeira, Chief Supply Chain Officer of luxury digital fashion retailer Farfetch.

"It's all about using the data we have from our customers to be able to provide them not only with the most seamless experience, but also with a luxury experience. This is what we aim to do," he says.

At the luxury end, hyper-personalization can mean personal shopping services, exclusive packaging with hand-written notes and valet-style white-glove deliveries. It also requires an extremely agile supply chain (aka "fast logistics"), and a company culture of service without compromise.

In the mid and mass markets, there's plenty of room for growth, though some subscription services have managed to bridge the gap. For instance, vendors of men's grooming products, exclusive sportswear and equipment, pet grooming and vitamins have mastered the art of anticipating seasonal needs and new trends, and of testing innovative new concepts with this loyal consumer group.

In the mass mainstream, this might translate into something like customized packaging or engraved items, like a personalized perfume bottle or pair of running shoes, machine-worked in a local or regional packaging and delivery hub. Or VR dressing rooms that store a customer's measurements and image, meaning better fits and fewer returns, notes Hislop.

"If the technology works well and matches the person's body or face shape, that person is less likely to order four or five shirts in different colors and sizes if, thanks to VR, they've already been able to see that the size fits and the cut and color suit them. This could have a significant impact on the current retail fast fashion industry, which averages a returns rate of over 40% for online sales."

Give the people what they want

Recent trends in customer service innovation have tended to focus on making purchasing simple, safe and foolproof.

The next wave of the customer relationship, however, is not just about offering convenience, but connecting with customer values. The Dentsu Aegis Network survey found that close to 70% of chief marketing officers globally say connecting their brand to social impact is an important way to engage consumers. And young people in particular value green strategies.

For logistics, making a personal connection doesn't have to mean free delivery and returns. Instead, says Hislop, some customers will put their money where their heart is.

"According to the research, the younger the person is, the stronger their propensity to look for an environmentally friendly delivery and returns solution," he explains. "It emerged that 20- to 35-year-olds are much more willing to pay for that service, because they know it's the right thing for the environment. And we're also seeing a number of companies now who try and 'close the loop' and make their delivery and returns delivery with zero negative impact on their long-term supply chains."

Think consolidated deliveries in the future, where a customer prefers to wait a few extra hours or days for their order over the instant gratification of an inefficient single truck delivery, says Hislop. Competitors could even van-pool – sharing unbranded vans to maximize efficiency and loads, and lower emissions.

Crowdsourcing-style projects could also let individuals take local delivery jobs that suit their commute every day, and supplement their incomes by delivering goods or collecting returns as well.

Delivering the future

It might be fun to envision the zenith of delivery as a sky full of drones bearing groceries and fast fashion goods, but that's unlikely to happen in the short term. While drone technology seems ideal, the miniature flyers are so far only allowed in very limited areas due to air traffic clearance concerns. There is certainly some potential, as DHL's Parcelcopter tests involving drone delivery of medicines to inaccessible regions have shown.

But the real heroes of the last mile's next frontier are likely to be much closer to the ground.

Starship Technologies, from the creators of Skype, is a remotely monitored robot service that delivers to corporate and academic campuses and has already trialed in some cities. Amazon is testing its own version, a friendly blue slow-rolling box on wheels called Scout.

Alex Hislop says DHL is thinking beyond the bot. One method in the works deploys robots regionally for deliveries in tandem with a self-driving, autonomous or electric delivery van, enhancing efficiency of both human and machine.

Hislop also envisions "robots with characters and emotional intelligence," offering innovative customizable delivery with personalized options based on target preferences. This might mean a robot that can switch to Spanish from English when delivering to a Spanish-speaking customer in Miami. Or a bot that plays soothing music when delivering to hospitals, and uses the patients' names and their favorite song the next time they visit. They learn with each visit and the experience only gets better.

"Your robot absolutely must be able to deliver, and must be able to deliver to expectations. So it's actually quite complex, but the emotions around the delivery robot are an important aspect of the customer service level, which can exceed expectations if we get it right," he says.

Now that sounds like the future. ■

Susanne Stein

**68
PERCENT**

The percentage of customers who think it's worth sharing personal information in exchange for relevant offers, recommendations and discounts



Photo: Starship Technologies

**OUT OF THIS WORLD:**

A simulated Mars base in northwest China, which aims to popularize science and boost interest in space exploration.

CHINA STEPS INTO THE FUTURE

It's often said that the moment you think you know China, it changes again. While this may ring true, there are still ways to help businesses navigate and prosper in the next new China.

Since China began opening up to the global market 40 years ago, the country has rapidly developed from an impoverished backwater to the world's second-largest economy and is often dubbed "the world's factory." However, China's story doesn't end there, as the country transitions from being an export-oriented manufacturing hub to a

more balanced economy that's defined by a booming consumer market and a cutting-edge tech sector. Welcome to China version 4.0.

A number of factors have made it clear that China's previous economic development models have run their course. Last year, the country's economy grew at

6.6%, its slowest pace since 1990. The days of cheap labor are also over, and both domestic and foreign manufacturers are fleeing to other countries in search of cheaper production costs. Strict environmental regulations have come into effect, limiting the usage of cheap but dirty energy sources like coal and forcing companies to seek out sometimes costly alternatives. President Xi Jinping's crackdown on corruption sacrificed economic growth so as to stifle the black market and informal institutions. On top of this, other global powers like the U.S. are now viewing China as a worthy competitor and have initiated what amounts to a trade war.

China is now classified by the World Bank as an upper-middle-income country, and is currently in the process of devising the political, social and economic strategies needed to reflect this new-found status. The road that China is now walking is very different than the one it previously traveled – in other words, the "Wild East" has been tamed.

China's response

While China's year-on-year GDP growth rate is in decline, it is important to keep in mind that the size of the economy that this number deviates from is getting vastly larger each year. So 6.6% growth in 2018, when China's nominal GDP was over \$13 trillion, cannot be compared tit-for-tat with the 12% growth of 2010, when nominal GDP was around \$6 trillion. In other words, the additional economic output required to produce one percentage point of GDP growth today is significantly larger than when the country's GDP was skyrocketing at a double-digit clip, even when adjusted for inflation. China's economy is still expanding fast – roughly the size of Sweden each year. However, this doesn't mean that Beijing has been complacent about this decline, and Premier Li has announced a series of moves designed to boost economic development, including \$300 billion in tax and fee cuts for companies and the creation of more than 11 million new jobs, while cutting employers' social security fees.

"Following decades of high-speed growth, quality rather than just the quantity of China's economic growth is now high on the agenda, with more focus on innovation, sustainability and eco-friendliness," says Wu Dongming, CEO, DHL Express China.

A new society

With 430 million people now classified as middle class, China currently has more people in this social bracket than the entire population of the U.S. What's more, this number is expected to rise to 780 million by the mid-2020s. With this newfound purchasing power, China has rapidly been upgraded to a country where things are not only made but bought as well.

Many members of this new middle class have shown that they are model early adapters, and are comfortable jumping headfirst into new technologies and new ways of shopping and living. Internet penetration topped 829 million at the end of last year, and the Chinese spend an average of 27.6 hours per week online, consuming 71.1 billion gigs of mobile data per year. Usage of ride-hailing apps has become ubiquitous, and the \$30 billion industry is worth more than it is in the rest of the world combined. This comfort with smartphones has made mobile payments standard fare – topping \$17 trillion in transactions in 2017 – and has put China on pace to become the world's first cashless society.

"E-money is already such a big thing in China that it's the norm," explains Kelvin Leung, CEO AP, DHL Global Forwarding. "If I go to a convenience store in China and pull out an RMB note they know I'm a tourist because nobody uses cash."

Tech firms like Alibaba, Tmall and JD.com have blazed the way for China to have one of the most modern consumer landscapes in the world today. The number of people buying things online in the country jumped to 610 million last year – amounting to \$1.53 trillion in payments, roughly a third of all retail sales in the country. For perspective as to how fast this has happened, China now commands over 40% of the world's e-commerce transactions, which is up from around 1% just 10 years ago.

However, e-commerce in China isn't killing off brick-and-mortar shopping as it is in the U.S. and other Western countries. No, shopping malls are still the social and commercial heart of the Chinese city, although they are undergoing rapid transformations, experimenting with something called New Retail: an innovative amalgamation of online shopping and in-store experience. Rather than fighting against the future, malls in China have embraced the digital age with open arms, focusing on selling experiences rather than things.

"As a result of living in a very digital society, Chinese brands are also very digital-centric, often to a much

6.6 PERCENT

The growth rate of China's GDP in 2018, the slowest pace since 1990

\$300 BILLION

The dollar amount of tax cuts China is offering to boost economic growth

CHINA

Population:

1,384,688,986 (July 2018 est.)

GDP: \$12.01 trillion (2017 est.)

World Economic Forum's Global Competitiveness

Report 2018: 28th out of 140

World Bank Group's Ease of Doing Business Index 2019:

46th out of 190

DHL Global Connectedness Index 2018: 61st out of 169



deeper level than Western companies, and are connecting with consumers this way,” says Mark Tanner, founder of Shanghai-based consumer research firm China Skinny.

The country’s new middle class is also actively molding consumer offerings to meet their rapidly evolving tastes and preferences – and in a country with 400 million millennials, staying ahead of the curve is imperative in order for a company to succeed.

“They’re consuming more, and they’re consuming higher-end products – imports of high-end salmon from Scandinavia, high-end beef from Australia, Japan, Wagyu beef, you name it: All of these are showing ever increasing, significant growth,” Leung points out.

“The growing and booming middle class of China do represent huge business potentials for foreign companies,” says Dongming. “However, as China is unique

SMART BUY:

Chinese shopping malls have embraced the digital age.



in many ways, no matter which audience group you target the most important strategy for global companies wanting to do business in China is to be globally local, meaning they should make great efforts to understand and respect the Chinese market, consumers, culture and macroenvironment.”

New manufacturing

Like most upper-middle-income economies, China’s economic progress has created a new generation of educated workers who demand higher wages and better conditions. The days of being “the world’s factory” – a dystopian industrial leviathan for labor-intensive, cheap products – are on their way out, as it is now vastly cheaper to manufacture these types of products in places like Vietnam, Bangladesh and Sri Lanka.

“Over the last 10 years the cost of production and the cost of conducting business in China have gone up,” Leung explains. “So regardless of whether there was the trade dispute or not, several types of manufacturing have been migrating out of China. It’s not just non-Chinese companies, even Chinese companies are shifting production to even lower-cost countries.”

While it isn’t cutting the tether on T-shirt and sneaker manufacturing completely, the country should no longer be pigeonholed as a place for such low-level production. China is rapidly climbing the industrial value chain and has become a new global epicenter for the high-tech industry, designing and producing some of the most innovative products in the world. The game has changed and our connotations with the phrase “Made in China” need to be updated.

While China certainly does transition quickly, it also plants the seeds of paradigm-shifting policies many years in advance of when they are intended to bear fruit. The first national-level high-tech zone in China was created in 1988, and over the next 30 years China steadily spread a blanket of them over the country. From the booming metropolises of the eastern seaboard to emerging inland cities like Chongqing and Chengdu, new high-tech zones were seemingly going up everywhere. Today, there are 169 of them in operation; they are home to 40% of China’s tech firms and in 2017 were responsible for \$1.38 trillion of GDP – 11.5% of the country’s total.

New markets are still opening

The “Go West” policy of the 2000s sought to spread the economic miracle of the booming cities of China’s east coast inland. A new national grid of transportation

DEAL AND WHEEL:

The rise of e-commerce has led to pilots for driverless delivery vehicles.

BUILDING BRIDGES:

China has been investing in massive infrastructure developments.



infrastructure – new highways, high-speed rail lines and airports – was laid over the country, and new urban developments, industrial zones and education clusters filled in the blanks. Suddenly, relatively little-known cities like Chongqing, Zhengzhou, Wuhan, Guiyang, Kunming and Chengdu emerged from their existence as archaic backwaters to become the booming cultural and economic hubs that they are today. This type of paradigm-shifting development is still at work, as the “Go West” policy has merged seamlessly into the Belt and Road Initiative. Far western cities like Lanzhou, Xi’an, Urumqi, Kashgar and Horgos are now getting their chance to be injected with large amounts of development dollars as they become new outposts of progress and hubs for overland trade between China and Europe.

“Now, if you’re producing in the middle of the country, in the hinterland, with the railway infrastructure, with the highway infrastructure, with the river barge infrastructure, you can have more options to ship out your products and not necessarily pay more in logistics costs,” Leung says. “So if you’re a manufacturer and you manufacture somewhere in China, you have far more options than before.”

In addition, Beijing and a handful of emergent Chinese companies – like Alibaba, JD.com, and SF Express – have been pumping massive amounts of resources into linking in the rural areas of China in a bid to get half a billion more people onto the dominant economic grid. Vast arrays of fulfillment centers and logistics

centers are being built out in the proverbial middle of nowhere, as e-commerce is seen as the optimal way to reach this population segment. Because as Mark Tanner put it in a recent China Skinny newsletter: “... They can’t just pop down to the local IKEA to purchase a new sofa.” Today, 222 million of China’s rural dwellers are online, and while the percentage is much lower than in urban areas it’s still a vast market that was more or less untapped. This is likely to change in the future.

Conclusion

“Perfect is not fast enough” is a common slogan explaining the phenomenon of how quickly Chinese companies are able to change with the rapid ebbs and flows of modern China – a place where 180-degree changes in policy are to be expected. This is a country that completely built a new version of itself infrastructurally, economically, and socially within a generation and a half, and always keeping one ear to the ground and being ready to ride the next big change is simply a part of doing business here.

“You’d be really surprised if you were in China a few decades ago you just couldn’t imagine what you see in China today,” Leung says. “So that’s the context of what people look in terms of what is happening now and what might happen in the future. Then, of course, the pace of change is only accelerating, so we can expect that its magnitude can only increase in the coming decade.” ■ Wade Shepard

\$1.53
TRILLION

The value of online payments in China last year

4

KILOGRAMS

Maximum payload of the Parcelcopter 4.0

178

CENTIMETERS

Wingspan of the Parcelcopter 4.0

2,200
KILOMETERS

Total distance flown

65

KILOMETERS

Flight distance from the mainland to the Ukerewe island district of Lake Victoria, Tanzania

2,000
MINUTES

Recorded flight time during the pilot project

130
KPH

Airspeed of the Parcelcopter 4.0

SAVING LIVES: MEDICAL DRONES IN TANZANIA

That drone overhead may not be photographing real estate, at least in remote areas of the world. Right now – and into the future – it could be delivering life-sustaining medical treatments and transporting lab tests for faster processing.

That's what's happening for the 400,000 residents of the Ukerewe island district of Lake Victoria, Tanzania, a six-hour land and lake ferry trip (240 kilometers) from their main medical center in Mwanza. The residents suffer from treatable waterborne illnesses such as cholera, dysentery and typhoid, and their blood and lab tests cannot be processed quickly using traditional transportation.

Enter "Deliver Future," a pilot project by DHL, German drone manufacturer Wingcopter and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ). Over a six-month period, the drone logged at least 180 takeoffs and landings, flying 2,200 kilometers in more than 2,000 recorded flight minutes. The autonomous DHL Parcelcopter 4.0 reached the Ukerewe island district in just 40 minutes, and it did this up to seven times a day.

The drone technology allowed for faster blood test processing on the mainland, while blood samples remained in controlled

temperatures in the drone compartment. Done transportation allowed for faster diagnosis and treatment, with test results communicated by computer.

This isn't DHL's first foray into using drones for medical deliveries. In 2014 DHL made history with the first drone medical delivery over open sea, to the North Sea island of Juist, Germany. DHL was the first parcel service to incorporate drones into the delivery chain, adding drone parcel service to two communities in the Bavarian Alps in 2016.

"If you can send a drone in a straight line, as opposed to driving around mountains, through traffic or across icy roads, you may well save patients' lives who would be in danger in both remote and urban areas," says Robert Graboyes, a senior research fellow and healthcare scholar at the Mercatus Center at George Mason University.

The sky's the limit for using drones in the medical realm: Transporting organs for transplant, delivering medical kits in emergency situations before first responders can arrive, vaccine delivery to remote areas and accessing remote villages worldwide to improve medical care and delivery are just some of the potential applications. ■ Deborah Kaplan

bit.ly/dhl-parcelcopter-4

FROM THE DOORSTEPS OF DELHI TO THE WAREHOUSES OF THE WORLD

What happened when three engineering students set out to fix the frustrations of the e-commerce last mile.

100

The number of companies using FarEye products in 25 countries

In 2006, three engineering students at Kalinga Institute of Industrial Technology in Odisha, India, were wondering what to do with their lives. “After 14 or 15 years in full-time education, we really wanted to get out into the world, solve problems and create real impact,” explains Kushal Nahata, one of the three. While a job in a big engineering firm or consultancy might have given them the opportunity to work on some tough real-world problems, Nahata and his friends Gautam Kumar and Gaurav Srivastava wanted something more – the chance to really “own” the challenge they set out to address.

There was just one question: What problem should the group try to solve? The answer came knocking at the door. “At the time, e-commerce was really starting to take off in India,” recalls Nahata. “But if I ordered something online, I would get a call from the driver every time asking where my house was, even though my house hasn’t moved for many years. Then, when the driver eventually arrived, everything was done with pen and paper. It was obvious that there really hadn’t been a lot of progress in the way logistics was organized.”

“The e-commerce world was very entrepreneurial, and people in the sector were willing to try new ideas and engage with a startup like ours.”

Kushal Nahata, CEO FarEye



When the three set out to solve the problem of e-commerce logistics, however, Nahata admits they had very little idea of the challenges involved. They started by looking at the issue from both ends. “First we talked to the drivers, we asked them how they planned their days, how they spent their time, how they managed everything from breaks to ensuring they were paid for their work.” In parallel, the group also went to visit the CEOs of some of India’s fast-growing e-commerce companies. “They gave us a perspective on their logistics expectations,” he says. “We could see immediately that there was a huge gap between those expectations and the real processes on the ground, and there was an opportunity for a product that would fill that gap.”

After finishing their studies, the three set up a new business, FarEye, to create that product. Nahata became the company’s CEO, Kumar its COO and Srivastava the CTO. “Right from the start, we knew we couldn’t build the business in isolation, and we needed a source of revenue, so it was imperative that we found a customer who would be willing to work with us to develop and validate the product,” says Nahata.

Their choice of industry sector proved fortuitous here. “The e-commerce world was very entrepreneurial, and people in the sector were willing to try new ideas and engage with a startup like ours,” says Nahata. FarEye found its first customer and began to develop its product, a system that would replace the cumbersome paperwork used by delivery drivers with an app on a mobile phone. In tune with changing

times, the system was developed to run over the internet in a “software as a service” model, with the customer paying a monthly subscription for its use.

Developing its product “live” was a valuable learning experience, recalls Nahata. “Our first prototype had lots of features and options, but when we showed it to a driver, he just put the phone down, bemused, and showed us the paper he was using before. We realized that the driver experience had to be stripped back and simple, with just the critical information: details of the package, the address and the recipient’s name, in a large font and clear colors.”

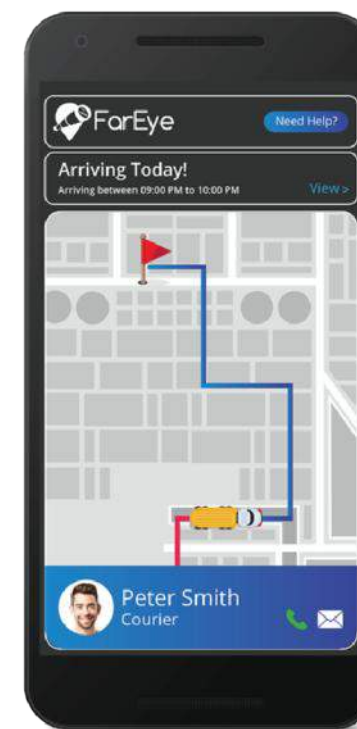
From one to two

After working with its first customer for a year, FarEye’s second big learning experience came when it took its product to customer number two. “That was when we learned that different companies have very different processes and operating frameworks,” says Nahata. “They might use a hub-and-spoke delivery model, for example, or need to handle cash on delivery.” In response, the FarEye team rebuilt their software from scratch, adopting a flexible design that made it easy for customers to adapt processes and workflows to suit their specific needs. That decision was a “game-changer,” he notes, since it gave FarEye’s customers “speed and competitive edge,” allowing them to create new products and service offerings and rapidly deploy them across their networks.

Global growth

Now firmly in growth mode, FarEye expanded rapidly over the next few years. While most of its early customers were logistics service providers, the company now supports shippers too, and its customers might be anywhere in the world. Nahata notes that while customers in developed regions may have less to gain in percentage terms from automating and digitizing their last-mile logistics, the higher cost of services in these regions means the absolute benefits of its software can be substantial. Today, its products are used by more than 100 enterprises in more than 20 countries and its systems track anything from 5 to 10 million shipments every day.

The company has expanded its service offerings too. “At first our customers mainly wanted to automate previously manual processes,” explains Nahata. “But once they have their data in digital form, people want visibility into that data. Then they want to optimize their processes, for example by moving from static to dynamic routing. Finally, they start to think about predictability, they want to know not just where a shipment is, but when it is going to arrive.”



EYE CONTACT:
FarEye’s software ensures speedy delivery.

FarEye’s software now provides all those features. Its offering also incorporates some of the latest innovations from the world of artificial intelligence, such as machine learning capabilities that identify customer habits based on the outcomes of past delivery attempts and use those to tailor future plans.

There’s more innovation to come. FarEye now employs more than 250 people and it is still growing fast. Its developers are working on solutions for emerging logistics challenges, such as systems to handle “elastic” logistics models where companies use a constantly changing combination of their own delivery fleets, third-party operators and crowdsourced services.

For Nahata, however, the biggest forthcoming challenges lie in finding better ways to help customers maintain the competitive edge that comes from continual innovation and rapid evolution. “With technology, you can build almost anything,” he says. “But our customers can’t stop what they are doing today to implement a new service, they need to keep everything running while the whole enterprise moves and adapts. Right now, we are working with partners like DHL to figure out the best way to do that.” ■ Jonathan Ward

 www.getfareye.com

250

The number of FarEye’s employees

SOLUTIONS

Range capability:
Can fly further than any other comparable sized aircraft enabling more direct connections

Capacity:
The 777 Freighter provides sufficient space for 37 pallets and 600 ft³ (17 m³) of bulk cargo. It offers far more capacity for revenue cargo than any other twin-engine freighter

Main deck cargo door:
The main deck cargo door is tall enough for 10-foot (3-meter) pallets and wide enough for outsize cargo shipments for customers

Efficiency:
Lowest fuel burn and CO₂ in its class and it's the quietest

Engine:
Equipped with the world's most powerful commercial jet engine, General Electric's GE90-110B1

Cargo Capacity	Total volume: 23,051 ft ³ (653 m ³)
	Max Revenue Payload: 112 tons (102 metric tons)
Max Fuel Capacity	47,890 U.S. gal (181,280 L)
Max Takeoff Weight	766,800 lb (347,810 kg)
Typical Cruise Speed at 35,000 feet	0.84 Mach
	557 mph (896 kph)
Basic Dimensions:	
Wingspan	212 ft 7 in (64.8 m)
Overall Length	209 ft 1 in (63.7 m)
Tail Height	61 ft 1 in (18.6 m)

FLYING HIGH

DHL is adding 14 new Boeing 777 Freighters to its global dedicated fleet of 265 aircraft over the next 2 years. The investment is part of a fleet replacement program to acquire the most reliable, fuel-efficient and quietest aircraft type to operate on the company's long-haul intercontinental routes. DHL was the first Air Express operator to introduce the B777F fleet type back in 2009 and this latest acquisition 10 years later bears testimony to its superior performance. The first aircraft in the delivery sequence will be assigned to DHL U.S. partner operator Southern Air to operate intercontinental round-the-world services connecting DHL's major global hubs (Cincinnati, Leipzig and Hong Kong) as well other major long-haul regional markets.

Capable of flying 4,970 nautical miles (9,200 kilometers) with a full payload at general cargo market densities, the aircraft is the world's longest-range twin-engine freighter. Fewer stops and shorter cargo delivery times mean faster delivery for DHL customers. ■

Photos: Adobe Stock; DHL

70 IS THE NEW 50

Aging populations mean staff that are older and more knowledgeable. Smarter companies are starting to harness this valuable experience.

A city such as Berlin can feel like the land of the young, where everyone seems to be a full-time social media influencer or a blockchain entrepreneur on a skateboard. However, Germany's demographics are actually pointing in the other direction, as the country's populace and workforce age.

In fact, according to market research company Statista, the average age in Germany is already 46, a huge leap from just 40 in 2000 and 34 in 1970. Even more sobering is a study by the Bertelsmann Foundation, which revealed that while next year three workers will support every person aged over 65, the ratio will be one-to-one by 2035. It's part of a trend across Europe. According to U.N. projections, in around a decade Spain, Italy and Portugal will start to hit a median age of 50 or higher. Populations in France, Ireland, the U.K. and Scandinavia will be a bit younger; but even so, by 2060 the average age in those countries will be somewhere in the mid-40s.

Things are just as alarming in America, where the U.S. Department of Labor reckons one in four U.S. workers will be 55 or older by 2024, more than double the rate in 1994. Meanwhile, in Japan, where decades of low birth rates have resulted in one of the world's oldest and fastest-aging populations, the workforce could shrink by almost 13 million people in the next 20 years, according to the country's health ministry. Manufacturing employment there could fall by 20%, highlighting the challenge to the country's industrial competitiveness.

The good news, however, is that employees increasingly want to work for longer, and not necessarily because they need to. "We're living and staying healthier for longer. Many people, especially at executive level, want to have a purpose," says Anita Hoffmann, a former senior executive in the chemical industry, and author of "Purpose & Impact: How Executives are Creating Meaningful Second Careers."

Hoffman is definitely walking the walk. After leaving the chemicals industry, she moved into management

consultancy. Following a spell at one of the leading global headhunting firms, she founded her own executive search and coaching company, Executiva. "After the financial crash of 2008, there were a lot of people in their 40s and 50s who didn't want another well-paid job," says Hoffman. "They wanted to transition into a second career for the next two or three decades."

Or as Martin Swain, an independent employment consultant – and former head of global human resources at British pharmaceutical giant GlaxoSmithKline – puts it: "Many people actually enjoy their jobs. Not everyone wants to retire to play golf or watch Netflix, even if they can afford to."

Although Hoffman says most companies are still ageist, some progressive employers are opening up alternative career routes that feature more flexible assignments and schedules, creating opportunities for older members of staff to mentor younger workers and offering phased retirement. She cites American management firms, such as McKinsey & Company and Bain & Co, as being particularly good at offering part-time work for highly skilled older workers.

In safe hands

According to Swain, it makes complete sense for businesses to ride the wave of this demographic shift and view older staff as an opportunity to bridge the talent gap. During the 2008 economic meltdown, many companies hired cheaper, far less experienced staff. Now that the global economy is more stable, the same companies are starting to appreciate the benefits of those with more management experience.

Those benefits should be obvious, but they bear repeating. In general, older people have better leadership skills, and often have stronger face-to-face communication skills that were honed before people ran their lives via email, texts and social media. Older employees tend to be more engaged with their job, too. According to a survey by the Pew Research Center's Social & Demographic Trends project, 54% of workers older than 65 are still employed because they want to be – not because they need the money. Perhaps less obviously, older staff



are also more in step with the prevailing workplace culture. In a report published by Randstad Work Solutions, 90% of baby boomers say being "ethical" is "extremely or very important" to workplace culture, compared to 83% of Generation X workers and 66% of Generation Y workers.

Research by Harvard Business Review claims diversity unlocks innovation in a business, and that diverse companies are 45% more likely to report growth in market share. No wonder some companies see maturity as a plus point that they can mine and turn to their advantage. In the U.K., energy and services firm Centrica and retailer Marks & Spencer abolished their mandatory retirement ages before the British government scrapped the law which made it compulsory for workers to take retirement at 65. In the U.S., accountancy giant PKF International – which operates in 150 countries – actively hires older accountants when other firms compel them to retire, offering flexible work options including shorter working weeks. And at American adhesive and sealant manufacturer Franklin International, many employees stay on well into their seventies.

Of course, it's one thing to employ older staff. It's quite another to use their knowledge to the best effect. To bridge the talent gap successfully, senior skills also have to be passed down to younger workers. This is why Mercedes has recently introduced demographic audits across the company to encourage employees and management to openly discuss the age structure of their teams and address ways to promote cooperation between young and old. Then there is tech giant SAP, which runs a "mature talents" program that promotes two-way mentoring between experienced staff and younger colleagues.

"The workplace of the future may look more multi-generational and a whole lot more fluid," admits Martin Swain. So welcome to a world where 70 is the new 50: where senior members of staff are valued and venerated rather than tolerated and then put out to grass. Yes, this could be a change – even a shock – for some businesses; but it's a necessary one if they want to survive and thrive. Because at a time when certain industries are struggling with skills shortages, age isn't the problem. It's the solution. ■ Boyd Farrow, Tony Greenway

25
PERCENT

The projected share of the U.S. workforce aged 55+ by 2022

87
PERCENT

The percentage of U.S. workers who believe that a multigenerational workforce increases innovation and problem solving

DELIVERED. SHARES A RIDE WITH...

MALIHA M QUADIR

The Dhaka-based entrepreneur reveals the professional and personal challenges she faced starting her successful ride-sharing business in her native Bangladesh.

In 2013, Smith College and Harvard Business School-educated Maliha M Quadir rang her father to tell him she was leaving a good job in Singapore and returning to work in her native Bangladesh. He was astounded.

“He asked me: ‘What are you coming back here to do?’” Quadir laughs. “I told him: ‘I’m going to sell bus tickets!’” He almost dropped the phone.

In truth, Quadir’s idea was a bit more involved than that. In 2014, with the help of six others sitting around the table in her Dhaka apartment, she developed an e-commerce travel platform called Shohoz (meaning “easy”) for booking bus and ferry tickets. “I always wanted to do something for a mass market,” she explains, “and I thought travel was interesting.” So it was a natural progression when, last year, the company branched out into the ride-sharing market, and, shortly afterward, raised \$15 million from a number of investors. These days, as founder and managing director of Shohoz, Quadir is in charge of a rapidly growing business that employs 300 people. She was also named one of 100 Young Global Leaders of 2017 by the World Economic Forum.

If Quadir hadn’t returned to Bangladesh, her life could have been very different but, she believes, not as fulfilling. After working for Morgan Stanley and attaining an MBA at Harvard, she worked for an array of blue-chip firms including Standard Chartered Bank, Nokia and Vistaprint. “Going to Harvard to study for an MBA was life-changing and I was so grateful for the work experience I had,” she says. “But how much of an impression would I have been able to make in the U.S. or Singapore? There was already so much happening in those countries; whereas if I came back to Bangladesh, I knew there would be immense opportunities to add value in every sector. I could lead a more impactful life. I wanted to build something big for Bangladesh.”

Initially, her bus ticketing strategy was firmly web-based; but, in 2016, she launched the Shohoz ticketing app. The ride-sharing side of the business is also app-based. “Apps are where the world is heading, after all,” notes Quadir. Now her dream is “to build a super-app for Bangladesh” – a platform that allows users to access a number of features normally only available through individual apps.

But with ticketing, ride-sharing and – more recently – food delivery as part of the expanding Shohoz portfolio, she’s also cautious about growing too big, too fast. Married to an entrepreneur husband and with two children, Quadir lives an extremely full life. Sometimes too full. “Running a business is a 24/7 job and very stressful,” she admits. “But that’s what makes life exciting!”

Photo: Shohoz

Why has ride-sharing taken off in Bangladesh?

In local transport terms, the road infrastructure is OK – but there is an inadequate supply of local buses or other public transport means. The government is looking into it; but you’d be amazed that in a city like Dhaka with 20 million people there is no professionally run local bus service. That creates tremendous opportunities for ride-sharing companies.

How easy was it to set up your business?

Fundraising is difficult in Bangladesh. Things have changed a lot in the last few years, but it’s still not the first location people think of when they are looking to invest. That’s because, traditionally, Bangladesh has been known for poverty, floods and other negative things. And, of course, corruption occurs in all emerging markets and Bangladesh is no different. But the middle class is growing, GDP has risen year on year for the last 20 years, and the regulatory environment is very simple and speedy. That story is not so well known to the investment community – yet. But it’s changing.

Were there other challenges you faced?

Finding good people is tough. Bangladesh’s educational standards are not as strong as those of other countries, which is the root cause of the problem; plus attracting new recruits to a startup is difficult because the people here tend to want job security with a tested company. What helped was making a fundraising announcement last year, which I’d never done before. Afterward, it became tremendously easy to attract good people, and in the last six months I’ve recruited quite a few very experienced people with stellar records to my team.

Have you faced any personal challenges in business?

It’s got better I think; but working in a male-dominated industry does have its challenges. Back in the day, I had people ask me: “Are you serious about this business? Your husband can make money so you don’t have to!” So yes, I have faced those kinds of questions and attitudes, and the only way to handle them is to show how serious you are in your performance and prove that you are in it for the long haul. Women in business always have to go two miles extra, I find. But that’s not unique to Bangladesh! There’s a glass ceiling everywhere.

Where would you like to see Shohoz in five to 10 years?

I would like to see us be the most-used app in the country and also becoming more of a player in the logistics space. We have launched food delivery, which is showing excellent traction in a short period of time, but have plans to get into courier services and the trucking segment as well. Logistics is a massive market with a tremendous opportunity for us to increase efficiency with digitization – but it’s also an extremely complex sector. So, it will take time. ■ Tony Greenway

1.5 MILLION

The number of Shohoz ride-sharing journeys every month

 www.shohoz.com

THREE THINGS WE CAN ALL LEARN FROM PEOPLE WHO DON'T USE SMARTPHONES OR SOCIAL MEDIA

Many of us spend hours every day tethered to our devices, pawing at the screen to see if it will deliver a few more likes or emails, monitoring the world and honing our online presence. Social networking platforms such as Whatsapp, Snapchat, Instagram, Facebook and Twitter are supposed to make us feel more connected. Yet our reliance on technology to “see” the social world around us can be a heavy burden.

The Pew Research Center recently reported that about a quarter of U.S. adults say they are “almost constantly” online. Stress, addiction, depression and anxiety seem unsurprising consequences of using social platforms that are often specifically designed to keep us repeating the same actions over and over again.

Even so, many would find the prospect of living offline worrisome, or simply impossible. That’s why we undertook a small study with

50 people who may seem nothing less than social outcasts in today’s screen-saturated environment. None of our participants used social media or had a mobile phone, and most even refused to email.

We wanted to understand why these people had decided to switch off, and how they managed it. But rather than seeking quick fixes for overuse, we explored the principles and values that drove our participants to live the way they do. Much has already been written about how we can switch off – but that won’t achieve much unless we really feel the benefits.

Here’s what our respondents said they’d learned from living their social lives offline.

1. Spending time with others

Part of the problem with social networking platforms is that we don’t just use them for communicating – they also promote a particular way of being connected to and supportive of those around us. These interactions are channeled through the platform to create data, which is ultimately fed back to data brokers and marketers.

Our participants shared a deep belief in, and attachment to, a different way of socializing that’s focused on expression, touching, talking and being in the same space, physically. For them, this helped to maintain a feeling of human bonding and connection.

And while this slower, deeper acknowledgement of others was especially valued by our participants, they also thought it might be valuable to society more broadly. Given the angst-ridden nature of frenetic social networking, we could all benefit from slowing down and taking stock more often.

For many people today, the sense of being “always-on” is generating a desire to achieve greater balance and disengage from the things that are causing them stress. For our participants, who didn’t use smartphones and social media, time with others was associated with a sense of calm and purpose in life.

2. Switching off is not missing out

Our participants questioned what exactly is “social” about social media: What constitutes communication, and what do we get from the way that social stuff is measured on online platforms – whether that’s friendship, support or social contact. Rather than having hundreds of “friends,” they would always choose to see people face to face and nurture relationships that would support them through the tough times.

Taking the opportunity to switch off may, at first, cause some anxiety. But the trick is to realise that switching off is not the same as missing out. When you first switch off, you may spend more time in your own company. But from these moments may come a realization of how exhausting it is to sustain online connections, and indeed how superficial it is to be locked in endless exchanges of trivial information.

Those who chose to disconnect are neither sad nor excluded. Freed from the screen, they escaped from the overwhelming flows of information and tasks. Their deep sense of connection with the world, and their loved ones, was clear to see.

3. Being rather than doing

Many of those who switched off enjoyed new-found vitality, because they found time to connect with the world in the here and now. This is crucial to helping us reset and relax, so that we are prepared for more stressful times.

Time spent scrolling through content may feel as though it makes light demands on body and mind. But the visual interference from a bright screen is far from relaxing. You are much less likely to have restful sleep if you share a bed with your smartphone, or surf to sleep.



ROWLAND ATKINSON

Rowland Atkinson is Chair in Inclusive Societies at the University of Sheffield. His research looks at issues of social divisions in cities, inequality and social harm more broadly.

As mindfulness is becoming more popular, its core ideas are often co-opted by technology. On Instagram, for example, successful influencers show off their yoga skills and promote spiritual disciplines. Fitness trackers, health data and yoga apps consistently rank among the top apps downloaded by smartphone users.

Our disconnected group told us that we should be more critical of our use of apps and start leaving our phone behind. If mindfulness is a state of being that focuses on the present – channeling thoughts, feelings and sensations as they flow through us – then what use is a screen? Constant connection paradoxically results in less free time, and periods when we are able to think without interruption give precious refuge from the demands of daily life.

These disconnected people did not switch off to be “anti-social.” They did so to take charge of when and where they connected with people. They may well be part of a vanguard, leading to new ways of being happier, more rested and, yes, more social.

Ten years from now, we might look back at the emergence of social media as a part of humanity’s growing-up – a time that created social divisions, anxiety and restlessness and which damaged the health and well-being of many. Until then, maybe it’s best to put our smartphones down – or at least switch them off a little more often. ■

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Illustrations: Nina Tiefenbach for Delivered.



MARIANN HARDY

Mariann is a social scientist and digital humanities scholar. Her research interests have been long concerned with mediated relationships and digital communications, while bringing a richer comprehension of opportunities around working in technology into the process of leadership with a focus on supporting gender equality in tech in particular.

WHAT'S THE STORY, MR. RUTLAND?

PEDAL POWER

Rugby-loving adventurers Ron Rutland and James Owens are setting off on a remarkable fundraising quest: to cycle from the U.K. to Japan in seven-and-a-half-months, arriving in Tokyo just in time for the Rugby World Cup 2019™.

I guess I'm no stranger to extreme adventures. In 2013, I cycled from my then home in Cape Town to the 2015 Rugby World Cup in London, visiting every single country on mainland Africa en route. That was a two-and-a-half-year odyssey that gave me a self-belief I'd never had before. In 2017, I went to Mongolia with former Hong Kong rugby player Adam Rolston, where we hit a golf ball approximately 2,000 kilometers across the country, averaging 250 shots a day.



FACT: Ron and James will be using Surly Long Haul Trucker bicycles that are made of steel and designed to carry pannier bags. Fully loaded – but without riders – the bikes weigh 40 kilograms

231

The number of days it will take Ron and James to cycle from London to Tokyo

27

The number of countries Ron and James will be visiting on their way to the Rugby World Cup™

By the time you read this, myself and my friend James Owens – who works for the ChildFund Pass It Back charity – will be on our way to the Rugby World Cup 2019 in Japan, which kicks off on 20th September. We're both massive rugby fans and will be cycling to the tournament from London to Tokyo to raise money and awareness for ChildFund Pass It Back, which is the World Cup's official charity partner. By mid-June, we'll have cycled through Nepal and should have reached the state of Assam in northeastern India.

We're calling the trek "Race to Rugby World Cup" and it will take us seven-and-a-half months. It's a very tight schedule: We have to cycle 600 kilometers a week for 33 weeks and, if all goes to plan, we'll arrive in Tokyo the day before the World Cup starts. James is more than up for the challenge. He's super adventurous and once spent three months cycling around Taiwan, living in a tent.

DHL will be supporting us as our dedicated logistics partner; and, with all the preparation we've done, I'm confident we'll get there, but some of the journey will be out of our control. We could get sick, or a landslide might close a road in the Himalayas and force us to take a 1,000-kilometer detour. And I had a hip replacement last year! But we have to get there as World Rugby have entrusted us with delivering the commemorative whistle for the opening game.

It's going to be physically intense. Cycling through Europe will be cold, and we have to cross the Himalayas – twice! We're also crossing Myanmar in the rainy season, where the road infrastructure isn't fantastic. But it's also an amazing opportunity: For instance, I'm really looking forward to seeing Iran, where I've never been. Yes, there will be times when we'll feel demotivated. But we'll also keep each other going through this incredible shared experience. ■ As told to Tony Greenway

 bit.ly/dhl-race-to-rwc

45

The number of airports that have been made ready for natural disasters thanks to the Get Airports Ready for Disaster (GARD) program. The need for the right infrastructure, resources and processes to channel relief efforts is greatest after a disaster strikes. At these airports, GARD brings together all the stakeholders involved in humanitarian actions – from cargo operators and emergency services to security, customs and management – to identify backlogs that could hamper relief. Developed by Deutsche Post DHL Group with the United Nations Development Programme in 2009, the program is now celebrating its 10th year.

 bit.ly/dpdhl-gard





DELIVERING DIVERSITY

Deutsche Post DHL Group is working towards delivering a more diverse and inclusive future for all. Receiving the 2019 Catalyst Award, in recognition of our 'Women in Management' initiative, is something we should all feel extremely proud of. With approximately 550.000 employees in over 220 countries and territories, we understand the importance and benefits of creating a corporate culture that promotes diversity and inclusiveness in the working environment.

**Deutsche Post DHL
Group**