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THE GLOBAL LOGISTICS MAGAZINE

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BUSINESS

Next stop: Qatar

Can the small Gulf state become a regional logistics hub?

SOLUTIONS

Tomorrow's transport

The driverless future is closer than you think

VIEWPOINTS

Mark Kramer talks Shared Value

Learn why sharing makes perfect business sense

COVER STORY

TUNING IN TO TECHNOLOGY

Solutions for a sector that's in a state of flux



Dear reader,

Over the past decade, companies have increasingly come to realize that elevating corporate responsibility on the company agenda is good for business and good for society. There is greater appreciation today that in the long run profits and brand value are very closely linked to the way a company approaches social responsibility.

Three years ago, a revolutionary essay took the concept a step further. Outlining a new management strategy called Shared Value, Harvard professors Michael Porter and Mark Kramer suggested that businesses could make money from doing good. It provoked debate and caught a growing corporate mood. In this issue, *Delivered.* talks to Mark Kramer about this rather revolutionary concept.

Growth, efficiency, and innovation are three topics we will be discussing with our customers at this year's Global Technology Conference. All three are key for technology companies to thrive and win in this complex world, as our Focus article explains. In "Executive View", Paul Steinberg, chief technology officer for Motorola Solutions, talks to us about his company's technology strategy and vision, which drives focused innovation around market needs and customer challenges.

As tens of millions of viewers will be watching the FIFA World Cup which is about to kick off, we take a look ahead – at the host of the 2022 World Cup competition, Qatar, which is using its immense wealth not just to build nine new climate-controlled soccer stadiums, but also to transform its infrastructure and play in the Premier League of logistics.

Enjoy reading!

Bill Meahl

Chief Commercial Officer, DHL



08 FOCUS TUNING IN TO TECHNOLOGY

- 04 NEWS
- 08 FOCUS: TECHNOLOGY
- 08 Tuning in to technology In a volatile sector, how do companies survive and thrive?
- 14 Necessity is the mother of innovation Interview with Paul Steinberg of Motorola Solutions
- 17 Low-cost sensors Driving smarter logistics
- 18 Enabling growth Reaching technology's new customers
- 19 The efficiency puzzle Where does standardization end and tailored processes begin?

- 20 BUSINESS
- 20 Qatar's latest quest Can the tiny emirate become the Gulf's new global logistics hub?
- 24 Small business, smart thinking What SMEs and start-ups can teach big corporations
- 26 SOLUTIONS
- 26 Tomorrow's transport The automated future is much closer than you think
- 28 Motoring toward the driverless future New laws and technology are making driverless vehicles a reality

- 30 World trade beyond Bali Implementing December's trade facilitation deal
- 31 Creating Shared Value The new management strategy that might redefine capitalism as we know it

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WEB LINK VIDEO LINK QR CODE

- 34 VIEWPOINTS
- 34 Delivered. shares value with... author and business strategy guru Mark Kramer
- 36 Changing the mental model to be market-driven Essay by Lora Cecere of Supply Chain Insights LLC
- 38 What's the story, Mr. Oom? Participating in the Stockholm MyWays pilot
- 39 Imprint



14 EXECUTIVE VIEW MOTOROLA SOLUTIONS' PAUL STEINBERG



20 BUSINESS QATAR'S LATEST QUEST

www.delivered.dhl.com

ONLINE

Our cover story, digitally delivered
www.delivered.dhl.com/technology

First transshipment hub at Pudong

A new transshipment service smoothes the way for cargo transferred through Shanghai Pudong Airport.

The opening of China's Shanghai Pilot Free Trade Zone (FTZ) brings with it opportunities for business and a challenge for the air cargo market. The first experimental zone approved by the State Customs Bureau in China that conforms with international practices, the Shanghai FTZ will allow more flexibility for companies doing business in the area and provide a boost to the regional economy.

It will also mean an increase in handling demands for air cargo transferred through Shanghai Pudong Airport, as overseas cargo arriving on international flights has to be unloaded and re-sorted before being re-consolidated and sent on to its final destination.

DHL is the first international express carrier to offer international transshipment hub sorting services at Shanghai Pudong Airport. With state-of-the-art

3 MILLION

tons of cargo are handled at Shanghai's Pudong airport annually.

Learn more about DHL's transshipment hub at Pudong at:

tinyurl.com/PudongHub

processing equipment, the North Asia Hub provides a fast and flexible process, overseen by Shanghai Airport Customs and Shanghai International Airport Entry-Exit Inspection and Quarantine Bureau. The cost-efficient operation has been made possible with the help of Shanghai Airport Customs and Shanghai Entry-Exit Inspection and Quarantine Bureau, who have hired more staff for the new transshipment hub, enabling it to offer 24-hour clearance services. With international transshipment generally accounting for half of all shipments at major international shipping centers, the service at Shanghai is expected to grow substantially. According to Dong Shuhua, Deputy Commissioner of Shanghai Airport Customs, it is "helping to bridge the gap between China and the rest of the world in air express services."

DHL FAST TRACK FROM CHENGDU NOW TEMPERATURE CONTROLLED

Dubbed the fastest rail connection between China and Europe, DHL's China-Europe rail service now has the additional benefit of being temperature controlled.

The route, which runs along China's West corridor from Chengdu to Lodz, Poland, sees temperatures that vacillate over the course of the year from -17°C to over 26°C. In the past, this has meant that some temperature-sensitive products could not use the route during harsh winter and hot summer months. Now, using power supplied by a diesel-electric engine, internal temperatures in containers can be controlled, tracked, and remotely modified.

The lightweight containers, made from aluminum and high-strength steel, are fitted with an advanced track and trace system that allows customers not only to know their shipment's precise location but also to check and modify internal temperatures along the way.



LIGHTWEIGHT CONTAINERS: Safe, temperature-sensitive.

Whatever the weather outside, customers can set optimum internal temperatures for their consignment, from -25°C to 25°C, providing a year-round, multi-modal shipping solution that is safe even for highly regulated temperature-sensitive shipments.

"THE TITLE OF THIS YEAR'S CORPORATE RESPONSIBILITY REPORT IS 'THE AND MAKES THE DIFFERENCE.' AS A COMPANY, WE ARE COMMITTED TO BUSINESS SUCCESS AND RESPONSIBLE BUSINESS PRACTICE."

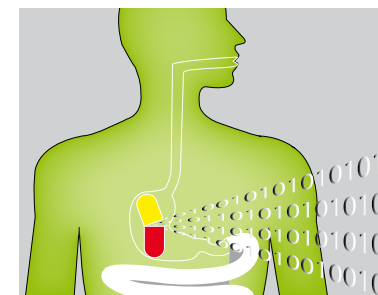
Frank Appel, CEO Deutsche Post DHL

Learn more about the Corporate Responsibility Report at:

tinyurl.com/DHL-theand



INTRODUCING THE EDIBLE PASSWORD



EAT YOUR PASSWORDS: Easy as taking a pill.

As password cracking tools become more sophisticated, tech giants have been researching ways to keep their users' information safe from hack attacks. Motorola recently got U.S. FDA-approval for a "password pill" – an edible chip that's powered by the stomach's acids. When activated it gives off a unique identifying 18-bit signal that can be detected by your phone or computer. Is this the end of memorizing complicated passwords? Or will it be more than most people can swallow?



THE STORY

OPENING NEW DOORS IN MYANMAR

Myanmar until recently was all but closed to outsiders. With political liberalization and international sanctions lifted two years ago, it's now opening its doors to the world and has the potential to become one of Southeast Asia's biggest economies. Major work is underway to turn the country, which is home to 60 million people and rich in natural resources, into a modern economy, with new infrastructure, economic zones, and a raft of business-friendly policies. Structural reform may still be at an early phase, but companies are already showing interest in setting up manufacturing bases there. Which is why DHL Global Forwarding has expanded its operation and opened its first wholly owned office in the country. With GDP increasing by 6.5% last year and growth forecast to be higher this year, the time is right. The economy is developing fast, driven by energy and construction, but with growth showing in other sectors, too. Trade within ASEAN is flourishing and investment coming in from China.

It looks like Myanmar is on its way to being the next big thing in Asia. Is it ready for the change? "Ten years ago, it would have been impossible to imagine the growth we are seeing today," says Kelvin Leung, CEO for Asia Pacific, DHL Global Forwarding. "It's not easy – no emerging market is – but development signs are good and positive sentiment is high. I expect the next ten years will see even faster growth."

Learn more about DHL Myanmar at:

tinyurl.com/DHL-Myanmar

VERY IMPORTANT PANDAS



GIANT PANDA: Only 1,600 left in the wild.

Two giant pandas, Hao Hao and Xing Hui, recently made an 8,000-kilometer journey from Chengdu in China to a new home in Belgium. The male and female pandas’ destination was Pairi Daiza – an animal sanctuary that, with support from the University of Ghent, will run a breeding and research program to help avert the future extinction of this endangered species. The WWF estimates that there are

no more than 1,600 giant pandas alive in the wild today. The two pandas, who came from the China Conservation & Research Center for the Giant Panda at Chengdu, were flown in a dedicated DHL freighter aircraft to Belgium, then transported by truck to Pairi Daiza. The primary aim throughout was to ensure the pandas’ maximum comfort and safety. They traveled in crates specially designed for them, with space for movement, ventilation holes, and transparent screens. These enabled the two keepers and veterinary physician who accompanied the pandas to monitor their well-being during the journey. DHL has transported a number of endangered animals as part of such projects, and is committed to supporting conservation causes around the world.

 www.youtube.com/watch?v=fz5UtExTDgU

WEARABLE REVOLUTION

From advertising gimmicks and interactive gaming to enhanced driver safety, X-ray vision for doctors, and training for welders and surgeons alike – the possible applications for augmented reality are growing rapidly as the technology becomes ever more sophisticated. Facebook, for instance, plans to use it for communications, media, and other forms of entertainment, and recently announced plans to buy technology company Oculus, best known for its virtual-reality headset Rift. We’re just at the beginning of the wearable revolution. Augmented



FUTURE GAZE: New applications for wearable technology.

reality devices look set to become an important business tool in the future.

Download DHL Trend Research on augmented reality :

 www.dhl.com/augmentedreality

SPEED AND PRECISION

DHL Global Forwarding is once again official partner to the Red Bull Air Race World Championship, bringing speed and precision to the logistics behind the world’s fastest motorsport race.

More about the Red Bull Air Race at:

 tinyurl.com/rbarace

GOOGLE GOES ROBOTIC?

Over the last half year, Google has bought up eight robotics companies and is now reported to be in close talks with Taiwanese contract manufacturer, Foxconn. Andy Rubin, the Google executive behind the moves, has revealed few details, but recently told *The New York Times* that he sees clear opportunities in the manufacturing and logistics markets that are not served by today’s robotic technologies.



TRANSATLANTIC TEMPERATURE CONTROL

Transporting life sciences products requires close care and attention at every step.

Whether it’s medications, biotech products or biological tissue, ensuring these highly sensitive goods are constantly kept in the correct environment en route is essential – not only to guarantee their quality, but also to comply with increasingly strict regulatory requirements. For businesses shipping life science products between Europe and the U.S., a new dedicated temperature-controlled air freight service has been launched that meets these special requirements. Flying six times a week between Brussels and Cincinnati, DHL’s transatlantic service has reserved space for life sciences products and provides real-time tracking and temperature measurement data on every flight, all of which can be accessed via a life sciences specific IT platform, LifeTrack. DHL’s Boeing 747-400 temperature controlled freighters are equipped with four controllable temperature zones, which are monitored constantly during the 8.30-hour flight. Handling at both ends, including on the apron, is in full compliance with Good Distribution Practice requirements, guaranteeing least possible exposure to ambient temperatures, and keeping average transit time between the aircraft and temperature-controlled storage below 30 minutes – all part of DHL’s ThermoNet product and LifeConEx Premium service.

Along with the recently launched temperature-controlled air freight service from Leipzig to Cincinnati, and other new routes in the planning, the service brings peace of mind to companies shipping perishable and highly sensitive materials.

Learn more about DHL ThermoNet at:

 tinyurl.com/DHL-ThermoNet

A SPECTACULAR PARTNERSHIP

Cirque du Soleil started life in Canada 30 years ago as a group of 20 street performers. Today it has grown into the world’s leading live entertainment show, bringing wonder and delight to more than 100 million spectators in over 40 countries. Cirque du Soleil has 19 shows in 150 locations this year alone, and working behind the scenes is DHL. As new Official Logistics Partner the company will support Cirque du Soleil in transferring some 250,000 items between venues using up to 80 40-foot containers filled with inventory to help the acrobats and stuntmen entertain their audiences around the world.

Learn more about Cirque du Soleil and its spectacular shows at:

 tinyurl.com/DHL-cirque



TECHNOLOGY MEETS FASHION



TOMORROW’S BLING: Lighting up fashion with wearable tech.

As wearable technology is becoming all the rage, fashion follows suit. From a solar-powered bikini to Zegna Sport’s Ecotech solar jacket; Ralph Lauren’s high end solar backpack and the famous “Day for Night” dress, fashion forward technology fans can stand out from the crowd – and power their gadgets too. Day-for-Night, according to its designer “a celebration of the beauty of electronics”, is a modular, reconfigurable dress comprised of circuit boards with tiles to accommodate a solar cell, a RGB LED, or a photocell, and jumper connectors. A control board provides power, communicates with the tiles, and links to a computer via RF. The dress is completely modular both in terms of design, software and hardware.

Learn more about Day-for-Night at:

 tinyurl.com/DHL-DayforNight



FIRST-CLASS RAIL FARE WITH A GREEN TWIST

A culinary revolution is coming to Virgin Rail passengers, with on-board fine dining and a wide variety of exciting new brands in the food-to-go arena using locally sourced and healthy ingredients.

In a trailblazing move, the UK’s leading long-distance rail operator has asked DHL to develop a unique concept for the whole food and drink supply chain, from menu innovation and

product procurement to supplier deliveries onto trains. Marking its entry into the rail catering market, DHL aims to create the kind of wow factor associated with the Virgin brand at the same time as implementing a range of Go-Green initiatives, increasing recycling on trains, and reducing waste behind the scenes.

Learn more about Virgin Trains at:

 www.virgintrains.co.uk/



FOCUS:
TECHNOLOGY

Tuning in to technology

A Chinese phone maker sells 220,000 handsets in three minutes, while several of 2010's top players are now struggling for survival. In the technology sector, success can arrive at breathtaking speed, but so can despair. How can tech companies survive and thrive?





SATURATED SECTOR: Looking for the next blockbuster product.

S

ingles Day on November 11 is the day when millions of young Chinese people think about finding love, celebrating their freedom from relationship ties, or buying some shiny new technology products. Just after midnight on November 11, 2013, on what has become one of the largest sales days in the Chinese calendar, rising electronics maker Xiaomi put a batch of new products online. Three minutes later it had sold out its entire stock of 220,000 of its most popular cellphones, generating revenues of \$17.5 million.

That incident encapsulates much that's always been true of the technology sector – rapid innovation, aggressive marketing, volatile demand. It captures much of what's new, too. Xiaomi was founded in 2010 and only launched its first product in 2011. Today the

3 MINUTES

is how long it took for Chinese electronics maker Xiaomi to sell 220,000 of its most popular cellphones.

company is among China's top five phone makers. Its customers are drawn firmly from the emerging world's new middle classes. And while its products may ape the high-end designs of established players, its pricing does not. Those Singles Day customers paid less than \$100 for their new phones.

AT A TURNING POINT

This fast-moving, highly competitive environment is taking its toll on the industry. In 2010, the top two smartphone makers, Nokia and Blackberry manufacturer RIM, accounted for 50% of the market between them. By 2012, their share had dwindled to 10%, with today's giants, Apple and Samsung, taking their place.

Saturation is looming, too. The International Telecommunication Union estimates that by the end of last year there were 6.8 billion cellphone subscriptions worldwide, almost one for every person on earth. Worldwide sales of personal computers, once the bedrock of the technology market, were forecast to fall by more than 10% in 2013, according to market analyst IDC, with sales to consumers dropping even faster.

As growth slows or stalls in established regions and product categories, technology firms face a double-edged challenge: they must find ways to remain profitable in what are still their largest markets, by transforming the efficiency of their manufacturing and supply chain processes. And they must identify and exploit new areas of growth, which will demand new and different products, services – and logistics.

In the developing world's rush to catch up with Europe and North America, it is skipping whole generations of technology. Mobile broadband connections are faster, cheaper, and more widely available in many emerging regions than fixed-line alternatives, for example, outnumbering them eight to one in Africa, compared just under two to one worldwide.

In mature markets, meanwhile, it is not clear whether the industry will succeed in finding a new blockbuster product to match the explosive popularity of smartphones or tablet computers. The sector's next sensation may not come from one category of products, but from thousands. The "Internet of Things" promises a world in which appliances make decisions about how and when to operate. Homes monitor the health and wellbeing of their inhabitants, and lost pets or packages can signal their locations. As one indicator of potential, Google announced in January that it bought Nest Labs, a maker of Internet-connected domestic thermostats and smoke alarms, for \$3.2 billion.

Peter Middleton, research director at Gartner, estimates that the Internet of Things will grow into an ecosystem of 7.3 billion connected devices by 2020, and that the market for such devices, and the services associated with them, will be worth \$309 billion – other estimates speak of 50 billion devices by 2020. The transformational effect on global business could be profound, with Middleton and his research team suggesting that, by 2020, these technologies could add \$1.9 trillion to the global economy.

However, capturing this value will be challenging due to the market's highly fragmented nature. While much of the modern technology sector was built on the idea of a general-purpose device – the PC or cell-

"SUCCESS IN THE INTERNET OF THINGS WILL DEPEND ON COMPANIES' ABILITY TO IDENTIFY LUCRATIVE NICHEs, AND THEN TO CREATE SOLUTIONS FOR SPECIFIC USE CASES THAT ADDRESS INDUSTRY-SPECIFIC BUSINESS PROCESSES."

SCOTT TIAZKUN, senior research analyst at IDC's Global Technology and Industry Research Organization

7.3 BILLION

is the minimum number of connected devices predicted to populate the Internet of Things by 2020.

phone – that could perform a multitude of roles, it is likely the Internet of Things will rely instead on highly specialized products that perform just a few functions cheaply and efficiently.

DIVERSIFYING DEMANDS

This fragmentation will have far reaching implications for companies, and rising volatility will mean they have ever less time to respond to changes as they appear. In emerging markets, the spread of disposable incomes stretches from just a few dollars a year to millions, for example. The logistics processes that satisfy wealthy urban customers in these regions will look very different from those that can deliver low cost products to aspiring consumers in small towns and remote villages.

Success in the Internet of Things, says Scott Tiazkun, senior research analyst at IDC's Global Technology and Industry Research Organization, will depend on companies' ability to identify lucrative niches, and then to create "solutions for specific use cases that address industry-specific business processes." Once again each of these new niches will require not only unique products, but also unique channels to market and uniquely tailored delivery and product support logistics.



WRIST COMPUTERS: The shape of tech to come.



NICHE PRODUCTS: Increasingly more significant.



SMART-PHONES: Prices falling.

Photos: previous leaf: Colin Anderson/Blend Images/Corbis; this leaf: Vetta/ Getty Images, © Piero Cruciani/Demotix/Corbis, Gene Blevins/LA Daily News/Corbis, ROBERT GALBRAITH/Reuters/Corbis



SINGLES DAY IN CHINA: One of the most important sales days in the calendar.

13%

of worldwide cellphone subscriptions are expected to be for M2M (machine to machine) connections in 2017.

2
BILLION

more people will have access to the Internet by 2025.

Navigating these conditions of rising complexity and diversity requires technology companies to pick their targets with care: it will become ever harder to offer winning products in every segment, or to cover all markets with a limited product portfolio. They must also be able to move fast, developing and adapting products based on local insights to suit new opportunities as they emerge, then finding ways to get those products quickly to the consumers that want them. In doing so, they must be ruthless about controlling complexity – differentiating products, logistics processes, and services where it matters to their customers and standardizing where it does not. Network hardware designed for Africa and Europe might contain the same core circuitry, for example, even if the packaging, power supply, distribution, and support networks are entirely different.

In a 2012 report, consultancy Ernst and Young suggests that this supply chain segmentation approach “likely will become the gold standard for technology industry companies.” Segmentation, the report says, “offers a practical methodology for reducing the risk of reaching a complexity tipping point and, thereby, circumventing the law of diminishing returns.”

SEGMENTED LOGISTICS

Tailored logistics will play a critical role in the segmentation of product and service offerings. Companies need to ship devices rapidly and securely into the hands of eager consumers, taking advantage of the increasingly fleeting opportunities that allow the latest products to command high prices. They must also be able to support their products, ensuring widespread availability of peripherals and spare parts, together with the services needed to conduct essential repairs and keep customers happy. The factories that build the latest and most desirable products rely in turn on complex upstream networks

to provide the components and subassemblies that make up those products.

From the datacenters that run e-commerce sites or software as service offerings to the network infrastructure that delivers movies over the Internet to a living room in Germany or the latest crop prices to a farmer’s mobile handset in Kenya, the services that make technology products so useful and compelling also rely on the timely and efficient delivery of hardware. Technology infrastructure brings its own logistics challenges, ranging from the need for rapid delivery of high-value parts to the problems associated with supporting network nodes in remote and inaccessible locations.

As the industry faces its current challenges and opportunities, the importance of tailored, efficient, and flexible logistics is only likely to increase. And as those challenges and opportunities continue to diversify, so will the solutions and services that technology companies rely upon for success. “The basic requirements for high-tech logistics differ markedly depending on whether you are looking at consumer or business markets,” says Scott Allison, Senior Vice President, Technology Sector at DHL. “And even more markedly depending on whether the market or product category is high growth or mature.”

“In mature markets, many companies are coming to terms with low or no growth and intense price competition. They are looking for ways to reduce their logistics costs without sacrificing service levels,” he adds. Logistics strategies that enable this change include shifting from airfreight to slower but more cost effective marine shipments, outsourcing assets like warehouse and distribution centers, and adopting shared service models for increasing parts of the supply chain

The boundary between manufacturing, service, and logistics is continually shifting, too, driven by the widespread adoption of postponement techniques, which help tech companies to reduce inventory and

transportation costs while boosting their ability to respond quickly to changing customer demand. “We do a lot of quite complex operations for our technology customers today,” notes Allison. “From installing the software, documentation, and peripherals to suit particular end-user markets to managing reverse logistics, service, and repair.”

In emerging markets, by contrast, speed is still key as companies scramble to get products into the hands of enthusiastic consumers. Combining double digit overall growth rates with extreme volatility at the level of individual products is leading both established and new players to lean heavily on third party partners and shared services, but with the need for extra capacity rather than efficiency as the main driver.

The technology sector is shaping the logistics processes that serve it too. New generations of technologies – from low-cost GPS tracking and radio frequency identification tags to voice-guided warehouse picking systems – are helping to further cut costs and improve logistics performance. Technologies under development offer the potential for even greater performance gains, from integrated sensors that make packages increasingly “self-aware” to the use of 3D printing to manufacture components, spare parts, or even complete products on demand.

These new services and technologies will play a central role in helping technology companies to tailor their offerings to diverse and fast-changing environments: stripping out cost and driving efficiency in increasingly cost-competitive markets, and building the capacity and flexibility to capture growth wherever new opportunities emerge. — Jonathan Ward

DISRUPTIVE INNOVATIONS

Throughout history innovative technologies have transformed life, business, and the economy. Some of them have the potential to disrupt the status quo, change the way we live and work,

and create entirely new products and services. According to a study published by the McKinsey Global Institute, there are twelve economically disruptive technologies to watch, among them:



- Mobile Internet**

Increasingly inexpensive and capable mobile devices such as smartphones, tablets, and wearable devices as well as ubiquitous connectivity and an explosive proliferation of apps are opening new opportunities for businesses and the public sector.
- Automation of knowledge work**

Advances in artificial intelligence are enabling the development of software systems that can perform knowledge work tasks involving unstructured commands and subtle judgments, opening up possibilities for changes in how knowledge work is organized and performed.
- The Internet of Things**

With networks of low-cost sensors and actuators for data collection, monitoring, decision making, and process optimization spreading rapidly, the Internet of Things allows businesses to manage assets, optimize performance, and create new business models.

Learn about the disruptive technologies to watch: tinyurl.com/DHL-business-technology

THREE
QUESTIONS
FOR

Rob Siegers

PRESIDENT GLOBAL TECHNOLOGY
SECTOR, DHL



“INCREASINGLY VOLATILE
MARKETS MEAN COMPANIES
HAVE LESS TIME THAN EVER TO
GET DECISIONS RIGHT.”

Why is the technology
sector such an exciting
area in which to work?

The technology industry is probably the most dynamic and diverse sector in the world. Companies need extraordinary speed and agility to continually innovate and deliver new consumer products, and behind that, the infrastructure that keeps global businesses, phone networks, and Internet services running has its own challenges, with the need for extremely robust support and high service availability. These diverse requirements have been instrumental in the development of many of the highly sophisticated logistics capabilities we offer today.

What challenges are
your technology cus-
tomers facing now?

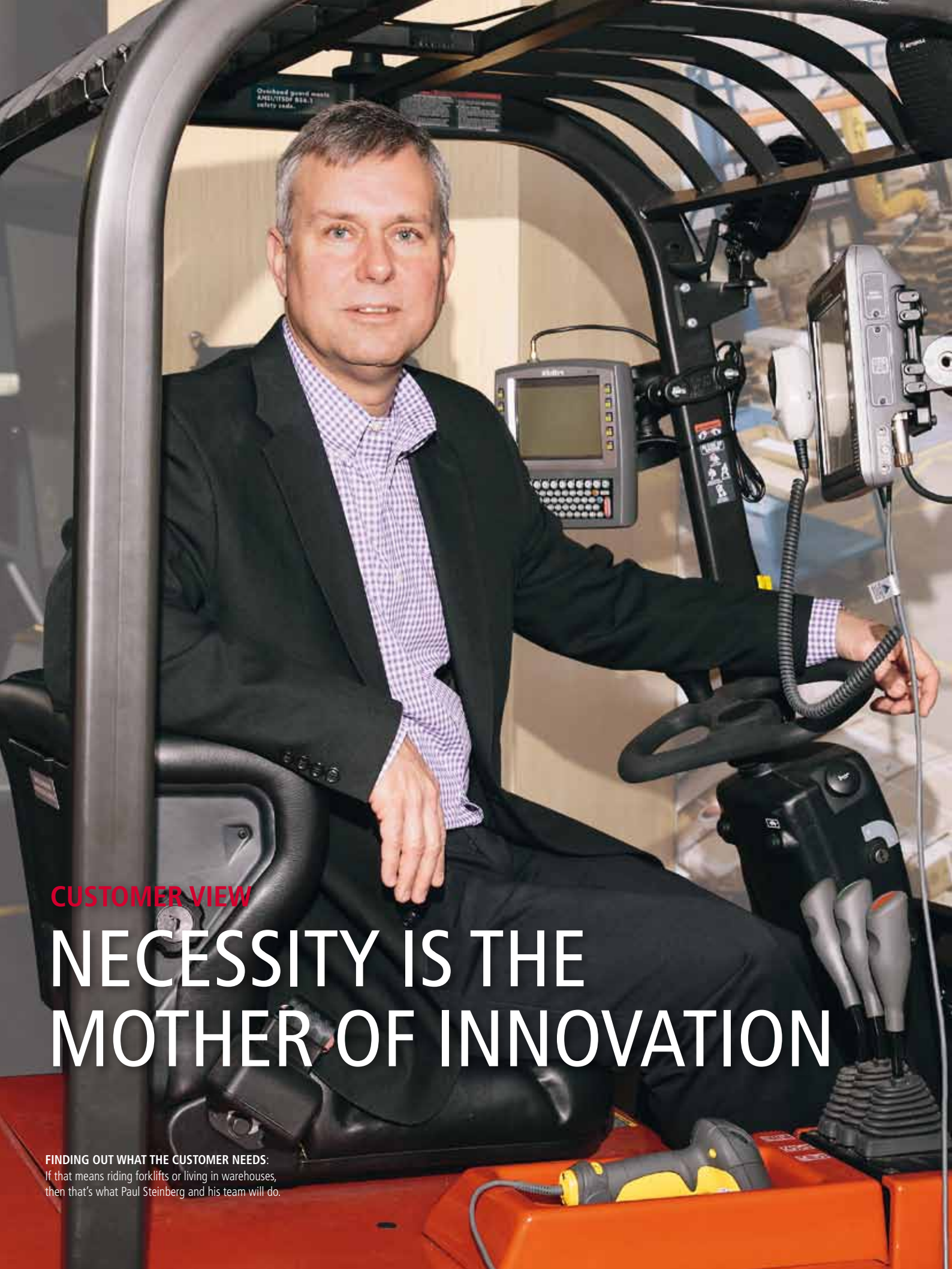
Complexity and diversity are key challenges. Across the sector, companies are entering new markets, new geographies, and new product categories, each with their own particular requirements and oppor-

tunities. Capturing those opportunities will require companies to make smart decisions about where to standardize and where to tailor their value chains. And increasingly volatile markets mean they’ll have less time than ever to get those decisions right.

How is DHL helping
technology companies
to meet those chal-
lenges?

Every day, we help technology companies to manage complexity, so they can increase their efficiency, pursue growth opportunities, and continue to innovate. Our worldwide reach makes it quicker and easier to access key markets, for example, whether that’s consumers in European cities or service engineers in rural Africa. And our increasingly sophisticated service offerings help companies control costs and increase responsiveness, whether by postponing final assembly, accelerating repairs or using shared infrastructure to reduce fixed costs.

Photos: Jessica Peterson/Tetra Images/Corbis, DHL, DreamPictures/Blend Images/Corbis, E+/ Getty Images, Javier Larreal/ age fotostock, Spain S.L./Corbis



CUSTOMER VIEW

NECESSITY IS THE MOTHER OF INNOVATION

FINDING OUT WHAT THE CUSTOMER NEEDS:
If that means riding forklifts or living in warehouses,
then that's what Paul Steinberg and his team will do.

As Senior Vice President and Chief Technology Officer of Motorola Solutions, Paul Steinberg isn't interested in knowing only what his logistics industry customers want. He wants to find out what they need. The results, he says, can lead to truly innovative technology that creates competitive advantage and real financial savings for a business.

I read an article recently which argued that innovation is the only sustainable advantage in business," remembers Paul Steinberg. "And honestly, I think there's a lot of truth in that."

Steinberg deals with cutting-edge innovation on a daily basis. It's what excites him about the job he does and drives him and his team to constantly push boundaries and explore the impossible. As Senior Vice President and Chief Technology Officer of Motorola Solutions – a provider of mission-critical communication solutions and services for government and enterprise – he oversees the development and execution of the company's technology strategy and vision. "For me to do that effectively," he says, tongue partly in his cheek, "I need a lot of very smart people. Plus, some intuition about where technology is likely to go." Not to mention "a bit" of Motorola Solutions' annual research and development spend of \$1.1 billion.

The company, founded 86 years ago, has been responsible for many significant technological firsts. It pioneered mobile communications by creating and commercializing the first cellular system, for instance, and it invented and commercialized barcode reading. "And it was our equipment that carried the words from the 1969 moon landing back to Earth," says Steinberg, matter-of-factly. "So I truly believe that all our engineers get up every morning with the intent of making our customers – and our customers' customers – more successful in their moments that matter. And, of course, we do that through innovative technology."

Motorola Solutions has two strands to its business. The first supplies government and public safety customers such as police forces and firefighters with communications innovations, products, and services (the infrastructure equipment for the Airwave emergency services network in the U.K., for example). The second strand provides communications systems and services to customers in the retail, manufacturing, and, more recently, healthcare sectors. North America, Europe, Africa, Latin America, and Asia Pacific are its major markets.

Photos: Ryan Lowry, Motorola

Motorola Solutions also provides technological innovations to the logistics industry with products that touch every part of the supply chain, from back-end transportation to the front-end, customer-facing experience. This includes everything from scanners and two-way radios to hand-held readers and radio-frequency identification (RFID) technology for warehouse distribution. Because companies in this sector are dealing with huge volumes, the smallest technological improvements can result in massive financial savings. Steinberg offers an example: "One of our customers told us that if they could improve the efficiency of their loading – in this particular case it was vehicle loading – by just one percentage point, the scale was such that it would translate to millions of dollars' worth of financial savings for their company."

FINDING OUT WHAT THE CUSTOMER NEEDS

That sounds great in theory, but some businesses often don't realize that they have a problem to solve. Working closely with customers to deliver the right groundbreaking technology is, therefore, crucial for Motorola Solutions – and where the company's Innovation Design Group comes in. Its associates are, in Steinberg's words, "right-brained people" – he admits to being "a left brain, true blue engineer" – who experience typical days in the life of a Motorola Solutions customer. If that means riding on forklifts, living in warehouses or stores, or tagging along with delivery couriers to find out how technology can help – whether it's been invented yet or not – then that's what they do. "The job of the Innovation Design Group is not to find out what our customers want, because pretty much anyone can do that," says Steinberg. "Their job is to gather insights to help us find out what the customer needs. A customer can't always tell you what their issues are, but if you watch them in the right way they will show you. These customer insights feed opportunity and, ultimately, technology."

Increasingly, logistics customers are asking for holistic solutions to answer their supply chain challenges. "These days, customers look to us not just as suppliers but as partners," says Steinberg, who has been with the company for 22 years. "They want us to help them understand how they can use technology for competitive advantage. Delivering value from technology is a much more complicated process now. Companies in the logistics sector are highly sophisticated and very complex, so simply inserting a piece of technology here or there is not nearly as impactful as delivering a solution for an entire supply chain, end to end. It's why our logistics customers are increasingly asking us to give them answers to questions – not simply bring them pieces of technology that they have to figure out what to do with."



With the MOTOTRBO SL Series portable two-way radio Motorola Solutions has created an innovative device, which is both practical and fashionable.

\$8.7
BILLION

Motorola Solutions' annual sales in 2013

As an example of an emerging technology, Steinberg points to his team's recent work in the area of analytics. "One of the challenges with customers in logistics or large-scale transportation of material is packing efficiency," he explains. "Yet with advanced analytics we can now accurately ascertain how full or how empty a particular entity is in real time."

Yet when a customer sees this technology, an interesting thing starts to happen. They begin to ask questions they hadn't thought of before. "They'll ask, 'Can it tell me how well our workers are loading vehicles?'" says Steinberg. "And we tell them, yes it can do that. Then they'll ask, 'And can it tell me the size of a particular package?'" Well, yes, the technology can likely do that, too. Then they'll think for a minute and say, 'And can we send this information to a manager in real time?' So, all of a sudden we get queries that nobody had thought to ask before because they simply hadn't realized that technology was available to do these things. The result for the customer is massive supply chain improvement and efficiency."

Another popular innovation in the logistics field has been the Motorola SL Series two-way portable radio, introduced in 2012. "In enterprise, two-way radio systems are usually very large devices," says Steinberg. "With the SL, we made a device that is as small as a typical cellphone but has all the capability and features of a two-way radio. Security people at the Oscars used the device because it's not just a communications tool – it's also a fashion statement about the work they do."

FUTURE INNOVATIONS

Not that this constant technological innovation is easy. If it was, everyone would be doing it. Steinberg says that one of the challenges faced by Motorola Solutions is being ready to disrupt itself and set a new course in order to stay ahead of changing times and the technological curve. It also has to be ready and willing to fail sometimes. "When we're in an incubation environment we tell the customer, 'Look, we know this idea isn't perfect yet, and we don't even know if it is what you really need.' That's why it's so important to find someone on the customer side who understands the process of creation and innovation and who will give us room to experiment. We'll prototype the technology and we'll get it wrong almost every time; but if the customer lets us experiment with them we'll learn together so that what we do is very quickly co-created."

The growth of the logistics industry over the last few years has taken Steinberg's breath away. What's more, companies in the sector have aggressively adopted technology to make themselves as efficient and



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customer-friendly as possible. "For instance," he says, "DHL has been adding additional capabilities and services for its customers, such as managing repair and fulfillment, which takes it well beyond parcel handling and delivery. So that pulls technology in interesting directions, too."

Indeed, he believes that the next few years will be an exciting, smarter time for the industry's technology. "We like to talk about 'advancing the intelligent edge,'" he says. "Increasingly there will be an enormous amount of visibility, so packages and all assets, will be smart. As a result, we'll be able to locate packages, pallets, assets and people to a fine degree of accuracy, so that enterprises themselves will get much smarter and be more real-time aware about everything and anything."

Plus, get ready for some serious computing power, and various different ways to interact with it. In five or six years, predicts Steinberg, you'll be able to carry the cognitive computing capacity of the human brain in your pocket; and that, harnessed with cloud, means the technology you use will be more anticipatory, recognizing what you need before you need it. From a user-perspective, it won't necessarily look like a slab of black glass, either, with, for example, head-worn displays becoming increasingly popular. "Technology will start to infuse across the body," says Steinberg. "We are doing more and more research in that area."

It's an exciting time to be at the cutting edge of innovation. Away from work, Steinberg loves spending time with his family and friends; but, even here, he keenly observes how his two daughters interact with the technology available to them. "Both of them are very different from me and I learn a lot from them," he says. "We had something happen recently that I thought was telling. My wife called me the other day to say she couldn't get in touch with our younger daughter. She said she'd called, texted, and e-mailed, but wasn't getting a response from her. I said, 'Okay: how long has it been?' And my wife said, 'Five minutes.' But that says a lot about the world. We're hyper-connected and the expectation is that if you have technology you are reachable almost instantly." It also neatly echoes the expectations of forward-thinking twenty-first century businesses who are always clamoring for more and more technological innovation.

Yet, actually, Steinberg and his team live for the challenge of being able to make their customers better at what they do. "And we get to do it every day," he says, "with a technology canvas that is so rich and so rapidly evolving that it's a very heady place to be." — *Tony Greenway*



LOW-COST SENSORS FOR SMARTER LOGISTICS



THE RADNET: Makes calls, detects radiation.

The rising popularity and sophistication of consumer technology products is driving an explosion in the availability of network-connected devices and low-cost sensors. These could have significant implications for the logistics industry.

Consumer technologies offer great possibilities for the automation of core logistics activities. The latest smartphones and tablet computers

can identify objects using barcodes, RFID, or near-field-communications technologies. They can determine location using GPS or triangulation with networks of WLAN base stations or cell towers. They can also measure temperature, humidity, and vibration, or evaluate the quantity or condition of objects via sophisticated image processing. And they can communicate all this data remotely and do much of it more cheaply than current industrial solutions – especially with capabilities bundled free in products that customers or employees already own. To investigate the potential for the industrialization of these technologies, a group from DHL Customer Solutions and Innovation, in association with Fraunhofer IFF, recently conducted a field test of an innovative volume-measurement and freight-scanning system. It uses the 3D range imaging sensors from Microsoft's Xbox Kinect gesture-based video game controller,

which were mounted in warehouse environments including a pallet-loading area and on a forklift truck. These low-cost sensors, which can collect both video and 3-D range data, were used to identify loads, calculate volumes, and create photographic documentation of load condition. They proved quick, effective, and accurate, with expected payback times more than five times faster than conventional solutions. Remaining challenges include simplifying system calibration and ensuring sufficient robustness for industrial conditions, but DHL is already examining further uses for the technology, including the identification of packages on conveyors, and the optimum loading of trucks and warehouse shelves.

 www.dhl.com/en/about_us/innovation/research_development/low_cost_sensor_trend_report.html

Photos: Ryan Lowry, Fuse/ Getty Images, Kim Kulish/Corbis

ENABLING GROWTH

Technology consumers are becoming more widespread, less predictable, and harder to reach. That makes things more complicated for an industry where success depends on getting the right product to the right place at just the right time.

By the end of 2013, 14 countries had more than 100 million cellphone subscribers – up from ten a year before. Of these, only Germany, the U.S., and Japan are traditional, developed economies. Mobile communications industry association GSMA reports that Asia Pacific accounted for nearly 60% of global mobile subscriber growth between 2008 and 2012 – and Africa and Latin America accounted for a further 20%. Today’s fastest growing regions for mobile technologies include Egypt, South Africa, and Russia as well as half a dozen Latin American countries. Others, like Peru, Columbia, and Ecuador, are expected to join them by 2015.

Accessing these new customers won’t be easy. More new cities will be created in emerging markets over the next 20 years than exist today in the West, according to the Boston Consulting Group. The challenge for technology companies is that their millions of new consumers will also be spread across the suburbs, small towns, and rural communities between these emerging cities. And the very global connectivity enabled by technology products means they’ll be every bit as demanding and unpredictable as their counterparts in Berlin or Beijing. Ahead of the 2014 World Cup and the 2016 Olympic Games, for example, middle class Brazilians are demanding the installation of satellite TV receivers at the same speed as customers in developed countries.

This combination of high service expectations, demand volatility, and geographic spread is compounded by poor infrastructure, unpredictable border crossings, and varying local tax regimes. Manufacturers must balance increased local inventories in order to ensure availability in the market, against the risk of being caught with costly unsold stock if demand shifts, or fails to materialize.

In this environment, long, complex, and increasingly fragile global supply chains are being supplemented by near-shoring or on-shoring approaches, but choosing what should go where will be the key challenge. Companies are beginning to adopt tailored approaches which use regional manufacturing for products of low volume or high variability, while supplying high-volume or more predictable items from lower-cost facilities elsewhere. Flexibility and scalability are also vital in new and uncertain markets. Sup-

ply chains must expand and contract at will, based on market conditions.

“Companies don’t just have to contend with unpredictable demand and unfamiliar physical territory, there are often quite different distribution models,” says Scott Allison, DHL’s Senior Vice President, Technology Sector. “In Africa, many cellphones are delivered to the market through local distributors, rather than by major phone networks, so companies need ways of getting their product to thousands of individual stores. That’s where a service provider like DHL is so useful, since we already have the infrastructure there on the ground, and plenty of experience navigating local customs, taxes, and other hurdles.” — *Jonathan Ward*

Roger Ingold, Accenture’s Country Managing Director for Brazil, ON OPPORTUNITIES IN LATIN AMERICA

How do you see the growth opportunities for Latin America in the next five years?

Long-term fundamentals are mostly strong. It is quite a large and diverse region, and so are its growth opportunities. These will result, for example, from infrastructure concessions in Brazil and the recent energy reform in Mexico. Moreover, the young population is increasingly tech-savvy, and there are exciting growth prospects in the area of innovation across the region. Latin America is producing leading players in sectors like biotechnology, aerospace and consumer technology. We are seeing increasing numbers of innovation clusters and start-ups being set up.



What are still the major roadblocks for “Doing Business in Latin America”?

Education and workforce qualification levels have been improving in recent years, but remain an important consideration when planning growth in Latin America. There have also been improvements in the physical and technology infrastructure across the region, but shortfalls remain. The good news is that such difficulties represent important opportunities for businesses that are in the right place at the right time to make the necessary investments.

What are your (top three) advises for companies targeting to expand their business in Latin America?

Firstly, ensure you have an accurate view of your target market and segment, as well as of your own performance in it. This demands investment in superior financial and controllership capabilities. Secondly, build partnerships. You need to work together both with local firms, which will help you take an accurate pulse of the local market, and with communities, because this makes your company more resilient and attractive for clients, business partners and employees. Lastly, build agility and flexibility to avoid emerging risks and grasp opportunities quickly when you identify them.

THE EFFICIENCY PUZZLE

In the ceaseless quest for efficiency, technology companies are facing a tension between increasing standardization on the one hand, and the benefits of tailoring their logistics practices to local needs on the other.

In the cause of efficiency, companies have been centralizing control of their supply chains and adopting standard methods. “As customers standardize their supply chain approach across the globe, they benefit from increased visibility and management simplicity through the use of standard IT systems and KPIs,” says Jan-Thido Karlshaus, Vice President Strategy and Business Development, Global Technology, DHL Supply Chain. “They can also adopt standard tools and approaches like LEAN and SIX SIGMA to drive day-to-day efficiency improvements.”

An effective improvement infrastructure is vital in the quest for efficiency, says Karlshaus, because the majority of supply chain cost is determined on the ground by the efficiency of frontline operations. It is hard, tedious, but vital work. “Companies need to go through a cultural shift, so that continuous improvement becomes part of everything they do,” he adds.

Standardization has its limitations, too, with the potential for higher local costs resulting from approaches that imperfectly match particular needs. The challenge for companies lies in knowing where in the supply chain to standardize, and where to tailor.

Postponement is one key strategy, helping to achieve this balance by allowing a later split between the standardized supply chain and the tailored one. By carrying out the final configuration and packaging of products at locations close to end-user markets companies can reduce downstream inventory levels, and make upstream logistics cost savings – for example, by allowing common parts to be shipped by sea, while higher-value, shorter-lifecycle products travel by air (see case study below).

Keeping service and repairs close to the end-user also helps increase supply chain responsiveness, and integrating them has efficiency benefits, since



companies can switch resources as demand patterns change. “Resource sharing is no longer limited to the activities of a single company,” adds Karlshaus. “Many of our technology customers have moved their postponement activities to our shared service centers, where we can integrate services for a range of customers, allowing all of them to benefit from significantly higher levels of efficiency, flexibility, and responsiveness.” — *Jonathan Ward*

\$10 MILLION

is the amount the company saves annually in transportation costs by using a postponement solution.

CASE STUDY: THE LATER THE BETTER

A leading global imaging and video product maker needed to outsource its entire European end-to-end supply chain. In a partnership with DHL that has evolved over nearly a decade, all of the company’s logistics requirements – inbound, warehousing, picking, packing, and pre-sale technical activities for 90,000 pieces a day – are carried out from a single distribution center in the Netherlands.

Central to the work of the distribution center is a semi-automated kitting and assembly line that brings together product components, peripherals, packaging, and documentation to meet precise customer requirements. This assembly line was designed by DHL, and is fully integrated with the customer’s planning and warehouse management software. As part of the project, DHL subsidiary Tag developed new packaging to streamline

the kitting process, while reducing the customer’s packaging spend by 7%. By shipping parts separately from its factories in Asia, and postponing final assembly until true customer demand becomes clear, the company has saved some €10 million a year in transportation costs, cut the time to market by two days, and reduced expensive and potentially obsolete stocks of packaged products.

Photos: Accenture, Getty Images/ jmalov

BUSINESS



SMALL STATE, BIG PROJECTS: Qatar is now aspiring to become a global logistics hub.

Photos: Holger Leue/Corbis, 2010 AFP

Qatar's latest quest

It has the world's largest per capita GDP, and is not shy about spending its wealth on ambitious projects. But can the small Gulf emirate of Qatar also succeed in transforming itself into a leading logistics hub and rival its neighbor, the United Arab Emirates?

In 1996, Qatar rocked the Arab world. The tiny state on the Arabian Peninsula – at the time considered sleepy and conservative by many – took to the airwaves with Al Jazeera, a news channel featuring debates and open criticism of officials, something previously unheard of across Arab states.

Almost two decades on, and the oil and natural gas-rich state, smaller than the U.S. state of Connecticut, has made a name for itself globally. Al Jazeera now broadcasts in Arabic and English around the clock to a worldwide audience of some 150 million viewers. Qatar Airways, the national carrier, proclaimed itself “the world’s 5-star airline.” The country’s sovereign wealth fund made headlines with the purchases of Harrods department store in London and French Premier League soccer club Paris Saint-Germain.

2022 will catapult Qatar into the limelight as host of the FIFA World Cup. The country is building no fewer than nine new carbon-neutral, climate-controlled stadiums, complete with artificial clouds to protect soccer players and spectators from the sweltering summer heat in the Arabian Gulf.

In the run-up to 2022, Qatar has now revealed its latest aspiration: to become a key player in the premier league of logistics. There is no doubting the country’s appetite for large-scale projects, or its potential to become a regional logistics hub on account of its geographic location. However, according to ArabianSupplyChain.com, the Middle East’s largest supply chain and transport portal, this potential has remained unrealized, with “Qatar’s woefully inefficient transport infrastructure seriously hampering the growth of the country’s logistics market.” Congested roads, bottlenecks at ports, and the lack of multi-modal transport options and warehousing space are cited by experts as key factors hindering progress. Can this small state now manage to build up the infrastructure required to fulfill its logistics ambitions and become a serious competitor to its neighbor, the United Arab Emirates

(UAE)? According to the 2012 World Bank Logistics Index, the UAE ranks in 17th place with Qatar way behind at No.33, so the country would need to make an enormous leap forward to catch up.

To the casual onlooker, this tiny nation with just 260,000 citizens (85% of Qatar’s 2.11 million population are expatriate workers) may seem to be punching above its weight and seeking to make grand statements with its high-profile investments. But make no mistake, Qatar knows it needs to prepare for a future beyond hydrocarbon, and the country is following a strategic master plan. Launched in 2008 by then heir apparent, HH Sheikh Tamim bin Hamad Al Thani, Qatar’s National Vision 2030 (QNV 2030) is a four-pillared strategy aimed at driving sustainable development and ensuring the nation’s prosperity for generations to come. And a first-rate infrastructure is cited as a key component in achieving those goals. The country has also been quick to respond to allegations pertaining to the treatment of foreign laborers, in particular in the construction sector and has published a ‘Workers’ Charter’ for the World Cup, in an attempt to protect the rights of migrant employees.

“We will make you proud”: HH Sheikh Hamad bin Khalifa Al Thani and his wife HH Sheikha Moza hold a replica of the World Cup trophy after the official announcement that Qatar will host the 2022 World Cup.

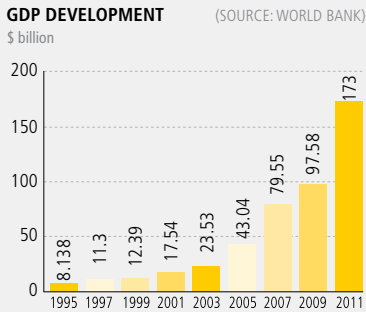
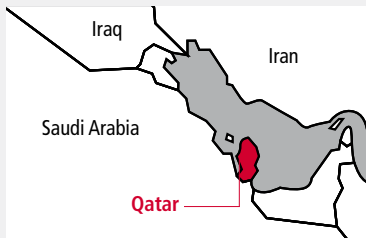


KEEPING UP WITH THE EMIRATES

In logistics terms, however, Qatar’s neighbor the UAE, and Dubai in particular, are a hard act to follow. The Emirates have long capitalized on the Arabian Gulf’s strategic location

LOOKING BEYOND OIL AND GAS

A former British protectorate, since 1971 Qatar has transformed itself into an independent state with the highest per capita income in the world. The then Emir Hamad bin Khalifa Al Thani, started to modernize Qatar economically in 1995. Today, the country is the world’s largest exporter of Liquid Natural Gas (LNG). Oil and gas account for more than 50% of GDP and roughly 85% of export earnings, yet, economic policy is focused on developing the non-associated natural gas reserves and increasing investment in non-energy sectors. In mid-2013, Hamad transferred power to his 33-year-old son, Tamim bin Hamad, who has prioritized improving economic diversity and domestic welfare, including establishing advanced healthcare and education systems, and expanding the country’s infrastructure.



REGIONAL LOGISTICS HUBS – DOES THE MIDDLE EAST NEED MORE THAN ONE?

Abu Dhabi, Dubai, Qatar – three powerful and commercially minded emirates with future expansion on their minds. New railways, ports, and mega airports are being built – but can the region’s growth support more than one logistics hub? Maybe so, if projected growth both in the Gulf region and in trade between emerging markets materialize.

The Gulf Cooperation (GCC) states – Bahrain, Kuwait, Saudi Arabia, Oman, the UAE, and Qatar – are growing fast. By 2020 the GCC population will have reached 53.5 million, a 30% increase in people who require housing and infrastructure, food, and consumer goods that mostly need to be imported, with food imports alone projected to grow to \$53.1 billion by 2020.

Then there is construction, which relies heavily on imported materials. According to MEED (Middle East Economic Digest) “the GCC civil construction market has returned to growth with a total \$59 billion in contracts awarded last year, a level not seen since 2008” There are some \$1.045 trillion’s worth of planned and un-awarded projects overall.

GCC states all have strategies to diversify their economies to lessen dependency on oil and gas. Chemicals and metals are some of the export industries set to benefit from investment and growth.

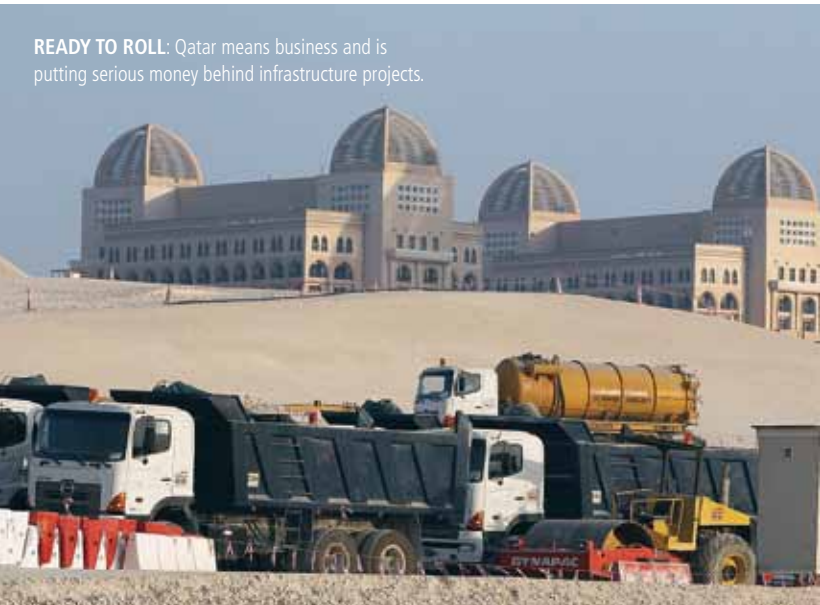
Trade flows between China and the GCC countries are set to grow significantly, according to a PwC report on global trade growth by 2030, with Saudi Arabia and the UAE leading the way. Trade between Asia and Africa is also projected to grow significantly – as Africa

keeps powering up, it will not just export its resources but also import consumer goods, and the Gulf region sits right in the middle of these trade lanes.

Klaus-Dieter Ruske, Global Transportation & Logistics Leader, PwC, comments, “The Gulf Cooperation countries are perfectly situated to benefit from growing trade volumes between China and Africa. This way they will not only profit from China’s increasing oil demand, but also from Africa’s growing exports and increasing consumer market. It is not only Nigeria in the west of Africa, with its vision to be among the 20 largest economies in the world by 2020, that will foster trade flows from Africa, but also countries in the south and east of the continent, led by south Africa and Kenya. So rising demand is beyond debate and given the GCC’s ambitious investment plans in infrastructure, competition will even grow between them and will boost capacity to a large extent. Therefore the economic rationale for more than one logistics hub will be given.”

Steve Harley, president of DHL’s energy sector, believes that in the mid-term the right logistics facilities in the GCC could also help unlock the potential of East Africa’s energy business. “A Gulf hub could provide the warehouse technology, expertise, and security, and legal frameworks needed to coordinate shipping. Currently, much of this is done in European ports – but the opportunity is there for the taking.”

Learn more about global trade growth by 2030 from the PwC report:
tinyurl.com/future-of-world-trade



READY TO ROLL: Qatar means business and is putting serious money behind infrastructure projects.

between East and West, building up a well-functioning logistics infrastructure over two decades. The 2016 forecast by the International Air Transport Association (IATA) shows the UAE in 6th place globally for international freight, with a projected 2.45 million tons. Efficient customs processes and modern transport and logistics facilities have cemented the UAE’s current place as the leading logistics player in the Middle East.

Jebel Ali port and free zone, Dubai’s 200-kilometer-long logistics corridor, and the new Dubai World Central Al Maktoum Airport, complete with its own logistics village and capacity for handling 12 million tons of freight, are just some parts of the logistics offering. And the Emirates are not resting on their laurels. Further developments are already underway, such as Khalifa Port in Abu Dhabi and Etihad Rail, a new national rail network under construction. Meanwhile Dubai, which has just won the bid for Expo 2020, is gearing up to be ready for an influx of some 25 million visitors coming to the event.

AN AMBITIOUS NATION

But Qatar has also proven to be nothing if not ambitious over the past two decades. Its National Vision 2030 sets out a precise path for achieving progress. “Qatar must invest too in world-class infrastructure to create a dynamic and more diversified economy in which the private sector plays a prominent role,” says 33-year-old Sheikh Tamim, now the country’s ruler, in the foreword to the National Vision. He adds that “this requires continuous improvements in the efficiency, transparency, and accountability of government agencies.”

According to a report by Deloitte, construction projects valued at \$222 billion are underway, with transport construction accounting for 58%, or \$140 billion, of total spend. Roads and bridges, a new international airport, a deep-water sea port, and a rail network are among the projects which are set to transform the country’s transport infrastructure.

Three ports – Ras Laffan, Mesaieed, and Doha. support Qatar’s oil and gas trade, while the construction of a new port in the capital Doha, the world’s largest “greenfield” port-development project, valued at around \$7.4 billion and due to be completed in 2016, will enable the country to attract international cargo business. Once Qatar’s high-speed rail network gets off the ground over the course of the next decade, seamless multi-modal options could be part of the country’s logistics offering. Phase one includes a 195-kilometer freight line linking Port Mesaieed to Ras Laffan. A high-speed connection to Bahrain and a network linking Doha with the two coastal cities of Dukhan, the center of Qatar’s onshore oil industry, and Al Shamal to the north are to follow.



In a recent development, Doha’s shortly-to-be-opened new Hamad International Airport saw its inaugural cargo flight take off in December 2013. Despite delays in its opening, the airport is expected to offer capacity of up to 5,700 shipments simultaneously by 2015 in its new cargo terminal complex belonging to Qatar Airways.

“The opening of our brand-new \$1 billion cargo facility at Hamad International Airport (HIA) will see Qatar Airways Cargo handle 1.4 million tons of cargo annually, more than tripling the capacity of the existing facility,” says CEO Akbar Al Baker. A 1-million-square-meter logistics village with 33,000 square meters of warehousing and a 44,000 square meter container depot add significant capacity to the affluent Gulf state’s future logistics and transport offering.

TRANSFORMING INFRASTRUCTURE

Nael Attiyat, DHL Express country manager in Qatar, welcomes the developments. “Investment in transport is important for logistics and key to improving regional and global connectivity. Qatar’s business environment is promising, and we are committed to having a total of 15 facilities and service points in the next few years. We would also welcome a ‘single window’ approach to customs, which will guarantee faster clearance times and an overall smoother process and easy customs procedures.”

\$10.4 BILLION

worth of construction contracts were awarded in Qatar in 2012, making it the third most active GCC construction market behind the UAE and Saudi Arabia. Four of the five biggest contracts were awarded for major transportation projects.

Learn more about Qatar’s National Vision 2030 at:

tinyurl.com/Doha2030

Learn more about the artificial cloud for FIFA World Cup 2022 stadiums at:

tinyurl.com/Qatar-ArtificialCloud



THE NORTH FIELD

The world’s largest LNG reservoir was discovered in 1971 but it took 20 years to unlock its potential. Early plans to supply GCC neighbors through a pipeline grid did not materialize. In a bold move, the then Emir Hamad bin Khalifa brought in international oil companies as partners to research and exploit the field, develop refineries, and build a competitive LNG value chain with a global reach. Currently, a moratorium is in place to assess future plans for the North Field and their environmental impact.

SMALL BUSINESS, SMART THINKING

Small companies and startups are often agile, innovative, and responsive in ways that are making multinationals sit up and take notice. What can the big guys learn from the little guys, and how?

Metropolitan Window Fashions has been in business for 80 years. This small, family owned drapery company with stores in New York and New Jersey prides itself on having earned its customers’ patronage with quality products, fair prices, and good service. Here customers can reach the managers, decorators, and installers anytime by phone or email. “And if someone wants to speak to the owner, they can. Try getting the president of a ‘Big Box’ store on the phone when you have a problem,” says manager Bruce Heyman.

Small and medium-sized enterprises (SMEs) are also known for their flat hierarchies, flexibility, and agility. When Jong Hwan Lee, an entrepreneur in South Korea’s popular computer gaming sector was looking for a growth market outside of the country for his eSports start-up ESGN, he moved his entire company to Berlin. “The city has more global appeal than the South Korean eSports community and is located in a strategic time zone between Asia and North America,” he says.

Companies like Metropolitan Window Fashions and start-ups like ESGN are the back bone of virtually any modern economy. In the European Union, for example, SMEs employ two-thirds of the work force and create 85% of new jobs. But sustainable growth can be difficult.

“Technology, science, and even consumer trends are advancing far too rapidly for most companies to keep pace,” says Stefan Lindegaard, author of *Making Open Innovation Work* and founder of the 15inno.com website dedicated to collaboration among big corporations and their smaller brethren. “Large companies can’t keep up and smaller companies don’t have access to the expensive research that big firms use to track shifts in the marketplace. Yet small companies are often closer to their markets with a fresh mindset and can take risks that large companies can’t because they have to protect their established core business operations.”

For instance, what makes “hidden champions” – SMEs that are global market leaders – so successful is that they focus on a particular product in a niche mar-

“SMALL COMPANIES ARE OFTEN CLOSER TO THEIR MARKETS WITH A FRESH MINDSET, AND CAN TAKE RISKS.”

Stefan Lindegaard
Founder of 15inno.com

DHL Express supports small businesses. Learn more at: tinyurl.com/DHL-sbst



FINDING A NICHE: Small companies can focus on particular products in particular markets, with a deep understanding of both.

ket with a very deep understanding of both, often offering a holistic value chain, notes Professor Hermann Simon, chairman of Simon-Kucher & Partners Strategy & Marketing Consultants and author of *Hidden Champions of the Twenty-First Century*. One example is Hamburg-based Neumann Kaffee Group, a world leader in green coffee. The company offers a complete range of products and services along the green coffee value chain, manages plantations, mills and grades, imports and exports. Feeling the pulse of its sole product with passion and expertise, Neumann can adapt to the needs of its business partners at both ends quickly.

Some SMEs – whether local mom-and-pop shops or global market leaders – opt to expand only to a certain extent, others outgrow their SME status, often with an innovative product or service creating a whole new market. Jawbone, for example, a startup founded in 1999, became a household name in 2006 with its Bluetooth headset that integrated speech-recognition technology into mobile devices. Founder Hosain

Photos: iStockphoto

Rahman saw early on that product development is a continuing process and “everything is a prototype” – a stepping stone to the next stage. Likewise, “making products better, not cheaper” is a tenet of the Spanx shapewear company, launched in 2000 by Sara Blakely with an innovative footless-pantyhose undergarment, which she started selling door-to-door. Today Spanx is a global multi-million-dollar undergarment business that also started a men’s line in 2010.

Successful high-growth companies like these SMEs recognize that continued innovation, fast decision-making, responsiveness, and risk-taking are what create new markets and the next gee-whiz products. Their success has not gone unnoticed. To solve business problems or develop new products, global multinational corporations (GMNCs) are learning from SMEs and increasingly partnering with some in novel ways – often resulting in a win-win situation.

Successful companies – big and small – are also taking cues from fields known for their steep inno-

85%

of new jobs in the European Union are created by SMEs.

vation curves, such as technology and pharmaceuticals, by adopting open innovation. For instance, after a team from Baufritz, a German SME that produces prefab houses, visited a car show, they were inspired to create a convertible roof that would open at the push of a button. “Open innovation taps external resources to fuel innovation by bringing outside thinking in,” says Lindegaard.

Minneapolis-headquartered General Mills didn’t allow in such outside thinking until 2007, when the packaged foods giant started its General Mills Worldwide Innovation Network (G-WIN) program. This invites inventors, small businesses, and suppliers to submit proposals to remedy problems such as controlling food temperature during microwave cooking or putting whole grains into baked goods.

“G-WIN helps us advance innovation by making external connections that differentiate and build fuller pipelines, bring new products faster to market, and reduce investment risk of experimentation,” says Bridget Christenson, a manager at General Mills.

Many Fortune 1000s are finding value in emulating the flat or decentralized structure and collaborative atmosphere of startups. At idea weekends, where participants make 60-second pitches and form teams to develop working prototypes in just a few days, these structures and ideas are put to the test. To learn first-hand what it takes to get things done quickly with limited resources, companies such as PepsiCo and Kraft Foods spinoff Mondelez International send teams of employees to work stints at technology and media startups.

In addition, GMNCs are augmenting their R&D divisions with innovation labs to capture new customers and markets by creating products and business models outside of their core lines and distribution channels, and encouraging partnerships with emerging businesses.

Many of these SMEs sit at the leading edge of disruptive technology, something GMNCs want a part of. One such example is MakerBot, a producer of desktop 3D printers that offers other SMEs fast and affordable prototyping. “Breakthrough innovation, with potential to be a real game changer, can be exceedingly hard to achieve in a large bureaucratic organization,” says Lindegaard.

Seeking outside counsel to co-create new products and forge new markets lies at the heart of GMNC-SME collaboration. Indeed, open innovation between GMNCs and SMEs must create new value, Lindegaard emphasizes. “This is what separates the companies that thrive from the ones that languish or even fail.” Ultimately, GMNCs are learning from SMEs to be more agile, create on the fly, and stretch beyond their behemoth structures to develop tomorrow’s cash cows. — *Marcia Jedd & Tong-Jin Smith*

SOLUTIONS



Tomorrow's transport

Drone delivery, ships without crews, personal helicopters, driverless cars – automated transport is no longer just sci-fi.

He is late. Rushing out of his home, he calls out the airport name while boarding his personal helicopter. As the small craft sets off for Shanghai Future Central Airport (SFC), Martin quickly performs the boarding checks for his Next Airways flight on a floating screen, before choosing an anniversary gift for his wife.

Martin selects the two-hour drone-delivery option to his home-secure mailbox. At Shanghai Future Central, he moves swiftly through the self-scan area before finally relaxing into his seat on the airplane. As the Beijing-based pilot-controller announces the departure of the aircraft, Martin consults his smart watch to get a live status update on one of his company's cargo drone ships, which is currently traversing the Atlantic Ocean.

A science fiction scenario? Not really. The driverless future may be upon us quicker than you think. Automated passenger trains are familiar in cities from Dubai to London, where in 1968 the Victoria underground line was the first to employ an automated train system. Partial automation in cars is developing at a fast pace (see infographic on page 28-29); and millions of dollars are being invested into research on everything from automated personal helicopters to aerial drones and unmanned cargo vessels.

Wider use of automated trains, planes, ships, and cars is being ushered into the present by a combination of technological advances, concerted R&D efforts, and new legislation – such as the United Nations Economic Commission for Europe's legal instruments to enhance safety and reduce fuel consumption. Unmanned aerial vehicles, such as delivery drones, are currently a hot research item and governments are taking note.

In 2013, the U.S. Federal Aviation Administration (FAA) announced a roadmap for unmanned aircraft integration into American airspace and rural areas.

Jobs for remote-controlled drones already include bridge inspections, engineering surveys, and storm chasing. Operators are now being trained and certified to operate small drones that weigh 23 kilograms or less to do the jobs once handled by more expensive full-sized planes and pilots. According to Mario Mairena, a senior manager for the Association of Unmanned Vehicle Systems International, "We're talking \$25 to \$75 an hour for a small-platform vehicle and an operator." Some companies are now considering the possibilities for package delivery in both off-the-grid locations and congested urban areas.

The European Union meanwhile is funding the "mycopter" project, whose objective is to create a personal air transport system (PATS), with "personal aerial vehicles" (PAV) traveling between homes and workplaces, and flying at low altitude in urban environments. Such PAVs should be fully or partially autonomous without requiring ground-based air traffic control.

Rolls-Royce is making headlines with its vision for unmanned cargo ships, which it says would provide safe, affordable, and lower-pollution vessels. According to Bloomberg, the company has already displayed a virtual reality prototype at its facility in Alesund, Norway, replacing a traditional, manned bridge with a camera capable of simulating 360-degree views of the surrounding waters. The EU is also sponsoring research into unmanned maritime navigation, led by the Fraunhofer Center for Maritime Logistics and Services.

Back on land, Volvo has been experimenting with a "platooning" system for vehicles. A semi speeds down the highway, followed by a pack of vehicles taking advantage of the windbreak to increase fuel economy by 10–20%. The followers are linked electronically to the leader, forming a line of cars or trucks separated by four-meter increments and traveling safely at highway speeds.

Driverless delivery vans are not far behind. An electric-powered concept vehicle called eT! has been developed by Volkswagen in cooperation with Deutsche Post DHL and the University of Art, Braunschweig. This semi-autonomous van follows a delivery person from house to house as he or she drops off packages. If the driver walks to the end of the block, with a swipe on the touch screen of a wearable wireless device, the van will follow.

"I've seen studies that talk about how one day in the not-too-distant future, a driverless van will show up at your door and a robotic arm will sit the package on your doorstep," says Rich Bishop, a researcher with the National Transportation Research Center in Knoxville. Considering that Renault's latest concept car launches a drone out of its roof, this does not seem that far-fetched.



"AT THE LATEST IN THE FIRST HALF OF THE NEXT DECADE DRIVERLESS CARS WILL BECOME A REALITY UNDER BUSINESS-AS-USUAL-CONDITIONS AND AFTER CLARIFICATION OF LEGAL ISSUES."

Stephan Rammner,
director of Braunschweig's
Institute of Transportation
Design

Mycopter:



Learn more about the Fraunhofer Center for Maritime Logistics and Services at:



Do these developments mean the fully driverless future is right on our doorstep? Well, almost. "I think we're still 10 to 20 years away from seeing pilotless cargo or passenger planes," says Mairena. Various factors are delaying its arrival, from legal issues to trade union objections. Stephan Rammner, director of Braunschweig's Institute of Transportation Design agrees. "At the latest in the first half of the next decade driverless cars will become a reality under business-as-usual-conditions and after clarification of legal issues. Regarding Rolls-Royce's vision of the unmanned cargo ship, for example, Dave Heindel, London chairman of the seafarers' section of the International Transport Workers' Federation (ITF), told Bloomberg, "It cannot and will never replace the eyes, ears, and thought processes of professional seafarers."

"The human element is one of the first lines of defense in the event of machinery failure and the kind of unexpected and sudden changes of conditions in which the world's seas specialize. The dangers posed to the environment by unmanned vessels are too easily imagined," he says.

Though the US states of Nevada and California have already approved licenses for driverless vehicles, a comprehensive system on any national or international level needs time to develop. "Although many automation concepts are close to market-ready, many legal questions have yet to be clarified," says Rammner. "Who will be liable when an autopilot unexpectedly causes an accident? The vehicle's owner, the manufacturer, or the software developer? It's not technology but the legal framework that will continue to hold back widespread use of automated systems, especially of full automation, for some time to come." The Institute of Electrical and Electronics Engineers (IEEE), however, firmly believes that autonomous cars will account for up to 75% of vehicles on the road by the year 2040, having selected driverless cars as the most promising form of a smarter transportation system.

"With any form of intelligent transportation, building the infrastructure to accommodate it is often the largest barrier to widespread adoption," says Dr. Alberto Broggi, IEEE Senior Member and professor of Computer Engineering at the University of Parma in Italy. "Since we can use the existing networks of roadways, autonomous vehicles are advantageous for changing how the majority of the world will travel on a daily basis."

By 2040, Martin Brown, thanks to scientific advances probably then a fairly youthful looking best ager in his 70s, may actually choose to live in his native England, rather than a futuristic Shanghai. But his drone home delivery and the ride in his driverless car or even his automated personal helicopter may still be the order of the day, even amid the rural setting of Dorset or Kent. — **Scott Sowers & Michelle Bach**

MOTORING TOWARDS THE DRIVERLESS FUTURE

Expanding technology and changing laws are making driverless cars, trucks, and delivery vehicles a reality. Here's a quick look at where we are and what's coming down the road.

V2V / V2X / V2I

Connected vehicle systems use wireless technologies to communicate in real time from vehicle to vehicle (V2V) and from vehicle to infrastructure (V2I/ V2X). Benefits include smoother traffic flow, accident prevention, and improved fleet management, as cars needing service may also be able to "talk" to repair shops and fix themselves. In the U.S. and EU, steps are being taken to create a standardized system of V2V / V2X technology.



Lidar

"Light Direction and Ranging" systems employ a rotating turret of lasers that measures distance and the shape of objects by using light to create an enhanced radar system. The units currently being tested by Google use 64 lasers to probe 360 degrees, taking more than a million measurements per second. This data forms a high-resolution map (accurate to about 11cm) of the car's surroundings.



(rear-view mirror image)
Alternatives to lidar currently in use include systems of stereo cameras and sensors mounted near rear-view mirrors and under hoods that measure proximity to other cars, traffic signals, and objects. Ford recently presented a driverless concept car in Barcelona equipped with infrared sensors to scan its surroundings as well as a system to communicate with other autonomous vehicles.

Driver assistance

Advanced Driver Assist Systems (ADAS) use a combination of ultrasonic sensors and cameras that function as long- and short-range radar. The eyes and ears of the system work with "drive-by-wire" actuators, control units, and integrating software to enable cars to monitor and respond to their surroundings. The emerging technology steers vehicles within travel lanes offering an adaptive cruise control system for hands-off driving. ADAS also provides driver warnings about approaching unseen road hazards, back-up alerts, and automated parallel parking.

Fully autonomous vehicles

Currently being developed by Google as well as major car manufacturers in cooperation with universities such as MIT, Stanford, and RWTH Aachen, fully autonomous vehicles are expected by experts to be on the streets within five to seven years. Google says its lidar-based system has already safely logged over 800,000 kilometers in specially equipped Lexus and Prius models in California. At this year's CES in Las Vegas and CeBIT in Hannover, carmakers introduced their versions of driverless cars, including models by BMW, Audi, and Nissan.

WORLD TRADE BEYOND BALI

The future of multilateral trade negotiations – even of the World Trade Organization itself – was at grave risk. But the new Brazilian Director-General of the WTO, Roberto Azevedo, pushed very hard for a deal and managed to achieve an agreement. The Trade Facilitation (TF) deal, concluded in the Indonesian resort island of Bali last December after nearly ten years of negotiations, was the first global trade agreement reached since the WTO was created in 1995. Admittedly, the TF is far from ideal, but it put the WTO in Geneva back into the game. Now, WTO members have until July 2014 for legal review and submission of their implementation timelines. The final acceptance by two-thirds of the WTO could, however, take a further two years.

TF contains improvements in transparency and consultation with industry along with more predictability through advanced rulings and judicial appeals. Further potential benefits for cross-border shipments could come from more efficient border clearance and release procedures, as well as improved coordination

between border agencies. If trade barriers are lowered, it will speed up movements of goods across borders.

However, crucial measures such as electronic “pre-arrival processing,” removal of “weight and value caps” on express delivery shipments, and the establishment of a commercial “de minimis” provision exempting low-value shipments from customs procedures, duties, and fees remain “best endeavor” provisions only – to be implemented where possible. To gain the full potential benefits from the TF deal, the logistics industry must now focus on encouraging and facilitating countries to implement these “best endeavor” provisions by demonstrating the benefits for each country.

The TF could boost the world economy by anything up to \$1 trillion and create 20 million jobs, mostly in developing nations. As an industry, our work is only just beginning – speedy implementation of the Bali agreement must be our objective. For the time being, we can at least take solace that multinational trade agreements managed by the WTO are still possible. — *Wolfgang Pordzik*



THUMBS UP: WTO Director-General Roberto Azevedo welcomes the new TF deal at Bali.

WTO BALI TRADE FACILITATION AGREEMENT:

- 1

Why was it necessary? The cost of complying with customs formalities often exceeds the cost of duties to be paid. The average customs transaction involves 20–30 different parties, 40 documents, 200 data elements, and the re-keying of 60–70% of all data at least once.
- 2

Who agreed on it? The Bali Package, with the Trade Facilitation deal at its core, is the first WTO agreement to be approved by all 159 members, accounting for more than 96% of global trade and over 90% of the world's population.
- 3

What difference will it make? The Trade Facilitation deal could be worth \$1 trillion to the world economy. It aims to reduce costs of trade by between 10% and 15%, increase trade flows and revenue collection, create a stable business environment, and attract foreign investment.

An illustration of a tree with a thick, dark blue trunk and branches. The branches spread out, each ending in a different currency symbol: \$, €, %, £, ¥, and CO2. There are also arrows pointing upwards from the branches. At the base of the tree, a group of stylized human figures in various colors are holding hands in a circle. The background is a light yellow gradient with some faint, abstract shapes.

CREATING SHARED VALUE: A WIN-WIN STRATEGY?

Three years ago, a revolutionary essay outlined a new management strategy called Shared Value, which suggested that businesses could make money from doing good. It provoked debate and caught a growing corporate mood – but can it really redefine capitalism as we know it?

Profit. It's not a dirty word. In fact, it can be a dynamic force for good, creating value for shareholders and society. This was the thinking behind a ground-breaking article called *Creating Shared Value: Redefining Capitalism and the Role of the Corporation in Society*, which was published in *Harvard Business Review* in 2011. In their article, co-authors Professor Michael E. Porter and Mark Kramer argued that capitalism was “under siege” and that public trust in companies had fallen to an all-time low. People thought of big business as contributing to environmental and social ills, and generally “prospering at the expense of the broader community.”

But Porter and Kramer also reasoned that making money and the march of social progress didn't have to be mutually exclusive. What if the public could see companies in a different light? What if they could see businesses doing good for their communities while simultaneously creating economic benefits for themselves? What if corporate mindsets could be changed to view environmental and social problems – in both advanced economies and developing countries – not as constraints, but as business opportunities? It could fundamentally change capitalism as we know it.

This, then, is Shared Value, a revolutionary way of strategic thinking. It isn't to be confused with (or meant as a replacement for) Corporate Social Responsibility (CSR) – that is to say, reputation-enhancing activity that isn't necessarily in a company's economic interest. The difference is this: if Wall Street wouldn't be interested in your new socially responsible corporate initiative, the chances are it's not Shared Value. It's philanthropy. Put bluntly, Shared Value involves making money from doing good.

On its publication, *Creating Shared Value*, which became the top *Harvard Business Review* article of 2011, caused a storm of interest. It was dissected and debated by commentators in *The New York Times*, *Forbes*, and *The Financial Times* among others, while in the *Huffington Post*, Lynn Forester de Rothschild said the concept was one of “seven influential actions in 2011 that captured an emerging shift in business' relationship with society.” Corporations and businesses around the world began to build Shared Value into their business models, and *The Economist* named Shared Value a top trend in 2012.

BENEFITS FOR ALL

There are three ways that a company can instigate Shared Value. The first is by solving problems through the products and services it creates. Take the Dow Chemical Company's Omega-9 Healthy Oils, developed by Dow AgroSciences, which are virtually free of trans-fat and contain the lowest saturated fat content

CISCO'S NETWORKING ACADEMY:
"THE WORLD'S LARGEST CLASSROOM"

Technology is evolving apace. The growth in computer networks, for example, has been rapid – but its significant downside is a global shortage of people who are qualified to implement and maintain networking solutions. Realizing this, Cisco Systems, the global provider of networking equipment, launched its blended-learning Networking Academy (NetAcad) in 1997. It now operates in 170 countries, has trained five million network administrators globally, and has been called “the world's largest classroom.” NetAcad uses cloud technology to deliver the curriculum to students. It concerns how to design, build, troubleshoot, and secure computer networks to further the students' career

and economic opportunities. Results have been impressive. For example, a report found that 69% of the surveyed students had obtained a new or better job, increased responsibilities, or a higher salary, and many have started their own companies. NetAcad is popular across all sections of society. Cisco says that, through the academy, 129 youths from a shelter in Brazil have found a career path, and five women's universities have opened Cisco Academies in Saudi Arabia. All of which is good for the development of communities. And, of course, it gives Cisco a growing pool of talent to implement and maintain its technology, which is essential for company growth.



28%

of global CEOs are said to have made a change to their business to incorporate shared value thinking.

of any vegetable oil. Since the brand's launch in 2005, it has captured the dominant market share of U.S. fast food restaurants, giving Dow a competitive advantage. Crucially, though, the seeds that the oil comes from have a large yield, making them attractive to farmers; plus the oils have taken billions of pounds of trans-fats out of the American diet, making consumers healthier. Everyone benefits.

The second way to create Shared Value is to address problems through company operations, including better use of natural resources. Porter and Kramer highlighted Wal-Mart's 2009 decision to reduce packaging and re-route its trucks to cut 100 million miles from its delivery routes “saving \$200 million even as it shipped more products.” Likewise, DHL is already engaged in various innovative Shared Value projects with a number of Fortune 100 companies.

The third way is for a business to invest outside its operations in order to solve problems connected with company growth and productivity, such as improving growing techniques. Mars has seen the wisdom of this approach and embarked on a Vision for Change

sustainability program to support farmers in Côte d'Ivoire, the highest cocoa-producing country in the world. Its investment is a win-win for both communities and commerce: economic, environmental, and social conditions in the cocoa-growing communities improve, boosting Mars business in the process.

Of course, the environmental and social issues currently facing the world seem so large as to be insurmountable. Yet this is exactly why Shared Value has excited so many of its supporters, who say that the private sector has the wealth and power to tackle problems on a vast scale. Take malnutrition, which affects two billion people worldwide. The U.N. has highlighted that this is a particular concern for a growing number of developing countries whose population “must shoulder a ‘double burden’ of malnutrition: the persistence of under-nutrition, especially among children, along with a rise in overweight, obesity, and diet-related chronic diseases.”

HUGE IMPACT

To combat this, Nestlé has developed its Maggi brand product range, including bouillons, seasonings, and noodles, which is iodine-enriched and sold at affordable prices in developing countries. It's been a best-seller, with Nestlé estimating that the total number of its individual servings fortified with iodine were approximately 100 billion in 2012; plus the company is running an iron fortification program in India, Pakistan, Sri Lanka, the Caribbean, Central America, Central West African countries, and the Pacific islands. The positive health implications of one small bouillon cube are plainly huge. From a “green” standpoint, there are numerous examples of companies who use environmentally friendly products to attract new business. Toyota's acclaimed Prius, for example; and GE's Ecomagination program, which is committed “to building innovative solutions for today's environmental challenges while driving growth.” For its part, DHL is currently developing and piloting a Shared Value strategy that uses its expertise in green logistics to offer dedicated solutions to select key customers. This involves working closely with those customers to identify opportunities to implement green efficiency technologies and processes – such as aerodynamics, alternative drivetrains, and other equipment – in order to reduce carbon footprints and expedite fleet modernization. The company's Shared Value focus at present is on road freight, but other modes of transportation are being investigated for the future.

It's not just companies that are seeing the positives in Shared Value. Porter and Kramer have had discussions with the White House and the governments of India and South Korea about the things they

can do to encourage more businesses to adopt Shared Value strategies. This, says Kramer, makes absolute sense from any government's perspective, with private sector resources helping to solve problems that public money would otherwise be needed to address.

So could Shared Value really go mainstream, and soon? There are dissenting voices, including *Forbes* contributor Steve Denning whose 2011 essay was titled *Why Shared Value Can't Fix Capitalism*. Plus, it's still early days: companies across the globe, and many more of them, would need to incorporate Shared Valued thinking into the operations of employees at all levels of their businesses to really transform capitalism. Yet momentum is undeniably growing. FSG, Kramer and Porter's consultancy firm, has trained 45 consulting firms in 25 countries around the world in Shared Value learning in the last year alone; plus 28% of global CEOs are said to have made a change to their business to incorporate Shared Value thinking. Meanwhile, FSG points out that Shared Value isn't a dream – it's a reality. And it insists that it isn't an option. It's the future. — *Tony Greenway*

Learn more about *Creating Shared Value* at:

tinyurl.com/DHL-sharedvalue

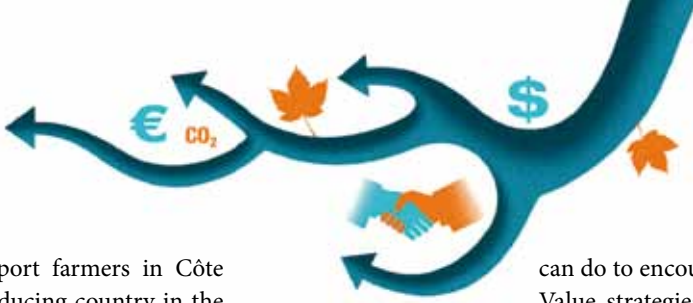


NOVARTIS: OVERCOMING A MARKET FAILURE

Last November, Novartis, one of the world's largest pharma companies, received the Ethics in Business Award in the Outstanding Corporation category at The World Forum for Ethics in Business (WFEB) in Basel, Switzerland. The award recognized Novartis dedication to implementing social ventures such as Arogya Parivar, a sustainable business model that makes affordable, high-quality medicines accessible to disenfranchised millions in India. Novartis had been selling medicines in India for decades, but primarily in major cities with well-established infrastructure. Yet, it reasoned, 70% of the country's population live out of the loop in rural villages – and were not being served. This was a market failure the company was determined to overcome.

So, in 2007, Novartis began to hire and train hundreds of healthcare educators – usually local women – to raise awareness about basic health-seeking behavior. The plan was for each educator to visit a few villages every day, while sales supervisors served as the initiative's local sales force, interacting with local pharmacies and collaborating with doctors, hospitals, and NGOs to organize health camps for villagers. The Arogya Parivar program now provides improved healthcare for 42 million people living in 33,000 villages, giving them access to affordable products, better education, and improved health infrastructure. The program began returning a profit within 30 months, and since 2007 sales have increased 25-fold.

Photos: E+/Getty Images, uniquely India/Getty Images; Illustration: Stuart Briers



VIEWPOINTS

Delivered. shares value with...

Mark Kramer

Mark Kramer, co-architect of the Shared Value concept, believes that companies can help the environment and society – while helping themselves at the same time.

It's funny," says Mark Kramer in a voice which suggests that it's anything but. "It's ingrained in our society that if you're doing something good, you shouldn't be making money. And if you're making money you shouldn't be worried about doing good."

In a 2011 article called *Creating Shared Value*, co-authored with Professor Michael E Porter and published in *Harvard Business Review*, Kramer exploded that particular myth. Porter and Kramer argued that there is a third way where philanthropy and commerce can work together to boost each other's causes. Indeed, they theorized that if businesses could start to solve some of the world's environmental and social problems, they would, in so doing, create dynamic economic benefits for themselves.

It's not a theory anymore. Shared Value has since rocked the business world (see previous pages) with corporations of every kind shifting their strategies to engage with its principles. There are now conferences devoted to the subject worldwide, with Kramer and Porter often appearing as keynote speakers. Shared Value is also a popular part of a Harvard Business School course for new CEOs of billion-dollar-plus companies, and it's being built into the curricula of business schools around the world. "New CEOs see it as part of a legacy that they can create and as a real opportunity that hasn't been exploited before," says Kramer.

Kramer has always had a passion for both business and philanthropy. In 2000, he co-founded FSG, a nonprofit consultancy specializing in strategy, evaluation, and research for clients including Ernst & Young, Nestlé, and Unilever. The best part of his day, he says, is "hearing laughter in the hallways" and knowing FSG is developing new ways to "increase the impact of our clients and find better ways to solve social problems."

Since remarrying in December, the once Boston-based Kramer has been living under the San Francisco sun and relaxes by taking sailing lessons around the Bay. "I am learning the ropes – literally," he laughs. And so, metaphorically, are the CEOs of companies that have engaged with Shared Value, and who, like Kramer, want to chart a new course. The opportunities to change the world while increasing their profits could be just over the horizon – and much too good to miss.

How did the concept of Shared Value occur to you?

It emerged over time. FSG was hired by companies to help them think about their philanthropy. But, as we worked with them, we realized that their philanthropy was one of the least powerful ways that they achieved social impact. They did it best through their core business.

Can you give us an example of Shared Value in action that has impressed you personally?

Oh, there are so many of them. One of my favorite recent examples is a South African health insurance

company called Discovery, which has a whole host of financial incentives to encourage healthy behavior. For instance, it gives its policy holders 25% cash back on food – but only on food that makes you healthier. Discovery has data to show that the people it insures have a higher life expectancy and lower medical costs than the population as a whole. So it's found a competitive advantage that increases its profitability by creating incentives that lead people to improve their own health. That kind of thinking is really exciting.

How easy is it to adapt Shared Value thinking into your corporate strategy?

There's no doubt about it, it requires a change of corporate mindset, so it's a multi-year journey that companies need to embark on, not just a single initiative. It has to be built into the operations and understanding of employees at all levels. It needs everyone to say, "These problems can be solved – and it's worth it for us to solve them. We can change the conditions that influence our business, and not simply be constrained by them."

Are you surprised by the response that Shared Value has had across the world?

We are. Professor Porter and I had written various articles for *Harvard Business Review* over the years that received quite a bit of attention – but none of them even came close to creating the debate sparked by our 2011 Shared Value article, which was cited by a thousand other academic articles in just two years. It's had tremendous resonance.

What has been the tone of the response?

Largely positive. I think the greatest positive response has come from CEOs and senior executives who used to think social responsibility was peripheral to their business. Now they see it as central to the leadership of their companies. *The Economist* published a special Intelligence Unit report earlier this year which showed that 28% of global CEOs have already made a change to their business strategy or model to incorporate Shared Value thinking. Now, people don't always use the term as precisely as we defined it – so maybe 28% haven't adopted Shared Value in its truest sense. But the fact that 28% of CEOs are at least thinking in that direction is quite stunning.

What are your hopes for Shared Value?

That, like marketing or operational logistics and efficiency, it will simply become part of how business is conducted in the future and not even thought of as anything novel or different. Could it become the new face of capitalism? Well, that would be a wonderful thing. — *Tony Greenway*

ABOUT MARK KRAMER:

Mark Kramer was an associate at the law firm Ropes & Gray in Boston, before serving for 12 years as President of Kramer Capital Management, a venture capital firm. Now, as co-founder and managing director at FSG, he leads consulting engagements with particular emphasis on philanthropic strategy for private foundations, Shared Value initiatives, strategic evaluation, and impact investing. He is also a frequent speaker around the world on various topics in catalytic philanthropy, including creating Shared Value for corporations and social entrepreneurship.

Follow Mark Kramer on his Social Impact Blog at FSG:

 tinyurl.com/SocialImpactBlog

CHANGING THE MENTAL MODEL TO BE MARKET-DRIVEN



AN ESSAY BY LORA CECERE

Lora Cecere is the founder of Supply Chain Insights LLC and author of the popular enterprise software blog Supply Chain Shaman. Her book, *Bricks Matter*, co-authored with Charlie Chase, was published in 2012. Currently she is working on a second book, *Metrics That Matter*, which will be published in the fall of 2014.

Supply chain processes are now 30 years old. The first two decades were all about supply. Today, companies are re-skilling to think about demand. Over the last decade, the shifts in supply chain processes have been dramatic.

In 2004, when I was at AMR Research, I worked as part of the team to define the concept of the Demand-Driven Value Network (DDVN) and wrote over 600 articles on the topic. The definition of a Demand-Driven Value Network was a supply chain network that could sense and respond to demand with minimal latency. The primary concepts were demand sensing, demand shaping, and driving an intelligent demand response.

In 2012, eight years later, there was more talk than adoption of the concepts of Demand-Driven Value Networks. In addition, the concepts of becoming demand-driven, while progressive, were not sufficient. One reason was that the concepts had failed to address the changing world of supply and market-to-market volatility. Commodity volatility had never been higher, and the barriers between operations and procurement had never been larger.

It cannot be JUST about demand. Today, materials are scarce and price volatility is the highest in three decades. Supply chain practices were defined in the early 1990s when crude oil was \$10 per barrel. They have changed little despite a 14-fold price increase and increased fluctuations. Likewise, no apparel supply chain was ready for cotton's doubling in price in 2011 followed by a 50% drop in 2012.

Traditional supply chains react. They do not sense. Nor do they orchestrate the response market-to-market from channel shifts to commodity shifts bi-directionally. As a result, there are surprises. Note the quote from DuPont on the 2008 recession in its 2009 annual report: "In December 2008, DuPont announced plans to address rapidly deteriorating market conditions and strengthen the company's future competitiveness. Plans are focused on generating cash by better aligning cost, working capital and property, plant, and equipment expenditures to the revised demand signals of the fourth quarter. These plans include a restructuring program with associated fourth quarter pre-tax charge of \$535 million, with expected pre-tax savings of about \$130

DEMAND-SHAPING LEVERS	MARKET-DRIVEN ORCHESTRATION LEVERS
New product launch	Price to price orchestration
Marketing	Alternate bill of materials
Sales incentives	Alternate sourcing
Trade promotions	Change in assortment
Distributor incentives	Orchestration of product mix (incent products with less commodity variability)
Assortment	Changes in demand shaping strategies
Price	Commodity hedging
Run-out of obsolescence or mark-down strategies	

million for 2009, and about \$250 million annual savings thereafter. The company also outlined 2009 plans to achieve a \$1 billion in net working capital reduction and a 10% to 20% reduction in capital spending."

Shutting factories in 2008 for DuPont was serious business. The company is known for excellence in process reliability. They own and operate factories with high process in some of the most challenging chemical environments. They are a supply chain leader. To ensure that this would not happen again, DuPont used the downtime in the factories to train employees on the principles of supply chain management. Their focus was on the redesign of the processes to sense and adapt more quickly to market changes. The principles of supply chain agility grew in importance. Today, the company is actively building market-driven value networks.

As a result, DuPont kicked off some demand-driven initiatives to speed the translation of the demand signal directly from the channel and sense and shape demand more actively.

As a result, I have concluded that demand-driven is not sufficient. Instead, I think that companies need to be market-driven. I define market-driven value networks as adaptive networks that sense and translate market changes (buy and sell-side markets) bi-directionally with near-real-time data latency to align sales, logistics, distribution, manufacturing, and sourcing (see Figure 1).

OUTSIDE-IN PROCESSES

Today, market-driven is aspirational, and builds on the concept of demand orchestration where companies sense buy and sell-side market changes and orchestrate end-to-end through horizontal processes like revenue management, Sales and Operations Planning (S&OP), and supplier development. It requires the orchestration of market shifts into

process reality. The focus needs to be end-to-end from the customer's customer to the supplier's supplier.

While aspirational, it is a major shift from today's inside-out thinking. Making the journey to become market-driven requires the building of outside-in processes to listen, test, and learn cross-functionally. It is about much more than building market awareness through the classical four Ps of marketing. Most companies are much more comfortable "yelling their message" than managing the channel and using structured and unstructured data to listen and learn. By and large, companies are just not good at listening.

An example of this in practice is the work at Cargill Beef, one of the largest beef processors in North America, producing nearly 8 billion pounds of boxed beef and by-products each year. The company senses the market potential for cuts of beef and orchestrates the go-to-market options based on market potential. As a market-driven leader, the company uses price optimization tools to evaluate the market potential for beef. Before Cargill Beef decides what to package for the market, they first evaluate the market potential for each cut of beef and then optimize how they harvest their inbound herds to maximize opportunity and minimize risk. There are 197 ways to cut up beef cattle. Since each breed of cow has a different potential or finite mix of products – steaks, ground beef, roast, etc. – Cargill uses the technology in Sales and Operations Planning to drive rancher insights to define which breeds are best for customer demand. This process of being adaptable to trade-offs from market to market based on the use of optimization technologies is termed demand.

Many companies pride themselves on being marketing-driven. Our challenge is that marketing-driven processes are very different than market-driven. It requires the ability to listen, test, learn, and orchestrate the signal market to market. This is fundamental to building market-driven value networks. What do you think?

- COMMON MISCONCEPTIONS ABOUT MARKET-DRIVEN VALUE NETWORKS:
- Market-driven is the same as marketing-driven
 - Orders and shipments represent "true" market demand
 - Supply chain latency is not an issue
 - Tight integration of the supply chain drives supply chain excellence
 - The most effective supply chain is the most efficient

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WHAT’S THE STORY, MR. OOM?

“I WAS INTRIGUED BY THIS INNOVATIVE IDEA.”



PACKAGE DEAL: With four to five deliveries a week, MyWays participants can earn some extra cash, and enjoy the interaction with recipients.



Getting smart: Joakim Oom checks his phone for available deliveries.



Signing off: MyWays participants handle only one package at a time.

Learn more about the MyWays crowdsourcing package delivery project at:



DOING IT MYWAYS

Swedish university student, Joakim Oom, 26, participates in MyWays and earns while he learns.

I’m a supply chain management student, and the MyWays crowd-sourcing project – where a select group of individuals delivers packages in exchange for cash or store vouchers – caught my eye.

In January 2013, I signed up for the Stockholm pilot of MyWays, intrigued by how this innovative idea uses crowd-sourcing to help close the “last mile” of package delivery logistics. With a smartphone app, I could see available deliveries, hit “accept” for convenient stops on my route for the day, pick up the package from DHL, and get going. You handle one package at a time and there’s a time limit on delivery.

Over the summer I delivered four or five packages a week, and really enjoyed the interaction with recipients. One was a man

who placed an order from a tobacco store near his home and had his package delivered via MyWays to his apartment. He was curious about how the service worked. “It seemed cool,” he said, “and I wanted to try it out.”

Another time I had a package for delivery to an island, but learned that the bridge was closed. I called the customer, who said he could wait until the next day. Having that personal interaction helped address the issue quickly and provide good customer service.

I think MyWays is an excellent option to try in other cities. Customers like it, and it gives students and others the chance to supplement their income. I’m sure people will enjoy participating.

CROWDSOURCING THE LAST MILE

In September 2013, DHL launched the MyWays platform in Stockholm as a pilot using crowdsourcing to facilitate last-mile deliveries. Now products ordered online can be delivered directly by participating residents to end consumers. Using a mobile app, the service connects recipients with those offering to transport packages along their routes in exchange for credits which can later be converted into cash.

18 is the minimum age requirement for those interested in participating in the MyWays pilot as a part-time courier.

10 equal 1 Swedish krona. After ordering a product online, the recipient determines the fee. The part-time courier can later use the credits for MyWays services or exchange them for krona.

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