



DHL

Delivered.

THE GLOBAL LOGISTICS MAGAZINE

ISSUE 04/2014

BUSINESS

Onward from oil

Learn how Saudi Arabia is diversifying for the future

SOLUTIONS

Going underground

Everything you need to know about freight transport by tube

VIEWPOINTS

Sailor turned advocate

Navigate the circular economy with Dame Ellen MacArthur

COVER STORY

ENERGY 2.0

A new age of price volatility is reshaping the business



Dear reader,

As many experts began to doubt whether the majority of the BRICS countries would ever reach their full potential, Brazil, Russia, India, China and South Africa surprised us with the formation of the New Development Bank, announced at their sixth annual summit in Fortaleza.

This collective lending platform, with authorized capital of \$100 billion, is great news for the countries themselves, as well as for businesses and global trade. At DHL, we also welcome the boost it is likely to give to infrastructure spending. Our short news piece in this issue will be followed by expert analysis in Issue 5, exploring in more depth the potential implications for logistics and trade.

Development is a key theme spanning many articles in this issue:

The energy sector needs to develop new logistics solutions to get to ever more remote locations where unconventional fuels are extracted. Therefore, logistics is not an afterthought anymore, but a key element in the business and development strategies of all major players.

Saudi Arabia, owner of the second-largest oil reserves on the planet, is developing its society and its economy, using smart diversification strategies to prepare for a post-petroleum future.

And Dame Ellen MacArthur, with her circular economy foundation, seeks to develop sustainable futures for business.

In this issue, *Delivered.* takes you into the desert kingdom and to remote, energy-rich terrain; and many experts share their views with you on the development of a wide range of topics, spanning energy, economics, and humanitarian endeavors.

Enjoy your read!

Bill Meahl

Bill Meahl
Chief Commercial Officer, DHL



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A NOTE FROM THE EDITOR

Recently I had the rare opportunity of visiting Saudi Arabia for our country focus story. I received the warmest welcome and hospitality everywhere I went, met with many interesting and highly focused people, and learned much about the many facets of the country's strategic plan for a post-oil economy. The ladies pictured with me are DHL employees, working in their own women's section for DHL, in jobs as diverse as customer service, telemarketing, and sales. They and many of their fellow countrymen and women are testament to the changing face of Saudi Arabia – a country that is both modern and steeped in tradition, a kingdom on the move. — *Michelle Bach*

See our focus on Saudi Arabia on page 18



NEWS

UK exports get a boost

U.K. firms are looking to overseas markets for growth. A substantial investment by DHL Express means they can rely on even better logistics support.

British goods are in high demand overseas – good news for a lagging economy. To help support the growing number of U.K. businesses selling their products abroad, DHL Express has now increased its capacity with a £156 million (\$267 million) investment at its sites there.

In addition to supporting export growth, the infrastructure upgrades will increase capacity for express shipments across DHL Express's U.K. sites. The two largest-scale investments will be at the Southern hub site near Heathrow Airport and at the East Midlands Airport hub. Manchester, Croydon, and Sheffield will get additional warehousing and sorting facilities, thereby cutting transit times and driving more efficient and sustainable supply chains for British companies doing business internationally.

\$73.4 BILLION

in June 2013 was the all-time high for British exports with 85% coming from manufactured goods.

More info on DHL in U.K. at:

 tinyurl.com/del-boost

As exports grow in importance for U.K. businesses, the investment represents an invaluable support for Britain's industries. By providing a sustainable supply chain and reliable, expeditious international logistics, DHL makes it easier for companies that choose to branch out overseas.

"International trade is a golden opportunity for many businesses in the U.K. and through this major investment, we can partner with and help facilitate success for them," says Phil Couchman, CEO of DHL Express U.K. & Ireland.

The company offers guidance to businesses of all sizes that are considering targeting the global marketplace. By catering to future demand and providing both strategic support and the capacity to fulfill that increased demand, DHL is showing its commitment to helping businesses across the U.K. grow.

DHL EXPRESS TAKES TO THE SKIES IN L.A.

Notorious for its traffic jams, Los Angeles has long been a thorn in the side of couriers in southern California. But for global banking customers with urgent, time-sensitive documents a guaranteed arrival time is essential. That's why DHL Express has taken to the skies with its new helicopter service. Already available for international shipments from JFK to banks in New York City, the service is the first of its kind in the LA market, bringing international shipments from the DHL Gateway at LAX to a heliport in downtown Los



AVOIDING THE JAM: Express delivery from the air.

Angeles. It is planned to expand into Chicago and Charlotte, both major banking cities, by year's end.



"JAPAN IS BACK.
KEEP COUNTING ON MY COUNTRY."

Shinzo Abe,
Prime Minister of Japan

NORWAY WEIGHS UP HOW TO SPEND ITS OIL REVENUE

While other countries in Europe are trying to reduce spending, Norway faces the opposite problem. With its vast oil wealth, the challenge is choosing which projects to spend its money on.

Norway is the largest oil producer and exporter in western Europe and founded its sovereign wealth fund in 1969 to deposit surplus petroleum income. The fund's purpose is to maintain fiscal freedom should oil prices drop, manage the challenges of an aging population, and act as a buffer against an eventual drop in petroleum revenue.

Worth over \$850 billion, it is the largest sovereign wealth fund in the world, investing in stocks, bonds, and real estate outside its borders – most recently purchasing \$575 million worth of London real estate.

To ensure the fund keeps growing, the government is allowed to withdraw no more than 4% per year to spend as part of its budget. Following the 2013 elections, a coalition between the Conservatives and the Progress Party was formed on a mandate including more spending on infrastructure, education, and better services.

With spending for 2014 limited to just over 3%, the dilemma will be how to fulfill the mandate while balancing the more frugal approach of the Conservatives with that of the Progress Party.



Photos: DHL, Getty Images (3), Brics Bank

THE STORY

BRICS BANK SET FOR 2016 LAUNCH

BRICS nations Brazil, Russia, India, China, and South Africa have agreed to launch a new development bank that will make the lending process for developing countries faster, simpler and cheaper. Officially named the New Development Bank, it is intended to fund infrastructure and sustainable development projects in BRICS and other emerging economies.

The bank will have an initial authorized capital of \$100 billion and is scheduled to start lending in 2016. Its launch provides the first significant alternative to the World Bank



TON OF BRICS: In 2014, Brazil hosted the sixth annual BRICS summit.

and the International Monetary Fund – the two pillars of the global financial system that was established by the Western Powers after World War II.

The World Bank estimates that there is a \$1 trillion gap between what is spent on infrastructure in developing countries and what is actually needed. With demand for new infrastructure growing as these countries develop, the new bank will be an important alternative source of funding. **Read an expert view on this topic in the next issue.**

More info at:

 tinyurl.com/del-brics

Flexitank reconfigured

THE ADVENT OF THE FLEXITANK over 20 years ago revolutionized the way liquids are transported around the world. Newly configured to fit three smaller tank bags into a 40-foot standard ocean container, the redesigned Flexitank now allows for temperature control – vital for sensitive chemical, pharmaceutical, and food-grade products.

More info at: tinyurl.com/del-flexitank

Teardrop Trailer

The fuel-efficient Teardrop Trailer is coming to Germany and France as part of the logistics solutions for DHL's customer Airbus. Its distinctive curved roof reduces air resistance and cuts fuel consumption by 6–10% compared to a regular heavy-load truck.

More info at: tinyurl.com/del-teardrop

Formula E heads for Beijing

THE WORLD'S FIRST FULLY ELECTRIC RACING SERIES, Formula E, kicked off its ten-city tour on September 13 in Beijing, China. Read the exclusive interview with Venturi's driver Nick Heidfeld and Formula E CEO Alejandro Agag in *Delivered*. 05/2014.

More info on Formula E at:
tinyurl.com/del-formula



FROM SHAREHOLDER TO STAKEHOLDER

Stakeholders are increasingly taking center stage for many companies. Regular dialogue with their interest groups is becoming an ever more vital component of their strategic orientation. They recognize that open dialogue with their stakeholders deepens mutual trust and strengthens both their reputation and innovative potential. But what is really behind this shift and how are leading companies adjusting? These and other questions will be addressed in a new study on stakeholder management that

DPDHL is publishing this month. Combining expert opinion and thought leadership, survey results, and interviews this study explores the business rationale and philosophy behind advancing stakeholder relations and aims to demonstrate what successful interaction with stakeholders looks like today and where it might go in the future.

Download the study at: tinyurl.com/del-tomorrow



EXCLUSIVE CHARTERS FOR LATIN BERRIES



FRUIT ROUTE: From Latin America to a table near you.

Exclusive charters from Argentina and Chile helped make 2013 an exceptional year for fruit exporters in Latin America. Despite freezing temperatures and a gloomy forecast, a record number of charter flights transported berries to destinations in Asia and the U.S., filling a gap for fresh fruit in those markets. With demand increasing across Asia, DHL Global Forwarding's charter flights are helping medium-sized exporters exploit growth opportunities. Experienced personnel ensure the delicate berries arrive safely and on time – vital for exporters of temperature-sensitive perishables.

The disappearing Dabbawala

When the *Delivered* team wanted to thank Vitthal Sawant, one of Mumbai's 5,000 Six Sigma delivery masters, for his interview in issue 05/2013, finding him proved tricky. A chance meeting helped track him down.



Learn more about the disappearing Dabbawala at:

tinyurl.com/del-india

DESIGNERS COMPETE FOR CHANCE TO EXPAND ABROAD



Cutting-edge designers from all over the planet flocked to show their work at DHL Exported, a competition to give fashionistas with a strong brand presence in their home market the chance of having their designs showcased in one of fashion's four key markets – New York, Milan, London, and Tokyo. Created by DHL in collaboration with event producer, IMG Fashion, the competition's winners were announced at an award ceremony in London. Francesca Liberatore of Milan will get the chance to show in New York, Nicholas K of New York won the competition for Milan, Hakan Yildirim from Istanbul will enter the London market, and House of Holland will take London streetwear looks to Tokyo. By providing a slot at an IMG Fashion Week for two consecutive seasons, DHL will help the winners get their garments seen by buyers and journalists in the world's leading cities for fashion. And with logistics costs covered, it will be a seamless transition as they branch out.

More info on DHL Exported at: tinyurl.com/del-exported



FASHION FITTING: Before heading to New York, Francesca Liberatore adjusts an outfit from her 2014–15 fall/winter collection.



Eurapid network continues to expand across Europe

Due to high demand from customers from various industry sectors for day-definite less-than-truckload (LTL) services, DHL Freight has expanded its Eurapid service to include 11 new terminals in Spain, France, Italy, the U.K., Switzerland, Austria, Germany, Denmark, Poland, and the Czech Republic. Those terminals increase the total coverage of the DHL Eurapid network to more than 80% of business addresses in Europe, offering our customers punctual delivery of their products. DHL Eurapid, the day-definite priority service for groupage/LTL shipments up to 2.5 tons, is set to be further expanded this year and in 2015.

Photos: Getty Images (6), Mandakini Gahlot, Wilbur Smith,

EXPRESS INVESTMENT IN NEW FACILITIES

New logistics facilities for the Middle East, North Africa and Asia are set to further bolster trade in these regions. A \$177 million DHL Express investment is bringing three new facilities to Saudi Arabia, one of which has already opened in Dammam, with others to follow this year in Riyadh and Jeddah. It has also funded a new country office to Cairo, and the biggest ground operations facility in the MENA region to Dubai. In Japan, a new custom-built DHL Express gateway at Shin-kiba, Tokyo, is set to open in 2016, with an investment of \$89 million. And in Vietnam the country office and service center recently relocated to an advanced, 130-square-meter facility in Ho Chi Minh City, close to the city's Tan Son Nhat International Airport.



OPEN FOR DELIVERY: New facilities will provide increased efficiency.


Supporting Chinese soccer

DHL EXPRESS has announced its support for the Chinese Super League, signing a three-year deal with the FIFA affiliated event in July.

More info on the Chinese Super League at:

tinyurl.com/del-league



An aerial photograph of an offshore oil rig in the middle of the ocean. A large supply ship is positioned alongside the rig, with a plume of white smoke or steam rising from its deck. In the foreground, a worker wearing a white hard hat and a light blue uniform stands on a red metal platform, looking out over the scene. The rig's complex structure, including cranes and various pipes, is visible below the worker.

FOCUS:
ENERGY

The new economics of energy

Technological innovation has ushered in a boom in oil and natural gas production. But now that the difference between profit and loss comes down to operations, logistics plays a major role in the energy sector.

For the last few years, we have been living through an oddly quiet revolution in the energy business. As pundits ponder the potential of electric cars and renewable energy sources, oil and natural gas production is booming, largely due to innovations such as deepwater drilling, hydraulic fracturing (“fracking”), and horizontal drilling. This is reshaping the geopolitics of energy, making energy superpowers out of Canada, the U.S., and Australia (see p.12). In the U.S. alone, natural gas and oil production are up about 30% from their respective lows in 2005 and 2008, according to The Economist – and a Wall Street Journal analysis says that last year the U.S. surpassed Russia to become the biggest producer of oil and gas combined.

DREAM OF FIELDS

New technology is creating a host of opportunities in the energy business – but that doesn’t mean all of them will pay off. Even as the energy business expands, some projects will fail to make a profit. In fact, the very boom in production that has sparked so many projects is making some of them look like busts. In October 2013, former Royal Dutch Shell CEO Peter Voser said he regretted the company’s investments

in shale oil and gas exploration. In April, Bloomberg View wondered, “Is the U.S. Shale Boom Going Bust?”

As in all booms, the current energy revolution brings risk as well as opportunity. The truth is that the energy business is living through the best of times and the worst of times. The same technology that makes it possible to extract oil and gas from deepwater wells and shale deposits could produce enough energy to drive down the very prices those projects depend on. Right now, oil prices are making much shale oil extraction profitable, while declining gas prices are threatening some gas projects. The chief executive of Saudi Aramco, Khalid Al-Falih, has said that the shale production boom has helped the oil sector avoid potential shortages. He also argues that shale oil and gas

“SHALE GAS CURRENTLY CONTRIBUTES ABOUT 16% OF U.S. NATURAL GAS PRODUCTION, AN AMOUNT THAT IS EXPECTED TO GROW.”

U.S. Department of Energy

have provided price stability, allowing for investments and meeting rising energy demands. In many cases, the difference between profit and loss comes down to the extremely complicated operations of unconventional extraction – meaning that logistics is critical.

NEW ENERGY ECONOMICS

Until recently, energy companies drilled for “easy” oil and gas, first in places like Texas, then in the Middle East, Latin America, and Africa. But the supply of fossil fuel is increasingly complicated to access. As production from traditional wells declines, more oil and gas is coming from shale deposits, deepwater drill sites, and other unconventional sources. Most of these projects wouldn’t have been practical until relatively recently, when technology improved and oil prices rose. And the demand for fossil fuel probably won’t decline anytime soon: Any reduction in overall energy use in Europe would be offset by Asia, and renewable energy is unlikely to replace much fossil fuel in the near future.

But deepwater and shale projects remain expensive in terms of operations. While the former involves marine and helicopter transport, the latter calls for thousands of truckloads of water, sand, and chemicals to be delivered to each site – sometimes near populated



PIPING UP: New natural gas pipelines are laid near Pilsen, Czech Republic (top) and in Mecklenburg-Vorpommern, Germany (below left and right). But even such major infrastructure, delivering gas from Siberia via the Nord Stream pipeline under the Baltic, provides no guarantees in an era of new price volatility.

GROUND CONTROL

Unconventional energy extraction projects require truckloads of equipment, complicating operations, shipping, and procurement. At a time when equipment and supplies come from dozens of countries, one of the hardest aspects of new-energy logistics may be knowing where everything is. For one leading player in the energy sector, the answers now come from a Control Tower system that DHL first developed for the automotive industry. The company in question, which operates complicated energy projects in remote areas, as well as offshore, needed to track the materials it receives, stores, and ships out again. It also wanted to increase efficiency while remain-

ing compliant with environmental, safety, and customs regulations. Materials were coming from multiple countries, via multiple methods of transportation, and needed to be visible throughout the supply chain. DHL’s Control Tower now allows the firm to ensure the materials it needs are shipped on time, and as economically as possible, from a supply hub near Rotterdam, with inventory management, customs clearances, and other services handled from a single point. The resulting visibility has improved operations and reduced transport costs. And the supply chain knowledge allows executives to better measure performance, and make such improvements a continuous process.

areas – to extract the gas. In both cases adequate emergency response plans for far-afeld rigs are also needed.

Based on the costs involved, these projects only remain profitable as long as the price of oil or gas stays over a certain amount. Ken Medlock, Senior Director of Rice University’s Baker Institute Center for Energy Studies, has been researching breakeven prices for U.S. shale gas wells and has concluded that “some wells are profitable at \$2.65 per thousand cubic feet, others need \$8.10...the median is \$4.85.”

But due to the boom in commercial rigs flooding the market with large amounts of natural gas the price in the U.S. is falling: Since 2008, it has declined signifi-

cantly, from more than \$8 per million British thermal units (MMBtu) to \$4.22/MMBtu as of July (\$ per thousand cubic feet are roughly equal to \$ per MMBtu). In Europe, the price was over \$10/MMBtu even before the conflict in the Ukraine. If those prices fall below a certain figure estimated by experts to be around \$2 per MMBtu, production sites can become unprofitable and even result in the closure of a project.

With prices in flux, operations costs come under pressure – making logistics a crucial part of a profitable project. Especially since, for instance, the costs for shale gas production sites in prospective areas around



THE END OF EASY OIL: Resources are increasingly hard to reach, demanding unconventional extraction techniques, the movement of heavy equipment to remote regions, and brand-new logistics concepts.

IPCC SAYS NATURAL GAS IS PART OF THE SOLUTION

In April, the Intergovernmental Panel on Climate Change (IPCC) presented its current assessment of all relevant options to mitigate climate change through limiting or preventing greenhouse gas emissions and enhancing activities that remove them from the atmosphere. The report concludes that natural gas – drilled from conventional wells or extracted through fracking – can be part of the solution to global warming. According to the IPCC scientists, wind, solar, and hydroelectric power need to triple or even quadruple in scale over the next 35 years to prevent devastating extremes of

climate change. But natural gas also has a role because it only emits about half the volume of greenhouse gases as coal. “The shale gas revolution can be very consistent with low-carbon development – that is quite clear. It can be very helpful as a bridge technology,” said Professor Ottmar Edenhofer, co-chairman of the IPCC authors, at the report’s presentation in Berlin, spurring an international debate on the endorsement of fracking.

Follow the discussion at:

 tinyurl.com/del-ippc

the world vary widely. A well in the Haynesville Shale in the U.S. state of Louisiana may cost about \$8 million, but the same well in Poland would cost \$14 million to \$16 million. According to experts like Ken Medlock, this is because shale gas development in Eastern Europe is still a young industry and a company would need to import equipment, fracking crews, etc.

SUPPLY SOLUTIONS

Interestingly, the oil and natural gas markets, which once had fairly similar dynamics, have become completely different.

Since oil is relatively easy to transport, prices tend to move worldwide, and they have stayed relatively steady at more than \$100 a barrel. Gas is more complicated. If natural gas cannot be transported by pipeline, it must be cooled into liquid form, moved by ship, and regasified upon arrival in port. This means that gas prices can differ significantly by market depending on the distance the gas has to travel in order to reach the end-consumer – and the recent production boom in the U.S., combined with the lack of exports thus far, has sent prices in very different directions worldwide. The volatility in the market for natural gas as well as the high costs for deepwater oil drilling have resulted in energy producers focusing on their logistics expenses, both because they account for a significant share of costs compared to traditional projects, and because other investments can’t be adjusted as easily. That means optimizing transport, not only to save money, but also to minimize both environmental impact and the time and wages wasted when employees have to wait for equipment. This usually requires a consolidated logistics operation that gives companies visibility across their entire supply chain.

Although the energy industry has often taken the lead in adopting new technology, its approach to supply chain logistics has been, until recently, relatively old-fashioned. “The oil and gas business is very advanced technologically, but I don’t know if logistics has ever been a main priority for upstream until quite recently,” says Steve Harley, President, DHL Energy Sector. Even now, energy companies tend to focus on acquiring extraction rights, and most industry service providers specialize in transporting drilling equipment, not in running consolidated logistics operations.

“We can bring our experience in hub operations to the energy industry and make sure they’re run to optimum efficiency,” Harley says. That often means

87%

of the demand growth for oil over the past five years came from the Asia Pacific region

using regional hubs to manage, store, and ship inventory from different suppliers. It also means borrowing strategies from other logistics-intensive businesses. Several oil companies have visited DHL’s automotive operations to get ideas about how to improve their own logistics – and several have adopted a DHL Control Tower system to coordinate logistics from a single point, with considerable success (see p.10). Although the two businesses are very different, “you could compare the complexity of some offshore energy platforms to a company that has a very large number of vendors supplying components to a single manufacturing site,” Harley says. “We can do that very well through systems we already have that can be adapted and applied to this industry to take account of additional transport modes such as helicopters and supply vessels.”

— Robert Levine

GAS PRESSURE IN OZ

Australia’s energy business boom brings new logistics challenges. Last year, the biggest exporter of liquefied natural gas (LNG) was Qatar, which has been a force in the energy business for decades. By 2020, however, some believe it could be replaced by Australia, a relative newcomer to large-scale energy exporting, which would be in an economic golden age, according to the “World Energy Outlook 2013” report. This would require raising the country’s LNG exports from \$15 billion to \$43 billion, according to Morgan Stanley – and that won’t be easy.

Australia has had an unprecedented boom in energy investment, with seven major LNG projects approved between 2009 and 2012. Besides the country’s rich reserves, investors like its political stability, developed infrastructure, and proximity to Asia, where growing economies are demanding more energy. One especially lucrative market is Japan, where the price of natural gas is now over \$15/MMBtu.

The Australian LNG business also faces significant logistical challenges, as well as competition that intensifies price pressure. Much of Australia’s natural gas is offshore, which complicates extraction projects. Also, the country’s wages and construction costs for energy projects are among the highest in the world, partly because the remoteness of projects raises labor costs; cooks and laundry workers at offshore projects can make more than \$280,000 a year, according to the Australian Petroleum Production & Exploration Association. Projects that made economic sense at a certain price may no longer be viable in the face of competition, in this case from future exports from the U.S. or, eventually, East Africa. Last April, Woodland Petroleum canceled plans for a major LNG project in Western Australia, and Royal Dutch

Shell is rethinking some of its Australian projects. **Some relief from price pressure will come as Australia exports more gas to Asia:** As the two markets begin to move together, Australian gas prices could triple by 2021, according to the Australian Broadcasting Corporation. Until then, projects can only remain profitable with efficient logistics that create savings in transport, materials, and human resources.



PROJECT CANCELED: James Price Point, Western Australia, was to be the site of a major LNG facility.

THREE QUESTIONS FOR

Steve Harley

PRESIDENT,
DHL ENERGY SECTOR



“COMPANIES HAVE THE POTENTIAL TO SAVE 15–20% OF LOGISTICS COSTS”

Last year you said logistics in the shale gas business were so complicated that supply chains looked like spaghetti. Have they become more complicated since?

The energy supply chain has always been complex – the change has primarily been around the shale gas revolution. Maybe we’ve gone from macaroni to spaghetti. The logistics element in unconventional sources of energy is very high compared to other forms of extraction. If you look at a drill site for shale gas, you’re looking at 1,500 to 2,000 loads of water, sand, and proppant (chemicals) delivered to each site.

How does the changing market for natural gas affect this?

The price of natural gas has dropped dramatically and there are large regional differences, and this has really changed the market dynamics in terms of major capital project investment and the focus on

costs in the supply chain. As the logistics element in unconventional sources of energy is very high, when pressure comes on cost in the shale gas market, you’re going to focus even more on logistics costs.

How do you add value to big projects?

As we get involved in closer relationships with our customers, we bring some of our experience in hub operations to the energy industry and take cost out of their businesses by making sure they use their inventories more efficiently. It’s optimizing the routing of equipment, making sure it’s close to where you need to use it, speeding up lead times so engineers aren’t waiting three to four weeks for something. We talk about the potential to save 15–20% of logistics costs if an integrated supply chain model is used, but obviously that very much depends on materials, location, and the way in which those materials can be moved.

EXECUTIVE VIEW

ALDO FLORES-QUIROGA:
POWER STEERING

The International Energy Forum (IEF) is a platform for global energy players to debate pressing issues in their industry. The organization's Secretary General, Dr. Aldo Flores-Quiroga, explains why its work is so vital.

Dr. Aldo Flores-Quiroga is a big believer in honest and informal dialogue. When competing sides sit around a table together, leave their preconceptions behind, and engage in open debate, he says, differences can be set aside and challenges can be overcome.

The challenges currently facing the energy sector are many and manifest, and include the never-ending quest to tame excessive market volatility, ensure energy security, and tackle energy poverty. Then there are question marks over, for example, industry investment levels and operational costs, and issues surrounding environmental sustainability.

As Secretary General of the IEF, Flores-Quiroga isn't there to find concrete solutions to all – or any – of these problems. Rather, his role is to bring major industry players together to discuss them and “to foster greater mutual understanding and awareness of common energy interests.” It's why the people sitting around his table include government officials, energy industry executives, and other experts. The IEF also holds a biennial gathering of ministers from around the world, the most recent of which took place in Moscow in May. Dignitaries, CEOs, and officials from international global organizations came together to discuss “the new geography of energy and the future of global energy security.”

“The principal mission of the IEF is to facilitate constructive dialogue among the key energy players of the world – both producers and consumers – in order to promote global energy security,” explains Flores-Quiroga, noting that no such mechanism existed before the birth of the IEF, 23 years ago. “In the 1970s and 1980s, relations between producers and consumers were...” he pauses. “Well, let's say ‘tense.’ After the first Gulf War there was concern about the stability of the oil market and the ongoing and continuous flow of supplies from the Middle East to the rest of the world. There was also an awareness that dealing with any disruption in the markets would require much more

cooperation than had existed previously, and this led to calls from world leaders for dialogue between producing and consuming states.”

So, in 1991, ministers from energy producing and consuming countries began informal discussions around global energy issues which, over time and through inter-governmental arrangement, developed into the more formal International Energy Forum, with all member countries signing up to the IEF Charter. During the seventh meeting of the IEF, held in Riyadh in 2000, Crown Prince (now King) Abdullah of Saudi Arabia suggested that a permanent IEF Secretariat be created, with headquarters based in the Diplomatic Quarter of Riyadh. This was duly inaugurated in 2005 and, with energy security continuing to be a global challenge, the work of the IEF became more vital than ever.

The IEF's diverse membership is currently comprised of 76 countries (from Afghanistan to Zambia), including producing and consuming countries of the International Energy Agency (IEA) and the Organization of the Petroleum Exporting Countries (OPEC), and accounts for almost 90% of world oil and gas supply and demand. “Our members include a growing number of countries that have huge influence in the world's oil and gas markets, both as producers and consumers,” says Flores-Quiroga. “Because the complexity of interactions in these markets is increasing, there are many challenges that require full cooperation from all sides if they are ever to be solved.”

VOLATILITY

Market volatility, for example, is always high on the IEF agenda. “Everyone prefers stable markets,” says Flores-Quiroga, bluntly. “To understand volatility means understanding the interaction between physical and financial markets. Volatility is partly tamed by better decision-making, which is dependent on how energy outlooks are built. That is why we at the IEF are working with the IEA, OPEC, and other experts to understand and compare energy outlooks.”

Because lack of accurate, clear oil data is an aggravating factor to oil price volatility, the IEF supports various initiatives around data transparency. After the eighth IEF Ministerial Meeting, held in Osaka, Japan, in 2002, the Joint Oil Data Initiative (JODI) was born, “providing a complete, timely, and comprehensive database and a freely accessible reliable and accurate assessment of the global oil situation.” JODI had been until then a cooperative exercise among various energy organizations, but ministers participating in the

producer-consumer dialogue called for the IEF to coordinate this valuable effort in order to strengthen it. Similarly, the May 2014 IEF ministerial meeting in Moscow saw the public launch of the JODI-Gas World Database for better and more comprehensive gas data over the short and long term. Better energy data, says Flores-Quiroga, makes for more informed debate among IEF members.

Industry investment is another IEF talking point. “The rate of investment that is necessary to meet growth demands is going to be pretty high, according to most estimates,” notes Flores-Quiroga. “So certainty about policy, plus better understanding of where technology is heading and where consumption is going, will help facilitate investment and investment planning.” Emerging nations are the main drivers of energy demand currently, he points out, and so have a special role to play in IEF discussions. “The center of demand has moved eastward. The most dynamic markets for energy are in Asia and are determining how much additional energy will have to be added to the market. So what these nations add to the debate is very important.”

Green energy is also a major industry discussion topic as it contributes to energy security by diversifying energy sources, and helps combat climate change. “Everyone wants an energy sector that is sustainable,” says Flores-Quiroga. “So we will see green energy progressing, which is very welcome. Nonetheless, green energy is still at a cost that makes it less attractive,



76 COUNTRIES

belong to the IEF, including OPEC nations (such as Saudi Arabia, Iran, and Kuwait), IEA nations (such as Germany, UK, Japan, and the U.S.) and others such as China, India, and Russia.

More info about the IEF:

tinyurl.com/del-forum

relative to other fuels; and it requires significant government support in order for it to compete over the long term. If technological developments reduce the cost of using these sources of energy, then it will have a bigger role in future – but it's important to say that transition to a low-carbon economy will not mean the disappearance of other energy sources. A large share of the world's population relies on wood and biomass as its main energy source, which is precisely why tackling energy poverty is so important.”

CONSENSUS

Obviously, the IEF's 76 members all have their own interests and agendas. So how can so many countries reach consensus on major issues? “Well, of course, 76 member countries will not reach a consensus on many subjects,” says Flores-Quiroga. “Despite this, the IEF has been able to generate a set of principles and activities that are important to our members. We have seen how polarized positions have become less so; and we have seen how more and more countries are willing to participate in our conversations.”

Energy is an industry that has always fascinated Flores-Quiroga, who splits his time between Riyadh (where the IEF is based) and Mexico (where his family live). After gaining a PhD in political science and political economy at the University of California, he served in the Mexican government, becoming Assistant Secretary for International Affairs at the Ministry for Energy in 2007, where he acted as advisor on foreign energy policy, established foreign energy policy guidelines, and promoted Mexico's international energy cooperation. He was elected the IEF's Secretary General in June 2011, for a four-year term, and started working in this role in January 2012.

“Energy is such an eternally interesting and complex area,” he says. “It's so important for global economic development, for international relations, and for welfare, generally, around the world. Also, energy is an area which touches so many subjects: physics and chemistry, law and economics, accounting, science and engineering, etc. So it's a never-ending learning process.”

Outside of work, Flores-Quiroga's interests are “life, family, and friendships,” plus he has a keen interest in the arts, especially music, and sports. Yet the fact is that his role as IEF Secretary General can be all-consuming. “I think it is a privilege to be part of the global energy conversation, especially at the level at which the IEF is involved,” he says. “Helping decision-makers to get to know each other and discuss global trends with each other is extremely rewarding.” — *Tony Greenway*

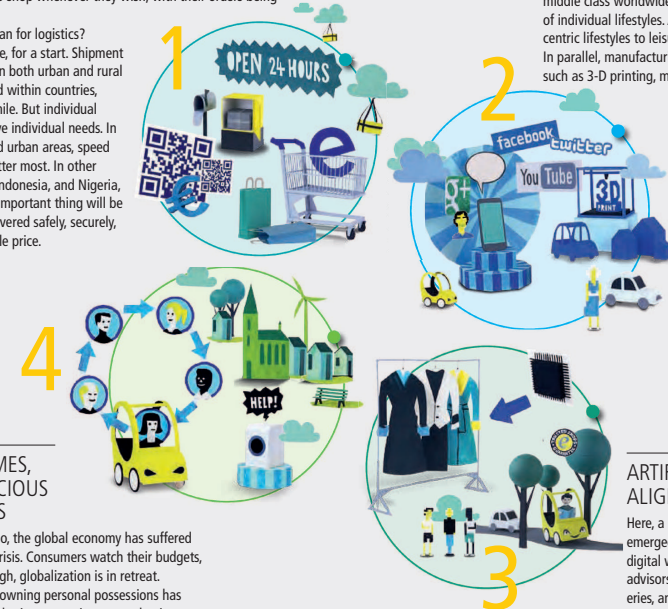
FOUR FUTURES FOR E-COMMERCE

What will e-commerce look like in ten years' time? How will it impact consumers, and the logistics of serving them? A recent Deutsche Post DHL study, “Global E-Tailing 2025,” draws up four separate scenarios for e-retailing in 2025 – and looks at how logistics operations will have to adapt. — *Malcolm Wheatley*

HYBRID RETAILING IN A CONVERGED WORLD

The first scenario. Old boundaries between online and offline retailing have disappeared. Retail sales are now hybrid, and mobile devices allow consumers to shop whenever they wish, with their orders being speedily delivered.

What does this mean for logistics? Greater prominence, for a start. Shipment volumes will soar in both urban and rural areas, between and within countries, and over the last mile. But individual consumers will have individual needs. In some countries and urban areas, speed of delivery will matter most. In other countries – India, Indonesia, and Nigeria, for example – the important thing will be that goods are delivered safely, securely, and at an affordable price.



AUSTERE TIMES, COST-CONSCIOUS CONSUMERS

In this final scenario, the global economy has suffered another financial crisis. Consumers watch their budgets, energy costs are high, globalization is in retreat.

The importance of owning personal possessions has waned in favor of sharing, swapping, group-buying, and leasing. Sustainability, recycling, and “repair, don't replace” are now the norm.

The impact on logistics is mixed. Demand for logistics services will be comparatively subdued, but the focus on leasing and borrowing offers new business in moving equipment between users. And in the opportunity not only to stock and deliver spare parts, but also to fit them. Overall, price and flexibility will outrank speed of delivery.

AFFLUENT COMMUNITIES, VIRTUAL COMMUNITIES

In this scenario, a global economic boom creates an affluent middle class worldwide. This new prosperity fuels a culture of individual lifestyles. And there is a global shift from work-centric lifestyles to leisure-centric lifestyles.

In parallel, manufacturing has changed. New technologies, such as 3-D printing, make it possible to produce small quantities of products to meet local demand. And logistics companies might turn out to be operating those local “fab shops.” Traditional transportation services, especially over the last mile, are likely to be cooperatively run with other logistics service providers, due to laws banning empty running and multiple firms covering the same routes.

ARTIFICIAL INTELLIGENCE ALIGNED TO REAL DEMAND

Here, a highly developed digital culture has emerged. Data glasses, smartphones, and digital wallets are ubiquitous. Avatars – virtual advisors – assist with purchases, monitor deliveries, and engage in independent transactions

on behalf of consumers. Online retailing is dominant, using detailed knowledge of consumers to make targeted offerings, augmenting these with 3-D simulations of products in use.

For logistics operations, this future means growth, but also challenges in the shape of a standard requirement for same-day delivery in cities, and same- or next-day delivery in rural areas. Consumers will demand to track their package at all times, and be able to change its delivery point.

Download the study at :

tinyurl.com/del-ecommerce

BUSINESS

Kingdom on the move

Once upon a time, Saudi Arabia might have been all about oil and tradition. But the desert Kingdom's focus is now on a future beyond fossil fuels, where an educated nation can blossom and thrive. Petroleum-fueled wealth, smartly invested, makes Saudi Arabia a force to be reckoned with.

No man can live this life and emerge unchanged. He will carry, however faint, the imprint of the desert, the brand which marks the nomad; and he will have within him the yearning to return. For this cruel land can cast a spell which no temperate clime can match."

In his 1959 book "Arabian Sands," travel writer and explorer Sir Wilfred Thesiger described life in the Empty Quarter, Rub' al Khali – at around 650,000 square kilometers the largest sand desert in the world, which covers a substantial portion of Saudi Arabia.

Formally established as the Kingdom of Saudi Arabia in 1932 under Ibn Saud, King Abdulaziz Al Saud, the country's first oil discovery was in 1938 and large-scale production started after World War II, seeing Saudi Arabia rise to prominence in the second half of the 20th century.

To many, even today, the notoriously private Kingdom is still known as a land of deserts and immense wealth – oil-rich and remote. A closer look however reveals that it has quietly modernized and is putting in place strategies to lay the foundations for its post-oil future.

STRATEGIC BRANCHING OUT

As the world's largest producer of oil prepares to move away from an economy reliant on petrodollars, it uses its wealth to strategically branch out into many arenas, with significant infrastructure development and investment paving the way for industrial sectors such as farming, mining, health care, manufacturing, and retail.

Unsurprisingly, oil is still the Kingdom's main source of revenue. Saudi Arabia's gigantic Ghawar field alone has reserves of some 70 billion barrels and state-owned Saudi Aramco is the largest oil company in the world.

Beyond oil, though, the country is full of surprises. According to Saudi's Al Ahli National Commercial Bank (NCB), in 2013, oil output fell by around 1.6% with oil sector GDP declining 1%, the largest contraction since 2009. This was more than offset by non-oil GDP growth that grew by around 5.4%, with the non-oil private sector increasing by 5.97% year on year, driven by construction, trade, and manufacturing. NCB predicts that the non-oil sector will be the driving force for economic growth in 2014, remaining above the 5% threshold for the third year in a row.

EDUCATION UNLOCKS THE FUTURE

And the surprises continue: Saudi Arabia is one of the most arid countries in the world, yet its farms ensure self-sufficiency in all basic foodstuffs. It has →

"Education in the Kingdom is a unique model and a major mainstay of investment and development. Our future generations are the real asset of the Kingdom and our dedicated care for them is a key objective."

The Custodian of the Two Holy Mosques, HH King Abdullah



STUDENTS ON THE MOVE



CO-ED: More than 50% of students in Saudi Arabia are female.

KAUST stands for King Abdullah University of Science and Technology, an international graduate-level research university on the shores of the Red Sea in Thuwal. With a student body representing over 70 nations, it attracts world-class faculty and international scientists and engineers.

Aiming to rekindle science in the Islamic world, KAUST was founded in 2009 with a focus on engineering. It offers programs in biological and environmental science; computer, electrical, and mathematical sciences; and physical sciences.

With the third-largest endowment of any university in the world, KAUST has already made a name for itself. It

is currently ranked among the world's most productive universities with a research record of 88.5%, almost equal to that of Yale.

KAUST is just one example of Saudi Arabia's commitment to education. In the last decade the Kingdom has overhauled the education system, and the money allocated to the sector has been increased from \$28 billion in 2008 to \$54 billion in 2012 – equivalent to 25% of the annual budget and around 10% of GDP – twice what is spent on education by countries in Europe or North America. — F. AQ.

Learn more about KAUST:

tinyurl.com/del-kaust

SAUDI ARABIA FACTS

The Kingdom of Saudi Arabia is the largest state on the Arabian Peninsula with a total area of 2.15 million square kilometers. It is the birthplace of Islam and home to the two most holy Islamic mosques in Mecca and Medina. The modern-day state was founded in 1932 by King Abdulaziz Al Saud. In 1938, oil was found. Other natural resources include gold, copper and natural gas. Custodian of the Two Holy Mosques King Abdullah bin Aziz Al Saud is the sixth King of Saudi Arabia. His government is promoting private sector growth and has established five specialized credit institutions



providing loans for development in agriculture, industry and construction. With a focus on infrastructure development, Saudi Arabia leads the Gulf Cooperation Council in investments with a total of \$29.34 billion forecast for 2014.



YESTERDAY AND TODAY

Oil was first struck in Saudi Arabia in March 1938, at a depth of 1,440 meters in the Dammam field. Today the Kingdom produces 9 million barrels of oil per day and exports petroleum products worth more than \$321 billion per year.

SAUDI ARAMCO

Saudi Arabia's state-owned oil company manages proven conventional crude oil and condensate reserves of 260.2 billion barrels. The average daily crude oil production in 2013 was 9.4 million barrels per day (bpd).

tinyurl.com/del-aramco



FARMING SUCCESS

Saudi Arabia is completely self-sufficient in a number of foodstuffs and exports wheat, dates, dairy products, eggs, fish, poultry, fruits, vegetables, and flowers to markets around the world. Its dairy company Almarai is the largest vertically integrated dairy company in the world.

tinyurl.com/del-almara



SUPPORTING SAUDI ARABIA'S GROWTH

"Supply Chain's success with our solid footing in energy with Saudi Aramco has given us confidence in defining our future customer diversification. In principle, DHL Supply Chain feels that combinations of strategic products and sectors remain our focal points for expansion in the key market of Saudi Arabia. Thus, DSC is placing its bets on expanding our strategic MRO product to extend the energy, petrochemical, engineering, and manufacturing sectors to ensure our customers' entire supply chains are serviced effectively. MRO provides a broad platform of services that these

markets welcome, including plant logistics along with extended value-added services that simplify procurement, delivery, and service parts optimization. We are also looking toward the Life Sciences and Healthcare sector, setting our business off the back of Arabian Healthcare. Initial focus will be on the pre-wholesale business model with expansion into retail pharmacy distribution and private hospital logistics. Life Sciences and Healthcare, a strategic global sector for DPDHL, will build on its global success by deepening our service portfolio throughout the Kingdom of Saudi Arabia and simplifying the management of these core services. We are excited to bring both MRO and the extensive Life Sciences and Healthcare product and sector capabilities to Saudi Arabia!" — Todd Starbuck, EVP Global Business Development, DHL Supply Chain



OIL FLOW: The Trans-Arabian Pipeline in northeastern Saudi Arabia.

come on top of \$600 billion worth of infrastructure and energy projects already underway.

Upgrades will be made to rail, port, airport, and other transportation infrastructure, with projects including a new North-South Railway, a high-speed Western Railway, a metro project in Riyadh, and four Economic Cities.

A unique Saudi concept, Economic or Industrial Cities are greenfield developments, clustering residential and commercial buildings plus factories around various globally competitive industry sectors. Jubail Industrial City on the Arabian Gulf hosts factories and industrial facilities, a seaport, a vocational training institute, and a college; Yanbu Industrial City on the Red Sea focuses on refineries, a petrochemical complex, manufacturing, and has a large sea port.

The most ambitious development is King Abdullah Economic City near Jeddah, a megaproject that upon completion will include a dedicated port, industrial park, a residential and hotel complex, and educational facilities. Other cities are planned for Rabigh and Hail on the Red Sea coast, plus Medi- →

4 QUESTIONS FOR DR. ABDULRAHMAN BIN ABDULLAH AL-ZAMIL

PRESIDENT OF THE COUNCIL OF SAUDI CHAMBERS AND CHAIRMAN OF THE RIYADH CHAMBER OF COMMERCE AND INDUSTRY



Saudi Arabia is branching out into a variety of industry sectors. Which ones, and what is the goal for each sector?

The Kingdom gives priority to the industrial sector as it considers it a strategic option to diversify income. Therefore, it approved the National Industry Strategy (NIS), which lasts up to the year 2020. The strategy aims at increasing the contribution of the industrial sector to GDP by up to 20%. The Kingdom also approved the national program for developing industrial blocs, starting its activities with five industrial blocs. It also established industrial cities, which saw a noticeable expansion over the last seven years reaching a total of 32 industrial cities equipped with basic services and covering all regions of the Kingdom with a growth rate of 129%. The number of factories also increased to 5,400 factories with a growth rate of 177%, whereas areas of developed land reached 163 million square meters with a growth rate of 307%. Growth in electric energy of industrial cities reached 215%. The Kingdom also offers many incentives to the industrial sector as well as financing opportunities via the Saudi Industrial Development Fund.

All those factors have enabled the industrial sectors to witness a continuous expansion. The Kingdom focuses on certain industrial sectors to attract investments due to their comparative advantages, such as the food industry, as the Kingdom aims at achieving self-sufficiency and food security, and thus creating vast opportunities in this sector. The Kingdom also needs to expand its investments in industrial sectors that offer job opportunities to youth, such as the automotive and electronic sectors. There are also vast opportunities (approximately 15,000) in the spare parts and military equipment sectors, as well as an existing cooperation program between the private sector and the Ministry of Defense in this area. The Kingdom is also pursuing the alternative energy sector as it offers vast business opportunities in the energy sector and industries related

to it. In addition, there are opportunities in the extractive and petrochemical industries, as the Kingdom leads in this field and looks to expand even further into it.

The Kingdom leads the GCC in terms of scale of infrastructure developments. What are the major ones?

The Kingdom is keen on infrastructure enterprises as a key pillar of the development process. It has succeeded in employing its oil revenues to build an advanced infrastructure that helped in attracting investments and enhancing the overall economic activity. Large budgets have been set for infrastructure enterprises over the past years with an overall estimate of \$400 billion (SAR 1.5 trillion) in contracts from 2008–14. Infrastructure contracts for the current year have reached approximately \$61 billion (SAR 230 billion), reflecting the government's keenness on developing this sector. Economic reports indicate that the Kingdom tops the MENA list in infrastructure spending with an estimated total

"THE KINGDOM TOPS THE MENA LIST IN INFRASTRUCTURE SPENDING."

of over \$784 billion (SAR 2.94 trillion), including projects that are being implemented and ones to be implemented during the current year. These projects are specialized in the sectors of real estate, construction, electricity, education, healthcare, transportation, services and logistics, water, industrial cities, and industries.

Could you highlight some specifics about Saudi Arabia as a consumer market? What makes this market unique?

The Kingdom is considered one of the largest consumer markets in the world, according

to many reports, especially in food products, electronics, automobiles, gold, pharmaceuticals, and many others, which indicates its economic growth and increase in purchasing power. Factors that distinguish the Saudi market as a consumer market include the increase in purchasing power for Saudis; the consumer culture and its diversity due to its multinational citizens; the large size of the Saudi market; the ability to market products with ease and its attraction to foreign manufacturers to enter its market due to its potential; the convenient infrastructure for marketing; the ease with which activities are practiced, which attracts manufacturers to enter its market.

What advice would you give companies looking to do business in Saudi Arabia?

The Kingdom is considered a global investment spot, as it possesses 40% of incoming investments in the Arabian region due to its wise economic policies and incentivizing climate. Therefore, I advise foreign companies looking to enter the Saudi market to accelerate their decision, as many foreign investors are entering this market due to its stability and diversity, as well as the incentives it offers to foreign investors — especially in light of the hardships taking place in many countries of the world and of the region. My other advice is for foreign investors to enter the Saudi market via Saudi partners, as it is more secure and beneficial for them to make use of their expertise and capabilities. My last advice is to consider investments in SMEs. I would also like to draw investors' attention to the importance of achieving the Kingdom's prospects in recruiting and training Saudi youth and transferring technologies to Saudi companies, in addition to considering social responsibility programs.

More info on the Council of Saudi Chambers:

tinyurl.com/del-saudi



25%

of Saudi Arabia's annual budget is invested in education, ranking the Kingdom seventh in the latest Learning Curve Index published by Pearson, a leading learning company.

\$22.8 BILLION

is being disbursed this year by the Saudi government to boost non-oil development.



STOCK EXCHANGE OPENS TO FOREIGN INVESTORS

Saudi Arabia is removing barriers to its \$530-billion stock exchange. From next year, foreign investors will be permitted to buy and sell shares, allowing the Middle East's biggest economy to attract more international investment and reduce dependence on oil revenue.



PRINCE ALWALEED BIN TALAL: THE ARABIAN WARREN BUFFETT

While the government of Saudi Arabia, reported to hold one of the world's largest sovereign wealth funds, is very discreet about its investments, one Saudi businessman and investor is anything but shy about his.

Prince Alwaleed bin Talal, dubbed by Time magazine the "Arabian Warren Buffett," is one of the world's

most prominent investors. His Kingdom Holding Company (KHG) has interests in a multitude of sectors, from banking and financial services to hotels, media, real estate, petrochemicals, and technology to name only some of them. Al Waleed is the largest individual shareholder in Citigroup, the second-largest voting shareholder in News Corp and owns the famous George V in Paris and London's Savoy as part of his hotel portfolio. Arabian Business estimated his wealth at \$31.2 billion in 2013, ranking him as the most influential Arab in the world. Under the motto, "Commitment without Boundaries," the prince's charitable organization, the Alwaleed Bin Talal Foundations, "serves the needs of communities around

the world regardless of race or religion." Philanthropic activities focus on global cultural understanding, community development, disaster recovery, and women's empowerment, and support NGOs in over 65 countries around the world. True to Islamic values, Alwaleed does not reveal the extent of the foundation's charitable giving. It is, however, believed to be extensive.

— Michelle Bach

More info on the Alwaleed Foundations:

tinyurl.com/del-foundation

More info on Kingdom Holding Company:

tinyurl.com/del-holding



INVESTMENT IN HEALTH: A pediatrician examines a baby in Dahran.

Saudis are very keen on having 'the latest thing' – be it a smartphone or a designer handbag, for which many add their name to wait lists and make down payments in advance. In my opinion, items such as a high-end designer bag or shoes have become a 'must-have' rather than a luxury for a large number of Saudi ladies, with many buying at least one 'just out' piece from every new collection." Luxury cars are a particular favorite. In 2011, a year when Rolls-Royce reported a 60% increase in sales in the Kingdom, Arabianbusiness.com described dynamics in the luxury car sector as being similar to those of the retail market.

According to the U.S.-Saudi Business Council, the Kingdom is currently the largest importer of vehicles and auto parts in the Middle East, accounting for nearly 40% of all vehicle sales in the region. "New car sales are slated to rise by 6.7% annually, crossing the 1 million mark by 2020," the council reports. "While demand has historically fixated on high-end models, the market is experiencing a grow- →

4 QUESTIONS FOR Geoff Walsh

COUNTRY MANAGER DHL EXPRESS SAUDI ARABIA



How do you see the development of Saudi Arabia? Is it changing? And where do you see the country in the mid-term future?

Saudi Arabia is a massive growth engine and is moving ahead at a rate of knots. The country has always been a large destination for many continents and of course one of the biggest exporters of oil, for which it is obviously best known globally. But Saudi Arabia is so much more. Yes it has oil, and oil drives the economy, but the government is starting to invest in more education and health care for the population of 30 million. They are now developing a transportation system with rail and an inner-city tram in the capital Riyadh. They are working on road infrastructure and so much more. Saudi Arabia recently changed its employment laws to reduce reliance on expatriate workers and push for more "Saudization" in the work force – a national policy encouraging the employment of Saudi nationals in the private sector – and this has been a big change within the country, changing sixty-plus years of history. In some cases it has been difficult but the government has stuck to its guns and now we see more and more Saudi nationals in the workplace. DHL is no different. We have both male and female Saudis in a multitude of roles, which is great for DHL and Saudi Arabia.

The country does not have to worry about oil and related petrochemicals drying up in the near future. So I would say Saudi Arabia will continue to be a major global player and continue to grow the more it opens its doors to investors in many different industries. The people of Saudi Arabia are very welcoming and work on trust and respect. This is key for any investors and people visiting to understand, as well as understanding and respecting the Muslim faith, as Saudi Arabia is the home of Islam and every year millions of pilgrims come to visit the country.

DHL Express is making some major investments in Saudi Arabia. What are you planning and why are you doing it right now?

DHL Saudi Arabia remains the market leader with 49% of TDI business. We need to lead the race and stay ahead of the competition as Saudi Arabia has become a very large and competitive market for all integrators. We are investing in three major gateways, those being Dammam, Riyadh, and Jeddah with a total investment of around \$54 million (SAR 202 million). Saudi Arabia has never had a true gateway on any airport. We have used Bahrain and the Causeway as the major entry point for the last twenty-plus years and that was built for around five trucks, and until we started the first gateway project in Dammam we were moving up to 40 a day through the Causeway as well as using shared private aviation facilities. The private aviation facility in Riyadh airport is

"WE ARE SEEING LARGE GROWTH IN RETAIL, CONSTRUCTION, AND FINANCE."

around 60 square meters where we cleared two 757 aircraft five days a week. In Jeddah we have not been able to fly any non-docs shipments in or outbound for almost three-and-a-half years since they closed the private aviation facility. With this investment plan we will have three state-of-the-art gateways in Saudi Arabia and in-house customs clearance at all three, which will be market-leading, and in Jeddah for example we will be one day ahead of the competition in terms of transit time.

So why now?

Now because in April 2012 we got the go-ahead from Saudi customs to have express

in-house customs clearance – and until we received that we would have just been building cargo sheds. As soon we got this customs authorization we started the investment plan, and in 2014 we will see Riyadh and Dammam come online with Jeddah following in the first quarter of 2015. This will mark a great day in the history and future of DHL in Saudi Arabia, and a day that many people have supported and worked toward.

The Saudi government is looking at industry diversification as part of its long-term strategy. Which sectors do you believe will grow in importance – and what advice would you give to companies in those sectors wanting to enter the Saudi market?

I think my earlier comments cover this concerning medical and educational investments, but we are also seeing large growth in retail, construction, and finance. Nonetheless the country will continue to have a large dependency on oil. Companies looking to enter the Saudi market need to understand carefully the culture and the way business works. The business world is dynamic but the pace in which it moves may be different than in other markets. You may need to have many visits and meetings with government entities where licenses and regulations need to be applied for and followed. Once you start up your customer base either with the government, which tends to be the major customer due to investment in infrastructure and so forth, or just local, you will see that your customers are very demanding, and expect great service and results with no compromise. This is not a bad thing, as it drives excellent customer service and pushes us all from good to great.

More info on DHL Express in Saudi Arabia:

tinyurl.com/del-express

ing demand for smaller, lower-priced cars. The Saudi government aims to meet this demand by attracting original equipment manufacturers (OEMs) to open facilities in the country while simultaneously developing an automotive industry of its own.”

Saudi Arabia’s National Industrial Clusters Development Program (NICDP) has signed a letter of intent with Jaguar Land Rover, and a detailed feasibility study is underway to determine the viability of setting up an automotive facility. In April of this year, the Ministry of Commerce and Industry gave Saudi and Malaysian businesses a preliminary license to study the feasibility of building a Saudi-made car, the Meeya.

HEALTH CARE INVESTMENT

The health care and pharma market is also booming, as the government invests more in upgrading its own medical facilities rather than sending citizens for medical treatment abroad, and generally strongly supports health care. According to a recent report by Boehringer Ingelheim, Saudi Arabia is the Gulf’s largest pharmaceutical market, valued at \$5.1 billion in 2012. With the pharma industry expected to experience sustained growth in the MENAT region in the medium to long term, the Kingdom is expected to maintain its

position as the largest pharmaceutical market in the Gulf in the foreseeable future. Hassib Jaber, Consulting Partner and Healthcare & Life Sciences Leader at Deloitte Middle East, comments, “The pharmaceutical and health care sectors will be key economic drivers for the diversification of the Kingdom’s economy. The Kingdom, realizing the benefit, is also facilitating the participation of the private sector of both local and international investors. We expect the activities in these sectors to generate significant demand for material and personnel over the next three to five years.”

He concludes: “Moving the non-oil sector from 35% to 60% of GDP over the past decades, coupled with the current non-oil investments, are the strongest indications of the Kingdom’s focus and success in transforming its economy. The investments in infrastructure are coupled, prudently, with investments in human resources. We see this transformation as an opportunity for local and international investors to participate in.” — *Michelle Bach*

More info on the Gulf’s economy at:
tinyurl.com/del-alahli

More info on the Gulf’s pharmaceutical market at:
tinyurl.com/del-mena



MALL CULTURE: The Al Diriyah Festival City mall in Riyadh, scheduled to open in mid-2015, will be Saudi Arabia’s biggest shopping mall and 250,000 square meters of gross leasable area.



SAUDI-MADE CAR: The Meeya is currently the subject of a feasibility study.

KING ABDULLAH ECONOMIC CITY

London, Tokyo, and New York are considered major economic cities and global centers of development, wealth, and prosperity. In 2005, Saudi Arabia launched six economic cities of its own to bring growth and development to its citizens, leading the way in developing sustainable cities devoted to specialized industries through public-private partnerships. Currently four economic cities are under

development, each with its own area of specialization developed around one or more globally competitive clusters or industries. The exception is King Abdullah Economic City (KAEC), expected to be completed by 2020, which is envisioned as a world-class, integrated lifestyle city that will add to the socio-economic prosperity and sustainability of Saudi Arabia. Valued at \$93 billion, KAEC is one of

the largest private sector projects in the region, with the government serving as regulator, facilitator, and promoter. It is also Saudi Arabia’s showcase for its new air, water, and noise pollution standards and its biggest green building project. Using state-of-the-art greenfield solutions, it will “help lower the region’s carbon emissions and improve public safety and health,” Faisal Alfadi, Secretary-General

of the Saudi Green Building Forum (SGBF), recently told The Guardian. A deepwater port has already been established and the city will also have an industrial zone, residential areas, a sea resort, an educational zone, and a central business district. Located on the Red Sea coast between Makkah, Medina and Jeddah, it will have a total development area of 173 square kilometers. The 4,400-hectare industrial zone will be dedicated to industrial and light manufacturing facilities and home to 2,700 tenants, among them the Olayan Group, Petra Engineering Ind. Co., Al Harbi Contracting, MARS, Greif, Total, Pfizer, Almarai, Abdul Latif Jameel, and Sanofi-Aventis. The aim is to create opportunities for the private sector, and jobs and attractive lifestyles for Saudi Arabia’s emerging workforce of well-trained young professionals, as well as to provide a business-friendly atmosphere. — *F. AQ.*

Learn more about KAEC at:
tinyurl.com/del-kaec



ON THE RISE: KAEC is envisioned as a sustainably developed, world-class, integrated lifestyle metropolis that will be completed by 2020.



DEVELOPING TALENT

One of Saudi Arabia’s most powerful businesswomen, Lubna Olayan, discusses the country’s challenges and opportunities.

Saudi Arabia is looking to diversify its industry sectors and is also investing heavily in infrastructure. Where do you see the country’s advantages and opportunities, as it starts to look at a future beyond oil?

Our youthful population is both our biggest challenge and potentially our greatest strength. And we have the advantages of a government committed to the development of private sector industry and a private sector with liquidity and a keenness to invest at home. Other than operations focusing on fulfilling the obvious needs of a young, growing, and demanding consumer base for quality food, fast-moving consumer goods and services, the increasing diversification of Saudi’s industrial base will continue to provide a range of opportunities – power generation and transportation and logistics are good examples, as are downstream industries such as aluminum and fertilizer production. The government is also keen to encourage and develop “knowledge-based” economic activity.

What advice would you give companies looking to succeed in the Saudi market?

The dynamics and nature of the Saudi market have changed significantly in recent years – it is a market in which customers are increasingly better informed and demanding, and able to differentiate between similar products and services. Competition is extremely fierce. Success in the Saudi market will require strategic agility – the ability to adapt and attract and then retain market share. My advice would be to invest significantly in after-sales customer service – especially since companies are finding it difficult to win customers back once they become dissatisfied.

ABOUT LUBNA OLAYAN

CEO and Deputy Chairperson of the Olayan Financing Company, the Olayan Group’s vehicle for Saudi Arabia and the Middle East, Ms. Olayan is also a Board Member of Schlumberger and Saudi Hollandi Bank, where she serves as Vice Chairman. She is on the International Advisory Boards of Rolls-Royce, The Council on Foreign Relations, Akbank, and McKinsey & Co. Ms. Olayan is a trustee of King Abdullah University of Science and Technology (KAUST) and Cornell University, and is involved in a number of non-profit organizations, including Alfanar, where she currently serves as Chairman.

More info on Alfanar at:
tinyurl.com/del-alfanar

More info on Olayan Group:
tinyurl.com/del-olayan

How do you see the development of talent in Saudi Arabia, with both world-class facilities such as KAUST, and overseas scholarships through the King Abdullah Scholarship program?

Developing talent will be the key to our long-term success. King Abdullah has tasked the government to invest significantly in developing the academic qualifications of a growing portion of Saudi youth with the aim of getting them to become “job ready.” The Saudi private sector is starting to reap the benefits of such programs; we are seeing more graduates who not only have the academic qualifications and the skills needed to excel, but have the “mindset” and self-confidence needed to compete in a global marketplace. The overseas scholarship program has really benefited our youth – the education they receive and the exposure to global cultures make them aware of the global challenges and the need for dedication, hard work, and continuous improvement, regardless of where we work or live. KAUST has set a very ambitious goal for itself, as it aims to become a global center of scientific innovation and excellence. Such centers act as magnets for venture capital; having such an institution on Saudi soil has and will continue to create a mental shift in perception for Saudi companies and people. We now have multiple companies working with KAUST on cutting-edge scientific projects.

One of your charitable causes is Alfanar. Could you briefly describe its aims?

Alfanar is the Arab world’s first venture philanthropy organization. I got involved because I found its vision unique for the region – to help social purpose organizations serving women and children in poor communities become financially sustainable and self-reliant. What those of us in the private sector know is that it takes more than funds to grow a company. Among other ingredients, it takes strong management and a strategic plan. The situation is no different with charities. At Alfanar, we believe that in order to make lasting change, the social sector needs to be as rigorous about achieving social impact as the private sector is about the bottom line. This is why we provide both grants and technical support to social enterprises that pass our due diligence; the support is aimed at strengthening their management systems to impact more people over time and become financially independent. Our track record shows that we help grassroots organizations impact 63% more lives and grow their revenue by 62% over the span of our investment with them. In real terms, Alfanar has positively impacted the lives of more than 20,000 women and children in Egypt and Lebanon. We aim to double our impact numbers in five years in the hope that our approach can deliver game-changing, lasting change for those in need. — *Michelle Bach*

Photos: Getty Images (2), SOM/KAEC, Bloomberg News/Getty Images

LESSONS FROM LOCAL DYNAMOS

How companies in emerging markets win local consumers – an expert view by Dr. Nikolaus S. Lang and Dr. Jens Riedl of Boston Consulting Group.

Emerging markets remain global growth engines, yet many global companies struggle to create successful business models in them. At the same time, a growing number of local companies are building businesses that attract local customers and defeat both other homegrown companies and multinationals. How do these local companies convert the constraints of emerging economies into profitable opportunities?

A study by the Boston Consulting Group found that in all industries local dynamos are finding analogous ways to win. To spotlight these companies, we have compiled a list of 50 energetic private-sector companies that focus on their home markets and have been growing faster than comparable companies in emerging and mature economies. Each local dynamo has its own particular story about how it has won in its home market. At the same time, they share six traits that give them an edge in these markets. Four of these traits are specific to the business models that the companies deploy to thrive in emerging markets: catering to customers and local conditions, leveraging digital technologies, operating at warp speed, and adapting to uncertainty and circumstance. The other two traits, building talent engines and establishing functional excellence, demonstrate the rapid development of these companies as they create world-class strengths.

730 MILLION

The number of new middle-class consumers in emerging markets by 2020.

CONSUMER-DRIVEN EMERGING MARKETS

Boston Consulting Group (BCG) created the first list of local dynamos in 2008 ("The BCG 50 Local Dynamos: How Dynamic RDE-Based Companies Are Mastering Their Home Markets – and What MNCs Need to Learn from Them"). The list is representative, not exhaustive. BCG wanted to gain insights from their successes and see how their practices can be applied more broadly to all companies that want to do better in these markets. The 2014 list of local dynamos reflects the consumer-driven focus of emerging markets as those markets increasingly resemble mature-market economies and

their advantages move beyond low costs and low wages. Many of the local dynamos are competing on innovation rather than cost and other traditional advantages. While there are still 19 manufacturers among the 50 local dynamos, many of the other companies on the list are building sophisticated logistics, inventory, and manufacturing operations. From 2009 to 2013, their revenues grew by 28% annually. Fifty countries are represented on the list, 27 come from BRIC (Brazil, Russia, India, or China), Africa has six and Southeast Asia seven companies on the list.

1 Catering to customers and local conditions:

Local dynamos are winning customers with targeted and customized business models, surpassing both local state-owned companies with built-in advantages and large multinationals with deep pockets eager to find new growth opportunities. They identify new customer segments, unmet needs, and local habits that other companies do not recognize. Perhaps foremost, they understand the cost-and-quality calculus that will appeal to the growing middle and affluent class in these markets. They work through the constraints of emerging markets to offer superior customer service.

2 Leveraging digital technologies:

By 2018, there will be an additional 1 billion Internet users and more than 5 billion post-PC products (tablets and smartphones) in circulation. Most of these new users and devices will be located in emerging markets. Smart companies like Xiaomi, Micromax, or Tinkoff Credit Systems Banks (TCS) are figuring out how to use mobile technologies to reach the new online users and build business models that avoid the constraints of emerging markets.

3 Operating at warp speed:

Local dynamos have proven to be adept at building their businesses swiftly and successfully. They add people in large numbers without faltering. They move into new segments and rapidly become market leaders. In markets comprising multiple regions and customer segments, many of the dynamos have created national brands and established a national sales and retail presence. These advantages can be especially important in emerging markets, where customers are often forming their first – and often lasting – impression of companies. Local dynamos such as China's Home Inns & Hotel Management, a chain of budget hotels, or Brazil's retailer Magazine Luiza show that they know how to expand without sacrificing their entrepreneurial roots.

4 Adapting to uncertainty and circumstance:

Despite significant progress, the emerging-market environment remains challenging. Market intelligence is occasionally spotty. The supply of electrical service is sometimes uneven. Roads and rail networks, high-speed wireless networks, and ports are works in



RETAIL DYNAMO: Luiza Trajano, CEO of Brazilian retail chain Magazine Luiza.

progress in many locations. Many local dynamos have creatively worked through these limitations. Among them is the leading commercial real estate developer in China, Dalian Wanda Group, which creates strong partnerships with many retailers that have an active say in the location, size, and specific details of the buildings; or Kenya's Equity Bank, one of the largest banks nationwide, which has expanded by providing services to customers who were previously viewed as "unbankable."

5 Building talent engines:

Talent shortages are acute everywhere, but they are especially severe in emerging markets. Historically, companies have not offered the same level of training and development that schools provide, and schools just can't keep up with the demand for qualified candidates. Local dynamos overcome these constraints by hiring top local talent and building an environment so that they will stay, including strong human-capital-management practices to identify, train, and promote their best people and help employees who need stronger skills.

6 Establishing functional excellence:

One of the ways that many local dynamos distinguish themselves from the rest of the pack is by developing functional capabilities that rival – or even exceed – those

of multinational companies, including business model innovation, operational excellence, branding, and customer service.

The study shows that local dynamos are creating solutions to overcome the constraints and logistical challenges of their home markets. They are rapidly scaling up their operations, and are thriving amid uncertainty and turmoil as well as complex regulatory environments. They are formidable competitors, and they are defeating foreign and other local companies with a comprehensive understanding of their own backyards and their willingness to "go for it." How can local and global competitors compete against these homegrown companies? By combining their legacy strengths with the lessons learned from the dynamos. Emulating the dynamos will require operating with their energy, ambition, and entrepreneurial zeal, and adopting the six characteristics described above. Emphasizing their own strengths will be an easier task: There's no need to abandon what worked at home or in other markets, but there is a need to figure out how to apply scale, expertise, brand, R&D capabilities, access to capital – and whatever other strengths – in a different setting. Anyway, local and global competitors can no longer ignore the local dynamos in their emerging markets growth strategies.

4TIMES

That's how much faster emerging markets are growing compared to mature ones. By 2020, 6.4 billion people out of a global population of 7.5 billion will be living in these markets.

For more info, the full report "2014 BCG Local Dynamos" is available at:

tinyurl.com/del-dynamo

SOLUTIONS

HYBRID AIR VEHICLES

Hybrid air vehicles combine lighter-than-air aerostatic lift with a body shape that produces aerodynamic lift, like an aircraft wing. "Lobes" in the hull reduce drag and improve stability. The added lift and reduced drag allows Airlander to carry heavier loads than conventional airships.

LIFT-OFF AND LANDING

Vectored thrust from the engines allows the Airlander to hover precisely in position, as well as take off and land on ultra-short strips. Designed for austere environments with minimal infrastructure, a hover skirt system allows it to operate like a hovercraft over land, snow, ice, and water.

PAYLOAD MODULE

With a capacity of 440 m³, the Airlander 50's main payload module can carry six 20-foot ISO containers, or a combination of containers and palletized loads. A further forward cargo bay can carry 10 tons of cargo, or 48 passengers. Total payload – forward and main – is a maximum of 50 tons.

HULL

Weight is critical – but so are strength, weather-proofing, and preventing gas seepage. Constructed from high-strength, low-weight carbon fiber, the Airlander's hull has a three-layer skin: Vectran for strength, Mylar for gas impermeability, and Tedlar for weatherproofing.

TURBINES

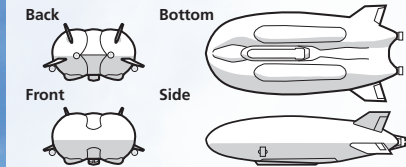
The Airlander's directional ducted propellers provide low-speed control, and permit it to fly and land lighter than conventional airships. Ducting the propellers improves efficiency at low speed, and rear engines increase thrust and efficiency.

CARGO

The Airlander 50 is designed as a heavy lift cargo vehicle, flying multiple segments daily, and operating in remote areas. With minimal environmental impact, and running costs claimed to be significantly lower than any equivalent form of transport, Airlander 50 can deliver 50-ton payloads just about anywhere.

Specifications

Length: 119 m	Range: 3,500 km
Width: 60 m	Altitude: up to 6,100 m
Height: 35 m	Speed: 195 km/h
Payload: up to 50 tons	Endurance: up to 4 days



Comparison

Airlander 50 119 m	
Antonov An-225 85 m	
Airbus A 380 73 m	

The future shape of heavy lifting

Half-airship, half-aircraft, hybrid air vehicles can carry cargo anywhere, needing little by way of infrastructure on arrival. From disaster relief to mining equipment, and over land, sea, or snow, Hybrid Air Vehicles' Airlander 50 can carry 50 tons – and a 200-ton version is under development.



PIPE DREAMS

Tube travel technology has developed from Victorian underground trains and pneumatic mail pipes to the drawing-board concept of Elon Musk's supersonic Hyperloop. But could "the tube" be a solution for freight? And if so, why hasn't anyone turned it into a logistics reality?

Passengers on the London Underground can be forgiven for forgetting that they are interacting with a pioneering feat of engineering brilliance – particularly if they are traveling in rush hour. It can be hot and crowded down there.

Yet the London Underground, also known as "the Tube," celebrated its 150th birthday last year, and was a world-first which revolutionized urban travel and inspired similar systems around the globe. When you think about what an urban metro can do – whizz people about in metal tubes under the ground or on elevated rails above it – it's a marvel, be it in Moscow or Madrid, Baku or Berlin.

Although ground-breaking, the London Underground wasn't the first attempt at creating a revolutionary alternative to conventional railways. As early as 1821, British civil engineer Henry Robinson Palmer made a patent application for horse-drawn carriages to be pulled along an elevated single rail that would be supported on a series of pillars. Four years later, the first passenger-carrying monorail based on this patent opened in Cheshunt, Hertfordshire, U.K. (although designed to carry bricks only). Then, in 1876, a steam-driven monorail was unveiled at the United States Centennial Exposition in Philadelphia. There are now

30

MINUTES

is the projected travel time between Los Angeles and San Francisco with Elon Musk's Hyperloop

more than 200 underground and elevated passenger metro systems around the world, with more than 20 in China alone. And more come on stream every year.

FREIGHT TUBE INNOVATIONS

What tube travel technology hasn't successfully done to date, however, is carry freight in any meaningful way. Perhaps this is surprising. There could be massive benefits to tube freight transportation, including reductions in congestion, accidents, pollution, damage to infrastructure, and freight costs. And easy-to-access real-time information on the location of tube-based freight would be particularly attractive to just-in-time manufacturers.

Unfortunately, there are massive downsides, too. Tube train systems are difficult and expensive to build. Christian Wolmar is a writer and broadcaster specializing in transport issues who has written two books about tube travel and the London Underground. In his estimation, one of the greatest freight tube innovations was the London Post Office Railway, a driverless underground system that opened in 1927 and took letters between sorting offices under the U.K. capital. It stopped running in 2003 because road transport proved more cost-effective. "The real problem with using tube transport for freight is that freight needs to be delivered to precisely the right place, and the costs of transferring it from one transport mode to another are prohibitive," says Wolmar. "Plus the distances concerned are too short. I can't ever see tube transport as a concept which will have enormous usage for freight."

Michael Browne is a professor at the University of Westminster in London, directing research and consultancy projects concerned with freight transport and logistics, and chairs the Central London Freight Quality Partnership. He agrees with Wolmar that adaptation of existing tube passenger systems for freight is too problematic, but thinks pneumatic underground freight pipelines are feasible. This isn't a new concept. London businessman George Medhurst was the earli-

est proponent of pneumatic-powered railways when he published a freight proposal document in 1810. Documents and telegrams were duly transported in pneumatic pipes under many cities in the late 19th and early 20th century.

After World War II, larger pneumatic pipe systems were built in Japan and Russia to move materials such as limestone and garbage. "Obviously, pipelines are already used to carry liquid and aggregate products," says Michael Browne. "Plus, tunneling technology is much improved and the diameter of the pipelines needed to carry freight would be much smaller than those needed to carry passengers. It's also possible to imagine driverless vehicles on such systems."

From a logistics standpoint, says Browne, the tricky question is access. Where does the freight's tube journey start and end? And when you bring freight to the surface, what have you gained? Not much if you then have to put it on a truck and drive it 20 minutes or more to its final destination. "There are other complexities," he says. "How will you recoup the capital costs of building such a system? Who would own an underground freight network? There would be serious governance issues. So it's a very interesting idea, but I think we'll struggle to get cities to show interest until someone comes up with a workable concept that answers these questions."

Professor Dr.-Ing. Dietrich Stein at the Ruhr University of Bochum in Germany may be that someone. He has been developing the CargoCap system, which aims to shuttle goods around urban areas via underground transportation pipelines in special computer-controlled vehicles called Caps. Freight can flow "between single business sites, from workbench to workbench or between central warehouses and distribution or sales agencies" to be delivered "precisely on the spot." The CargoCap system ticks all the boxes for a sustainable transport system. It is economical, energy-efficient and, due to the electric drive and underground operation, climate- and environment-friendly. Plus the CargoCap network can easily be added to, with production sites connected to each other – and virtually consolidated. "Theoretically CargoCap may be implemented in any city or metropolitan area on the planet," says Stein. "We are currently planning a pilot application for a large German industrial enterprise, which when completed should demonstrate its trouble-free implementation." Stein expects commissioning for the pilot application to take place in 2016.

THE PNEUMATIC FUTURE

Meanwhile, City Logistics – a school of thought supported by DHL that radically rethinks urban goods distribution – aims to ensure optimum productivity and reliability in urban areas while reducing emissions, energy consumption, and congestion. Mainly this involves moving freight by road, but by pipelines and under-

ground freight transport networks are mooted. Some envisage massive underground freight belts.

George Medhurst would be amazed if he could see where his pneumatic-powered ideas have led, and even more so if he could see where they are potentially going. Last year, Elon Musk, the inventor, entrepreneur, and CEO of Tesla and SpaceX, unveiled a proposal for the next generation of rapid transit. And when Musk says "rapid," he means it. His Hyperloop concept – "the fifth mode of transportation" – is an electro-magnetic inter-city system which would link Los Angeles with San Francisco in 30 minutes, sending passengers in capsules or pods through a continuous steel tube at speeds of up to 1,223 km/h.

This would be an overground system, require a lot of tubing mounted on columns 45 to 90 meters apart, and it might not look very pretty. Christian Wolmar isn't convinced for other reasons. "What would something like that cost to build?" he asks. "What would the advantages be? It would go extremely fast, but I don't see the extra speed would be cost-effective."

Looking less further ahead, Wolmar can see driverless passenger trains on city metro systems where the tunnels are big enough to accommodate them. "We can safely say that tube travel for passengers has proved its worth," he says, "and in a hundred years' time, they will still be building metros in towns and cities around the world." As far as tube travel for freight is concerned, however, a big logistics innovation is still waiting to come down the pipe — *Tony Greenway*

More info on CargoCap at:

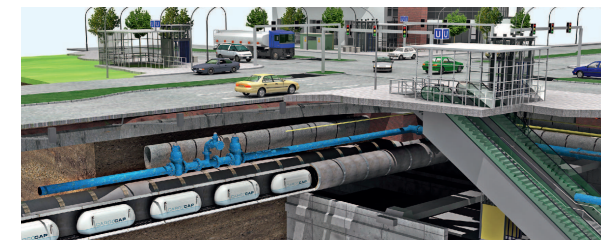
tinyurl.com/del-cargocap

More info on Christian Wolmar and rail history at:

tinyurl.com/del-wolmar



UNDERGROUND MAIL: The London Post Office Railway connected sorting offices from 1927 to 2003.



FREIGHT PIPELINE: The CargoCap system ticks all the boxes for sustainable transport.

BETTER, ALL ROUND

To tackle the Earth's dwindling fuel and natural resources, campaigners say we need to ditch our linear economy and switch to a circular model. But what exactly is the circular economy? And how can it help?

The world's economy is linear. We "take, make, and dispose," using vast quantities of energy and resources in the process. As a civilization, it's something we've been doing on a massive scale since the Industrial Revolution, so it's going to be a hard habit to break. But break it we must, say campaigners including Dame Ellen MacArthur, the round-the-world yachtswoman-turned-environmental-champion (see interview on pages 34–35), because this is an unsustainable way of consuming and living which will ultimately have dire consequences for our planet and future generations.

Recycling, cutting back, conserving energy and resources, buying sustainable products – this is our current reaction to the problems we face. But to change things at a fundamental level, advocates of a concept called the circular economy say that every individual and every business needs to stop thinking in a linear fashion and start thinking in the round. Literally.

For example, careful innovation at a product's design stage would allow it to be disassembled and remade at the end of its life, thus eradicating waste. Leasing goods from manufacturers rather than buying products outright would make us think differently about ownership. This is the circular economy in action – a restorative industrial system that designs out waste and minimizes energy so that everything goes around again, rather than heading for landfill. It offers huge growth opportunities, too. The latest estimate is that the circular economy could be worth \$1 trillion annually by 2025, and savvy businesses are already signed up to its principles.

Circular economy thinking has been around for decades, and its practical applications have been championed since the late 1970s by various academics, thought leaders, and businesses. In the last few years, however, the idea has grown and taken on a new urgency, particularly with MacArthur's charity – the Ellen MacArthur Foundation – working with global business and education to accelerate the transition to a circular economy.

Sophie Thomas has been working in the field of sustainable design for more than 15 years, and is Co-Director of Design at the RSA (Royal Society for the Encouragement of Arts, Manufactures and Commerce) in London. She is also Director of The Great Recovery Project which, in partnership with the Technology Strategy Board, a U.K. public organization, is investigating the role of design in the circular economy and building new partnerships to include designers and material experts, manufacturers and resource managers, brands and retailers, investors and academics. In September, the project will open an innovation hub in London, where businesses can present design challenges to a team of experts who will aim to solve them in a circular way.

Thomas emphasizes the importance of making things better by design so that products can be easily disassembled and remade. The trouble is, most designers are only used to our current linear structure and rarely have exposure to what happens to a product after it leaves their workbench. "I went on a government mission to see how the Netherlands – a country with a landfill ban – was dealing with resource efficiency," she remembers. "We went to various repro-

CLOSING THE LOOPS AT IKEA



Swedish home furnishings giant IKEA is part of the Ellen MacArthur Foundation's Circular Economy 100, a platform "bringing together leading companies, emerging innovators, and regions to accelerate the transition to a circular economy." As part of a Close the Loops project, which it ran with WWF until 2012, IKEA set up recycling points in pilot stores and offered an incentive for customers to bring back old and unwanted products. These points proved useful as a way to raise customer awareness of material recycling

even if the amount of materials collected was often low, says IKEA. Learning points from the projects included "the need to take social and economic factors into account, and that recycling of renewable resources such as wood and textiles can be just as important as the recycling of non-renewable materials." IKEA has tested a number of recycled materials and their potential to be down-cycled and/or up-cycled. It now has numerous products with recycled content, some made from 100% recycled materials, and others with a mix of virgin and recycled.

Illustration: Stuart Briers

More info on The Great Recovery and redesigning the future at:

tinyurl.com/del-circular



LET THERE BE LIGHT



Philips – a world leader in health care, consumer lifestyle, and lighting, and a partner with the Ellen MacArthur Foundation – has been exploring circular innovation within its company for some time. Philips' Pay Per Lux model develops the concept of light as a service – which means selling light rather than light bulbs. In effect, with Pay Per Lux, Philips does not sell products to the customer; rather the customer keeps the product for Philips by leasing lights and paying for performance. For example, when architect Thomas Rau wanted to buy light – rather than lamps, cables, and controls – for his offices at the RAU architectural agency in Amsterdam, Philips designed a system for him that could be adapted, reclaimed, and recycled. Philips' Diamond Select program, meanwhile, which refurbishes complex medical equipment, is a circular breakthrough in the health care market.

THE CIRCULAR NETWORK

To make the shift to the circular economy, designers need to consider the system as a whole, rather than focus on individual components or products. To make circular co-creation viable, however, designers and material experts, manufacturers and resource managers, brands and retailers, consumers, policy makers and government, investors, and academics need to work together. The mission of the Great Recovery project is "to create a neutral space where all disciplines can learn from each other so that we can create initiatives which move us toward a circular economy."

cessing plants and, at one of these, I watched someone trying to get a compressor out of a fridge on a disassembly line. He was really struggling to do it, which I thought was a ridiculous state of affairs. Imagine if that man had been able to talk to all designers of all fridges. They would then be able to understand his problem and come up with an easy design solution which would enable him to simply remove the compressor at the end of the fridge's life."

Currently, says Thomas, a design brief from a manufacturer will usually include specifications on usability, ergonomics, price points, aesthetics, and longevity – but not disassembly or recyclability. That needs to change because, according to The Great Recovery Project, some 80% of a product's environmental impact is predetermined at concept design stage. "So we know this is a very powerful place for designers to be in terms of circularity," she says. "But, really, it's not just about redesigning a product. Switching to a circular economy is about redesigning our entire sys-

tem. It's about switching from a model which derives profit from selling more and more units, to a circular model which is about leasing and strengthening lifelong relationships with a brand."

The Great Recovery Project has taken designers and businesses to recycling and sorting facilities so they could see for themselves the huge issues around waste. "The reactions were incredible," says Thomas. "People who had been working in design for 30 years said to me, 'I've never been to one of these places before and never talked to a waste manager. I had no idea it was so complicated. But if I'd known then what I know now, the products I've been designing would be totally different.' It really opened their eyes."

Building the circular economy isn't going to be easy. It means business model disruption at every level – and it needs political will. It is, however, vital and necessary, says the Ellen MacArthur Foundation, if we want a world where "nothing is wasted, and everything is transformed." — **Tony Greenway**

VIEWPOINTS

Delivered. navigates the circular economy with...

Dame Ellen MacArthur

Through her foundation, Ellen MacArthur works to promote and accelerate the transition to a “circular economy,” in which products are made to be re-made.

Like many key moments in Dame Ellen MacArthur’s life, it happened on a boat. “I suddenly realized what ‘finite’ really was,” she says. “The resources on my boat were like the world’s resources. If I ran out of them – if the food or the petrol went – that was it. There was no more. You don’t come into contact with that concept in life that often. But alone on the sea, it was so obvious and so real.”

It led to MacArthur investigating an idea called the “circular economy.” “The global economy is entirely dependent on finite resources,” she says. “It’s linear. We ‘take, make, and dispose.’ That can’t work in the long term.”

By contrast, the circular economy is “regenerative by intention.” This isn’t recycling. It’s about designing products in a totally different way. MacArthur talks of industrial carpet tiles designed to be deconstructed and remade, cars created with future disassembly and re-manufacturing in mind. Another circular economy principle is that manufacturers should retain the ownership of products and sell their usage – an idea that redefines how goods are sold and serviced.

The Ellen MacArthur Foundation works toward accelerating the transition to a circular economy. “I’ve always been driven by goals,” she says. When she was four, she decided she wanted to sail around the world. She went on not just to fulfill her dream, but to become one of the world’s most famous sportswomen.

In 2001, aged 24, she raced single-handedly non-stop around the world in the Vendée Globe, coming second. In 2002, she won the Route du Rhum from France to the Caribbean, and in 2003 founded the Ellen MacArthur Cancer Trust. In 2005, she became the fastest person to circumnavigate the globe single-handed, and was knighted by Queen Elizabeth II.

The Ellen MacArthur Foundation was launched in 2010. It works with the world’s best universities, partners with businesses such as Cisco, Philips, Kingfisher, Renault, and Unilever, and produces economic reports, the latest of which was published in conjunction with the World Economic Forum in Davos in January.

Can you give examples of the circular economy in action?

Take Philips, who have a lighting service called Pay Per Lux. You don’t buy lights from them. You rent them and pay Philips a flat rate. You don’t pay the

electricity bill, either. They do. That means it’s in Philips’ interest to make the most energy-efficient lights possible. Over time they recover and re-manufacture the lights, and the user ends up paying less for a better product.

Or there’s Caterpillar, who are re-manufacturing engines, and Michelin, who are leasing tires under a pay-per-miles program.

Our current solution for dealing with scarce resources is to use less. Isn’t that enough?

No. It just means we’ll run out of resources a bit later. We can’t squeeze more growth out of the current linear system because raw material prices are increasing. We also have 3.5 billion new middle-class consumers coming onto the global market by 2030.

How easy has it been to get companies and organizations on board?

It takes a few boardroom conversations, of course, but it’s been hugely positive. Ultimately, CEOs want growth, which is what the circular economy can provide. Working with McKinsey, we discovered that the circular economy could generate a net materials saving of \$630 billion per annum for European manufacturing alone by 2025, and that in the global consumer goods sector a \$700 billion opportunity is there for the taking.

Is logistics important in the circular economy?

Logistics companies such as DHL are at the heart of all this, because we’re talking about creating a two-way flow, from manufacturer to consumer and back. That involves moving a lot of stuff around. Take the idea of washing machines, leased from the manufacturer, where the consumer pays per wash. Those washing machines need to be produced and delivered to the consumer. Then reverse logistics are needed when that washing machine goes back to be re-manufactured. Currently, logistics means taking products out to the consumer but, arguably, not bringing a lot back. So imagine if everything flowed both ways! Components and materials would be flying all around the circular economy, making logistics more vital than ever.

Has the circular economy changed your life?

I spent a long time learning about it, and the more I learned, the more I realized that this would become everything to me. That meant leaving behind competitive sailing, which was incredibly difficult.

Do you still sail for enjoyment?

I do. I relax by being outside. I love walking the dogs, paddling canoes, and I like making things. That might be welding, painting a wall, or a picture. The most fulfilling moments in my life are still ahead of me.

“IN THE GLOBAL CONSUMER GOODS SECTOR A \$700 BILLION OPPORTUNITY IS THERE FOR THE TAKING.”

Ellen MacArthur

More info on the Ellen MacArthur Foundation:

tinyurl.com/del-macarthur

SPARKING INNOVATION THROUGH BUSINESS CULTURE



HOW TO LEAD COMMERCIAL CREATIVITY

Organizational change consultant Greg Orme works with senior executives, transforming businesses and developing inspiring leadership. He is a Program Director with London Business School's Executive Education team and the author of "The Spark – How to Ignite and Lead Business Creativity" (FT Publishing, 2014).

As the global economy recovers, innovation is back on the agenda. For some forward-looking CEOs it never went away. Even in the wintry night of the global recession, seven out of ten leaders said it was one of their top three strategic priorities.

In bad times and good, the question of innovation keeps executives awake at night because companies that transform new ideas into new products, processes, and business models beat the competition and make more money. If efficiency and execution are this year's profits, innovation is next year's.

This holds true for sectors as diverse as logistics, automotive, consumer, engineering, manufacturing, life sciences, and technology. The downside of failing to innovate is equally compelling. If you don't respond creatively to accelerating change – driven by new technology, globalization, and social trends – then somebody else will.

Surprisingly, most organizations report that they are not good at innovation. This stems from an inability to

understand and manage individual and team creativity. Any product, process, or business model improvement begins with the spark of an idea. Corporate innovation initiatives often hold a mistaken assumption – that the organization is capable of inspiring people to produce a steady stream of these potentially profitable insights. Anyone who has ever worked in a deadening corporate environment knows that this is rarely the case. Decades of research shows that the majority of businesses accidentally kill ideas every day.

One of the problems is that traditional management relies on hierarchy – and it's not possible to mandate creativity any more than you can order people to be happy. You need to facilitate a culture in which creativity can flourish. If innovation is the new-born chicken, then creative culture is the egg.

Here are five powerful ways to influence your climate, based on the real-life practices and philosophies of the most creative businesses on the planet.

1. LOCATE YOUR CREATIVE HOTSPOTS

Unlike creatively focused industries such as media and marketing, most businesses don't need to be creative 24/7. They are trying to exploit well-trodden processes and proven products to make money right now. Even a creative business like Disney isn't trying to be creative all the time. The theme parks run like clockwork. So, where are your creative hotspots? It might be in a particular team such as marketing or R&D. Or, it might be a certain time in the business cycle. For example, a finance team might need to be creative in working out how to redesign their processes – or a manufacturing team in responding to a tricky assignment. An empowering creative culture should ideally be business-wide – but you need to start somewhere.

2. BREAK THE MANAGEMENT RULES

Don't underestimate how different creative management is from "normal" management. Hierarchical organizational structures were invented at the start of the 20th century

"YOU DON'T LEARN TO WALK BY FOLLOWING RULES. YOU LEARN BY DOING, AND BY FALLING OVER."

Sir Richard Branson

to deliver mass industrialization. But encouraging people to be inventive and innovative is at the other end of the spectrum to the assembly line mentality. To manage for creativity the quality of the idea needs to be the focus, not who's the boss. Flattening hierarchy is vital. A practical way to do this is to run blue-sky team meetings in which you are the facilitator, rather than manager. The aim is to conduct no-holds-barred, outward-looking, inclusive discussions about your products and purpose. I call these "electric conversations." It's the consistent communication style I've observed within informal, passionate, and playful creative businesses.

3. MAKE YOUR GOALS CRYSTAL CLEAR

Counterintuitively, to liberate creativity the business needs laser-like focus. Clear goals everywhere from big picture strategy down to individual projects. The adver-

tising industry calls this the "freedom of the tight brief." In other words, when people understand the rules of the game they play more creatively to arrive at an ingenious solution. Kevin Roberts, CEO of Saatchi & Saatchi, has spoken of how his advertising agency provides an "elastic-sided sandbox" for employees to play in. To put it a different way, there is enough freedom to bend the rules when it is absolutely required.

4. ENCOURAGE IDEA COLLISIONS

Long gone are the days when the CEO had all the good ideas and everyone else put them into practice. A complex, interdependent world requires levels of cooperation never seen before. Just look in your pocket. There is no person on earth who could recreate all the different technologies in the ubiquitous smartphone. Your business needs to share knowledge every day, in every way. One way is to encourage serendipity. To make chance conversations more likely, Pixar designed its HQ around a huge atrium which links all parts of the building. COO John Lasseter, the man behind the hit movie "Toy Story," said: "It worked from day one. I kept running into people I hadn't seen for months. I've never seen a building that promoted collaboration and creativity as well as this one."

5. "BE THE CHANGE YOU WISH TO SEE IN THE WORLD"

This famous piece of advice comes from Gandhi. Follow it. To inspire others, first you need to be inspired. Part of this involves having a clear understanding of your own leadership purpose. This is the answer to the question: Why should anyone be led by you? The legendary British ad man Sir John Hegarty has talked about his purpose being, "To inspire everyone around me." You'll need a sustaining personal philosophy. Creative leadership is a learning journey that lasts a lifetime. It's also risky. By definition, trying out new ideas occasionally means failure.

As Virgin founder Sir Richard Branson has pointed out, "You don't learn to walk by following rules. You learn by doing, and by falling over." Great creative leaders are authentic, purposeful – and brave.

More info on igniting business creativity is available at:

 tinyurl.com/del-creativity



HAPPIEST IN THE FIELD: Tijana Duric meets lymphatic filariasis patients in Africa.

WHAT'S THE STORY, MS. DURIC?

"HELPING LF PATIENTS IS AN ABSOLUTE PRIVILEGE."



BEATING THE DISEASE

Tijana Duric, Director of Supply Planning and Finances at the Neglected Tropical Diseases Unit at GlaxoSmithKline, runs a drug donation program combating Lymphatic filariasis – a disabling mosquito-transmitted condition.

Lymphatic filariasis (LF) is a terrible debilitating disease, transmitted through a mosquito bite, which can lead to the chronic swelling of limbs or genitals, often referred to as elephantiasis. It's not life-threatening, but people who have late stage LF cannot be cured.

The World Health Organization aims to rid the world of LF through the Lymphatic Filariasis Elimination Program, made possible by anti-parasitic drugs donated from pharma companies, including GlaxoSmithKline. Companies work together – and collaborate with the WHO, NGOs and governments – to get drugs to endemic countries. For its part, GSK donates Albendazole tablets.

As part of my role, I have been fortunate to go into the field, meet LF patients, and experience mass-drug administration, which happens once a year. Places I've visited include Ghana, Nigeria, Togo, and Burkina Faso, and I've met some incredible people who suffer with LF. Unless you meet someone with the condition face to face, it's difficult to comprehend it. It has been life-changing for me.

I come to work every day thinking of them and it makes me determined to help beat this awful disease.

Sometimes we need to get Albendazole to remote locations where the infrastructure is poor, so the capabilities DHL has are vital. It takes drugs from our manufacturing facility in Cape Town and helps us get them through to countries, by sea or road, and sometimes by air. DHL also helps us with customs clearance.

I run the Albendazole donation program's supply chain from the GSK office in London, but I'm happiest in the field. For centuries, no one cared about LF sufferers or paid them any attention. In some places they are shunned because locals believe they are cursed by witchcraft. So to be able to make the patients smile, help them understand their condition, and make them feel special is an absolute privilege.

More info on the WHO's Lymphatic Filariasis Elimination Program: tinyurl.com/del-duric

LYMPHATIC FILARIASIS IN FIGURES



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