GEARING UP FOR GROWTH

Aerospace is on the rise again
Dear reader,

At DHL, we welcomed the Trade Facilitation Agreement which the World Trade Association agreed upon at its recent summit in Bali. Should policies be fully implemented, global trade volumes would grow significantly due to simpler and more efficient customs procedures and regulations. This can only be good news for businesses, be they large or small.

Another headline-making event last year was the Dubai Airshow, where civil aviation history was made with record-breaking sales of passenger aircraft. In our “Focus” story we explore the upward trends in aviation and the logistics solutions required to support the industry in what looks like bullish years ahead.

We have the pleasure of introducing two quite distinct and distinguished personalities, Jeremy Rifkin and Elon Musk. One a thought leader who advises global CEOs, governments, and the European Parliament; the other an innovator, inventor, and CEO of Tesla Motors and Space X. What unites them is a firm view that sustainability is one of the key issues that needs to be addressed by humankind.

Finally, I am proud to say that Delivered celebrates its first birthday this month. Please look out for the special birthday card in the print issue and on delivered.dhl.com/birthday, where you’ll see some gifts we’d like to share with you.

If you have feedback or topic suggestions for future issues of the magazine, please feel free to contact me directly:

bill.meahl@dhl.com

Sincerely,

Bill Meahl
Chief Commercial Officer, DHL

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Cover photo: Thierry Dosogne/Getty Images
Photos on this page: DHL (2), Rolls-Royce, Andrea Pistolesi, Reto Klar
New look
Optimized features

We have made a number of changes to make Delivered’s online presence more interesting and easier to use.

New features include:
• Optimization for tablets
• Easier to find specialist topics
• Enhanced sector content

Visit delivered.dhl.com!
Leipzig hub to double capacity

This major investment in DHL’s express infrastructure will strengthen the network’s backbone.

With an additional $200 million investment in its facilities in Leipzig, Germany, planned for 2014-15, DHL Express is set to double the operational footprint of its principal European hub. Work began in December 2013 on the new 44,000-square-meter expansion, which will incorporate an additional warehouse as well as sorting and office facilities. The installation of a new shipment sorting system will have the effect of increasing the hub’s processing capacity by some 50%. This means that it will be possible to process more than 150,000 shipments per hour by the time that the new facilities become operational in the fourth quarter of 2014. The Leipzig hub is a critical part of the express infrastructure, and its expansion is considered vital to supporting the future growth requirements of DHL customers trading both in Europe and around the world. In line with the company’s commitment to its GoGreen program and the reduction of both energy consumption and energy-related emissions, the new buildings at the Leipzig hub have been designed to incorporate green technologies.

The continued rise of “fast fashion” keeps shrinking lead times between runway debuts and consumer demand for the latest designs, putting manufacturers under increasing time pressure to deliver. In the era of online retail and mobile devices, the tech savvy customers of the fashion industry generate unpredictable 24/7 demand. Having a supply chain just as sophisticated as this customer base is a must for retailers today.

Decision makers from some of the industry’s leading retailers and fashion houses – including Debenhams, Levi Strauss and Co., and Tom Tailor – recently got together to discuss these trends and their impact on current supply chain dynamics at a European fashion forum. The results of these discussions were captured in a white paper, Fashion Unleashed: the agile fashion supply chain. The paper details strategies for addressing the new complexity of shortened product life cycles, fragmented sales channels, and escalated service demands. The aim is responsiveness, agility, and flexibility within an optimally managed cost structure. Best practice fashion supply chains are migrating toward a new model in which participants operate as an interconnected web of trading partners, all aligned to deliver what the customer wants, regardless of channel or product category.

The new 40,000m² warehouse will double the hub’s operational footprint, with a total size equivalent to eleven soccer pitches.

DHL’s Parcelpcopter has had its first test flight. Currently there are no plans to operate drones, but future use could include emergency medical shipments to remote areas.

LOGISTIC’S DAILY NEWSCAST

For news, trends, and opinions on topics driving the logistics industry, turn to www.logistics-newsroom.com. A daily round-up from blogs, media outlets, and social media, the site offers up-to-date content and broad insights into everything from RFID to e-commerce and city logistics.

DHL kicks off for Rugby World Cup

Building on success at the Rugby World Cup 2011, DHL has once again signed up as Official Logistics Partner for the sport’s pinnacle event. The Rugby World Cup is one of the world’s largest sporting events, surpassed only by the Olympics and FIFA World Cup. Every four years, teams from 20 countries compete to win the Webb Ellis Cup. The current title-holder is New Zealand.

The next Rugby World Cup will be in England in 2015, with DHL once more handling event logistics. This follows a successful partnership in New Zealand in 2011 that saw the company, as Official Logistics Partner, transporting some 800 tons of team equipment from competing nations around the globe to venues across the country. In England, the six-week tournament’s 48 games will be held at 13 different venues, from northernly Newcastle to Brighton on the south coast. The final is on October 31 at London’s Twickenham Stadium, the world’s largest rugby venue.

The tournament will not begin until September 18, 2015, but logistics work has already kicked off. In November, DHL transported the Webb Ellis Cup from New Zealand to the IRB World Rugby Conference in Ireland by way of Australia, South Africa, and England – the other previous winners of the trophy.

Follow DHL’s work in rugby on Twitter at @DHL_Rugby and #Dhlrugby.
FIGHTING THE FREEZE

Every winter, DHL teams across the globe get ready to deal with snow, ice, and extreme cold. At hubs, aircraft arrive every five minutes throughout the night and need to be quickly de-iced to operate safely at -20 degrees Celsius (-4 degrees Fahrenheit). At the Leipzig hub a fleet of 23 de-icing vehicles is on constant call and need to be quickly de-iced to operate safely at -20 degrees Celsius (-4 degrees Fahrenheit). At the Cincinnati hub planes are de-iced at the gate to ensure safe landings.

CAMPAIGN TO COMBAT COUNTERFEIT MEDICINES

Fake medicines are a growing threat to public health, tricking patients into believing they are receiving genuine treatment and putting their lives at risk. The campaign Fight the Fakes is a combined effort of the global health community, representing healthcare professionals, disease-specific organizations, product-development partnerships, foundations, and the pharmaceutical industry. Coordinated actions from all involved in the manufacturing and distribution of medicines are vital.

Learn more at fightthefakes.org

RATING UPGRADE: STRAIGHT AS FOR DHL

The latest ratings from Morgan Stanley Capital International (MSCI), a supplier of stock market indices and portfolio analytics, have upgraded Deutsche Post DHL from AA to AAA in recognition of the company’s environmental and social impact initiatives. Now with an additional benchmark for corporate governance, the MSCI ratings are an intangible value assessment of the company’s energy efficiency, carbon emissions, and proactive labor management programs.

NEW STANDARDS FOR GOGREEN PRODUCTS

When DHL introduced its GOGREEN carbon neutral offering in 2006, it established a carbon management system validated and verified according to the principles of ISO 14064 on greenhouse gases, a norm originally established for company reporting.

With the latest development of product standards for emission reporting, the company is enhancing its product account- ing. It now includes not only carbon dioxide emissions from transport and handling, but also other greenhouse gases as well as so-called upstream emissions from the production and transport of energy and fuels needed for logistics.

With the new “GHG Protocol Product Lifecycle Accounting and Reporting Standard” in place, customers using DHL’s Carbon Reports start receiving information about their total greenhouse gas emissions, including upstream emissions. Additionally, the Carbon Report services of DHL Express and DHL Global Forwarding are an intangible value assessment of the company’s energy efficiency, carbon emissions, and proactive labor management programs.

4,500 FAUX FURS FOR LIFE

Worn as a symbol of status by members of the Shembe Baptist Church in South Africa, leopard skins have become an essential garment in its community of some five million. Although trade in leopard skins is illegal in South Africa, the practice has become widespread. To reduce demand for real leopard skins and protect the endangered species, Tristan Dickerson, Leopard Program Coordinator at conservationist organization Panthera, spent a year working with designers and clothing companies to create a high-quality, affordable faux leopard skin — an effort DHL Express is supporting on a complimentary basis through transportation of the furs from China to South Africa.

FIGHTING THE FAKEs in LIFE SCIENCES

One of the world’s busiest airports, Chicago O’Hare International is the ideal location for an expansion of DHL Global Forwarding’s operations. The third largest city in the United States, Chicago is a trade crossroads. And a new investment of nearly $35 million at O’Hare will ensure it stays that way.

The investment includes the construction of 16,134 square meters of office space and 128,939 square meters of warehousing — all LEED-certified for the use of green technologies during construction. A bonded Container Freight Station, the facility will be established as a Life Science Cold Chain Competency Center, with two 930-square-meter temperature-controlled rooms for handling pharmaceutical, biotech, and medical devices.

The area will also be designated a Foreign Trade Zone — a secure area under the supervision of U.S. Customs and Border Protection and outside the customs territory of the U.S. for duty purposes. It is also expected to be certified TAPA-A, an internationally recognized standard in the fight against cargo theft.

With its central location, the O’Hare facility will offer customers more cost-efficient shipping alternatives, while boasting the largest intermodal container capacity in the Western Hemisphere.

Now in its fourth year, the DHL Global Technology Conference offers a platform for knowledge sharing and networking among key decision makers and industry experts: tinyurl.com/DHLTech

The co-located DHL’s 14th Life Sciences & Healthcare Global Conference in Shanghai on June 11-12, 2014 — engage with U.S. industry peers, leading suppliers and DHL experts. Register here: tinyurl.com/DHL-Lshc2014

NEWS | 7
Cleared for takeoff

After a period of turbulence, the aviation industry is once more starting to spread its wings. Strong future growth, particularly in Asia Pacific, coupled with more dispersed supply chains, mean that manufacturers, suppliers, and logistics providers will need to be increasingly agile.
and Airbus worth a staggering $99 billion at list prices, excluding purchase rights—the largest commercial aircraft order ever. At the very least, these figures seem to indicate that the aviation industry is beginning to soar again after five turbulent years. No one orders that amount of planes just to keep them grounded.

It’s not quite that simple, of course, because aviation and aerospace have taken a sustained battering since 2008 and the after shocks are still being felt in some areas of the industry. Cargo remains stubbornly in the doldrums, although a fragile recovery was hinted at in October, fed by stronger business confidence and improving trade flows. On the military side, with the continuing slowdown in Europe and the U.S. government scaling back on defense spending, demand is expected to remain weak in the near term.

But aviation is now undoubtedly on an upward trend, and in the commercial sector the mood is bullish, with growth being driven by improving global markets and robust passenger demand. The new middle classes in emerging countries have money, and will travel. “Overall, the story is largely positive,” explained Tony Tyler, IATA’s Director General and CEO, in September. “Profitability continues on an improving trajectory.” In fact, the next twelve months are expected to be strong for North American carriers— the rising stars of the market, including the rapidly expanding Emirates— are expected to post their highest ever profit at $2.1 billion. The industry in Latin America is on the up, too. According to the latest Airbus Global Market Forecast, the Brazilian air travel market will need 1,324 aircraft by 2032 to address the country’s rising international and domestic air travel requirements.

GROWTH OF ASIA PACIFIC

In the long haul, though, it’s Asia Pacific where the really big news lies. “By 2032, Asia Pacific will lead the world in traffic, overtaking Europe and North America,” says John Leahy, Airbus Chief Operating Officer – Customers. “Today on average, one-fifth of the population of the emerging markets takes a flight annually, and by 2032 this will swell to two-thirds. The attraction of air travel means that passenger numbers will more than double from today’s 2.9 billion, to 6.7 billion by 2032.”

That means a seismic change for the whole sector. Contrary to years past when the U.S. and Europe were the biggest markets for aviation, Asia – and in particular China – has become the focus of the industry with total fleet size and growth shifting east. “Big manufacturers are changing their manufacturing patterns,” says Marja-Liisa Turtiainen, VP, Aerospace & Aviation, DHL. “So from that perspective, supply chains are becoming more dispersed, more complex, and more fragile. The industry’s tight development and production scheduling demands more effective logistics, so flexibility, scalability, and visibility are essential when a major aviation manufacturer partners with a logistics service provider.”

Main players such as Airbus, Boeing, and Bombardier have long-established presences in China. Airbus interests include the A320 final assembly line in Tianjin, plus a Beijing-based engineering center and a Beijing support center, stockpiling some 25,000 spare parts for dispatch to airlines in the Asia Pacific region. Boeing’s sites include a Manufacturing Innovation Center in Beijing, a maintenance, repair, and overhaul (MRO) center based in Shanghai, and a composites facility in Tianjin. And recently Bombardier announced a facility in Tianjin to support MRO services. “The industry’s center of gravity is moving,” says Reg Kenney, President, Engineering & Manufacturing | 11
to commodity shortages, natural disasters, and supplier failures have focused the minds of supply chain executives in every industry. In the aviation industry, where security and safety are paramount and where delays are hugely expensive, the risks associated with complex and fragile supply chains have the ability to keep managers awake at night.

“Risk is a high priority for virtually all the customers we serve in the aviation sector,” says Turtiainen. “In terms of supply chain risk, any sort of blockage in the inbound to manufacturing supply chain that could cause an assembly line slowdown or stoppage has to be avoided at all costs. It’s therefore essential for a logistics service provider (LSP) to work closely with the customer to ensure that transit lines for specific shipments are not going to result in delays or stoppages. Also, in terms of mitigating compliance risk, it’s key for an LSP to facilitate compliance for customers, both from a regulatory as well as a customs perspective, globally.” But if risk-reducing flexibility, scalability, and visibility are important, so is cost. In a highly competitive business, there will always be an emphasis on improving cost efficiency, lead time efficiency, and transit time efficiency on the service side, on an ongoing basis. Logistics doesn’t only play a part in aircraft manufacture. It’s also vital in a multitude of maintenance, repair, and overhaul, where highly flexible and efficient supply chains are needed to ensure that airlines are promptly supplied with required spare parts and components. In this market, speed is of the essence. To answer these specific demands, logistics service providers have to ensure close collaboration with customers and demonstrate the ability to leverage global coverage, quickly, with a variety of transport modes. Clearly, depending on the manufacturer or supplier, aviation logistics needs can vary widely, says Reg Kenney. A company such as Boeing might need to move a fuselage section from one side of the world to the other. A company such as Rolls-Royce may need to do the same with an aircraft engine. Suppliers of overhaul switches might need to get a mission-critical part to the next state – or another continent – so that a plane can be met on landing and a fault rectified.

“For the big manufacturers it’s vital to partner with a logistics provider who can demonstrate an ability to move everything from engines, fuselage sections, wing sections, tail sections, seats, and lighting gear – which we at DHL have transported from, let’s say, point of manufacture in China to Northern America – right down to the smallest screws and smallest electrical connector from suppliers, on an AOG basis. We have the ability to handle it all, whatever the size, routinely. It’s that wide variety which makes this such an exciting and challenging sector to work in.”

— Tony Greenway

10 YEARS
and loss is the time planes nowadays spend in the air.
Today’s technological advances make it economical for carriers to buy planes more often.

Checking Critical Technology Using SMARTSENSOR Technology to Minimize Down Time and Costs

Because critical aviation components are just that – critical – and because AOG delays are as expensive as they are time-consuming, it pays to monitor shipments during transportation to check what condition they are in. Which is just what DHL’s state-of-the-art SMARTSENSOR technology does, so ensuring smooth contingency planning.

SMARTSENSOR is a device which pre-reports faults in critical aviation components by tracking them constantly during transportation and sending automatic alert notifications, via GSM, which can be assessed near real-time online. 24/7, worldwide. The SMARTSENSOR can be attached to a particular part or placed in the shipment. If a fault in a shipment is detected it means that spare is available to be arranged to meet a plane upon arrival, so down time is minimal and unnecessary costs are avoided.

Precision Assembly: Supply chain stoppages must be avoided

Aircraft Damage On: When Speed Matters Most

The increasingly complex and technically sophisticated nature of today’s aircraft is both a blessing and a curse. A blessing for crew and passengers because it has revolutionized air travel, making it easier, more comfortable, and offering better environmental performance. And a curse for carriers because – from the navigation systems to the passenger-facing gadgets and gizmos – the demand for myriad mission-critical spare components is a challenge that has to be met on time, 24/7, 365 days of the year.

The fact is that today’s commercial airplanes are high-tech flying machines requiring routine checks, overhauls, and unexpected repairs, with express delivery of parts needed for speedy on-ground servicing. AOG (Aircraft on the Ground) “next flight” services, where parts are delivered to return an aircraft to the air, are therefore critical to a carrier’s operation, because delays can be expensive. Very expensive. According to Airbus China, the cost, per day, for an A380 Airbus to be grounded due to technical reasons runs to $1,250,000. “It’s vital that a spare component is sourced, transported, and installed on an aircraft as soon as possible.” says Maia-Lisa Turtiainen, VP, Aerospace & Aviation, DHL. “Getting material to a production line or to an aircraft quickly is everything, and there really is no way around it. For instance, if a flight is operated without the entertainment system functioning properly then carriers face the real issue of customer dissatisfaction.” Carriers know this too well. That’s why sophisticated new aircraft, such as the Dreamliner or the Airbus A380, are monitored by a system from take-off to landing that alerts the need for spare parts while the plane is in the air. If it becomes evident during a flight that a particular component is needed, the information is sent to a service center which then locates the part from the optimum supplier before the aircraft has even landed. Of course, the challenge for logistics providers is that today’s globalized supply chains mean that spare parts – big and small – come from suppliers across the world, but need to reach a particular destination at a specific time. DHL has been running a solid AOG offering in order for customers whatever they need, from smaller components to oversized shipments, as fast as they need it. This year also sees the launch of a new AOG product developed by the company’s Solutions & Innovation unit, which bundles the capabilities, expertise, and solutions of all DHL businesses – Express, Global Forwarding, Freight, and Supply Chain – leveraging solutions expertise across sectors in one product that will positively surprise the market.

“The new solution we have developed will deliver even more sustainability due to standardized processes worldwide for different types of parts, and promises to be a very strong addition to our AOG portfolio,” says Turtiainen.
MAINTENANCE: THE INVISIBLE SUPPLY CHAIN

Optimizing “hidden” maintenance, repair, and operations (MRO) supply chains has the potential to deliver far-reaching benefits for manufacturing companies, from reduced inventory and lower operational costs to increased production capacity and efficiency.

To maximize productivity, manufacturing equipment must be effectively maintained. In many manufacturing companies, however, responsibility for MRO is split between multiple functions, with limited central planning and with individual sites or maintenance teams responsible for the supply of tools, and parts. The result of this poor coordination can be significant hidden waste. Research by management consultancy McKinsey, for example, showed that the front-line technicians at one defense contractor spent more than 20% of their time waiting for parts, tools and equipment. Combined with other sources of waste, from a heavy administrative burden to bad coordination between functions, these technicians were only able to spend around two hours of a typical nine-hour shift actually fixing equipment.

Bad use of technician time is only the tip of the iceberg, however. Companies with poorly managed MRO functions suffer a host of other extra costs and inefficiencies too. Parts inventories can be excessively high, unnecessarily duplicated, or even obsolete. And poorly maintained equipment results in increased energy consumption, quality issues, or loss of production, driving up capital and operating costs.

A CLEAR PICTURE

Today, an increasing number of engineering and manufacturing organizations are recognizing the need to improve the performance of their maintenance activities. Doing this is necessarily a highly cross-functional effort, requiring different parts of the organization to work closely together in order to get a clear picture of current MRO practices, to find the root cause of key pain points, and to implement solutions to them.

World-class MRO supply chain solutions aid this process with technologies and services that deliver efficiency and performance improvements for both the organization as a whole and its operational front line. Automated vending machines for commonly used consumables and spare parts, for example, make such parts readily available at the point of need while also ensuring tight integration with the organization’s procurement and parts logistics processes. Similarly, the supply of pre-prepared kits of parts in advance of scheduled maintenance interventions ensures front-line teams have everything they need to execute as rapidly and effectively as possible.

CONTINUOUS IMPROVEMENT

For the wider manufacturing organization, the move to an integrated MRO platform permits the capture of economies of scale in procurement, allows spare parts inventory levels and locations to be optimized globally, and enables supply chain synchronization to ensure parts are available in the right place at the right time. Such a platform also provides the basis for ongoing continuous improvement of equipment reliability and maintenance performance. “With full visibility of its MRO operations, a company can evolve its preventive maintenance strategies to minimize unplanned downtime, and set spare parts inventory levels based on real supplier lead times and required availability,” says David Bruce, VP Global Strategic Products – MRO at DHL Supply Chain. “The aim is to move MRO planning and execution from a just-in-case to just-in-time philosophy.”

Companies that have made the shift to an integrated MRO approach have been able to capture significant value improvements. “Depending on the customer’s objectives and challenges, we have seen spare parts inventory reductions of 30–50%, sourcing cost savings of 5–15%, and similar reductions in obsolete parts,” says Bruce. “Companies have also increased front-line engineer efficiency by 20–30% and cut operational and capital costs in maintenance by 20–25%. And those savings may be dwarfed by the additional production capacity offered by improved equipment availability.”

The value captured through MRO optimization is particularly appealing, notes Bruce, since the benefits realized typically don’t have to be shared with customers or suppliers – they go straight to the bottom line. In the future, however, a new kind of collaboration may release even more value. “Companies are asking themselves whether MRO is an area where they might be able to collaborate for mutual benefit,” says Bruce. “This is all about MRO maturity and understanding the complete end to end MRO supply chain. In the energy sector, which is fairly mature on MRO, we are beginning to see a shared regional MRO platform concept in action that offers all participants higher performance at lower cost. Manufacturing companies might find similar opportunities from a similar approach once MRO maturity is established and understood in this core sector.” — Jonathan Ward

30% spare parts inventory reduction and more can be achieved when companies shift to an integrated MRO approach.

"E&M IS WELL PROTECTED AGAINST ECONOMIC CHALLENGES"

What are the current trends in E&M?

It’s a broad industry, of course, so we have good stories to tell in some areas, and weaker ones in others. Certain sub-sectors are doing extremely well and experiencing strong growth, such as avation and aerospace. At DHL, we have seen that reflected in our own numbers for 2013. At the other end of the spectrum, the mining sub-sector has experienced a difficult year in a difficult trading environment, with weaker commodity prices. Many of our customers who have a significant stake in mining have had to deal with real financial challenges. I remain bullish because E&M is so diverse and therefore better protected against economic challenges occurring in more highly cyclical industries.

How can E&M players reduce costs in their supply chains?

Adopting best practices is one way. At DHL, we can point to some excellent concepts of best practice that have been beneficial in other sectors. We discussed this at the MRO Asia 2013 conference in October, where we hosted a seminar highlighting how other industries have taken a shift from functional efficiencies to business efficiencies to achieve significant savings. We are looking at ways to bring best practice concepts to our E&M customers, and that’s getting a very positive response.

Can you give an example?

DHL has been working with a UK-based manufacturer of construction and industrial equipment to re-engineer its inbound to manufacturing process with a best practice solution, which we have replicated with other customers in our sector. Its key features include receiving “production materials” and preparing them for use, then conducting the actual delivery to the production operation. This involves timing and sequencing them to coincide precisely with production scheduling, and removing and disposing shipping materials to reduce unnecessary waste.
In the engineering and manufacturing sector, the forwarding of heavy and oversized cargo is rising thanks to the growth of large industrial projects. Yet the logistical challenges involved – like the freight itself – can be enormous.

Over the last decade or so, forwarding of heavy and oversized shipments in the engineering and manufacturing sector has increased because of the growth of large industrial projects, and of projects in remote locations. Whereas a $1 billion venture in this arena was a big deal 10 years ago, today the figures have skyrocketed. Now, $20 b or $30 b projects are commonplace. Last year, KPMG’s Global Construction Survey reported that 56% of respondents felt that mega project management was a major contributor to growth. “The scale and duration of large engineering and construction programs means that contractors – particularly the bigger, global players – require some time to prepare for market upswings,” noted Gino Armstrong, International Sector Leader Engineering & Construction KPMG in the U.S., in the report’s introduction.

“Having tightened their belts and rationalized following the recession, are they fully ready to catch the next big wave of mega projects?” That wave is coming and, with it, the need for heavy and oversized equipment and parts. Yet here lies a challenge, because the movement of heavy or oversized cargo is rarely straightforward. Typically for a heavy-haul shipment, a break-bulk ship (specialized vessels fitted with heavy-lift cranes) is required and (depending on the cargo) a variety of specialized transport equipment may be employed too, such as self-propelled modular transporters (SPMTs), low bed rail cars, self-gated vessels, barges, lifting devices and trucks. Naturally, heavy-haul cargoes have different requirements. For instance, DHL’s Industrial Projects team – specialists in handling large-scale shipments – transported two 1,000 ton modules, consisting of low beds and container trucks for oversized cargoes. Operational reports were sent every day to all customers, allowing them to track the evolution of shipments of their goods and to provide comments.

When moving heavy or oversized transports across bridges is more problematic. Authorities may ask for calculations for any bridge along the route at any time, even if it’s known that a certain bridge is both new and certified to take the truck axle loads of the transporter in question. There may also be a need to reinforce roads or bridges, or even to build part of a road in order to access remote locations and so guarantee the safe and secure transportation of goods. These services are all part of a project forwarder service portfolio, including feasibility and rehabilitation studies.

For the customer, any heavy/oversized shipment delays or cargo losses mean increased costs; for the logistics provider, there is a reputational and financial imperative at stake. For both, given the non-standard nature of the cargo being moved and the typical remote locations of the project sites, HSSE must be the main focus. “Most injuries in heavy/oversized shipments occur during the loading and unloading of cargo, a process usually controlled by the logistics provider,” says Reg Kenney, President Engineering and Manufacturing DHL. “That’s why health and safety is of paramount concern in our operations. It’s only by being committed to HSSE today that a company can make sure that it is still operating tomorrow. Because, even though project forwarding conjures up images of large docks, heavy machinery, break-bulk cargo and remote or industrial settings, it is ultimately something that is carried out by people. Moreover, as we operate across the globe, we have a zero tolerance compliance policy.” Far from being altruistic, HSSE also makes perfect business sense. Proper safety planning and precaution reduces injuries, damages, and time lost. This in turn means that time is not lost, efficiency is boosted, and productivity can run as planned – all aspects that contribute to reduced total landed costs.

No wonder the forwarding of heavy and oversized shipments can take years of meticulous research and planning. But there’s simply no other way when the cargo is big – and the stakes are high.

— Tony Greenway

TAKING CARE OF THE HEAVY LIFTING

In the engineering and manufacturing sector, the forwarding of heavy and oversized cargo is rising thanks to the growth of large industrial projects. Yet the logistical challenges involved – like the freight itself – can be enormous.
The new Latin heroes

Chile, Peru, and Colombia have managed to transform themselves into three of Latin America’s most exciting economies, providing solid growth and a wealth of new opportunity.

Brazil and Mexico are usually seen as the powerhouse houses of Latin America, but three much smaller countries are now regarded as some of the region’s most exciting players. Chile, Peru, and Colombia have been steadily strengthening their economies and wooing investment. While these countries are generating a wealth of opportunities for investors and new businesses, they are also all still grappling with difficulties ranging from shaky infrastructure and fledgling institutions to maintaining their current rapid pace of growth.

Having reaped the rewards of the commodity boom, Chile, Colombia, and Peru invested to create stability. Where formerly they experienced booms and busts, the upcoming Latin American trio has in the last decade been steadily establishing strong macroeconomic conditions with firm GDP growth, low inflation, controlled deficits, and solid central banks. They have also embraced the free market and positioned themselves as global exporters, installing business-friendly policies mainly directed toward North and South America and commodity-hungry China.

“They are intelligently making quiet, steady progress, without grandstanding,” says Samuel George, a specialist on Latin America at the Bertelsmann Foundation in Washington DC. “I like to think of them as the Pacific Pumas.”

CHANCES FOR INVESTMENT

For investors that want to look beyond the two Latin American giants – Brazil, which is experiencing stalled growth, and Mexico, which is largely tied to the U.S. economy – the Pacific Pumas are increasingly attractive. Though the countries are smaller, investors can still tap almost 50 million potential customers in Colombia, or see stellar growth in Peru with its population of around 30 million. And with the steadiest track record of the three, Chile offers solid commodities-based opportunities along with a burgeoning retail sector and niche industries such as wine production.

Chile, Colombia, and Peru are also poised to benefit from their membership, along with Mexico, of the Pacific Alliance – a trade bloc with goals including free trade between member states, visa-free travel, and a common stock exchange. In the coming decade, in the absence of negative investment policies Jaime Quintana from Forecast Consulting sees a continuing positive outlook for all three countries. “We expect the Peruvian economy to converge to growth rates of around 5.5–6% in the medium term, while Chile and Colombia should be in the range of 4.5–5%,” he says.

CORNERSTONES OF GROWTH

Over the last 30 years, Chile has been transformed from one of the region’s poorest countries into one of its richest, and successive governments have used the proceeds from copper exports for a sovereign wealth fund. The economy has steadily widened, production has increased, and unemployment has tumbled. While the mining sector continues to be a cornerstone of economic growth, in recent years the construction, commerce, communications, and financial services sectors have all shown highly dynamic growth. One core task for Chile’s newly elected government will be to create the conditions for a stable and cheaper energy matrix. This will definitely improve competitiveness, Quintana says.

During recent decades, Peru has implemented aggressive structural reforms, especially in the commercial and financial areas. There have also been a series of crucial labor, fiscal, and monetary reforms. According to Quintana, among the most important were trade liberalization, financial liberalization, and reforms of the pension system. Other steps have included rules establishing an attractive framework for private investment that gives sufficient guarantees to foreign investors to risk their capital in the country, and to Peruvian nationals to repatriate their savings.

Challenges remain for Peru. The foremost will be to maintain the stellar growth rate and expand reforms at the microeconomic level. There is a need to improve institutional investment, public sector efficiency, and labor market flexibility, and allow private investment to flourish in key sectors such as public infrastructure, healthcare, and education.

Carlos Caicedo, Senior Analyst on Latin America at IHS Consulting, characterizes Colombia as business-friendly and predictable. But the shadow of terrorism still lingers over the country, with some remote regions in the clutch of guerrillas. Caicedo explains that if it were not for the guerrillas, Colombia would be an even bigger success. “Peace would be the icing on the cake.”
sources and concession projects to develop infrastructure and continues to pump resources into road and rail. The Financial Times publication Latin Confor- dential reported that a $35.7 billion investment in improvements to Chile’s existing road and rail infra- structure is expected over the next eight years.

On a similar scale, Peru is eying nationwide infra- structure reforms. With Lima to host the 2019 Pan American Games, the transportation and communi- cations ministry (MTC) expects to invest $20 billion in infrastructure projects by 2016, half of it in public-private partnerships (PPP). One example is the devel- opment of a major logistics hub integrating air and ocean cargo and linking Lima International Airport with Callao Port. MTC also plans to invest in the ex- pansion of Lima’s airport, with construction to begin in 2014, and grant a 40-year concession for the new International Airport Chinchero-Cusco.

Colombia has launched its fourth-generation infra- structure plan, worth $25 billion and involving 47 different projects. “With this initiative, the length of roads throughout the country is expected to nearly double, from 6,000 kilometers to 11,000 kilometers in the next six years,” says the National Infrastructure Agency (AND). The government is currently planning auctions for the first of dozens of road projects.

MOVING BEYOND THE BASICS
Although growth has eased recently, analysts are optimistic. Recovery should be driven, in the case of Peru, by increased activity in the mining sector and in clusters sensitive to domestic demand such as construction, trading, financial services, and electric- ity. In Colombia, the recovery is likely to come from the export sector, given the improved outlook for its main trading partner, the U.S., and increased invest- ment in infrastructure. In Chile, though investment confidence recently dipped, the mining sector should continue to perform well.

With their growing middle classes, these coun- tries should also see increasing opportunities in their retail sectors as consumers begin to clamor for cars, fridges, and high-tech gadgets. Starbucks has popped up in Lima, and Santiago has many swish restaura- nts. Beyond florid mining and oil industries, there is also potential in sectors such as IT, software, and banking.

These countries all offer promise. While Chile has traditionally provided the most sophisticated and developed economy, Peru has delivered rapid growth and seen streams of foreign investment. Although Col- ombia still has a terrorism problem, it is nevertheless establishing a solid economy with a good education system. Both together and individually, the Pacific Pu- mas offer plenty of new potential in Latin America.
— Tony Dancy

Risk to your supply chain is inevitable. What matters is how you assess it and then mitigate it in order to save—or at least limit damage to—company sales and reputation. So how prepared are you? And are you ready to take a holistic approach to supply chain risk management?

The report, based on the results of MIT’s 2013 Global Supply Chain and Risk Management Survey, points out that Nissan had a forward-thinking supply chain risk management strategy, with a focus on early risk identification and analysis, and rapid implemen- tation of countermeasures. Nissan also had a continu- ous readiness plan— including an emergency response plan, business continuity plan, and disaster simulation training— which it deployed along its supply chain. Plus, crucially, Nissan’s supply chain was flexible, with visibility embedded across its entire operations and with good coordination across internal and external business functions. As a result, it was able to rise, phoenix-like, to get ahead of the competition. Oth- ers weren’t so lucky, with one carmaker in the region reporting a staggering 99% drop in quarterly profits.

“Our survey indicates that supply chain disrup- tions have a significant impact on company business and financial performance,” says MIT professor Don- Simchi-Levi, founder of the MIT Forum, and “companies that invest in supply chain flexibility are more resilient to disruption than mature companies that

HOW SAFE IS YOUR SUPPLY CHAIN?

When the triple disaster of the earthquake, tsu- nami, and Fukushima meltdown hit Japan in 2011, the global car industry was stricken, with 80% of the country’s automotive plants suspend- ing their production. One of the companies supposed to be worst hit was Nissan, with six production facili- ties and 50 suppliers severely affected, and a resulting loss of production capacity reportedly equivalent to approximately 270,000 cars.

And yet over the next six months, Nissan’s pro- duction in Japan decreased by only 3.8%, compared to an industry-wide decrease of 24.8%. Incredibly, Nissan ended 2011 with an increase in production of 9.3% compared to a reduction of 9.3% globally.

So just how did Nissan manage to emerge in so much better shape than the rest? The company’s story— a lesson in exemplary supply chain risk man- agement against the odds— is highlighted in Mak- ing the Right Risk Decisions to Strengthen Operations Performance, a study by the MIT Forum for Supply Chain Innovation, in collaboration with PwC, pub- lished in August 2013.

The growing affluence is generating new opportuni- ties in the retail business and in retail.
of executives said the frequency of risk events that had negative outcomes has increased over the last three years (The Ripple Effect: How manufacturing and retail executives view the growing challenge of supply chain risk — Deloitte, 2010).

For further information on Resilience360 contact: Tobias.Larsson@dlh.com

"THE ASSESSMENT WAS AN EYE-OPENER BECAUSE WE NEVER LOOKED AT RISK HOLISTICALLY BEFORE."
An D’haenens, Logistics Manager at DuPont

48% of executives said the frequency of risk events that had negative outcomes has increased over the last three years (The Ripple Effect: How manufacturing and retail executives view the growing challenge of supply chain risk — Deloitte, 2010).

for TRAFFIC JAM

Small risks are actually identifying then is as important as mitigating supply chain disruptions.

Resilience360 offers comprehensive supply chain mapping, including production sites, facilities, suppliers, and logistical flows,” says Larson. “It also visualizes and tracks shipments and even part or material numbers in a more sophisticated way than traditional risk management tools. The result is that customers can avoid halts to production and/or lost sales.

Another huge benefit is that it is powered by our specialized knowledge of supply chain management, and run by people with logistics operational skills. These include experts in supply chain consulting who carry out the risk and resiliency assessments, and ex- perts in the best ways to deliver the solution in a control tower offering, if needed. We think this is supply chain risk management methodology that is best-in-class.”— Tony Greenway

DUPONT’S EXPERIENCE WITH RESILIENCE360

Science and innovation company DuPont recently used DHL’s Resilience360 tool to identify six of the major risk areas to its business. The result says An D’haenens, Logistics Manager EMEA at DuPont, have been “eye-opening.”

For An D’haenens, supply chain disruption comes with the territory. In her business, it pays to be ready for anything. “For instance,” she says, “when the Japanese tsunami struck, our sole supplier’s plant was disrupted. As a result, our supply chain was affected. Then there’s strike action on the east coast ports of the U.S. at the beginning of this year, for example, which means our material gets stuck; or port congestion can hold things up. Whatever happens, happens... and the outcome is a delay in our supply chain.”

D’haenens believes that more and more companies are tuning into the benefits of holistic supply chain risk management. It is certainly what DuPont has been doing. “I believe it’s something organisations need to do,” she says. “And now we have started the process. But, like many other companies, we didn’t know how or where to begin.” So working with DHL, D’haenens and her team used the Resilience360 tool in a major risk and resilience assessment exercise, focusing on six priorities. These were then the biggest risks for DuPont: supply chain disruption; power outages, telecoms outages, industrial fires, terrorist strikes, failures and the financial strength of suppliers.

“The first two weeks were taken up with data loading,” explains D’haenens. “Which gave our supply chain information to the DHL team and they populated the tool. Then, because it’s a visual tool, everyone in the different parts of DuPont could look at the information on a map and study it for themselves. We could choose to select or home in on different routes – only sea, only air, only road, for example – and go into the detail of a particular area. And because it’s a web-based tool it was easy to use, self-explanatory, and no training was necessary.”

The tool showed that one of the biggest risks for DuPont was potential disruption to the transportation of Rotterdam and Antwerp. “We have a lot of inbound and outbound freight at those locations,” says D’haenens. “It’s a pretty intuitive problem for us. But the tool allowed us to quantify just how big that problem is, and highlighted that we have to do something different than just ship to another harbor. Another big identified risk for us was IT-related. So now we are initiating an IT project because we have realized that IT contingency planning is not enough. In fact, DuPont is currently pulling together a mitigation plan for all the risks identified in the assessment. Only flows from DuPont to the customers were studied; however, so, in the next phase, it is planned to study flows from the supplier to DuPont. “The assessment was an eye opener,” says D’haenens. “Because we never looked at this problem holistically before. In the past, different people were aware of different parts of the problem and supply chain. But this put it in a visual speed for us.”

The back has been even more positive – and now An and 25% of her team are working to mitigate those risks.” — Tony Greenway

Adapt and use, and offers organizations a risk and resiliency assessment, plus supply chain incident monitoring. To create a risk assessment, a customer’s supply chain data is input into the tool with the aim of exposing vulnerability in over 20 risk categories, therefore allowing measures to be put into place to increase supply chain resilience. Additional necessary data for the analysis is gathered using a bespoke survey. “The great thing is that it is a visual tool,” says An D’haenens, Logistics Manager EMEA at innovation and science firm DuPont, who recently used the tool to identify the company’s top risks. “The supply chain data we have at DuPont is very complex, but this solution made it easily visible on a map.”

CREATING COMPETITIVE ADVANTAGES

The tool’s incident monitoring, meanwhile, tracks on a continuous basis incidents – combining data feeds from different intelligence companies partnered with DHL – that may have the potential to disrupt a company’s supply chain, flagging up hotspots with notification alerts, feedback loops, and follow-up action triggers. This gives a business full supply chain visibility and the flexibility to react before emergency shipments become necessary, saving time, money, and reputation when disruption occurs.

Resilience360 offers comprehensive supply chain mapping, including production sites, facilities, suppliers, and logistical flows,” says Larson. “It also visualizes and tracks shipments and even part or material numbers in a more sophisticated way than traditional risk management tools. The result is that customers can avoid halts to production and/or lost sales. "Another huge benefit is that it is powered by our specialized knowledge of supply chain management, and run by people with logistics operational skills. These include experts in supply chain consulting who carry out the risk and resiliency assessments, and experts in the best ways to deliver the solution in a control tower offering, if needed. We think this is supply chain risk management methodology that is best-in-class.”— Tony Greenway

"The assessment was an eye-opener because we never looked at risk holistically before."
An D’haenens, Logistics Manager at DuPont

17% say the cost of the most significant single disruption was more than $1 million (Supply Chain Risk 2011, Business Continuity Institute, November 2011).
Can the future ever really be predicted? Basically, yes. And there are various methods for doing it. Bruce Bueno de Mesquita is a particularly renowned “fortune teller” with an academic background. A professor of politics at New York University and a Senior Fellow at the Hoover Institute of Stanford University, he is a proponent of “predictioneering,” which is based on classic game theory. The method has been proven successful several times. Once, Bueno de Mesquita predicted the failure of the UN Climate Change Conference in Copenhagen in 2009. He also predicted Enron’s bankruptcy and failure—well ahead of time, of course.

How does predictioneering work? In predictioneering, all the people and interests involved in a case must be identified and put into relation with one another. Then you have to analyze which role the actors take, how much power they have, and to what extent they are able and willing to push their own agenda. When you have all that basic information, then you can calculate how the situation will resolve.

Seeing into the future: it’s a wish as old as humanity itself—dating back to the ancient Greeks who visited the oracle at Delphi, and earlier. Nowadays, economists try to make exact prognoses, but unlike in ancient Greece, their forecasts are often based on mathematical formulas. Still, the future remains uncertain. So what is a manager to do? After all, it is their job to look ahead and make judgment calls—hopefully the right ones. We gain an expert insight.

So how does this glasses technique work? The first step is the blue glasses—you wear them to examine your assumptions. You ask yourself: “How will the market, work, or life environment change in the coming years?” Then use the red glasses to look at possible surprises. How can you prepare for unexpected eventualities? The green glasses are for fields of action and opportunity: what are the threats— and possibilities—that change could bring? Next are the yellow “decision-making” glasses. How do you want your own unit, department, company, and so on, to look in the next years, in terms of strategic vision? Finally, the violet glasses help you decide which strategy to use to realize the vision you have designed.

But how do you know you have taken all the most important factors into consideration, and can be sure there’s nothing in the way of your success? Gerhard de Haan, head of the Future Institute at Berlin’s Free University, recommends asking a different question: “How should we deal with uncertainties without mistakenly re-imagining them as certainties?”

And the answer is…? De Haan suggests taking an “accomplishability” stance—in other words, bringing enough self-confidence to the table that sudden changes don’t throw you completely off track. In addition, you have to be able to make decisions even if the information you have is incomplete or unclear. People who constantly search for more information run the risk of falling into a vicious circle of fear and indecision, and they become unable to make decisions.

That’s easier said than done! That’s why Gerd Gigerenzer, Director of the Munich-based Max-Planck-Institute for Human Development, tells us: “The only advice I can give you is to take the first alternative that delivers that standard—and stop looking.” That way, the future will look more like an opportunity than a danger. — Werner Tews

As online and offline retailers continue to battle for consumers, both are feverishly working on strategies to gain the competitive advantage. “Ship from store” is the latest trend, opening new avenues for bricks and mortar stores.

Not long ago, some experts were quick to declare the demise of traditional bricks and mortar stores. Online players had seized the day, gaining market share by offering large selections, low prices, and speedy, often free, delivery. Leading the pack and slipping the ante, online giant Amazon now appears close to being able to serve the majority of U.S. households with same-day deliveries soon. But bricks and mortar stores are defying the naysayers and fighting back. Physical stores, once seen as costly compared to e-tailers’ warehouses, have now been recognized by several large retailers as a strategic advantage, with stores used as assets and transformed into distribution hubs. Customers have already adopted the “click & collect” concept, ordering online and picking up in store. Now “Ship from store” sees retailers routing online orders to stores near customer locations, where store assistants are deployed to pick and pack goods, dispatching them via courier companies to customers’ homes.

The most important trend

Faster and more cost efficient deliveries, better utilization of inventory, and the ability to gain market share versus online competitors—it’s hard not to see the benefits that make “ship from store” an attractive proposition. In fact, some analysts believe it to be the most important trend shaping the future of bricks and mortar retailers in the coming years. “We’re already seeing it as a major trend for fashion and apparel retailers,” says Nikki Baird, managing partner at Retail Systems Research. “For these retailers, the value in saving the sale when customers are looking for a specific color or size combination is tremendous. It not only helps make sure that every piece of inventory in the chain is working for the retailer, it also gives the retailer the opportunity to source inventory from locations that aren’t selling well and avoid markdowns.”

At Wal-Mart, “ship from store” began as a pilot and quickly gained traction—now some 10% of items ordered online are routed via its physical stores. The world’s largest retailer intends to turn the concept to hundreds of stores, merging them into a distribution network alongside warehouses and online fulfillment. Target, Macy’s, and Gap are among those transforming their stores into distribution hubs, with Gap’s Chief Executive Glenn Murphy telling USA Today: “Some people talk about Amazon with their 100 distribution centers, God bless them. We have 2,600 distribution centers.”

For all its apparent attractiveness, shipping from stores instead of warehouses needs smart strategies to succeed, says Baird. “Inven- tory availability, having an exact view into what is actually in stock in a store, is key. This is particularly challenging when the store is open to customers, who may try on items or have items in their carts. Also, retailers will need to figure out what the most efficient method is to collect the inventory and ship it out of the store. They will also need to decide which store should be the one to fulfill and which to ship. Sometimes it may be worthwhile to source an item from a more distant store with higher shipping costs, if it means avoiding an even more costly markdown in the near future.”

However, Baird believes that the advantages are clear. “From the retailers I’ve talked to, the benefits significantly outweigh the costs. They are reporting sales gains, margin improvements, and lower end-of-season inventory. They are also learning a lot about how well they are—or are not—predicting demand. Having the flexibility to capture and respond to demand no matter where it occurs is showing these retailers that they are missing a lot more sales from out of stocks than they originally thought.” — Michelle Bach

As “Ship from Store” Looks Set to Take Off, Neither Retailers Nor E-Tailers are Standing Still

Retailers and online retailers help each other achieve their goals.

As “Ship from Store” Looks Set to Take Off, Neither Retailers Nor E-Tailers are Standing Still

As “Ship from Store” Looks Set to Take Off, Neither Retailers Nor E-Tailers are Standing Still
Solutions

Shipping. Fueled by LNG.

Most of the world’s shipping currently runs on heavy fuel oil, but a new focus on reducing emissions, particularly of sulphur dioxide, is making vessels powered by liquid natural gas (LNG) seem an attractive alternative—at least when it comes to short-haul cargo shipping.

The bigger fuel tanks and consequent reduction in cargo space, make it less economic on longer routes. Although more expensive to build, once up and running, an LNG ship offers a cost advantage of some $5 million per year, compared to a standard 2,500 TEU vessel. The global fleet of currently 42 LNG-powered ships is expected to almost triple by the end of 2014 and reach nearly 1,800 vessels by 2020.

Fuel price scenario

MGO is expected to increase faster than HFO and LNG with stronger increase in demand. In USD/mmBTU

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<thead>
<tr>
<th>Year</th>
<th>Marine Gas Oil</th>
<th>Heavy Fuel Oil</th>
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Annual cost advantage of LNG

For a 2,500 TEU container vessel compared to a standard vessel using standard fuels. In mUSD per year

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* MGO will be required to be used within the ECAs. If no other technical measures are implemented to reduce the SOx emissions.

* For a 2,500 TEU regional vessel operating 60% inside European ECAs, significant cost advantages are predicted using LNG by 2015 when strict fuel quality requirements enter into force.

Refueling and Bunkering

The bunkering process presents new and unfamiliar challenges—the biggest of which is the current lack of infrastructure. Our refueling option may be to swap whole tanks rather than refill them.
WE ARE IN THE ENDGAME SPASMS OF THE SECOND INDUSTRIAL REVOLUTION. BUT SMART COMPANIES ARE MOVING. I TALK TO A LOT OF THEM AND THEY SEE THE HUGE POTENTIAL.

Jeremy Rifkin is a one-man think tank. The economist jots around the world to advise governments and corporations, and to give lectures at many of the world’s leading corporations and academic institutions in some 30 countries. Over the last 40 years he has also written 19 books on a wide range of topics, from new advances in science and technology to global economic trends and sustainable development. Rifkin’s most recent bestseller The Third Industrial Revolution: How Lateral Power Is Transforming Energy, the Economy, and the World has even inspired some global trends of its own.

In 2007, his vision of a sustainable, post-carbon economy was endorsed by the European Parliament, and is now being implemented by various agencies within the European Commission as well as the 27 EU member states. World leaders including German Chancellor Angela Merkel and French President François Hollande welcome his advice. China’s Premier Li Keqiang is an outright Rifkin fan and has recommended his top economic planning and strategy officials pay close attention to the Third Industrial Revolution (TIR).

In addition to advising national governments, regions, and municipalities on developing plans for the Third Industrial Revolution, Rifkin has been a senior lecturer at the Wharton School’s Executive Education Program since 1994. There he instructs CEOs and senior management on transitioning their business operations into sustainable TIR economies. Quite a few of the world’s leading CEOs have also joined him at the Third Industrial Revolution Global CEO Roundtable, a cross-sector collaboration among major global companies, governments, and energy cooperatives to discuss plans for a TIR infrastructure based on renewable energy, energy storage, smart utility networks, electric vehicles, and high-performance buildings.

In your book The Third Industrial Revolution, you envision two futures: the collapse of economies due to oil-powered energy shortage and global warming, or the switch to renewable energies. Where will we be in 20 years?

Technology is now moving so quickly, we are on an exponential curve toward the Third Industrial Revolution. That means the switch to renewable energies.

But the United States is awash with cheap energy from fracking. China is burning coal like crazy, and the United Kingdom is planning a new nuclear plant. Only Germany and a few other small European countries are into renewables.

Shale gas is a bubble. It will plateau in the U.S. around 2020 and then rapidly decline after 2025. Fossil fuels are getting more expensive, and the civilization is made out of them. The technology of the twentieth century is based on centralized energies. That is about to change dramatically. The Third Industrial Revolution is decentralized energy, which will make every building its own power plant. Germany already has one million of these buildings. And China is getting on board really quickly.

There is a lot of talk about shifting to sustainable energy. But what is really happening?

Quite a lot. Look at Germany. The country already has almost 25% green energy. Sustainable energy is just pillar one of the revolution. Pillar two is also in place: buildings with their own energy production. Now the third pillar must be constructed: energy storage. The big energy companies like E.ON are moving there. Pillar four is communication: smart grids integrating the Internet and the energy infrastructure. Deutsche Telekom is doing this. And finally pillar five: electric and fuel-cell vehicles. Large auto companies already have the cars, and now Daimler is building fuel-cell stations. When you put all this together, you have a general purpose technology platform. And it introduces the Internet of Things.

Your new book argues that the Internet of Things will completely change the way in which business is conducted.

People think the Internet of Things is just devices connected for IT purposes. That is only the beginning. What will really happen is that three Internets will be created and merged into one. There already is a communications Internet. The Third Industrial Revolution will spur an energy Internet that is emerging now, and finally it will create a logistics and transport Internet that is new. And then everything is in place for a new productivity revolution.

ABOUT JEREMY RIFKIN
THE 68-YEAR-OLD ECONOMIST AND SOCIOLOGIST HAS WRITTEN 19 BOOKS, TRANSLATED INTO MORE THAN 35 LANGUAGES. HE TEACHES AT THE WHARTON SCHOOL AT THE UNIVERSITY OF PENNSYLVANIA, IS PRESIDENT OF BOTH THE FOUNDATION ON ECONOMIC TRENDS AND TIR CONSULTING GROUP LLC, WHICH ADVISES NATIONAL GOVERNMENTS, REGIONS, AND MUNICIPALITIES ON PLANNING FOR THE THIRD INDUSTRIAL REVOLUTION.
What if companies don’t want to give up their old business models?

Then somebody else will be there first. Logistic companies for example. They are right at the center of the infrastructure that has to be set up. Let’s say the logistic companies set up their CPO – a chief productivity officer – who brings the three Internets into one: communication, an emerging energy Internet, and the beginnings of a logistics Internet. CPQOs will have in their division full knowledge of communication and IT, energy services, transport, and logistics.

So the old model of moving goods across the globe is outdated?

A lot of transport will change to continental transport. We are heading to continentalization. The second industrial revolution was about globalization. But now it is about continentalization because the price of moving goods across oceans and continents is continually moving up. Transport companies are already feeling it. The Third Industrial Revolution will allow you total integration across continents. It is a tremendously exciting, challenging, and uncharted territory. We are all thinking this out as we go.

Will we need more or less transport?

We’ll need smarter transport. The key is productivity. Logistics now is dysfunctional, if you look at thermodynamic efficiency. Trucks that go empty are nuts. What is the biggest single cost in logistics? Energy! Not only from moving the goods, but also warehousing them. Imagine what will change if energy production is moving to near zero marginal cost.

What role will the Internet of Things play in this new productivity revolution?

What the Internet of Things does is allow us to connect sensors to everything. This will lead to the first intelligently distributed infrastructure in history. We will have 30 to 40 billion devices connected to sensors. We can intelligently distribute infrastructure in history. We can inundate the infrastructure to store intermittent energies. We can deploy hydrogen and other storage technologies in every building and throughout the infrastructure to store intermittent energies.

Why is this so important?

With advanced analytics you can create your own algorithms and dramatically increase your thermodynamic efficiency across the value chain – whether you are at home, in business, a factory, a whole economy. That ability to increase thermodynamic efficiency is key for the Third Industrial Revolution.

What do you mean by thermodynamic efficiency? And how does it impact productivity growth?

We misunderstood the nature of productivity in the last 150 years. We thought productivity is machine, capital, and worker performance. But these factors only account for 20% of productivity growth. The missing factor is thermodynamic efficiency, the actual energy that goes into the production process. This accounts for the 80% of productivity growth. An Internet of Things can harness this and dramatically increase productivity. My estimate is that we can get from 13% efficiency, which is the maximum now, to 40%, and maybe even 60%. Then thermodynamics stops you. We are on the verge of the most dramatic increase in efficiency ever seen. And we can do this at near zero marginal cost.

Which sectors will be affected?

Each and every one. Logistics is at the center of what this productivity revolution can achieve. If we use big data and everything from driverless vehicles to guided technologies in the warehouse, our productivity will go through the roof. The energy of the sun and wind are limitless – and the hardware infrastructure is dramatically declining in cost.

Many big companies are resisting change. What will happen until the productivity revolution takes hold?

We are in the endgame spasms of the second industrial revolution. But smart companies are moving. I talk to a lot of them and they see the huge potential. Look at IBM. Once the Koreans and Chinese got into the game, nobody needed their old boxes anymore. So IBM said, well, we will reinvent ourselves. We are in the business of managing information, not producing hardware.

But how will big players like energy suppliers reinvent themselves?

They are moving to the new model as a service solution provider. We will have tens of millions of people producing their own electricity in ten years’ time; we will have hundreds of millions in 20 years. The mission of utilities will be to drive change. They will manage the energy flows of the companies they are servicing, just as IBM and Cisco now manage their information flows. The way they will make money is not so much by selling energy but by sharing the productivity gains that they achieve in production. The Internet of Things is key here. Only by integrating everything can you unleash these productivity gains. The less energy they sell, the higher the thermodynamic efficiency of the company that is their client.

What can act as a game-changer?

The energy Internet will move on an exponential curve, just like the information Internet. There are already areas where you have near zero marginal cost. One-third of the global population uses their mobile devices at near zero marginal cost. Now imagine this happening on the emerging energy Internet. Imagine driverless vehicles powered with green energy – that is near zero marginal cost for energy and labor. And it is possible within five to ten years. We have them already in the factories. In 2025, at the latest, we will have them on the road.

And who will bring my parcel to the office?

You will be notified on your mobile device that the vehicle is approaching and you can collect your delivery. Or the delivery will be stored for you at an easy and 24/7 accessible place, close to your home or in the office building. That is not science fiction, it is happening right now.

But I want my parcel delivered by a person!

Depends on the context. In all the areas where we don’t need or don’t want human intervention anymore – from the cash machine to online airline check-in to automated checkout counters in the grocery store. You have voice recognition everywhere now.

Do we need other people in companies to manage all this?

Yes, there is a real generational shift going on. Older people are used to a top-down, hierarchical management model. When a young person looks at institutional behavior they ask, is this centralized, top-down, hierarchical model. When a young person looks at institutional behavior they ask, is this centralized, top-down, hierarchical model. When a young person looks at institutional behavior they ask, is this centralized, top-down, hierarchical model. When a young person looks at institutional behavior they ask, is this centralized, top-down, hierarchical model. When a young person looks at institutional behavior they ask, is this centralized, top-down, hierarchical model.
Understanding emotional intelligence certainly helped writer and editor Amy Beth Miller. “I can recall times in my career when I failed to connect with people, to effectively describe my position to others and to provide feedback in a constructive way.”

Miller learned to tailor how she communicates with different people. The effect has improved her social skills and her ability to handle stressful situations.

Perhaps the most successful business people are a balanced blend of IQ and EQ. They are able to think rationally and logically, for example, in business meetings where numbers and efficiency count; but they are also able to empathize with others, understanding what motivates and drives their staff – and wins customers. So IQ or EQ? If you define yourself as one or the other, it makes sense to work on your style and bring in the best of both.

— Tony Greenway
Elon Musk is not a man of modest ambitions. The inventor, entrepreneur, and CEO of Tesla Motors and SpaceX wants nothing less than to hasten a global transition to sustainable transport while ensuring that humanity becomes a multi-planet species.

Calling Elon Musk an “innovator” is a bit like calling Richard Branson “a businessman.” It’s true, but also a wild understatement. Esquire has listed Musk as one of the 75 Most Influential People of the twenty-first century. He made his first fortune in 1999, selling his Internet software company for over $300 million. He then co-founded online payment system, PayPal, and in 2003 followed up with Tesla Motors, the ground-breaking electric-car company. Tesla’s mission “to accelerate the world’s transition to electric mobility” has been one of Musk’s central interests for the best part of 20 years, ever since he was a physics student working on ultracapacitors. He remains Tesla’s CEO and head of product design.

Then there is SpaceX, the space exploration company Musk founded in 2002 to design, manufacture, and launch spacecraft with the ultimate goal of “enabling people to live on other planets.” Musk is CEO and chief designer, and watched SpaceX make history in 2012 when its Dragon spacecraft attached to the International Space Station and returned safely to Earth. Since then he has also found time to conjure up the concept of the Hyperloop, a super-fast electro-magnetic inter-city transport system which would, for instance, make the 600-kilometer journey from San Francisco to Los Angeles in just 35 minutes. This is now being developed by Hyperloop Transportation Technologies Inc., co-led by Marco Villa, former director of mission operations for SpaceX, but without Musk’s direct involvement. Forbes recently estimated his net worth at $6.7 billion, and ranked him number 47 on its list of the World’s Most Powerful People. And he’s still only 42 years old.

Where do you come up with all your ideas? Mostly in the shower. Probably I thought of something while I was dreaming and the subconscious thoughts pop to the surface when I am awake and under the shower.

What sets you thinking about ideas such as the Hyperloop? Usually there’s something that makes me not like the future, or some element of the future, and then wonder if there’s some way to fix that. In the case of the Hyperloop, they were building this train in California, and it seemed very expensive, not that fast, and not as good as what’s been done in China or Japan. And I was, like, wow, that’s very expensive, not that fast, and not as good as what’s building this train in California, and it seemed there’s some way to fix that. In the case of the Hyperloop, the train seems to be spiraling out of control.

When you think about the future, do you think it will be better? Obviously we’re working on that. In Germany, for example, we are making the biggest investment in supercharging infrastructure anywhere outside of the United States. Superchargers will be along the highways, throughout Germany and Europe by the end of 2014.

And how do you recharge your own batteries? I spend time with my kids. We see a movie or go to the beach, although if they could play video games all day, I probably would.

Why might the window close? Is the Earth facing planetary catastrophe? The biggest challenge humanity faces is sustainability. Are we going to solve sustainable energy production and consumption, or not? If we don’t, well, the results will be very bad from an environmental standpoint, and also economically. As oil becomes more scarce, the prices will rise and we’ll have an economic collapse. Basically we’ll see global oil consumption increase probably 50-80% over the next 20 years. It’s a pressing issue for the whole world, because we all share the same atmosphere. The faster we can transition to sustainable transport the better.

Is Tesla Motors part of that transition? Our goal at Tesla is pretty straightforward. We’re basically a very tiny car company, but we’re trying to show that electric cars can be just as good, if not better, than gasoline cars. We will serve as ambassadors for the electric future. If we are successful, it will convince big car makers to accelerate their plans for electric cars.

With electric cars the main issues are range and charging. How do you solve that? Obviously we’re working on that. In Germany, for example, we are making the biggest investment in supercharging infrastructure anywhere outside of the United States. Superchargers will be along the highways, throughout Germany and Europe by the end of 2014.

And how do you recharge your own batteries? I spend time with my kids. We see a movie or go to the beach, although if they could play video games all day, they probably would.

There weren’t so many video games around when you were a boy. What did you do? Build rockets? I did build my own rockets when I was a kid. And I built a radio, and did a lot of computer programming. I guess at some point I thought it would be cool to invent things, and it seems to have worked out OK.

— Dirk Kunde & Tony Greenway
SUPPLY CHAIN’S RESILIENCY IMPERATIVE

AN ESSAY BY LISA HARRINGTON

Supply chain resiliency management calls on practitioners to abandon the traditional approach to responding to supply chain risk, which follows this predictable pattern:

• React – according to plan if possible
• Recover
• Wait for the next event to happen
• Start the cycle again.

DE-RISKING SUPPLY CHAINS

Organizations must take measured and appropriate steps to de-risk their supply chains. The first step in this process is recognizing that supply chain volatility occurs at three distinct levels:

• Macro factors in economy and society – e.g., growth or decline of gross domestic product (GDP), political upheaval
• Industry/firm level factors – e.g., disruptive technology or products, consumer behavior, emerging markets growth
• Supply chain factors – capacity constraints, transportation disruption, product/material shortages

Volatility can emerge simultaneously in each of the levels and quickly spread in multiple directions across highly porous level boundaries.

In this context, building resiliency in the supply chain requires fundamental changes in the way supply chains are organized and operated. The new approach to supply chain resiliency can be discussed in three contexts, as explained here.

1. The need for a wholly new model of supply chain risk management that goes beyond a narrow, sequential identification and management of operational risks. This new model needs to account for systemic risk because of the increasing fragility of interlocked systems and networks. It must also fully recognize that the supply chain itself is a source of extreme volatility and acts as a destabilizing agent in ways never or seldom previously acknowledged.

2. The need for a wholly new model of volatility management that spans the “multidimensional” supply chain. The model must encompass not only the traditional product supply chain, but also the end-to-end service, financial, and cyber processes to which the supply chain management concept is increasingly being applied. Why is this important? Traditional product supply chains depend on a significant degree of support from service, financial, and information organizations and processes. Without that support, a supply chain’s ability to support corporate strategies will be jeopardized. These seemingly disparate types of supply chains are really facets of a single, multidimensional supply chain. The multidimensional nature of today’s supply chains requires a new type of managerial oversight, one that is enabled by a real or near-real-time “control tower” view of the extended supply chain. Such visibility is a key enabler of resilience. Without it, true resilience is impossible.

3. The need for a wholly new model of supply chain network efficiency that replaces traditional economies of scale and scope with those that are based on “contingent scale.” Contingent scale is the ability of the enterprise to rapidly size its assets, services, and capabilities up or down as required by market and business volatility. These resizing capabilities are executed through flexible contracts with external providers. They are the hallmark of the resilient enterprise.

Shifting to a contingent scale model is a big change for most existing supply chains. In the present environment, however, companies can no longer afford to operate inflexible, fixed supply chain networks and capabilities. Instead, they must assemble and orchestrate highly adaptive, robust networks that can scale capacity and throughput up or down with speed that matches volatility in market conditions – both supply and demand. These new contingent scale networks have a tremendous competitive benefit to companies: they enable them to hedge financial risks, conserve cash, and – most importantly – have the resiliency to adapt to whatever challenges the world presents.

“SUPPLY CHAINS TODAY MUST BE ABLE TO FLEX AT A RAPID PACE – TO SENSE AND RESPOND TO CHANGE OR DISRUPTION AT A NEW LEVEL.”

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WHATEVER THE STORY, MR. HERRIOTT?
“IF PEOPLE WORK TOGETHER, THEY CAN DO ANYTHING.”

Aftermath: A family affected by typhoon Haiyan waiting for help.

Learn more about DHL’s Disaster Response Teams at: tinyurl.com/Dhlhelp

LOGISTICS ON THE GROUND:
Project Herriott has deployed 200 volunteers and 20 deployed in the Philippines.

COORDINATING HELP AFTER HAIYAN

When I was flown to the Philippines to be part of DHL’s Disaster Response Team I had no idea what to expect. Normally I work as an Express Compliance Officer at DHL Express in Hong Kong, so this mission was nothing I could prepare myself for physically or emotionally.

We were based at Mactan Cebu Airport, where commercial cargo aircraft would land and offload relief goods such as tents, blankets, medical supplies, kitchenware, solar lamps, and generators. There could be four 747s unloading 400 tones of goods which would be left all over the airstrip. Our logistics expertise was used to coordinate that offload with NGOs (Non Governmental Organizations) and the military, so that the right goods could be loaded as quickly as possible onto Hercules C130 transporters and taken to those who needed them most. It was a big job: it could take a day to line up 100 tones of commercial pallets.

We were recognized by all operators as a vital link in the supply chain. At the start, though, there wasn’t a system so it was chaotic with everyone needing help – and everything a priority. You can either be afraid of chaos or respond to it. My reaction was to respond to it.

Everyone needing help – and everything a priority. You can either be afraid of chaos or respond to it. My reaction was to respond to it.

At DRT, we also acted as a staging post amid all the confusion for the NGOs and military to come together to get things done. We fostered relationships with major players who felt very comfortable coming to our tent – actually our table, because at the start of the operation, we didn’t even have a tent – to talk to us and each other. We were on a first name basis with everyone at the strip, and I like to think we had a “can do” reputation. You know: “You need something doing? Go talk to the DHL guys.” The spirit and camaraderie was amazing and we all knew what we wanted to achieve. We were doing something positive for people in desperate need, so we wanted to do it fast – and do it well. That was the drive for everyone in the DRT. They finally had their chance to shine and, every moment, wanted to get something positive for people in desperate need, so we wanted to do it fast – and do it well. That was the drive for everyone in the DRT. They finally had their chance to shine and, every moment, wanted to get more and more involved. Now I’m back home, but myself and my military and NGO contacts want to build on this experience with a situation report that recognizes what went well – and also what could be done better. That means the next time this happens everyone can hit the ground running. Working with the DRT was a life-changing experience for me. I was in the Philippines for over three weeks, poured my heart and soul into it, made incredible friends, and I don’t mind saying I was teary eyed on the plane as I was flying out. We all proved that if people work together, they can do anything.
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