



JOHAN DEVOS
*Chairperson of the EPCA Supply Chain
Program Committee, Sales Manager Europe
BERTSCHI*

TUESDAY 4 OCTOBER 2016

LOGISTICS AND SUPPLY CHAIN SESSION

50 YEARS OF CHEMICAL LOGISTICS AND
SUPPLY CHAIN EVOLUTION: WHAT'S NEXT?



Opening this session, EPCA Supply Chain Committee chairman, Johan Devos reflected on the work of the committee and the programs it has promoted over the past 20 years. "We've talked about pipelines, about chemical clusters, co-operation, IT, young talent. But the world is changing and bringing us a lot of new challenges, which will impact supply chain and logistics as strategic capability." Devos, who is also European Sales Manager for Bertschi, then asked session moderator Nadine Dereza to introduce keynote speaker **Patrick Dixon, chairman of The Global Change Ltd.** A highly entertaining and thought-provoking presenter, Dixon is a recognized futurist and business thinker. After 50 years of chemical logistics and supply chain evolution, he had come to offer his thoughts on what might be coming next!

"This morning, I'm going to make 10 predictions about what's going to happen over the next 10-50 years," Dixon told delegates, then launched into the future. "First, everything is going to be large scale. Just look at what's happened to retail in the EU and you see the future of India in 30 years' time. In many EU nations, 70% of retail spend is in only eight companies. And consolidation will continue, in every sector, because our world is too small for too many companies." There'll probably be just two major airline manufacturers, and perhaps just six large automakers, he suggested. In 50 years, we'll all be driven, because insurance will be too expensive to allow humans to take the wheel. There'll be just two computer operating systems, two or three mobile phone operating systems, two-to-three Amazons or Ubers. "Our world is looking for scale – unimaginable, gigantic scale. And I expect we'll see the same in chemicals."

But, Dixon cautioned, there are also gigantic risks. "It doesn't matter whether you are an airline, a shipping company, an oil company. There are geopolitical risks, manufacturing risks. There'll be miscalculations by politicians, miscalculations by engineers, and strategies will continue to be overtaken by events. Our world is changing faster than

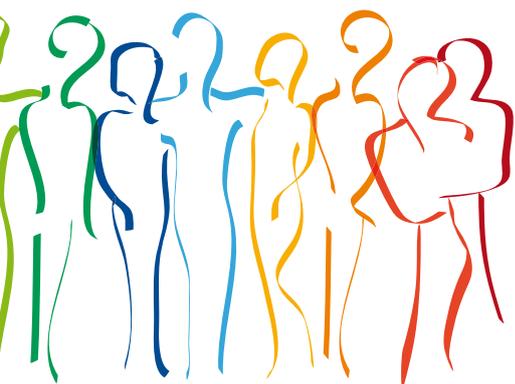
you can hold a meeting of your board!" Dixon recounted his experiences working with a European specialty chemicals producer, and the challenges of relocating and restarting a large manufacturing facility – with all its people and equipment, IT and communication systems – across a country. It was accomplished in 20 days, but only because the company had more than one strategy for supply chain and logistics, Dixon continued.

He argued that benchmarking across sectors is "toxic" because it tends to push all companies towards a single strategy where everyone is liable to be overtaken by the same problems and events. He pointed to the crisis in microprocessor chip availability after severe flooding caused by the tsunami that hit Japan in 2011. He also referenced

"the banks following each other over the subprime cliff "in 2007-08. Turning to the UK's recent 'Brexit' vote to leave the EU, Dixon said, "In 50 years' time the UK will be part of Europe, because it has been for 100,000 years!" He also suggested the EU will still be an important global force in 50 years because of the need for scale.

Dixon highlighted how fast-occurring events can trigger fast changes in strategy. "It took 40 seconds during an earthquake in Japan to change 40 years of energy policy in Japan and Germany. They both cancelled nuclear investment plans." For that reason, agility is an essential quality – a survival issue – in business. In fact, agility will create opportunities for small-scale local specialist suppliers to benefit from the overall trend to larger scale, if they can react quickly and





"1 BILLION HUMANS WILL MOVE FROM POOR AREAS TO WEALTHIER AREAS IN THE NEXT 50 YEARS, IN THE SEARCH FOR FOOD, HEALTH, EDUCATION, SAFETY, SECURITY"

PATRICK DIXON

Futurist and Business Thinker, Chairman

THE GLOBAL CHANGE LTD

smartly to changing events. "Every trend shapes a counter-trend," he said.

Think, too, about the need for speed, Dixon urged. "Imagine you are watching TV, on the phone, doing emails, and you are also 'googling' Britney Spears' birthday, and you are waiting for her web-pages to open. How long are you prepared to wait before you press the back button? 5 seconds! That's how long." How long do your children wait? 2.5 seconds! How long will you wait in 2020 to press the back button? 2.5 seconds. How long in 2045? Less than half a second! How many people are irritated by the time it takes to fill their car fuel tank, or get cash

from a cash machine? How many people are annoyed by having to press select buttons to get to the right answer when they call their electricity suppliers? "Our world is becoming very impatient and very fast, and very tough and very cruel!" Yet, he noted, chemical companies are still taking weeks and months to sign supply contracts. If companies can sign contracts in a week or a month, or by halving the time it takes now, they will win contracts, Dixon forecast. Further, companies need to be able to respond fast and in the way their customers want and expect, regardless of language or technology challenges, because they need to know where their goods or products

are and to be assured of their safety. The answer is the provision of live data – real-time information, available immediately.

In contrast, however, some trends are slowing. "How long would it take to update a friend who had been in a coma for 20 years with all that had happened in that 20-year period? Perhaps just 2 hours, because some things also change slowly," Dixon argued. Take cash, for example. Dixon said. "20 years ago, we were predicting a cashless future. But in the EU today, we're using more banknotes than we did 20 years ago." If your 20-year coma friend got dressed in the clothes he was wearing 20 years ago and came to an EPCA meeting, he would not look out of place fashion-wise because not much has changed in the industry's style, the futurist suggested. The key is to focus on the things that are really changing fast in contrast to those that are changing more slowly.

He pointed to the slow pace of change in robotics in the chemical industry. "Look at the Digital Enterprise 4.0," Dixon said. "Yes, we have new technologies such as 3D printing. But that's boring! What can you print with a 3D printer? Toys?" They may be important in niches, or prototyping, but 3D printers are not yet bringing about fundamental changes in manufacturing, he argued. So what are the big issues? The big change engines?

Dixon offered some statistics. "There are 1 billion children alive today. More than there have ever been before and more than there will ever be again. All of them want your lifestyles, and all of them will be adults in 18 years."

"1 billion humans will move from poor areas to wealthier areas in the next 50 years, in the search for food, health, education, safety, security. There will be more money spent on infrastructure in the next 30 years than in the whole of recorded history, and that's tremendous news for the chemical industry."



PATRICK DIXON

Futurist and Business Thinker, Chairman

THE GLOBAL CHANGE LTD



"85% of all humans will be living in emerging markets in the next 20 years," Dixon said. Most future global growth will come from these areas, and not from mature markets such as the EU or North America. For example, where have the majority of Science, Technology, Engineering and Maths (STEM) graduates come from in the past 6 years? Answer: from the emerging markets, he added. "China and India are ruling the world of STEM because of their emerging middle classes. Most of these people are the first in their family to go to university, to own a car, to have a pension, own a house, etc." The future, Dixon suggested, will be "south to south. Emerging market to emerging market. As far as China is concerned, the EU is becoming irrelevant: what's much more important to China is Africa and Southeast Asia." Dixon also said that despite globalization, global trade is in decline as a percentage of global production. He also suggested that Europe's push for REACH-compliant products or high-purity products could be impacting its ability to sell into markets where high specifications are not essential. However, REACH also has a dampening effect on imports, because there's a sense that compliance is too expensive.

Despite the boom in China, there are risks, the Global Change chairman said. As manufacturing costs are rising in China, some companies are looking to switch production into lower cost markets, such as Vietnam or Myanmar. In fact, he knows of some companies in other sectors that are finding it cheaper to manufacture in Slovenia or Slovakia than in China. "When you're looking at 8% a year inflation in China, compared with 1.5% or negative inflation elsewhere, it

makes sense to move manufacturing." Similarly, US firms are utilizing plants in Mexico using US-made auto parts to make cars for the US market.

Dixon said we are witnessing a \$40tn green technology revolution. "We have seen energy use halved in the chemical sector over the last 20 years. And I predict – per unit of production – that energy use will halve again in the next 20 years." However, he noted that the shale gas revolution in North America means that US investments in petrochemical projects have ballooned, which poses a threat to Europe unless producers can dramatically reduce their costs. Dixon also noted that we should expect to see the impacts of new innovation that will transform the energy and chemicals markets over the next decades. He said China is installing 75% of the world's new green technology because 'going Green' is essential for internal economic and political stability and to meet the demands of a growing middle class that will not accept current levels of pollution. "The days of China selling fridges to Europe are coming to an end. The Chinese are investing in new technologies – Green tech, nano-tech, every other tech – because Vietnam can sell fridges for half the price!" What's more, it is becoming possible to convert 'Green tech' to petrochemicals – wind power-to-methane-to-chemicals, Dixon continued.

**"85% OF ALL HUMANS
WILL BE LIVING IN
EMERGING MARKETS IN THE
NEXT 20 YEARS"**

PATRICK DIXON
Futurist and Business Thinker, Chairman
THE GLOBAL CHANGE LTD

"Solar power is transforming energy supply. The price of solar cells is falling towards zero, very fast. In parts of Africa, solar is already the cheapest form of power," Dixon continued. In Germany, energy prices went negative, because on a particularly sunny and windy day, energy companies were calling their industrial customers imploring them to increase production or turn on their air-conditioning or heating systems to use power that could not be stored. "It was free power! They were being paid three times the normal commercial purchase rate to consumer power," he said.

Dixon also foresees a significant change in the provision of auto fuel. But it won't be bio-fuel in a world that needs food, and it won't be LPG or hydrogen on a very large scale. In his view, it will be electricity. "And it's not a question of if, but when." He sees a difficult future for landlocked countries as foreign trade declines, but those with seaboards and ports will benefit, particularly in the petrochemical sector where plants are located near shipping facilities. Dixon also suggested that the EU chemical sector needs to re-evaluate road transport efficiency: "20% of EU trucks are driving around empty! It's not only an economic scandal, it's also an environmental mess. Trucks are driving air for 180 million km a year in Europe. But that's an easy thing to sort out – we need to Über-ize it to ensure every truck gets filled, and quickly." Dixon also suggested that companies should look at local product swaps in order to prevent long distance transportation – and CO₂ emissions – of products. Dixon ended by offering some good news. "In the last two years, we've been seeing economic growth but static CO₂ emissions. In the next 50 years, we'll see continuing economic growth and continuing decreases in CO₂ emissions."



LEFT TO RIGHT: NADINE DEREZA (CONFERENCE MODERATOR), ESSA AL-SALEH (PRESIDENT AND CEO OF AGILITY GLOBAL INTEGRATED LOGISTICS), HANS-JÖRG BERTSCHI (PRESIDENT AND CEO OF BERTSCHI GROUP), PETER MARSHALL (DIRECTOR FOR SUPPLY CHAIN OPERATIONS, EMEA, DOW CHEMICAL) AND DIRK JAN DE WITH (CHIEF PROCUREMENT OFFICER, COVESTRO DEUTSCHLAND AG)

PANEL DEBATE

Following Patrick Dixon's speech, moderator Nadine Dereza welcomed several people to join him on stage for a panel discussion.

Opening this session, Dereza asked **Essa Al-Saleh, President and CEO of Agility Global Integrated Logistics** how he sees the future shape of chemicals supply chain and logistics. "First of all, I agree with Patrick, that we need agility!" he answered. "But what got us here in the last 20 years won't get us to where we want to be in the next 20 years. I see three major forces at work: slower growth, and less globalization; increasing complexity, particular with regard to environmental, health and safety regulations; and finally, the accelerating pace of everything." In order to respond to these challenges,

Al-Saleh said, companies need three things: first, an engaged and empowered workforce working to shared goals through a common strategy; second, behave and operate like a technology company – to iterate, to continuously improve, and have a mindset of speed, and provide customers with information and not just the physical move; third, companies will need speed, flexibility and responsiveness in order to meet customers' requirements, and look at different approaches."

"How is Agility addressing the need for speed?" Nadine Dereza asked him. Agility's president said he sees the 'need for speed' relating in large part to information. "Our customers want to know where their product is, how much they're spending, what challenges they may face, and also how we are going to react to that by providing them with insights for decision-making. That's the

speed we need. It's not necessarily about getting the product to a destination faster." Al-Saleh said that is why digitalization has had a major impact on how Agility does business. "We generate huge amounts of data because we have 17,000 people worldwide generating close to 5 million transactions every year. It gives us – and our customers – huge insights into how the supply chain works and moves. But we're on a journey and there is always more to do to accelerate the pace and behave as a knowledge company, providing solutions for our customers."

"Is Agility seeing a need to work on the 'soft skills' or change its company culture?" Dereza asked Al-Saleh. He said this occupied a significant amount of his time, and explained that since 2012 Agility has embarked on a performance management strategy, not a top-down strategy, but one to engage our people



“KEEP LEARNING, AND FOCUS ON CONTINUOUS IMPROVEMENT AND USE TECHNOLOGY AND DIVERSITY TO KEEP UP WITH CHANGE”

ESSA AL-SALEH
President and CEO of Agility
GLOBAL INTEGRATED LOGISTICS

in understanding and responding to the challenges the company is facing based on a true diagnosis of the business situation.

Next, **Hans-Jörg Bertschi, President and CEO of Bertschi Group**, and member of EPCA's executive committee and board of directors was asked for his thoughts on the future. He agreed with Patrick Dixon that consolidation has been a feature of the industry over the past 10 years, and that digitalization is having a significant impact on how business is done and information shared. But he wanted to highlight what he sees as a tremendous wave of further globalization. “Back in 2000, only 5% of chemical products were exchanged across continents. Today, that number is 10%. Now 8-10 new crackers are being built in the US, with most of their product bound for export. Specialty chemical plants being built are not just for regional markets but also to meet global demand. So I see

global trade expanding – doubling by 2025, perhaps trebling by 2035. This presents major challenges for the chemicals supply chain. Companies will need more IT, more automated handling, but also more diverse and talented employees to cope with these challenges.” He also made a plea for more women to join the industry.

Nadine Dereza asked whether European logistics companies may be facing a difficult future due to a lack of investment in new chemical production capacity despite state-of-the-art ports, transport facilities and production clusters. Bertschi's response was that European companies have blazed a trail in global logistics, with global reach, global facilities, and increasingly global cultures and networks. “If you look at the ports, only one in Europe – Rotterdam – is in the global top 10. Six of them are in Asia. But what's really important is the global network. When I look at global shipping, the top four global players are all European. For chemical parcel tankers, storage, and so on, the major players are European. So I think we're taking advantage of globalization.”

Asked whether he thought the outlook for the European chemical industry was difficult, particularly given the landlocked location of many plants, Bertschi said the sector always faced challenges, but always responds creatively. “Year after year we have managed to improve our trade balance, even though for 22 years no new crackers have been built in Europe. The future's challenging, but it's also bright!”

Dow Chemical's Peter Marshall, Director for Supply Chain Operations, EMEA, said because the chemical sector is a supplier of essential materials for other industries – ‘an industry of industries’ – it has a long-term future. In his view, supply chain and logistics will play an increasingly critical role in the industry. It is now rec-

ognized as an academic discipline across universities, and is constantly discussed in the boardroom. “It's a great area to work in, and we should be encouraging young people to build their careers in supply chain management.” In terms of developments and trends, Marshall noted that digitalization is coming very fast. “At Dow we're working on end-to-end visibility in the supply chain, so that we can see where products are and what's happening to them, and connecting this with our whole operating system. It's changing how people work on a daily basis.”

He noted that Patrick Dixon had suggested that the industry can be difficult to do business with and suggested that chemicals could benefit from the experiences of those sectors that are more closely connected with end-consumers, particularly in issues relating to speed and agility. “We need to make the best use of new technologies to change the way we work.” While the chemical industry has made continuous progress in areas such as safety, environmental protection, and regulatory compliance, Marshall sees technology as a way to increase transparency in response to the demands of both the public at large and the sector's critics.

The Dow manager said it is hard to predict how supply chains will look physically in the future, but suggested that driverless trucks, automated port systems and warehousing, and hyper-loop frictionless transportation systems may all be on the horizon. He sees these potential developments as both changing people's jobs and also enhancing their safety.

Asked whether it's possible to strike a balance between consumer demands for speed and convenience with sustainability, Marshall said: “I guess consumers would actually say they want both: speed and

ESSA AL-SALEH AND
NADINE DEREZA

convenience, and sustainability. I think the key is to segment our customer base and deliver in the most efficient way. We need to mix and match, and to talk to our customers and suppliers." On the issue of recruitment, he suggested that in addition to trying to attract students with STEM degrees, it is important to try also to recruit people who have different backgrounds. Marshall said it is important to make sure new recruits are quickly engaged in real work so they feel they can immediately make an impact. Dow, he noted, has a supply chain rotation program that enables new hires – who often have bachelors' or masters' degrees in supply chain studies – to gain widespread experience in real work from day one.

Dirk Jan de With, Chief Procurement Officer, Covestro Deutschland AG sees a need for the industry to act. Coming from a consumer and agriculture industry background into chemicals, he said he knows the importance of meeting consumers' needs and their perceptions, because together these two factors drive markets. As an industry that is much further upstream, de With said that chemicals "needs to wake up to address the needs of these consumers. I don't want to be here in 10 years and hear Patrick Dixon say 'we should have done this or done that,' so we have to act!" He said there are a few things that the industry should do. One is to collaborate and use technology to work

more closely together with partners. "I know Patrick was talking about increasing consolidation with fewer companies operating on a larger scale. But I can see a different model, where collaboration provides that scale." De With also suggested seeking value through asset sharing – like car sharing – rather than always looking to own assets outright, making sure that trucks are fully loaded, and looking to technology to build platforms – such as those used by Uber, booking.com or Airbnb – to facilitate collaboration and greater efficiency.

Finally, he said the industry needs to keep on developing its processes and materials, because this is how – through light weighting or transforming CO₂ into usable materials – chemicals can transform other sectors and maintain its role as an essential supplier to virtually every other industrial sector.

Asked by Nadine Dereza for their final thoughts, the panelists offered the following: Essa Al-Saleh said, "Keep learning, and focus on continuous improvement and use technology and diversity to keep up with change."

Hans-Jörg Bertschi suggested that the industry "look for collaboration opportunities and act on them!" Peter Marshall said, "There's a lot going on and it's going to be an exciting future. But we need the right people with all the right skills to deal with the paradigms we face." Dirk Jan de

With concluded: "Be curious, be courageous, be colorful! Think out of the box, and have an open, progressive mindset and attitude. Collaborate throughout the supply chain, and act faster!"

"BACK IN 2000, ONLY 5% OF CHEMICAL PRODUCTS WERE EXCHANGED ACROSS CONTINENTS. TODAY, THAT NUMBER IS 10%. NOW 8-10 NEW CRACKERS ARE BEING BUILT IN THE US, WITH MOST OF THEIR PRODUCT BOUND FOR EXPORT"

HANS-JÖRG BERTSCHI
President and CEO
BERTSCHI GROUP