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THE GLOBAL LOGISTICS MAGAZINE

ISSUE 05/2019

BUSINESS COLOMBIA GETS COMPETITIVE

Discover more about Latin America's fourth-biggest economy

SOLUTIONS MOMENT OF TRUTH

Why speaking your mind can be good for business

VIEWPOINTS THE DEMAND FOR SUPPLY

Learn a history lesson from supply chain guru John Gattorna

DRIVING FORCE

How customers are steering change in the car industry



Dear Reader.

Is your company customer-focused? Of course it is. These days, all companies have to put their customers at the center of everything they do - and firms in the automotive sector are no exception.

As you'll read in our Auto-Mobility Focus, car manufacturers are changing their traditional marketing approaches in order to attract buyers and maintain their competitive position, using emerging digitalization to increase customer satisfaction. Take Volkswagen, which is streamlining its processes and increasing its logistics performance with digital technology. We talk to Matthias Braun, Head of Digitization and Concept Development at the group's central supply chain management organization, to find out more.

Big changes are also happening in Colombia, which is seeing a surge in entrepreneurship. Our Country Focus finds Latin America's fourthlargest economy attempting to boost its domestic and international trade with a multibillion-dollar road-building program, support for its blossoming startup scene and an increased focus on e-commerce.

Finally – talking of e-commerce and changing strategies – **Time to grow** looks at how B2B and B2C companies must prepare their supply chains for the coming rise in online retail.

Enjoy your read!

Sincerely,

Katja Busch Chief Commercial Officer, DHL

Cover photo: iStock/Getty Images

Photos: DHL; Yiu Yu Hoi/Getty Images; Kike Calvo/Alamy; Ian Tuttle for Delivered.



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NEW

GOING MOBILE

A new app is set to help DHL Express customers in Africa. The mobile app, launched in eight countries and to be available in a further 40 by the end of next year, will allow customers to track and coordinate the delivery of their shipments with greater ease and convenience. Business growth in the African continent is being boosted by greater use of mobile phones and related services - the mobile ecosystem contributed \$110 billion to the sub-Saharan economy in 2017. Online transactions are growing exponentially, too, so there is a clear demand for technology that allows customers to do business on the move. The app. which has launched in South Africa, Kenya, Ghana, Nigeria, Ethiopia, Mauritius, Tanzania and Uganda, means customers can access accurate shipping quotations, find their closest DHL Service Point for collections and deliveries, and track their shipments in real time

POWER TO THE PEOPLE

Some 200 million people in India still do not have access to electricity, but one company is redressing the balance - and giving jobs to women in the process. Last-mile distribution firm Frontier Markets is turning its customers into salespeople in the western state of Rajasthan. Frontier Markets, which sells solar-powered products such as lamps, stoves and TVs, realized that 70% of users were female - and that women had to be the face of its salesforce. Now the company employs about 3,000 women as solar sahelis -Hindi for "a close female friend." Frontier Markets chief Ajaita Shah estimates his female workforce has helped provide clean energy to more than half a million village homes.





EASTERN PROMISE

DPDHL's StreetScooter has signed a memorandum of understanding with Chinese carmaker Chery Holding Group to establish a joint venture for the development of an electric light utility vehicle for the international market. Aachen-based StreetScooter has been manufacturing more than 12,000 of its electric vans for DPDHL and third-party customers. The tie-up with Chery will see mass production of up to 100,000 vehicles a year begin in 2021. China is potentially the world's largest market for electric light commercial vehicles, and the joint venture will also seek to establish a research and development base in China, focusing on components for new electric vans, design, autonomous logistics and energy solutions.

bit.ly/dp-china

POST HASTE

A British inventor dubbed "the real-life Iron Man" has made a delivery with a difference - flying a first-class letter from the U.K. mainland to the Isle of Wight using his jet-powered suit. Richard Browning, co-founder of startup Gravity Industries, donned his Daedalus suit in September to cross the Solent from Hurst Castle on the Hampshire coast to Fort Albert in just 75 seconds. He was inspired by German entrepreneur Gerhard Zucker, who tried – but failed – to send mail to the island by rocket in 1934.



KEEP ON TRUCKING

More than 1,000 new state-of-the-art trucks are set to join DHL Supply Chain's existing fleet in the U.K. and Ireland. The trucks - which include tractor units, specialized rigid trucks and multi-temperature-controlled vehicles - will be equipped with the latest safety features, including cameras, Microlise telematics and high-tech engines. The new fleet - 90% of which will already be in service by the end of the year - includes a number of environmentally friendly biogas vehicles.





The year by which sportswear giant Adidas has pledged to use only recycled plastic. A move to eliminate so-called "virgin plastic" from its offices, retail outlets, warehouses and distribution centers will also save an estimated 40 tons of the material a year.

bit.ly/10000-streetscooters







Following the success of his book "Dynamic Supply Chains," thought leader and supply chain guru Professor John Gattorna has released his latest work: "Transforming Supply Chains," a book that focuses on ways to better serve customers in a disruptive world. For a chance to win a copy, please email:

delivered.magazine@dhl.com





www.gattornaalignment.com/john-gattorna/books/

Don't miss John Gattorna's essay on page 36 of this issue.

MAGNIFICENT MAN IN HIS FLYING MACHINE

British adventurer James Ketchell has made history by becoming the first person to circumnavigate the world in an open-cockpit gyrocopter. With a flight path that took him over Europe, Asia and North America, Ketchell left his native Hampshire in March and touched back down there on September 22 after covering 24,000 nautical miles in 175 consecutive days. He was supported in his adventure by DHL, who was on standby around the world to help with aviation and logistics, as well as shipping some of his kit from Siberia to the U.K. and a life raft from Britain to the U.S. The motivational speaker, who only learned to fly gyrocopters two years ago, raised more than \$12,450 for charity with his feat.



bit.ly/gyrocopter-global



STATE OF CONNECTEDNESS

DHL's Global Connectedness Index provides a timely update and analysis of globalization based on the latest data. Out in December, the 2019 update will highlight the most recent world-level developments in global connectedness, measured by cross-border flows of trade, capital, information and people.

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BLUE-SKY THINKING

A battery-operated plane stole the thunder at this year's Paris Air Show. The Alice is being billed as a clean, green commuter plane that can transport up to nine passengers over a maximum distance of 1,045 kilometers. The aircraft, which is the brainchild of Israel-based aeronautics company Eviation, is due to begin test flights by the end of this year. It has already garnered massive interest from the industry – in fact, on the back of the unveiling in Paris, Massachusetts-based Cape Air reportedly made a double-digit order with Eviation for the \$4 million plane.



APRIL

Conference, DHL Innovation Center, Troisdorf, Germany

DHL's Global

Auto-Mobility

MAY DHL's Global Technology Conference, Frankfurt, Germany



DHL's Global Life Sciences & Healthcare Conference, Singapore

Share, learn and network with your peers. DHL's industry events present an opportunity to engage with industry peers, thought leaders and DHL experts on hot topics and key trends.

SEEING THE WOOD FOR THE TREES

With deforestation in the Amazon an alarming mainstay of the headlines lately, one near-neighbor is showing that there can be another way. The Central American Republic of Costa Rica has doubled its forest cover in the past 30 years, bringing it up to 52% of its land surface area. Like the Amazon basin now, Costa Rica was blighted by deforestation after the 1950s, with extensive logging cutting the rainforests and indigenous woodland down to just 26% of the country by 1983. But government policy and subsidization have changed that, turning Costa Rica into a hugely popular ecotourism destination.



IMPROVING PROSPECTS

As part of its tie-up with charity SOS Children's Villages, DHL has helped bring learning opportunities to children in some of Colombia's underresourced communities. Over the summer, the company transported two Information and Communication Technology (ICT) centers more than 1,000 kilometers from Bogotá to the northern Colombian cities of Maicao and Riohacha, near the border with Venezuela. The ICT centers, housed in shipping containers, have been donated by DHL and come with power generators, computers and desk space, as well as Wi-Fi and charging points for mobile devices. The company is funding the centers for a year, with the aim of improving the employability of young people.









DPDHL recently welcomed the 10,000th StreetScooter to its e-fleet in Germany, an important milestone on the way to cutting all logistics-related emissions by 2050. Since their introduction, the electric vehicles have covered more than 100 million kilometers.

bit.ly/10000-streetscooters



GOING FOR GOLD

Next summer's Tokyo Olympics will see a fleet of self-driving cars ferrying passengers around the competition venues before the games commence. In the week leading up to the opening ceremony, as many as 100 autonomous vehicles will shuttle 7,000 people around the city's Tokyo Bay waterfront in a bid to promote Japan's strengths in this high-tech field. Car giants including Toyota and Nissan will be among those showing off their latest technologies. In preparation, Japan began its largest driverless vehicle trial on public roads so far in October, with tests continuing through to 2022. The country has said its aim is to start selling autonomous vehicles in 2025.

THE CUSTOMER IN CONTROL

Traditional automotive marketing approaches are running out of road, forcing carmakers to explore new routes to their customers' minds, hearts and wallets.





CHANGING THE DEAL: Thanks to the internet. dealerships are not the first port of call for car customers.

orsprung durch Technik. The Ultimate Driving Machine. If only everything in life was as reliable as an automotive industry marketing slogan. Carmakers have long understood that their customers are buying much more than a form of transportation. They have spent years refining sophisticated brand images designed to appeal to those customers' self-image, hopes and dreams.

Now, all that hard effort seems to be in jeopardy. Luxury vehicle manufacturers promoting powerful engines and sumptuous interiors are losing sales to upstart rivals offering a future of touchscreen displays and silent electric propulsion. Young people, we are assured, view car ownership as an inconvenience rather than an aspiration. Even in emerging markets, which the major automakers see as important sources of long-term growth, customers are eschewing big-name players in the mid-market in favor of a new generation of local producers.

It is important not to overestimate the impact of these trends. The big picture of the car industry is one of slowing growth rather than precipitous decline. Worldwide passenger car sales are expected to be around the 77-million mark in 2019, down just a little from their 2017 peak of 79 million. Volkswagen and

Toyota, the two largest carmaking groups, are still getting bigger, even if some of their close rivals have seen sales slide.

What is becoming clear, however, is that automotive companies cannot rely on momentum to maintain their competitive position. They are having to work harder to acquire new customers, and harder still to retain them. Recognizing that, carmakers around the world are looking for ways to revamp their marketing, sales and service activities. Their approaches are diverse, but the objective is simple: to put the customer at the center of everything they do.

A new dealer

The dealership has traditionally been the car industry's primary touchpoint with its customers. People would visit their dealers to learn about, see and experience the product. They would negotiate the terms of their purchase in person. And they would return to the dealer periodically through the duration of their ownership for servicing and repair activities.

Carmakers spend a lot of time and money on their dealer networks, ensuring their showrooms comply with brand values and training sales and service staff. And they know how important they are. While customers rank the quality of the product as the number

one reason they prefer certain brands, the quality of aftersale service and the help and support they receive from dealers are their second and third priorities.

Worryingly, however, today's dealers don't seem to be meeting customer needs. Consultancy Deloitte found that fewer than half of U.S. consumers had a positive attitude toward car dealers, with many feeling that dealers treated them unfairly or with disrespect. U.K. consumers trust automotive companies less than supermarkets, hotels, airlines or travel websites.

Worse, dealers have fewer opportunities to persuade customers of their good points. EY, another consultancy, found that 80% of customers begin their research into vehicles, dealerships and offers online, spending around 10 hours on the web before they set foot inside a showroom. By the time they do cross the dealer's threshold, the purchasing decision is largely made: The same research suggests that 80% of customers buy from the first salesperson they come into contact with. Most dealers organize events designed to attract customers and introduce new products, but only a third of customers say they are interested in attending.

Changes in store

To change this dispiriting picture, car brands are encouraging their dealers to adapt their offerings and presentation to better reflect the tastes of their local customers. Audi's dealership in Broomfield, Colorado, for example, keeps a stock of high-end bicycles alongside the cars on display. Customers bringing their cars in for service can borrow a bike while they wait and cruise the city's extensive network of bike paths and mountain bike trails.



MACHINE ORDERS: Ford and Alibaba have opened an automatic car "vending machine" in the city of Guangzhou, China.

2019

MILLION

Expected worldwide

passenger car sales in

"Different customer groups, product types and business models will all have their own unique logistics requirements."

Fathi Tlatli, President, Global Auto-Mobility Sector, DHL

Other carmakers are adopting new formats, designed to make experiencing their product easier and more accessible. Tesla has eschewed the conventional dealership model altogether. Instead, the electric carmaker runs a network of "stores" inside shopping malls and other high-footfall areas. Customers visiting the stores can see and touch the product, but they are directed to the company's website to finalize their purchase.

In China, Ford is running a partnership with e-commerce giant Alibaba. The two companies have opened an automatic car "vending machine" in the city of Guangzhou, the first of a network planned across the country. Customers can use Alibaba's Tmall app to book a test drive of the exact make and model they want. They then visit the five-storey machine at the appointed time, enter their credentials at a touch screen terminal and their chosen car is dispensed to them automatically.

The digital opportunity

Even if customers eventually end up at a conventional dealer to make their purchase - as most do - car companies are striving to build purchasing "journeys" that seamlessly connect the real and virtual worlds.

The average number of hours customers spend researching on the web before visiting a car showroom

The share of all new cars owned by fleets rather than individuals

Consultancy Bain & Company estimates that customers are likely to switch between different online and offline channels at least four times as they research, configure and eventually buy a new vehicle. Those customers get frustrated if they have to supply the same information repeatedly through the process, creating the need for effective "omnichannel" customer management tools.

Digitalization is also key to car companies' efforts to play a more active role in the car ownership experience, building closer and more personal relationships with their customers during the periods between purchase decisions. When Daimler launched its first battery electric vehicle earlier this year, the German carmaker placed as much emphasis on the associated services as on the product itself. Customers can opt into a collect-and-return service that means they no longer have to travel to a dealer for routine maintenance, for example. As they drive, meanwhile, a smart climate control system will adjust the interior ambiance based on a range of data, including the length of the planned journey, the traffic conditions and even information on the driver's stress levels provided by the biometric sensors in their smartwatch.

One car, many customers

At the extreme, this personalization approach involves a shift away from outright sales entirely. Porsche, for example, has launched the Porsche Passport service in five cities in the U.S. and Canada. Under the scheme,

customers pay a fixed monthly fee for access to a fleet of Porsche vehicles. They can "flip" cars as often as they want during the subscription period, perhaps using an SUV during the week and a two-door sports car at weekends. Vehicle change requests are executed using a mobile phone app, and all the annoying details of car ownership, like insurance, maintenance and cleaning, are handled by the company.

Companies aren't just targeting wealthy customers with these new flexible ownership options. Volkswagen, which established a car assembly facility in Rwanda last year, is using shared mobility services as a central element of its activities in the country. Under the Move brand, the company offers a range of sharing options in Rwanda - from conventional fleet management services for corporate customers to on-demand ride-hailing options for hotels or individuals. As well as opening up access to its products in the country, which currently has very low levels of car ownership, VW is also using its experience in Rwanda to test the viability of different mobility solutions in sub-Saharan Africa.

Logistics in motion

What does the new focus on customer centricity mean for car companies' logistics activities? According to Fathi Tlatli, President of the Global Auto-Mobility Sector at DHL, the new logistics challenges can be summarized in three words: segmentation, service and sustainability.



Porsche Passport service to more North American cities.





"The automotive sector is not going to be able to serve all its customers with a single approach," he explains. "Different customer groups, product types and business models will all have their own unique logistics requirements." The growth of e-commerce as a vehicle sales channel will require car companies or their distribution partners to find new places to store inventory prior to sale, for example, as well as new last-mile delivery approaches. Car-sharing schemes create the need to continually reposition vehicles throughout their life cycles, so customers have access to the cars they want, when they want them.

When it comes to the aftermarket supply of spare parts and consumables, meanwhile, there will be everincreasing pressure to guarantee high levels of availability and rapid delivery. "In Europe, around 50% of all new cars are already owned by fleets rather than individuals, and the growth of new mobility services will push that figure even higher," says Tlatli. "A fleet vehicle is a business asset, and it needs to be on the road, paying its way." Fleet owners, increasingly including the car companies themselves, will not be willing to tolerate a two- or three-day wait for essential components, he says.

Finally, while the other pressures will tend to drive up demand for logistics, the industry is acutely aware that moving cars and parts around has a significant environmental footprint. As carmakers invest billions in new generations of low- and zero-emission vehicles, they are also keen to minimize the carbon footprint of their own manufacturing and service operations. "At the moment, we're doing a lot of work with our automotive customers on carbon optimization programs," he says. "They're interested in everything from reducing the number of kilometers traveled by shipments to new ultra-efficient warehouses."
Jonathan Ward

ON THE MOVE: Volkswagen has launched an app-driven ride-hailing service in Rwanda.



1. The automotive industry is talking a lot about the need to become more customercentric, what does that mean in practice?

Sector, DHL

Ultimately, it's about ease and convenience for the customer, whether that customer is a manager responsible for a big fleet of vehicles or an individual private owner. People enjoy the highly responsive, personalized service they get from companies they deal with in other sectors, and they now expect the same from the automotive industry. That means the sector can no longer attempt to serve its customers with a "one size fits all" model.

2. Is there a requirement for more customercentric logistics approaches in the mobility sector?

Yes. Every aspect of logistics has a role to play in the drive for greater customer-centricity, from inbound to manufacturing, through finished vehicle delivery and on into the aftermarket. Automotive and mobility companies need to continue to improve the performance of their existing supply chains and logistics processes. And they will also have to develop new logistics models and new approaches to support specific customer groups, whether that's managing and maintaining shared vehicle fleets or giving companies and individuals a more responsive, user-friendly experience.

3. Do the ongoing technology changes in the industry have implications for logistics activities?

We're seeing a significant increase in the number of components with stringent storage and handling requirements. Batteries for electric and hybrid vehicles are part of the story, but there's a more general rise in the quantity of electronic components and assemblies in the modern vehicle. Those parts need to be protected from shocks, temperature extremes and other environmental factors. Temperature-controlled logistics was once quite rare in the automotive industry, for example. Now it's becoming a common request from our customers.



BUILDING THE DIGITAL AUTOMOTIVE SUPPLY CHAIN

The world's biggest carmaker is introducing new digital approaches across its logistics activities.

he automotive industry invented the modern, just-in-time supply chain. The sector's largest global players have refined the concept of streamlined, tightly integrated logistics processes to an extraordinary degree. Now, with the aid of emerging digital technologies, the industry is pursuing the next-step change in performance.

For Volkswagen, the biggest carmaking group in the world today, the man with overall responsibility for that transformation within material logistics is Matthias Braun, Head of Digitization and Concept Development at Volkswagen Konzernlogistik, the group's central supply chain management organization.

Braun's focus is material logistics: the management of parts between suppliers, VW's own component plants and its final-assembly facilities, including the flow of material and empty containers. His job, he says, is to "digitize the processes we have within logistics in the Volkswagen world, and to search for new business concepts and business models emerging through digitization."

That's a broad scope, and Braun has plenty of territory to cover. Worldwide, Volkswagen has more than 120 plants that build components or complete vehicles. It sources material from roughly 8,500 first-tier suppliers. Within Europe alone, Volkswagen manages around 18,000 truckloads every day, and transports more than 75 million cubic meters of material each year.

To add to the challenge, Volkswagen gives individual plants and business units significant autonomy in the operation of their logistics processes, with the group logistics function responsible for overall strategy, setting standards and assuring synergies. "As you can imagine, we're talking about 122 plants who are all keen to get the best, newest and hottest stuff in the digital world," says Braun, adding that it's "quite tough" to coordinate all of them "so we don't just build 'lighthouses', but also bring efficiency with sustainable solutions and the same methodologies running at all our plants."

The digital imperative

Digitization, however, isn't a challenge that Volkswagen logistics can avoid. As the group continues to grow - in size, geographic scope and complexity - the demands placed on its logistics processes are increasing too. "Without digitization, we won't be able handle that growth," says Braun. "We need to collaborate differently, and we need to connect differently, otherwise we won't

The number of Volkswagen plants worldwide complete vehicles

be able to operate efficiently or in a way that is convenient for our customers."

Volkswagen has already reached some important milestones on its digital journey. Two years ago, for example, it introduced a standard platform in Europe for communication between plants, suppliers and logistics providers. The system, says Braun, has eliminated swathes of manual work across the logistics network, as supply chain staff and logistics service providers no longer have to rely on emails, faxes or phone calls to confirm the readiness or status of shipments.

Even more significantly, bringing formerly disparate logistics data together in one place has laid the foundations for a host of other valuable improvements. "Creating transparency and closing the loops in our communications with suppliers and service providers is a vital first step," says Braun. "But the real value comes when you create new applications that can make use of that data."

Those new applications are arriving now. Some plants in the network, for example, now operate a "critical parts list," which provides a real-time indication of how long the plant can continue to run using the stocks of components it has on site. If an incoming shipment is delayed, logistics staff can use the list to see if the delay is likely to affect production. That knowledge has the potential to create significant cost savings, allowing Volkswagen to avoid the unnecessary use of expensive expedited freight.

Better data is helping plants to manage inbound deliveries more efficiently. Instead of allocating a fixed arrival slot to trucks a day in advance, they can use a more dynamic system that adjusts slot availability based on the most recent expected arrival time of a shipment. That change means trucks spend less time waiting to unload, improving the utilization of vehicles and their drivers and helping Volkswagen to meet its decarbonization targets.

Volkswagen is also able to use its detailed logistics data at a more strategic level, adds Braun. "From a sustainability perspective, we can optimize our routes and cross-dock structures to improve the utilization of vehicles. We can identify high-runner routes where we can ask our service providers to use LNG trucks. Or we can find opportunities to use combined train-truck transport on major routes."

Desire for data

The company's quest to create greater supply chain transparency is an ongoing one, says Braun. "Digitization is not a project; it's a new way of behaving.



that build components or

There's no defined end to information interchange. Every time you get new information and make use of it, your confidence grows, and you become more curious." Work is ongoing to integrate real-time position data from trucks into the system to further refine arrival time estimates. And Braun and his team are already thinking about the next levels of information exchange. "We might like to know about the fuel consumption of our service providers' trucks so we can better understand the emissions generated by our supply chain," he says. "Or maybe we could provide our logistics partners with information on our warehouse inventories so they could understand the time remaining before we have a material shortage, and plan their deliveries based on that."

The digital team is constantly on the lookout for new technologies and solutions that could further streamline processes and improve communication and collaboration across the supply chain. Pilot projects are underway using smart tags to improve the tracking of the millions of reusable racks and containers that shuttle between suppliers and assembly plants, for example.

Volkswagen Konzernlogistik organized a worldwide innovation competition and Innovative Logistics Solution Day earlier this year, inviting logistics providers, established technology companies and startups to present new ideas or collaboration proposals. "We're not interested in technology for its own sake," says Braun. "We want every conversation with a potential collaborator to start from the basis of a real problem or pain point in our processes, then we can decide if a particular technology might provide a solution."

The human factor

Braun notes, however, that there are plenty of other important challenges to greater digitization to be overcome. One of them is the lack of skilled workers. "In logistics, we have a shortage of truck drivers, and we have a shortage of qualified IT people," he says. "Sometimes it's hard to bring together the right experts within the key departments of both sides to share data and work with it to create new value."

DRIVER-FREE:

Automation is becoming commonplace in Volkswagen plants, helping move parts to production lines.

Then there's trust. While digital projects create an endless appetite for data sharing, says Braun, legal and commercial sensitivities place inevitable restrictions on information that can be shared across corporate boundaries.

Finally, there is the need to persuade people that digitization doesn't represent a threat. "I'm very lucky that the team I'm responsible for is open-minded and curious, but also well connected with the real world," says Braun. "Our people are not only looking for new concepts, but also for things they can implement to make things better."

Not everyone in the Volkswagen organization is as naturally enthusiastic or technically savvy, however. To help its whole workforce embrace digitization, Volkswagen Konzernlogistik runs a capability building program called "The Digital View." Its aim is to make the benefits of new technology clear, beginning at the individual level. "We start by showing people how to use digital tools in their daily working lives, things like using digital note-taking applications," explains Braun. "Then we go on to look at how digital tools can improve collaboration with colleagues, with things like Skype calls for meetings or SharePoint to make information accessible to everybody."

A key success factor for the project, says Braun, is that the training is done by Konzernlogistik staff, rather than by external lecturers. "There's greater trust when you're learning from a colleague who explains the actual benefits for your daily work," he notes, adding that once people recognize those benefits, "they're much more willing to embrace the next level and look for ways to improve processes through digitization."

Breaking through boundaries

Where will Volkswagen's digital supply chain transformation lead? Braun is bullish about the potential. In the next five to 10 years, he says, the company will be able to operate a fully digital twin of its entire supply chain, including every supplier, service provider, component, container, truck and rail car in its network. Automation will be commonplace in physical activities like transport, loading and the movement of parts to production lines, as well as in administrative workflows. Roles will change, too, with fewer people involved in repetitive transactional tasks and more in strategic activities such as advanced planning, their decision-making aided by artificial intelligence tools.

Ultimately, digitization could change the way automotive supply chains work, moving the industry from its traditional buyer-supplier relationships to a much more collaborative model. "Boundaries for information will disappear, so that much more information will flow in a safe, secure and legal way through all our organizations," concludes Braun. "Company borders will disappear, and we will all work in a single ecosystem of information with common responsibilities."
Jonathan Ward

🗰 www.volkswagen.com



MESSAGE RECEIVED

The automotive industry is trying to decide how cars will talk to each other.

echnology standards really matter when you pick the wrong one. Ask anyone whose wedding was recorded on a Betamax video cassette. Losing access to treasured memories because your uncle made a bad choice in the 1980s is annoying. Discovering that your self-driving car speaks a different language to the other traffic on the road could be fatal.

The mobility systems of the future will be increasingly reliant on technology, but the automotive sector has yet to agree on a fundamental issue: the way vehicles will communicate both with each other and with the wider world. Part of the industry is promoting a standard for vehicle-to-vehicle communication based on the Wi-Fi technology already used to connect electronic devices in homes and businesses around the world. Others support an alternative approach based on 5G mobile technology. Each side of the discussion is backed by

The number of EU countries that voted against a single European standard, opening the door for 5G

major carmakers, as well as big-name players in the electronics and communications industries who are keen to capture a slice of a huge future market.

The technical arguments are complex, but a lot comes down to a balance of risks and opportunities. Proponents of Wi-Fi argue that their technology is reliable, available and well proven. Fans of 5G say that their approach is more powerful, flexible and futureproof. In April, the Wi-Fi side received a boost with backing from the European Commission, but in July, 21 EU member states voted against the proposal for a single European standard, clearing the way for 5G.

Who's talking?

Part of the challenge is the wide range of communication tasks that future vehicles are expected to undertake. At the most local level, cars and trucks will speak to each other, indicating their current position and future intentions. Such vehicle-to-vehicle (V2V) communication should reduce collisions and smooth traffic flow. It will also enable new kinds of driving, for example allowing the "platooning" of trucks on highways, whereby a train of vehicles autonomously follows a leader with a human driver at the wheel. And it won't just be vehicles in the conversation. Similar technology will allow cars to speak to road infrastructure, so that for example they receive an early indication from a pedestrian crossing

Vehicle-to-vehicl communication

that people are about to enter the road. V2V and some vehicle-to-infrastructure (V2I) communications will be short-range links made directly between the equipment involved. That makes communication fast - important for safety-critical decision-making - and it will ensure participants can still connect in places where mobile phone networks are poor, or when they break down. Other types of communication, however, will involve much longer distances. Vehicle-to-network (V2N) communication will be used for tasks such as the sharing of information on traffic conditions, the remote monitoring of vehicles by manufacturers or fleet owners, or the delivery of infotainment services to occupants.

According to the industry group 5G Automotive Association, its technology - unlike Wi-Fi - provides a solution for all those use cases. The same basic communication hardware will connect to the car in front, the internet via the nearest cell tower, or even the mobile phone in the pocket of the pedestrian who has stepped into the road just around the next blind corner. 5G networks will also be much smarter than earlier iterations. Powerful computers installed in cell towers will be able to take on complex, time-critical tasks, such as coordinating the flow of thousands of vehicles through a busy intersection or warning approaching traffic of an incident on the autobahn.

"Faster communications will be crucial for autonomous driving," says Fathi Tlatli, President of the Global Auto-Mobility Sector at DHL. "These systems will need to be incredibly precise: Distances of one centimeter or delays of a fraction of a second could make the difference between a safe maneuver and a collision. At the same time, future vehicles will access and share an increasingly broad and complex range of data." 5G

technology, he adds, will help companies manage these new intelligent vehicles in a comprehensive way.

The future in production

From the end user's point of view, all these amazing new capabilities are still some way off. Mobile operators are still building their 5G networks. Carmakers can buy the chipsets that will allow their vehicles to connect, but they still have to integrate them into new products. The really big mobility transformations, such as fully autonomous driving or smart connected traffic management systems, will take years or decades to develop.

In the meantime, 5G technology seems set to make its first breakthroughs not in cars and trucks, but in the factories that build them. Automotive supplier Robert Bosch is already an enthusiastic adopter of Industry 4.0 technologies. It is now installing private 5G networks in a number of factories around the world, aiming to use them to speed up and simplify the connections between smart production machines. Carmaker Audi, meanwhile, has a partnership with Ericsson to test 5Genabled automation systems at its factory in Gaimersheim, Germany.

Applying 5G in the tightly controlled environment of the factory floor will help companies to refine their understanding of the technology before it is released onto the open road. It will also give the industry time to resolve its approach to communication standards. In the long term, today's discussions will probably matter little to anyone outside the industry. Your phone switches seamlessly between Wi-Fi and cellular networks today. Tomorrow's cars should be able to do the same. Jonathan Ward



HIGH FIVE: 5G enables faster communications which is crucial for autonomous driving

BUSINESS

PREDICTING A BRIGHT FUTURE WITH AI

AI both simulates and expands human intelligence. But what will the workplace look like when smart machines and algorithms take the helm and make increasingly complex decisions about our everyday lives?

oday, Artificial Intelligence (AI) supports decision-making in sectors as varied as financial services, healthcare, retail and information technology and has brought about innovative partnerships between businesses, organizations and technology startups. AI technologies, such as deep learning and computer vision, are already used to collect and process data, and to detect patterns and predict behavior. AI can understand natural language and apply reasoning to problemsolving and risk calculation.

Blue Yonder, for example, is a software company that works with retailers to implement automated decision-making.

Blue Yonder was started in 2008 by Professor Michael Feindt, a former CERN scientist, and acquired from e-commerce giant Otto Group (an anchor investor, together with Warburg Pincus) by JDA Software Group in 2018. His company has since become the AI market leader in retail. "AI is essentially all about predictions," he explains. "While it would be impossible to foresee tomorrow's consumer preferences or sales levels, it is possible to make predictions about probability distributions. Once predictions have been made, they can be used to make decisions."

Blue Yonder has worked with Otto to implement bespoke AI solutions across the brand. Ham-

burg-based Bonprix, the group's fashion retailer, reaches over 35 million customers in 30 countries via its digital channels and walk-in stores. Prior to their collaboration with Blue Yonder, Bonprix set prices across all its international markets using rigid price conversion tables. Now AI sets their prices automatically, optimizing for differences in markets, seasonal trends and product ranges. Price optimization has

produced greater demand and profit, says the team particularly in Russia, where sales increased by a double-digit percentage.

AI's decisionmaking capabilities now extend to purchasing. Each year, Blue Yonder's AI produces more than five billion sales forecasts for Otto Group; these allow the system to manage stock replenishment by making buying decisions independently. The results? Increased sales and profit, less end-of-season waste and a reduction in product returns. As the project's case study indicates: "With automated planning decisions, the number of returns has been minimized because orders correspond with forecast customer demand."

Feindt points out that people often talk about AI taking human jobs away, but he does not believe this represents "employment redundancy" - instead, he says, it makes an element of human decision-making redundant.

"Technologies exist that can make human lives easier and businesses more effective; the best thing retailers can do at this point is adopt AI and give themselves 20 million fewer decisions to make every day."

AI algorithms are also used by retailers to make decisions about individuals' shopping experiences, explains Alex Leveringhaus, coordinator of the Surrey Special Interest Group on Ethics and AI at the University of Surrey in the U.K. They can generate complex customer profiles based on searches and buying histories.



BESPOKE TECHNOLOGY: Bonprix uses AI to set its prices automatically.

"Based on this data, the algorithm 'decides' which products to show a prospective customer," he says. "For the customer, the benefit is that they see only the most relevant products, while the retailer is able to target its customers more effectively."

Intelligent supply chains

But AI's impact doesn't stop at sales and customer experience. Supply chains are also being reinvented. A joint DHL/IBM white paper, "Artificial Intelligence in Logistics," published in 2018, describes the benefits and challenges of logistics becoming an "AI-driven industry."

The report identifies myriad AI opportunities throughout logistics - from predictive demand and capacity planning to AI-powered visual inspections and the use of smart assets, such as AI-enabled robots and autonomous vehicles.

In the warehouse, computer vision and deep learning can already offer real-time inventory and shelf management solutions. And in the back office, DHL's Global Trade Barometer tool combines AI, operational logistics data and statistical modeling to give a monthly outlook on prospects for the global economy.

Best-practice case studies from other sectors will also inform how AI is implemented in logistics. Satellite imagery company DigitalGlobe supplies high-resolution images to ride-sharing company Uber. The system can decipher incredible detail, including new road surface markings and street scale changes. The data provides input for intelligent route optimization to streamline pickup, navigation and drop-off.

"This level of detail from satellite imagery can provide valuable new insight to planning and navigating routes not only for the transport of people but for shipments as well," say the report's authors.

Investment in AI is surging. In 2016, companies from startups to tech giants - invested between \$26 billion and \$39 billion in AI, yet the report notes that adoption remains low, with 41% of firms being "unsure of the benefits of AI."

The authors conclude that the "network-based nature" of logistics makes it a natural fit for AI. Industry should embrace AI to ensure a "predictive, automated and personalized future," they say, adding a warning: Companies who do not adopt AI risk being left behind by competitors who do.

A healthy future with AI

In the private sector, profit tends to drive the implementation of AI. In the public sector, efficient use of public funds is a key motivator. A report by the U.K.'s Institute for Public Policy Research (IPPR) states that adoption of "full automation," including repetitive tasks and decision-making, could save the National Health Service (NHS) £12.5 billion (€14.1 billion, or \$16.9 billion) per vear.

Intelligent technologies are already being embraced by the NHS. At John Radcliffe Hospital, Oxford, an AI system called Ultromics is being used to improve diagnosis of cardiovascular conditions with more than 90% accuracy. And in London, leading AI company DeepMind, part of Google's Alphabet group, has teamed up with Moorfields Eye Hospital to develop an algorithm that analyzes eye scans, then decides how patients should be referred. It has an accuracy rate of 94%, matching that of an expert clinician, says the team.

In the U.S., researchers at Houston Methodist Hospital have developed AI software that uses natural language processing (NLP) algorithms to translate

mammographic findings into diagnostic information with 99% accuracy. Manual review of 50 charts took two clinicians 50-70 hours, the team asserts, while AI reviewed over 500 charts in a few hours - a saving of 500 physician hours.

AI can also streamline the management of vast quantities of medical information: "It's humanly impossible to keep up with the daily proliferation of healthcare data," says the team behind IBM's Watson Health.

A connected healthcare ecosystem that uses IBM's cloud, AI and machine learning (ML) capabilities, Watson Health makes global medical knowledge accessible and shareable. Additionally, it allows this data to be analyzed computationally for use in an array of tasks from diagnosis and predicative modeling to decision-making.

The system is based on an enormous volume of data, including over 100 million patient records, 30 billion images and 40 million research documents. The data focuses on six key areas (such as imaging, oncology and genomics, and government) and users include hospitals, insurers, researchers, and patients around the world.

Smarter well-being – smarter learning

Mental well-being is as important as physical. Here too, AI has a vital role to play. The U.S. startup X2 AI, for example, created a chatbot called TESS. Accessed via online messaging or SMS, TESS provides immediate 24/7 access to supportive coaching for people struggling with mental health issues. Similarly, the Woebot app mixes AI-based chatbot technology and CBT (cognitive behavioral therapy) techniques. According to the design team of psychologists, data scientists and engineers, Woebot aims "to make mental health radically accessible."

AI can also teach us a few things. U.S.-based Mandel Communications provides coaching in communication skills ranging from public speaking to work-based interaction. Mandel's Orai app sets challenges for its users - such as the "elevator pitch" or making excuses - and evaluates their speech, giving feedback based on several indicators. "Learners have the ability to practice the delivery of any communication, and Orai's AI instantly analyzes and scores their clarity, pacing, clutter words, energy and tone," explains Diane Burgess Faber, Chief Learning and Design Strategist at Mandel.

Dialogue for the future

In the future, Leveringhaus believes, AI will find its way into an increasing number of domains and make increasingly complex decisions. There are two potential trajectories, he says. In the first, AI will team up with humans to make decisions. "Here, the goal is to maximize the decision-making strengths of AI and

the human individual, while trying to minimize their respective weaknesses," he explains.

and desirable."





In the second, AI will make complex decisions without any human interference after the programming stage. "Here, the question is how to demarcate the domain in which AI is allowed to make decisions, determine acceptable levels of risk, and prevent potential spillover effects into other domains."

It is also notable that some of the world's best-known tech pioneers, such as Bill Gates, the late Stephen Hawking and Elon Musk, have expressed grave concerns about AI. Together with several thousands of experts they signed an open letter on artificial intelligence in 2015, calling for concrete research on the societal impacts of AI. Musk memorably stated in an interview with CNN that: "Humanity's position on this planet depends on its intelligence, so if our intelligence is exceeded, it's unlikely that we will remain in charge of the planet."

Industry and society at large now face many questions. How can we ensure that the initial programming of AI is unbiased? Will AI have too much access to knowledge? How these issues will be addressed is not yet clear. But, says Leveringhaus, "The only thing one can say with some certainty is that a dialogue between lawmakers, technologists and society at large is needed

AI looks set to play an increasingly vital role in how we run our businesses and live our everyday lives. Time will tell whether policymakers can keep pace with its rapid development.
Karen Emslie

The accuracy rate of Deep-

Mind's AI eye scanning and patient referral technology at Moorfields Eye Hospital

WITHIN SIGHT: Moorfields Eye Hospital in the U.K. uses AI to analyze eye scans.



HOW COLOMBIA PLANS TO DRIVE ECONOMIC GROWTH

Colombia is pushing forward on a \$14.5 billion road-building project to boost domestic and international trade. As businesses draw on a well-trained workforce and bet on e-commerce to expand sales, the project is key to growing Latin America's fourth-biggest economy.

> f you stop in at any florist in Chicago or New York, you'll most likely find the carnations and roses are from Colombia - and were picked the day before.

This shouldn't come as a surprise. Colombia is the world's biggest flower grower and its second-largest flower exporter (after the Netherlands), and the business is literally flourishing. Colombia's exports of fresh flowers, along with plants, reached a record \$1.5 billion in 2018, up 50% from an average of \$1 billion per year over the previous decade, according to data from the National Administrative Department of Statistics (DANE).

This growth of agribusiness - as well as the automotive, pharmaceutical, technology and textile sectors - is a sign of how Colombia has advanced as an economic power in Latin America. In the early 1990s, it was the fifth-largest economy in the region, measured by gross domestic product; today it's fourth after Brazil, Mexico and Argentina.

But unlike its larger cousins, Colombia's expansion has been a lot steadier, an anomaly in a region where political leadership tends to swing between left and right, and economies vacillate between boom and bust. Colombia's per capita GDP has more than quintupled - from \$1.2 billion in 1990 to \$6.3 billion in 2017 in

constant U.S.-dollar terms - and GDP on the whole is poised to grow by above 3.5% a year through 2021, making it one of the fastest-growing economies in Latin America, according to the World Bank.

Consistency pays off

What's driving the constant growth in Colombia? John Price, managing director of Americas Market Intelligence, a consultancy specializing in Latin American markets, says it's the stability in economic policies. Over the past two decades, he asserts, Colombia "has had two of the best leaders in Latin America for promoting business and investment."

That doesn't mean that it's been easy for these two former presidents - Álvaro Uribe and Juan Manuel Santos. When Uribe took power in 2002, he had to restore national security after decades of civil war and violence - a process completed by Santos. This has brought back many wealthy Colombians who had fled in the 1980s and 1990s, fueling an economic recovery.

Road to improvement

The recovery paved the way for Santos to take on one of the biggest challenges for the economy: improving the poor road network used to move most of the cargo in

Colombia is investing in a massive road improvement

the country - excluding coal and oil, which are moved by train and pipeline.

This has proved to be no small job. Not only is Colombia the size of France and Spain combined, but much of the 48 million population lives in mountainous terrain. Bogotá, home to a sixth of the population, has - at 2.625 meters above sea level - the third-highest altitude of any capital in the world.

Because of this, explains Sergio Olarte, chief economist at Scotiabank Colpatria, it takes an average of 3 1/2 days to move cargo more than 1,000 kilometers overland from Bogotá to the port of Cartagena. "Colombia needs to improve its infrastructure so that companies in Bogotá can get their goods to the coasts easily so that the country can spur exports," Olarte says. To do this, Santos unveiled the Fourth Generation Toll Road Program in 2012, the most ambitious infrastructure plan in the nation's history. It calls for investing some \$14.5 billion in building and upgrading more than

The goal, Olarte explains, is to cut transport costs by at least half by making it easier, faster and safer to drive

Diversifying exports

In 2014, however, international oil prices lost half their value, evaporating revenue from the country's biggest export - oil and refined products. The currency lost 55% of its value against the U.S. dollar, dulling investor appetite for road projects.

Colombia's expected annual growth rate through 2021

GROWING ECONOMY:

Colombia is the world's biggest flower grower and second-largest flower exporter.



The number of 4G roadbuilding projects financed and underway

BUILDING INNOVATION: The Centre for the Fourth

Industrial Revolution has been designed to promote technological development.

SHIPSHAPE:

Colombia's main ports are being expanded and improved.

The 2014-2015 currency devaluation helped restore some of Colombia's competitiveness, fueling a 17% increase in manufacturing exports - from \$15.9 billion in 2015 to \$18.6 billion in 2018, according to DANE. And the country has 15 free trade agreements in force, with three in process, according to the Colombian Ministry of Commerce. But to take full advantage, the infrastructure upgrade must still be completed.

Comprehensive planning

There has been progress. Not only are the main shipping ports - Buenaventura and Cartagena - being expanded, but also the main airports. Bogotá's airport, for example, is now - at the equivalent of more than 25 soccer fields - one of the largest in Latin America, and the busiest for cargo.

And at the start of 2019, the country's president, Iván Duque, said that 4G road-building was back on track after the setbacks from the currency devaluation, with 70% of the projects financed and underway.

Challenges remain. Corporate taxes are higher in Colombia than in much of the region, and there's more red tape, says Price. What's more, a long history of cocaine exports has tightened customs controls on exports, hampering clearance. And the country has received more than 1.3 million refugees from crisis-torn Venezuela, according to the United Nations High Commissioner for Refugees. This weighs down the economy and public finances.

Even so, Daniel Viteri, country manager of DHL Global Forwarding in Colombia, says the government is taking steps to speed up trade. It has created free trade zones that are attractive for international companies when it comes to repacking products for selling across Latin America. Companies can stock products in what is a central market for the region - it is closer

to the U.S. and Europe than Argentina and Brazil, for example - so they can react quicker to regional demand shifts. "It's becoming the door to Latin America," says Viteri.

Colombia's location and its economic stability are helping to attract more foreign direct investment, making it the third-biggest recipient of FDI in Latin America between 2015 and 2017 after Mexico and Brazil, according to the United Nations Conference on Trade and Development (UNCTAD). It has continued to grow, shooting up a year-on-year 68.4% in the first quarter of 2019, according to Colombia's Central Bank.

The investment has been spread across industries. Globant, a global software maker based in Buenos Aires, employs more than 2,500 in Colombia. Amazon, the world's largest online retailer, has opened a customer service center in the country, and plans to establish a cloud computing service. U.S.-based GreenFruit Avocados has expanded into Colombia, and Japan's Isuzu Motors has set up a plant for rebuilding used vehicle engines. Italy's Enel and Germany's Siemens are investing millions of dollars in energy projects, while China's Foton Motor is manufacturing SUVs and 4x4 trucks.

One driver of the investment is the country's burgeoning economic growth potential. Indeed, new car registrations are on track to rise a year-on-year 7.5% to 276,000 units this year, according to the National Association of Sustainable Mobility. Outputs of beverages, cars, clothing, paper and pharmaceuticals have been leading a recovery in manufacturing from a contraction in 2017, according to DANE.

The attraction is not only the country's economic stability, but also the domestic workmanship, says Allan Cornejo, President, DHL Express Colombia. "Colombian producers are making products with very high quality and at competitive prices," he says.







One reason for this, according to Price, is that Colombia has one of the best education systems in Latin America. "It continuously puts out talented people," he notes. In the past, a lot of talent left because of the violence and shaky economy, yet over the past 15 years, the brain drain has no longer been an issue, he says. This provides the skilled workers needed by industries such as health services and pharmaceuticals, which in sales is led by U.S.-based Abbott Laboratories and France's Sanofi, according to PharmaBoardroom.

The wealth of talent is also fueling a surge in entrepreneurship, facilitated by a reform that allows pension funds to invest in venture capital and startups.

"It's still pretty nascent compared with Brazil and Chile, but it's impressive and it's growing," Price says.

The country has its first unicorn, or startup with a valuation of more than \$1 billion: Rappi, a delivery app. And Colombia's second largest city, Medellín, has gone from one of the world's most dangerous in 1993, according to Time Magazine, to a hotspot for entrepreneurship, earning recognition from the U.S.-based bank Citi and The Wall Street Journal in 2013 as the world's most innovative city. Ruta N, an innovation center in the city, has supported dozens of startups such as Mesfix, a small business crowdfunding site. Andrew Ng, founder of the Google Brain research project, recently set up a center in Medellín to help artificial intelligence startups in customer service, education and healthcare to get off the ground.

The rise of e-commerce

The surge in entrepreneurship is spurring e-commerce in Colombia. "If companies aren't yet in e-commerce,

they're taking steps to get into it," says Viteri. "Retailers and supermarkets see it as an alternative that can increase sales and the coverage of the goods they are selling."

freight."

87th out of 169

DELIVERING THE GOODS: Colombia is seeing a surge in startup entrepreneurship.

Indeed, the government has made e-commerce a priority so as to spur exports to the country's main markets in Europe, the U.S. and elsewhere, says Cornejo. Flower growers, for example, are using e-commerce to target U.S. customers directly, and their efforts are paying off, Cornejo notes. "Brides in the U.S. are now very interested in receiving fresh flowers from Colombia. This is a way to add final value to the product. It's a more premium product than sending the flowers by

Investors look for countries with pro-market governments, Olarte concludes. "Colombia is one of them. Foreign direct investment is coming in, and it's going to keep coming in." ■ *Charles Newbery*



TIME TO GROW

-commerce is a ubiquitous part of modern life.

As both B2B and B2C companies prepare for the coming growth of e-commerce, they must ready new strategies for their supply chains or be left behind.

PFRCENT

The percentage of business buyers who find the web more convenient for making company purchases than traditional means

PFRCENIT

The share of consumers (surveyed in the U.S., U.K. and Australia) who abandoned their purchase out of dissatisfaction with the available shipping options

From booking plane tickets to purchasing groceries, refreshing our wardrobe or updating the technology on our company's desktops or factory floors, many of us click, collect and consume via computer and mobile phone every day. According to research firm Forrester, 15 billion e-commerce orders were delivered to U.S.-based customers last year. In fact, their findings say the average U.S. household receives one package every three days. This selling style has become so vital that even the World Trade Organization is discussing new rules for overseeing global electronic commerce.

And it's not just about selling to consumers anymore. Although B2C e-commerce has been around longer, B2B is catching up, and is now used by all kinds of industries selling things from audio equipment to automotive, from pharmaceuticals to peanuts.

Another report from Forrester shows that, across Germany, France, Italy, Spain and the U.K., B2B e-commerce will make up 17% of sales by 2024, reaching €2.8 trillion. In the U.S., Forrester forecasts that B2B e-commerce will rise to \$1.8 trillion and account for 17% of all B2B sales by 2023. Their research says that 73% of business buyers find it more convenient for their firms to make purchases on the web than using traditional methods.

Despite the rosy outlook, a surprising number of companies have not brought their businesses up to speed in the sector. A recent study from DHL Supply Chain indicates that only around 30% of B2B and 40% of B2C firms surveyed felt they had fully implemented their e-commerce strategy. So why is this growing powerhouse not being prioritized?

Small but mighty

One reason might be that, in terms of absolute numbers, e-commerce is currently responsible for a much smaller percentage of sales than all the email newsletters, online sales promotions and media coverage would have you think. In a mature market, estimated online sales for retail (the strongest category) run from 15% to 17%, explains Nabil Malouli, Vice President, Global E-Commerce, DHL Supply Chain. And only 5% of consumer goods purchases are made digitally. "It's still

a relatively small percentage if you look at the entire sales of an organization," he notes.

Yet these modest figures represent maximum impact. E-commerce isn't just about selling. Online activities like social commerce, web presence and in-store digital tools help build brand reputation, broaden name recognition and strengthen corporate DNA. They also ensure you're out there to be found.

"This is definitely not only about growth, it's also about companies' survival," says Nabil Malouli. "They look at this as, 'Well, if we're not claiming that sales channel, we're going to lose our customers."

The customer is kingmaker

Navigating e-commerce successfully means skillfully managing escalating consumer expectations, from easy ordering to flawless delivery - or else.

A 2019 report from e-commerce platform Big-Commerce says 77% of consumers (surveyed in the U.S., U.K. and Australia) abandoned purchases out of dissatisfaction with the available shipping options. A further 39% stopped shopping with a retailer solely due to a poor shipping experience.

On top of all this, same-day shipping will soon be the expected norm - within two or so years, estimates Malouli.

But, he counters, the best way to please your customer is to know your customer. And that means acting locally even when selling globally.

"The geographical landscape of the city plays a critical role in how effective a company can be in e-commerce. So what we are seeing now is, we're not talking about a nationwide strategy," he points out.

That means knowing and tailoring your service to local customs and expectations - for example, not just dropping packages outside the door in Germany, whereas in the U.S. that practice is perfectly acceptable.

Luckily, customer service is a key priority for 57% of B2C and 53% of B2B firms cited in the 2019 DHL survey "The E-Commerce Supply Chain: Overcoming Growing Pains."

New ways of working

Some companies are doing it right - by thinking outside the mailbox.

In June 2019, Shopify - a multichannel commerce platform used by firms across industries large and small, from Unilever to Kylie Cosmetics - announced a \$1 billion investment in supply chain activities. This includes its own geographically dispersed network of fulfillment centers powered by a system that uses machine learning to forecast demand. It then predicts the closest fulfillment centers and optimal inventory quantities per location to ensure fast, low-cost delivery, available for partner merchants in the U.S.

"Shopify's real power comes from the variety and strength of our ecosystem," said the firm's CEO Tobi Lütke in a statement. Just a month earlier, Shopify invested in Handshake, a startup that offers a commerce platform for businesses selling wholesale goods, thus strengthening its position in the B2B arena.

Grocery has also become a growth sector for online business, with supply chain and delivery integrated. In a program launched in June 2019, Walmart is working with WhatsApp in Mexico - customers receive grocery orders from Walmart's Superama stores within 90 minutes for a fee of about \$2.50. Retailer Target impresses industry insiders like Malouli with omnichannel initiatives such as mobile coupons and digital store interfacing. The company bought internet-based grocery delivery service Shipt in 2017 to offer same-day delivery of food and more after previously purchasing transportation technology company Grand Junction.

RIGHT ON TARGET: Target has bought internet-based grocery delivery service Shipt.



Pick your partners

it alone, says Malouli.

For the best e-commerce strategy, you can no longer go

"I think the idea that companies can do it all by themselves is outdated. And at the speed technology is evolving, you really need to find strong partners - in technology, in execution, in research - that can help you through the process."

That means joining up, acquiring new technology and working with third-party or fourth-party logistics specialists (3PL, 4PL) to aid supply chain and distribution. Even more importantly, says Malouli, make your moves now - before someone else does.

"It's not a 10-15 year time frame that you have. It's probably five or at most eight years that you have, if you don't transform your business. And let me just be clear on this too: This is not just about selling online, it's really about transforming the business to meet that consumer expectation."
Susanne Stein

SETTING UP SHOP:

Multichannel commerce platform Shopify is investing \$1 billion in supply chain activities.





APPY SHOPPING: In Mexico, Walmart delivers grocery orders received via WhatsApp

FUEL FROM THE AIR

Innovative ideas about harvesting agricultural waste and carbon from the atmosphere aim at creating new, greener energy sources - could power fuels and biofuels meet our growing energy needs?



hen you think about the energy transition, what images come to mind? Wind turbines in the sea? Arrays of photovoltaic panels? Maybe a sleek electric car on your driveway? All these things will have a significant part to play in the world's future energy systems. And all of them illustrate one of the defining characteristics of the change that is unfolding today: the central role of renewably sourced electricity as a cleaner, more efficient source of energy.

There is, however, a problem with this picture. Some of the ways we use energy are difficult or impossible with today's electrical technologies. Many of those are applications that consume very large quantities of heat, such as primary steelmaking or cement production. Others are applications that require high-density energy storage, such as ocean shipping, air transport or long-distance road freight.

As the world moves away from the large-scale use of fossil fuels, we will need to find alternative sources of energy for these industries. In a new white paper, a team of DPDHL specialists examines the options available today and in development - that might allow that goal to be reached. Under its Mission 2050 initiative, the company is committed to the goal of achieving zero-emission logistics by the middle of this century, and, with its understanding of logistics and transport on a global scale, hopes to add a perspective that will contribute to a more structured approach to assessing and implementing these fuels.

When batteries run out

Quiet and efficient, battery-electric solutions remain the preferred choice for many applications, especially lastmile deliveries in urban environments. Electric trains provide possibilities for some long-distance routes. Nevertheless, the overwhelming majority of modern freight transport - including all air and ocean cargo cannot vet be electrified.

Attempts to address the challenges of fossil fuel-free, long-distance transport have encouraged significant research and industrialization efforts in recent years. The aim of many of these projects is to produce liquid and

gaseous fuels with similar energy-carrying properties to conventional fossil fuels.

Biofuels

Much current work is focused on the production of fuels from biological materials. That isn't a new idea: Oil, gas and coal all started out as animals and plants millions of years ago. Today's biofuel technologies simply replace millennia of geological squeezing with faster chemical and biological reactions. Biofuel manufacturing can be used to make a wide range of products, from methane and ethanol to biological equivalents of diesel and aviation fuels.

Most biofuels have a significantly smaller carbon footprint than their fossil equivalents: The carbon in their structure is captured from the atmosphere by their vegetable (or animal) ingredients. From a broader sustainability perspective, however, the picture is more nuanced. When crops are grown specifically for biofuel production, agrochemicals, processing and transportation can all cause additional carbon emissions. Rising demand for biofuel crops could put increasing pressure on scarce land and water resources already needed for food production. Tearing down forests to make way for biofuel plantations is bad for the local ecosystems and wider atmosphere.

Those challenges have driven a lot of interest in the production of biofuels from materials that would otherwise go to waste. That could be residual materials from agriculture and food processing operations or municipal solid waste. According to the U.S. Environmental Protection Agency, biodiesel produced from soy generates 57% fewer greenhouse gas emissions than the fossil fuel equivalent. Using waste grease as feedstock pushes the reduction figure to 86%.

Projects to produce biofuels from waste are now springing up around the world. In the U.S., for example, a plant currently under construction in Nevada will produce 50 million liters of synthetic crude oil a year using waste from a huge landfill site next door. Despite these investments, however, biofuels are still mere drops in the ocean of oil today. Biofuels accounted for 2.7% of the world's transport fuels in 2017, a number that is expected to rise to 3.4% by 2020.

Power fuels

Concerns about the availability and sustainability of biological fuel feedstocks are driving interest in an alternative set of fuel technologies known as "power fuels." These approaches create fuels using entirely synthetic processes, building them up from their constituent molecules. The most basic power fuel is hydrogen. Generated by the electrolysis of water, hydrogen is a completely carbon-free energy source - provided the electricity used to make it comes from a zero-carbon source.

To make a power fuel that fits more easily into the existing energy supply chain, some power fuel approaches create synthetic hydrocarbons. They do this



A copy of this DPDHL report can be downloaded from the link below:

www.dpdhl.com/sustainable-fuels

by combining hydrogen with a carbon source. Often this is carbon dioxide emitted as waste from another process, but the gas can also be drawn directly from the atmosphere. This technology is being used on a close-to-commercial scale to produce "e-methane," which can be used directly in the many vehicles already converted to run on natural gas. Still at the pilot scale, "power-to-liquids" technologies combine electrically generated hydrogen and carbon to create heavier hydrocarbons that can be processed into gasoline, diesel or aviation fuels.

The path to practicability

Clean fuel technologies are at very different stages of development today. Biofuels created from soy or sugar cane are already widely used and manufactured on an industrial scale. Full-sized, power-to-liquids plants, by contrast, may arrive any time between 2025 and 2050. And choosing the best approach won't be easy. Hydrogen is potentially the cleanest of all the alternatives, for example, but it is difficult to store and to handle. E-methane and power-to-liquids approaches keep returning carbon to the atmosphere, and making these heavier fuels is more energy-intensive. They can, however, be used as drop-in replacements for fossil fuels, simplifying the transition process.

As it stands, the report's authors say, zero-carbon logistics will most likely involve a combination of approaches, with four main components. First, electrification will be used wherever practicable. Second, the heavy work in ocean shipping and aviation will be achieved with drop-in power fuels. Third, transport assets in some sectors will be adapted to use new power fuels. This "non-drop-in" approach is likely to include the use of methane or hydrogen in long-distance trucking, for example. Finally, biofuels, especially those produced from waste, will have a niche role to play where they can be sourced and used sustainably. Jonathan Ward



of battery

SOLUTIONS

RACE TO INNOVATE

he second season of the Jaguar I-PACE eTROPHY Championship commences in November, when electric battery, zero-emission Jaguar I-PACE eTROPHY race cars will go head to head over ten races in some of the world's most celebrated cities. As part of Jaguar's mission of #FearlessProgress, the company is looking to establish itself as a leader in premium battery electric vehicles. With the Jaguar I-PACE eTROPHY series, Jaguar has introduced the world's first international championship for production-based electric cars. The cars are made with identical specifications so it's down to driver skill and team tactics to decide who will be crowned champion, with the winner offered the chance to drive a Formula E race car at a test hosted by Panasonic Jaguar Racing. The series offers a different VIP driver the opportunity to compete in each Jaguar I-PACE eTROPHY race, which allows for a range of competition throughout the series and adds to the suspense for each new city. As the official logistics partner, DHL is responsible for the transport of the race cars, garages, technical and charging equipment.

bit.ly/jaguar-racing

292 miles (470 km): The range one full charge supplies

0-62 mph (0-100 kph):

Maximum speed:

Brakes:

JAGUAR

MICHELIN

Battery: 90 kWh lithium ion battery

#JAGUARELECTRIFIES

Overall length:

Overall width:



Suspension: Adjustable race-derived dampers and springs

BUILDING A CULTURE OF CANDOR

The truth can hurt, but it's vital for good business communication, efficient office workflow and achieving success. So how do you create office openness and honesty - especially across cultural divides - without ruffling feathers?

ou can't handle the truth!" the curmudgeonly colonel played by Jack Nicholson famously velled at Tom Cruise in the 1992 Hollywood military courtroom drama "A Few Good Men." Such belligerence, of course, wouldn't fly in a real-life, modern workplace. Even if they don't always genuinely respect one another, bosses and employees in most companies are expected to communicate in a reasonably civil manner.

But in one sense, the colonel was right. Sometimes a perfectly understandable and commendable desire not to offend can inhibit honest and productive communication. And, ironically, in the long term it can lead to more damage than speaking your mind.

In business, the flow of information is often not as transparent as it should be - for example, managers get sugar-coated reports, project owners are so heavily invested in a project that they don't want to admit there are problems or failures, or a manager avoids telling the full truth to an underperforming employee to avoid upsetting or demotivating them.

In many cases, this can mean that organizations, teams or individuals do not improve or, worse, projects carry on but are headed for failure.

So how can leaders promote clear, honest communication in their company without it tipping over into aggression or hostility?

American writer Kim Scott, author of "Radical Candor: Be a Kick-Ass Boss Without Losing Your Humanity," is convinced that honesty is the best policy in the workplace. Scott's impressive management career includes stints at Apple and Google, and she has been an adviser to Silicon Valley companies including Dropbox, Kurbo, Shyp and Twitter. Her approach is gaining ground - "Radical Candor" is a New York Times and Wall Street Journal bestseller.

Scott defines radical candor as: "Caring personally while challenging directly. It's guidance that's kind and clear, specific and sincere."

Caring personally, she says, means taking a genuine interest in those you lead: "We're all told we need to be professional, but you need to be more than just professional. You need to build real, human relationships.

You're not necessarily going to like everyone you work with, but you have to care about their success and care about them on a fundamental human-decency level."

Challenging directly is not "brutal honesty." It means you share your genuine opinion and invite the other person to do the same. "If you really care personally about somebody, you'll tell them if you think they're making a mistake - and when they're doing something great."

And the honesty should work both ways. As a leader, you must be able to take, as well as give, criticism. And you should invite it from your team.

"As the boss, you're far more likely to hear only the positives because it's usually seen as risky to share the bad stuff with the boss," says Scott.

She's right. In a Harvard Business Review study, only 25% of employees surveyed felt they could give their leader honest feedback. Scott suggests asking team members, one-to-one, specific questions such as: "What could be better on this team?" and "What do you think I can do better as the manager here?" And, she says, it's important to listen to, and act on, the replies.

Marie Ronan, HR Director for Europe and Africa with cybersecurity giant Symantec, has found the radical candor approach useful.

"If someone takes the time to sit down with you and share some direct feedback, it's generally because they want you to succeed or they genuinely want a project, task or relationship to be even better," says Ronan. "That's what we're working toward as an organization, focusing on the power of feedback and recognition."

Scott is keen to stress that radical candor is not the same thing as bullying, or what she terms "obnoxious aggression." She advises, for example, that while praising a worker should usually be done publicly, criticism should generally be offered in private - and should be constructive.

Or, as she puts it, "saying 'in the spirit of radical candor' while acting like a garden-variety jerk still means you're acting like a jerk."

There is a real danger of confusing honesty with antagonism. In the Harvard Business Review survey, only 21% of respondents reported receiving feedback in a way they could hear.

Ronan too is conscious of this potential pitfall. "There's this misconception that, in order to be direct or authentic, you have to be very blunt," she says. "This is why it's so important to think about challenging directly and caring personally. If you're truly invested in the relationship, you'll want to deliver the message in the right way to ensure it's preserved."

Striking the right tone

But "telling it like it is" is not always a simple matter. Some cultures value direct, honest communication more than others. What is seen as simple straight talking in one country can be experienced as hostile in another.

"Radical candor is measured not as how the speaker sounds but as how the listener hears," Scott says. "It sounds very different in Tokyo than it does in Tel Aviy, for example. With the team in Japan it was more like polite persistence, because that was how they felt comfortable thinking about it. Whereas the team in Tel Aviv, not that they were rude, but for them the idea of being polite was almost patronizing."

But stereotypes can be deceptive, too. The Irish, for example, are often accused of "beating about the bush" and avoiding confrontation. Scott, however, who is of Irish heritage and has managed a team in Ireland, had a different experience.

"Actually, some of the most painful but also the most useful feedback came from my team in Dublin," she says. "Shortly after I had my twins, I was trying to adjust a meeting time so that I could give them breakfast. I



true in most places."

And it's not just between management and employees - honesty can filter down into relationships with customers and clients too.

effort.



PERCENT

The share of employees

who reported receiving

well-pitched, accessible

feedback

wasn't quite aware that my adjustments meant the team there was going to miss dinner with their kids. Ouch! I realized I'd often pushed meetings too late, long before I had kids and was sensitive to family mealtime, but I was

"But I had to show them that I was willing to take criticism before they were willing to give it out - and before I earned the right to dish it out. And I think that's

Ronan agrees. "I think there are nuances with every culture, but as a whole I haven't come across a scenario where people didn't appreciate honest feedback and transparency," she says.

"I've worked with sales teams who have found that, by being empowered to be more honest with their customers, they have built a kind of virtuous circle," says Scott. "Think about times when a sales person has told you 'I understand your needs and this is not the right product for you.' You then trust that person."

And you're more likely to want to deal with them again. While she realizes that radical candor is not always the easiest option, Scott is adamant it's worth the

"I know this stuff can be really hard, in the moment," she says. But, done correctly and with good intentions, "it's really the way forward." Who knows, maybe we can handle the truth after all.
Cathy Dillon

PFRCENT

The share of employees who feel they can give their leader honest feedback

VIEWPOINTS

DELIVERED. ACCELERATES AI WITH ... **ALEXANDRWANG** Alexandr Wang - a tech prodigy and college dropout has founded a \$1-billion dollar Silicon Valley company at the forefront of the AI and machine learning revolution.

eveloping new technology is like running on a treadmill notes Alexandr Wang, founder and CEO of Scale AI. "The trouble is, whenever you start to run faster, the treadmill speeds up," he says. "You look forward and see there's still so far to go."

Scale AI is a three-year-old Silicon Valley-based company with a mission to accelerate the development of AI and machine-learning applications for its many customers. It made headlines because Wang, who dropped out of MIT to start it, is still only 22 years old; and the company has seen extraordinary growth since its founding in 2016. Yet many investors initially turned him down. "The vast majority were skeptical," remembers Wang. "A lot of them thought it would be a niche business and weren't sure how big it could get."

But it got very big indeed. In August 2019, Scale AI was valued at over \$1 billion, and Wang was included in Forbes's 30 Under 30 in Enterprise Tech 2018. This sort of success could go to your head if you let it, he admits, but Wang has his eyes on a bigger prize: longevity. "The most important thing for me is to ensure that we're always creating value for our customers, rather than anything vanity-related," he says.

Those customers include automotive companies developing self-driving vehicles, financial services companies, healthcare firms and e-tailers. The one thing they all have in common is that they generate a lot of unstructured data, and want to use this data in a smarter way to be more effective or to develop innovative new products. Not all companies have the resources or the expertise to do this themselves, which is why they turn to Scale AI. Scale AI turns customers' raw data into structured, labeled data to reliably train their AI applications. For example, Scale AI's platform examines and labels millions of frames of data collected by vehicles rigged with sensors. That labeled data then trains the car's software to recognize a wide range of objects and react appropriately to situations as and when they occur.

Naturally, this isn't as straightforward as it sounds. "If you were teaching a child to recognize something - cars, for example - you would need to show them pictures of cars, and they would learn after a relatively small number of examples," says Wang. "Machine-learning models, however, need an astronomical number of examples in order to perform at very high levels." This problem is further compounded when it comes to teaching machine-learning models to predict what a pedestrian or another driver might do. But the results can be revolutionary. As Scale AI notes, thanks to machine learning, "computers can now recognize



www.scale.com

Alexandr Wang's age when

images and audio, translate languages, generate realistic text and beat humans at games."

Wang is something of a tech prodigy who, prior to his time at MIT, began working for Silicon Valley question-and-answer website Quora as a teenage engineering lead. Starting his own billion-dollar business hadn't featured in his game plan by this point, but it was clear to him that machine learning was the future. "I used to think of myself as a humble engineer," says Wang. "Now I think of myself as someone who has the unique opportunity to help advance the technology and application of AI and machine learning across the world. I feel lucky to have had the opportunities to get here at such a young age."

Can you give an example of how AI and machine learning help your customers?

Take an e-commerce fashion company that has thousands of items listed on its website in a range of sizes and colors. To make sure shoppers can find exactly what they're looking for, the company may want to improve search relevance or make personalized recommendations for shoppers. Machine learning models can enable them to do just that.

Are you excited about the possibilities of AI and machine-learning technology?

Extremely. Research in AI and machine learning is progressing extremely quickly. Whenever there have been research advances in one area of science, they've been followed by technology that impacts our day-to-day lives. Take smart speakers, such as Alexa, which only exist because machine learning helps them recognize speech efficiently and effectively. So this is tech that gives us an incredible ability to improve people's lives with incredible products.

Such as fully autonomous cars on our roads?

Well, I'm no better at predicting when we will see self-driving cars on the roads than anyone else; but I do believe the technology is improving every month and the end is in sight. It's hard to say: "Oh, it will happen by year X." But I feel confident that it will happen because we have scoped out the problems we need to solve. It's now akin to the space race. Whenever we reach it, I think society will reap the benefits.

Are people right to be concerned about AI and machine learning?

I think there's confusion - caused in part by the machine-learning community - about the extent of the technology. Machine learning can solve image recognition and speech recognition tasks and simple classification and prioritization tasks. But it can't replicate the full extent of what humans can do. It will be a very long time before a human can have a conversation with an AI machine ... and not realize they are talking to an AI machine.
Tony Greenway

THE VITAL IMPORTANCE OF SUPPLY CHAINS IN OUR LIVES



DR. JOHN GATTORNA

Dr. Gattorna is Executive Chairman of Gattorna Alignment, a Sydneybased specialist supply chain advisory firm. He has held a number of professorships, the most recent being Adjunct Professor at the University of Technology, Sydney, the SP Jain School of Global Management, and Foundation Professor to CIPS Australia.

upply chains are the central nervous system of the economy, and in aggregate underpin the advanced lifestyle that we enjoy in Western nations. Developing nations are still a work in progress in this respect. Yet apart from the very physical manifestations we see each and every day, such as transportation on our roads, rail, sea and in the air, most consumers are oblivious to the extent to which they depend on supply chains in sustaining their everyday way of life.

The great post-World War II movement toward globalization has brought great wealth and improved lifestyles to millions of people, mostly through the efficiencies gained via smoother cross-border trade. All that is now in danger of stalling with the recent trend toward nationalism as evidenced by Trump's regressive trade policies and the uncertainties brought on by Brexit in Europe.

At this point in history, those charged with designing and managing the supply chains of the future must find ways to counter these negative influences, for the sake of humanity and progress in general. The spotlight is squarely on national and international supply chains, and how they can adapt to intensified disruption in the operating environment.

Where to start the reinvention?

Supply chains (then called by the more restrictive term physical distribution), as a field of scientific endeavour, first emerged in the mid-1960s. For the ensuing 35 years, supply chain designs were dominated by "inside-out" thinking, where customer expectations were assumed at best - and we built our supply chain infrastructure according to what we thought best for the company first, and customers second. Efficiency and cost-saving mindsets prevailed, and very little imagination came into play. And as a result, customer satisfaction levels in this era languished as a general rule, across most if not all industries and geographies.

With the dawning of the online e-commerce era in the first decade of the 21st century, things changed very rapidly as customers and consumers, long taken for granted, began to exert their influence through social media and other means. The clever companies knew then that they had to change their ways and start redesigning their supply chains, from "outside-in." The trick was to find a way to interpret and predict what customers were really thinking deep down and convert this knowledge into matching value propositions. We called this condition Dynamic Alignment", and we have been working and refining it in the field

since 1989. Not only does it help reduce cost-to-serve, but through the additional customer satisfaction that it delivers in parallel, it has a positive impact on revenues as well. Hallelujah!

The best-of-the-best global companies (such as the leading industrial Schneider Electric), have since adopted the overarching principle of dynamically aligning their business with customers and consumers in the target market. This has driven the realization that the previous design principle of "one-size-fits-all" was flawed, and that approach has since been replaced with multiple segments (ideally five) and an equivalent number of supply chain configurations - the result being up to 80% coverage in any given product-market situation. This is a huge improvement over the 20%-30% percent alignment achieved under the previous regime. In those days, it was the exceptions that drove up costs!

Technology, both disrupter and friend

A lot has been said and written about the disruptive effects of technology, but if well managed this feeling can be reversed into something very positive.

With the overall dynamic alignment architecture resolved, where customer expectations are directly linked to the firm through an appropriate array of value propositions, underpinned by a fixed array of operational supply chains and the right subcultures, it simply remains to speed everything up.

In this respect, the advent of digitization has been a godsend. The ability to increase the clock speed of the entire organization through simplified processes, better organization designs, faster decision-making and digitisation of the E2E supply chain has led to significant operational and competitive advantages. Foremost among these is the improved ability of the organization to cope with the new, higher levels of volatility in the operating environment. Effectively, it puts the organization in sync with the externally generated volatility, and thereby reduces the negative impact of over- and under-stocks, markdowns and potential loss of sales.

Organization designs that make the difference

Assuming that any issues associated with fully implementing digitization (and that is a big assumption) are ironed out, especially those relating to master data files, the next biggest obstacle to high-performance supply chains is well and truly in our hands to fix: outdated organization structures that we continue to manage vertically, when the increasingly more demanding and mobile customers and consumers require supply chains that run at 90 degrees to the functions, across the organization.

Our suggestion is to keep the functions in place, but to second personnel from all the functions into dedicated cross-functional teams that drive the new breed of supply chain configurations mentioned earlier in the article. Zara, Li & Fung, Adidas and other great contemporary companies are already doing this, and more

are set to follow this prescription for success. High responsiveness to customers is key to future success in most if not all future markets, whether consumer or industrial.

Continuous transformation rather than big bang large-scale projects

Even with everything said above, there is no guarantee of ongoing success if you rest on your laurels. Companies must do two things exceptionally well to stay ahead in the future ultra-disruptive world.

1. Business as usual (BAU) must be maintained with relentless discipline, undistracted by what is going on anywhere else, other than in the target market; and

2. A new startup subculture must be developed and nurtured in a separate location, away from BAU operations, where innovation is encouraged and can flourish unimpeded and, most importantly, where mistakes are tolerated. At the appropriate time, the innovations ready for prime time are moved into the BAU and become part of the new extended core business, while at the same time alignment of the new core is fully maintained with the ever-evolving target market.

In both situations identified above, the personnel involved must be made to feel valued at all times - this is the secret to achieving successful change. Contrary to popular opinion (fueled by many historical failures), personnel will enthusiastically embrace change if they are kept fully informed every step of the way - and made to feel valued for the contributions they are making.

A final word

Setting up your company for future success does not have to be as hard as we are seemingly making it. Get the conceptual design of your supply chains right using alignment principles, based on direct feedback from customers; install E2E digitization using the internet of things (IoT) and strategically located sensors to collect only the data you need to run the business; embrace blockchain protocols to ensure your customers have embedded traceability and governance to put their minds at rest; and adjust your organization structure so that it aligns with the customers in your target market. And keeping all this in mind, maintain relentless discipline as you roll out the new design in the spirit of the "flywheel effect," where you start slowly with small improvements and gradually build momentum to the point where the combined effect of all the above mentioned initiatives, taken together, leads to sustained and unstoppable improvement in supply chain performance for the business.



www.gattornaalignment.com

WHAT'S THE STORY, MR. KLAMMER? PERFECTLY ORCHESTRATED

Gregor Klammer has a nerve-wracking job overseeing unusual and special projects for DHL. That includes transporting priceless Beethoven artifacts around the world for a new touring exhibition.

ve been overseeing special and unusual logistical projects for DHL for nearly 25 years. No day – and no job – is ever the same for me. It might involve transporting Vivienne Westwood shoes for an international touring exhibition, or precious musical instruments for Leipzig's world-famous Gewandhausorchester.

For the last six years, DHL has been working on a very special project with Beethoven-Haus Bonn to commemorate the 250th anniversary



of Ludwig van Beethoven's birth in 2020. Now it's finally come to fruition! Beethoven-Haus is the composer's birthplace and is home to the world's most significant collection of priceless Beethoven artifacts. We're taking a selection of these to more than 10 venues around Europe, the U.S. and Asia, and calling it BTHVN on Tour.

Items on show include Beethoven's brass ear trumpet, a replica of Beethoven's violin and an original print from Andy Warhol's Beethoven series from 1987. To transport the exhibits, we carefully pack them in specially manufactured protective cases that have been built by our master craftsmen, who have many years of experience in shipping delicate and fragile goods. The boxes ensure the objects are protected from temperature fluctuations and vibrations, and have airtight seals to prevent fluid or dust contamination; plus we continuously monitor them using DHL SmartSensor technology. The trickiest part of the process is usually going through customs, so I'm there to make sure the paperwork is correct and supervise if officials want to see inside the cases.

Priceless and irreplaceable

It's an interesting project to be a part of because I'm a music fan – although isn't everyone? Mind you, before I started this job I mainly liked pop and rock; but now, thanks to my work, I've been behind the scenes with orchestras and had the opportunity to see them play live in concert halls. As a result, I've become a big fan of classical music, too. People ask me if I get nervous shipping such priceless and irreplaceable artifacts across the world. To which I say: yes! I'm nervous every morning when I wake up and get even more nervous when we come to critical parts of the tour. But I think that's good – a bit like being an actor with stage fright. It helps with my performance so I can give 100% every day. *As told to Tony Greenway*

www.bthvn2020.de

FACT: BTHVN on Tour consists of eight modules about the composer's life and work and includes multimedia and interactive elements. Some of the original objects on display are being shown internationally for the first time. The amount of equipment transported for BTHVN on Tour in metric tons

nt ent d for Tour ons

The number of concert halls across Asia and the U.S. involved in the Beethoven tour



To celebrate half a century as the leading international express service provider, DHL teamed up with CASETIFY to launch a special collection of tech accessories inspired by the iconic DHL branding. Designs feature the company's signature waybill, a special edition custom case that can be personalized and limited edition cases in a vintage 1969 and a modern 2019 version. The collection is expected to be a sell-out.

www.casetify.com/dhl



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