

REPORT OF THE EPCA LOGISTICS & SUPPLY CHAIN WORKSHOP

DIGITISATION IN THE PETROCHEMICAL SUPPLY CHAIN

HELD AT THE VLERICK
BUSINESS SCHOOL,
BRUSSELS

20TH & 21ST
JUNE 2018



THE EUROPEAN PETROCHEMICAL ASSOCIATION



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PROGRAMME

Wednesday 20th June 2018

Opening address by Johan Devos, Sales Director Europe, **Bertschi AG**, Chairperson of the EPCA Supply Chain Program Committee & **Caroline Ciuciu**, CEO, **EPCA**

“Digitisation, creating value in the Petrochemical Supply Chain”, keynote address by **Prof. Ann Vereecke**, Faculty Dean, **Vlerick Business School** & Q&A session

“Digitisation in the Petrochemical Supply Chain: the Manufacturers’ Perspective”

Keynote addresses by:

Melanie Kalmar, Corporate Vice President, Chief Information Officer, Chief Digital Officer, **The Dow Chemical Co.** followed by Q&A session

Fabio Baerwald, Manager Digital Customer Journey, **Covestro Deutschland AG** followed by Q&A session

CASES TESTIMONIALS & TECHNOLOGY DISCOVERY TRACK SESSIONS

(see table below)

Wrap-up and prioritization of questions raised during Day 1 by **Prof. Ann Vereecke**, Faculty Dean, **Vlerick Business School** & close of the day

Dinner with keynote address by **Frank Ruland**, Global VP and Head of Industry Ecosystem for Energy and Natural Resources, **SAP**

Thursday 21st June 2018

“Digitising a 402 Years Old Company”, keynote address by **Leo Brand**, Chief Information Officer, **Royal Vopak** Followed by Q&A session

Introduction to **Digital Café** by **Prof. Ann Vereecke**, Faculty Dean, **Vlerick Business School**

Digital Café group discussions

Debriefing of group discussions in plenary session
Summary of workshop and call for action by **Prof. Ann Vereecke**, Faculty Dean, **Vlerick Business School**

Closing address by Johan Devos, Sales Director Europe, **Bertschi AG**, Chairperson of the EPCA Supply Chain Program Committee

Cases testimonials & technology discovery track sessions

TRACK 1	TRACK 2	TRACK 3
Boosting supply chain performance with digital innovation	Reshaping the petrochemical supply chain with digital technologies	Mitigating safety & security challenges with digital technologies
Moderator		
Ann Vereecke	Nicholas Vijverman	Joachim Van den Bergh
Moderator		
Nicholas Vijverman	Joachim Van den Bergh	Ann Vereecke
Markus Deppe , European Chemicals Leader, IBM	Daniel Lievens , CEO, NxtPort	Tonne Mulder , Chief Information Security Officer, Royal Vopak
Ellen Naaijkens , Senior Business Manager Containerized Chemicals, Port of Rotterdam	Peter Devos , Managing Director, ECTA & Project Leader, e-ECD	Fernando Gómez , Head of Chemistry and Advanced Materials Industry, World Economic Forum
Frederick Ronse , Founder & CEO, Ovinto & Judith Kleinen , Category Manager Rail & Storage, SABIC	Dr. Bharat Bhardwaj , General Manager Noahs Ark Chemicals/ GoBuyChem	Andy Jones , Head of Research, Information Security Forum



INTRODUCTION

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The increasing use and availability of digital technology opens up a new world of possibilities for industry – but also threatens established business assumptions.

To get a better understanding of what that process of digitisation means in practice for the European petrochemical industry, in early 2017 EPCA commissioned a research study and survey from the Vlerick Business School. The initial results of that survey were presented at the 51st EPCA Annual Meeting in Berlin in October 2017 by Prof. Dr. Ann Vereecke, Partner and Faculty Dean at Vlerick.

The survey was supplemented by a study written by Prof. Dr. Ann Vereecke and her colleagues from Vlerick, Joachim Van den Bergh and Olga Varganova, which was published by EPCA in March 2018. The report focused on 11 case studies, revealing how a number of petrochemical producers and their logistics service providers are leveraging the possibilities offered by digital technologies to improve their processes, enhance efficiencies and support efforts for greater sustainability and better customer service.

The presentation in Berlin and the publication of the report revealed an appetite for continued dialogue on the subject among EPCA members. This encouraged EPCA to organise the June 2018 workshop in Brussels, in conjunction with Vlerick Business School, with the aim of increasing participants' understanding of digital transformation and technology relevance in the petrochemical supply chain, and to provide a forum for discussing the tangible benefits of supply chain digitisation. It was hoped that this could illuminate possible paths forward for the industry as a whole and for individual companies looking to thrive in the digital economy.

The structure of this one-and-a-half-day workshop had been designed to combine plenary and break-out sessions as well as 'digital café' discussions so that all participants could not only learn from the experts and the front runners but also engage actively with each other and work in small break-out groups to bring their own ideas and co-create the path forward. The morning of the first day focused on a series of keynote addresses, while the afternoon was dedicated to a series of

three parallel track sessions with three presentations in each track related to a specific topic/challenge. The three track sessions were repeated once so that participants could attend at least two of each.

To close the first day, a dinner was organized in the Hotel Le Plaza Brussels, with a keynote address by SAP.

Welcoming the more than 130 participants to the workshop, Caroline Ciuciu, CEO of EPCA, reminded them of the need to strictly comply with the rules of competition law at all times during the EPCA events, and invited all present to have a look at the EPCA Do's and Don'ts' cards that had been included in each participant's registration pack. She noted that the size and diverse nature of the audience confirmed that there is a genuine interest in the business transformations that the process of digitisation offers. It also showed that there is an awareness of digitisation across all levels of the organisations represented at the workshop.

The supply chain is absolutely key to the continuity of the petrochemical industry,



THE REPORT

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Attendees at the workshop were all provided with a copy of the EPCA/Vlerick Business School report on digitisation in the petrochemical supply chain. To help with understanding, Prof. Dr. Vereecke summarised its key points and the important insights it contains.

What has changed over the past ten years is that traditional 'bricks and mortar' companies – including a number of oil and petrochemical companies – have been chased out of the list of largest corporations in terms of market capitalisation. They have been replaced by data-intensive companies, notably the 'GAFA' firms (Google, Apple, Facebook and Amazon) and Microsoft.

The data-driven systems that these companies offer to the wider market have helped the retail, media and entertainment sectors to change out of all recognition over the past decade. That process is now moving into other industrial sectors and their supply chains.

How can digitisation strengthen and add value to the petrochemical supply chain? This is the question that the EPCA/Vlerick Business School report set out to answer, by discussing the results of the 2017 survey and by examining the interesting and varied case studies involving front runners in the digitisation process that emerged from the research.

Ms Ciuciu stressed, noting that digitisation has already begun transforming the supply chain. It is important, therefore, to be aware of and understand the technologies involved and the kinds of transformation they can bring to each business in the supply chain.

Johan Devos, Sales Director Europe at Bertschi AG and chairperson of EPCA's Supply Chain Programme Committee (SCPC), explained that the aim of the workshop was fourfold:

- To examine the current level of digital maturity in the petrochemical supply chain
- To look at the concrete benefits offered by digitisation
- To assess how technology can improve supply chain performance
- To identify front runners and best practices in the digitisation process.

Mr Devos said that the Vlerick Business School research study had generated a lot of interest, which confirmed the appetite among EPCA members for more work in this area.



**JOHAN DEVOS - SALES DIRECTOR
EUROPE AT BERTSCHI AG AND
CHAIRPERSON OF EPCA'S SUPPLY CHAIN
PROGRAMME COMMITTEE (SCPC)**

**"Digitisation has already
begun transforming
the supply chain"**

**CAROLINE CIUCIU
EPCA CEO**





“The driver for change is coming from the market; it is the customer who is pushing”

PROF. DR. ANN VEREECKE
PARTNER AND FACULTY DEAN AT
VLERICK BUSINESS SCHOOL

Prof. Dr. Vereecke highlighted some data that emerged from the survey:

- The level of digital awareness in the petrochemical supply chain is high
- Almost all respondents to the survey expect a significant impact on their internal processes and those of their supply chain partners
- That impact is expected to be mainly in the flow of information and finances; few expect any impact on the physical flow of goods.

Respondents to the survey were divided in their opinion on the potential for digital technologies to change the way that business is done, with 51% expecting a change to their own business model. This indicates that many see digitisation not just as the next development but as a driver of fundamental change.

Out of those surveyed, 73% believe that petrochemical companies are lagging behind in the digitisation process but this figure rises to 95% among the sector’s

customers. This is an important metric, Prof. Dr. Vereecke noted, as customers are often an important factor in driving change. More than half (55%) of those surveyed reported that their customers are behaving differently and are increasingly demanding greater visibility and flexibility, and shorter lead times.

It is also the case that the process of digitisation is being driven by newcomers to the sector, including the GAFSA companies, new technology start-ups and other companies from outside the petrochemical industry. This is something that has implications for established operators.

According to the Vlerick Business School survey, 52% of respondents said their ambition is to be an innovator or early adopter of digital technology. That level of ambition rises in proximity to the market, standing at 65% among traders and distributors, 58% among logistics service providers, but only 41% among chemical manufacturers and 28% among upstream producers.

A similar picture can be seen in terms of progress along the journey to digitisation:

60% of logistics service providers say they are at least halfway along the journey but, for instance, only 35% of chemical companies. “The driver for change is coming from the market,” said Prof. Dr. Vereecke. “It is the customer who is pushing change.”

To summarise, the petrochemical sector is aware of the potential offered by digitisation and of the need for change. But it is also aware that, overall, it is lagging behind other industries.

Prof. Dr. Vereecke turned to those capabilities that are needed to enable the digitisation process. Six specific capabilities were identified:

- Integration of a digital strategy as part of an overall corporate strategy
- Governance, involving the commitment of top levels of management to an agile structure
- The use of digital technologies in operational and support processes
- Access to the required talent
- A change of culture, to encourage experimentation and seize opportunities
- Selection of the right technologies, built on an IT core that is reliable, resilient and secure.



The number one priority among these capabilities is the development of a talent pool – there is a “war for talent” going on, Prof. Dr. Vereecke said, and in this war the petrochemical sector is fighting not just among itself but with all other industrial sectors that are engaged in the process of digitisation.

The survey measured the position of the petrochemical sector with regard to all these six capabilities, the results of which were “no better than average”. As Prof. Dr. Vereecke said, “There is work to be done.”

Again, though, the petrochemical sector’s logistics service providers did better than manufacturers in all six areas. As the report states: “It is striking that the logistics service providers show a higher level of digital capabilities than the petrochemical manufacturers. Not only are the logistics service providers more ambitious and more advanced in the adoption of digitisation,

they also have more capabilities to reach their ambitious goals.”

It is no surprise, Prof. Dr. Vereecke said, that companies embarking on the road to digitisation focus first on those technologies that promise a high impact in the short term. Those include big data and advanced analytics, Cloud computing, platforms for shared logistics (‘uberisation’), low-cost sensor technology and digital identifiers.

The use of sensors in tracking goods movements enables visibility in the supply chain, which can lead to better asset employment, higher reliability, and a safer, more sustainable supply chain. This translates directly into added value for all participants in the chain.

Portals and data platforms can be used to consolidate data across industry sectors, revealing inefficiencies and highlighting asset availability. Prof. Dr. Vereecke identified some examples, such as Damco’s



“The revolution is not necessarily in the technology but in new relationships”

PROF. DR. ANN VEREECKE
PARTNER AND FACULTY DEAN AT
VLERICK BUSINESS SCHOOL



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collaboration with Alibaba for the online booking of shipping space, the Port of Rotterdam’s Avanti-Pronto system for port call optimisation, and the electronic European Cleaning Document (e-ECD) developed by the European Federation of Tank Cleaning Organisations (EFTCO), the European Chemical Transport Association (ECTA), the European Chemical Industry Council (Cefic) and Essenscia, the Belgian chemical industry association.

One area of great promise identified by Prof. Dr. Vereecke is self-learning systems, including the use of machine learning, artificial intelligence and cognitive computing. Such systems have the potential to generate predictive – or even prescriptive – supply chains. BASF has already embarked on this journey and is taking a step-wise approach to developing systems that will learn from current activity and start to provide recommendations on how to manage supply chains more efficiently.

There are other technologies being considered as filed under ‘maybe later’ but, Prof. Dr. Vereecke said, things are moving fast, even over the past year since Vlerick Business School began work on the survey. There have, for instance, been some interesting pilot projects involving Blockchain concepts in the past few months.

Prof. Dr. Vereecke had some informed observations on the results of the survey and study.

1. Many cases of digitisation involve several partners. Such initiative depend on an ecosystem of partners with differing capabilities and competences, as was the case with the e-ECD initiative. This approach demands a lot of trust and openness on all sides.
2. Innovation does not come naturally. It requires a culture shift, a different way of thinking, the breaking down of silos and independent work towards a common goal. This sounds easy but it is hard to accomplish in reality. Again, trust is a key factor, as is the need to keep an open mind. It is vital to allow people to experiment and to ‘fail fast’, while still guaranteeing a service level and reliability across the supply chain.
3. There is a need for HR policies that attract, develop and retain digital-savvy talent. It is also important to be able to manage the gap between the digital-savvy and traditional business expertise. Remember, though, that young people in particular are eager to work with innovative companies.

Prof. Dr. Vereecke acknowledged that there are some risks and challenges involved in

the process of digitisation and that these concerns are valid. The survey conducted by Vlerick Business School showed that the three main challenges involve the “dehumanisation of the supply chain” and concerns over cyber-security and the risk of temporary system failures. These risks will need to be addressed and managed.

But the results of the survey also showed that digitisation pays off. Respondents reported greater efficiency in their internal processes, better staff productivity, enhanced customer service and improved coordination with suppliers. These gains were seen among both petrochemical producers and their logistics partners.

Digitisation has thus far had a limited impact on inventory in the supply chain and on asset utilisation, which Prof. Dr. Vereecke said she found puzzling. Improvements in these areas may prove to be longer-term gains.

Prof. Dr. Vereecke urged petrochemical producers to keep working on the six capabilities outlined above, and to learn from their LSPs, who can be catalysts for innovation due to their frequent links to other sectors. “The revolution is not necessarily in the technology but in the use of new relationships in the supply chain,” she said.

PRODUCER PERSPECTIVE

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The workshop continued with presentations from two petrochemical producers that are already on the digitisation journey. The first came from Melanie Kalmar, Corporate Vice President, Chief Information Officer and Chief Digital Officer at The Dow Chemical Company. "The digital revolution is a very important subject for all of us," she began, introducing Dow's concept of the digital revolution, which is to enable it to be the most customer-centric materials science company. That will involve transforming the employee experience, promising delivery "at the speed of business", and transforming the customer experience, all while ensuring safe, secure and sustainable operations.

The outcome of this revolution will depend on how all parties work together across the whole value chain, involving the use of technology, services and systems to benefit both Dow itself and its customers.

Ms Kalmar described a potential future petrochemical industry in which digital technology will allow Dow to connect the entire system from R&D to the end user customer, with feedback to help drive the next cycle of R&D. In this future, customers will never be out of stock. "We will have full transparency," she said, "and full confidence in data security."

The process so far has surprised Dow itself with the results of what Ms Kalmar described as "unprecedented innovation". Automated data collection together with the application of artificial intelligence gives the company "unparalleled freedom to experiment" and solve problems, she said. "We're connected as an industry and trust each other to serve the customer."

That trust will be vital since, while a company such as Dow will seek to stay ahead of the curve, it is up to the petrochemical industry as a whole to work towards that future – "We don't have any alternative," Ms Kalmar said.

Ms Kalmar listed some of the digital initiatives already taken by Dow. It has, for instance, been investigating how the use of robotics can speed up the process of R&D and marketisation of products, shortening development times. It has added an online formulation system to allow customers to define the product they need, again speeding the process from concept to delivery.



"In the digitised future, customers will never be out of stock"

MELANIE KALMAR
CORPORATE VICE PRESIDENT, CHIEF
INFORMATION OFFICER AND CHIEF
DIGITAL OFFICER AT THE DOW CHEMICAL
COMPANY

“There are lots of things we could do – but we need to focus on what we should do”

MELANIE KALMAR
CORPORATE VICE PRESIDENT, CHIEF INFORMATION OFFICER AND CHIEF DIGITAL OFFICER AT THE DOW CHEMICAL COMPANY



Digital procedures have been introduced to eliminate paperwork, increase accuracy and save staff time, especially at loading and unloading sites. For example, taking digital pictures of rail tank cars after loading provides evidence of their condition in case of query or penalty action later on. This also improves the employee experience. Similarly, artificial intelligence techniques are being applied to automate repetitive tasks and develop reliable predictive maintenance programmes. Digitisation is also being used to improve worker safety. The use of robots and drones to carry out inspections removes the need for staff to enter enclosed spaces, something Ms Kalmar described as “a breakthrough in safety”.

In addition, Dow is partnering with IBM and Maersk in the application of Blockchain concepts to provide greater visibility of consignments in transport and to be able to answer the question “Where’s my stuff?”

Dow has also launched digital centres around the world. These centres are designed to support the provision of digital solutions by bringing the right people together under one roof. Cross-functional teams including personnel from marketing, IT, logistics and corporate divisions do a lot of work listening to the market and providing feedback from downstream users to direct the digitisation effort.

However, Ms Kalmar said, it is not just a matter of the application of technology but the application of new ways of working and of thinking. Digitising a corporation results in the blurring of lines between departments so there is a need to break down the silo mentality. This will challenge

existing hierarchies and the approach to what are currently seen as cost centres within the organisation.

Dow Chemical rolled out a new digital strategy in the fall of 2017 with the aim of driving the revolution through a focus on employees, customers and the speed of delivery. This is now a fundamental part of the overall corporate strategy rather than being seen as a stand-alone initiative.

“We are all digital beings,” Ms Kalmar said, noting that new technology should change how people do their jobs. They will have to be able to make quicker, better decisions. “Technology allows employees to shine in new ways,” she said.

Similarly, technology will allow Dow to deliver smarter solutions for its customers, with Ms Kalmar stressing the potential for greater transparency within the supply chain and more connected capabilities making it more intuitive about their needs.

These two things go together, Ms Kalmar said. “If you provide a great employee

experience, that will deliver a great customer experience. And a great customer experience will deliver business growth.”

Ms Kalmar returned to the need for the industry to embark together on the digitisation journey. “If we work together we will overcome the challenges and get further, faster,” she said. One area where that will be vital is in the recruitment of the necessary talent to deliver the digital future. Whereas petrochemical companies compete with each other to attract, for instance, young chemical engineers, when it comes to tech-savvy graduates they will be competing with other industries. “Talent availability is the biggest threat to business growth,” she stressed. There is strength in numbers and measures should be taken to address the talent shortage.

Likewise, a reflection should be initiated regarding the use of autonomous vehicles. The arrival of self-driving trucks will help ease the global driver shortage and the technology is in place. Legislation and regulation will determine how the concept develops in reality and the



FABIO BAERWALD - MANAGER DIGITAL
CUSTOMER JOURNEY AT COVESTRO DEUTSCHLAND

petrochemical industry needs to be part of that conversation.

“We need each other,” was Ms Kalmar’s closing point. There will be a lot of digital technologies applied across the value chain and the conversation will need to continue. “There are lots of things we could do – but we need to focus on what we should do.”

The second producer presentation was given by Fabio Baerwald, Manager Digital Customer Journey at Covestro Deutschland. The digital journey is, he said, all about technology – but mostly it is about change. Technologies have already driven social and business changes and the generational change is creating new expectations from businesses. That means new ways of working, adapting to new customer habits and using new business models.

It is clear that technology alone is not enough: it has to serve within a broader vision. For Covestro, that means bringing in its supply chain partners to act as key enablers to manage the digital change and

embedding new technologies into new business models and ecosystems. That signals a need for a change to the traditional business mindset.

Covestro is also applying a three-pronged digital strategy: digital operations to optimise daily business and drive a more predictive organisation; a digital customer experience; and digital business models. These three are interlinked, with customer experience being a key element. Together they will deliver business growth and drive profitability.

The vision of Covestro’s Digital Customer Journey is to create “a modern, seamless, future-proof digital customer experience across all (digital) touch-points under consideration of regional specifics”. That means, for example, embracing digital marketplaces to find out what type of platforms work best for the customers, while also allowing Covestro to be inspired by the capabilities those platforms offer.

Digitisation of the service landscape includes improved capabilities for online orders, links between Enterprise Resource Planning (ERP) systems, and a new multichannel platform for easy access to product information and digital self-services. One example of this is online availability of Covestro’s Tank Farm Assessments (TFA), which again could be opened up to the rest of the industry as a proactive way to improve safety levels across the board.

All this has implications for customer support: as the process of digitisation proceeds, digital customer support will have to cover a widening spectrum of customer queries and live trouble-shooting, across a variety of channels.

It is vital to keep customers involved in this process – Covestro has set up a ‘customer experience factory’ to do that – and for the organisation to move away from a focus on processes and focus instead on the customer. “Don’t be afraid to fail,” said Mr Baerwald, repeating a mantra that came up time after time at the workshop. Digitisation means not just doing the same things faster but allowing customers into the process at an early stage with open feedback.

Covestro has experienced “fantastic response” from its customers to the opportunity to see and test the new customer experience at the prototype stage, Mr Baerwald said. “We have to listen closely to what they want.”

Mr Baerwald closed his presentation with three messages:

- Digitisation is about change, especially in B2B relationships
- Companies need to embed technology in their customers’ experience and business models
- Each company needs to find its own path: “You can’t just go away and get digitised.”

“Digital leaders are more profitable and growing faster than digital laggards”

MARKUS DEPPE
EUROPEAN CHEMICALS LEADER AT IBM



BOOSTING PERFORMANCE

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After lunch, the workshop split into three tracks, the better to give delegates the chance to hear in greater detail those presentations of most relevance to them. The first, “Boosting supply chain performance with digital innovation”, was moderated by Prof. Dr. Ann Vereecke and started with a presentation by Markus Deppe, European Chemicals Leader at IBM.

Digital transformation, Mr Deppe explained, enables new business models, such as the digitisation of chemical sales and formulation adaptations – as well as the supply chain. This can improve end-to-end development times from months to just days. He identified four key innovations:

- Cloud computing and big data analytics
- Cognitive computing (Artificial Intelligence)
- The Internet of Things (IoT), and
- Blockchain.

IBM is taking part in a major project involving the application of Blockchain to global container trades, having established a joint venture with Maersk in early 2018. The platform will digitise the business of booking and managing containerised trade, leading to a global, paperless system for use by all parties in the supply chain. The partners are currently building the platform and a pilot project was starting in June 2018. Other companies have already joined the project. The idea is that all parties can put data in and take data out; all will be able to benefit through lower costs and a differentiated service.

Global trade is today “hugely inefficient” and burdened by paper-based processes, Mr Deppe said. Inconsistent information across organisational boundaries and blind spots throughout the supply chain hinder the efficient flow of goods. The Global Trade

Digitization (GTD) platform aims to remove these inefficiencies by offering an open, neutral means of connecting players in the supply chain by creating an “information backbone” based on Blockchain technology. The system is being trialled on specific trade lanes before being rolled out gradually, starting before the end of 2018.

Mr Deppe moved on to the concept of ‘cognitive services’, where an obvious application is in the use of customer data to generate recommendations for stock replenishment. It can also be used to analyse and monitor supply chain pulse points, reduce the number of non-conformities, and respond to incidents and closures in the supply chain. “There is a lot more to come in this space,” he said.

Research carried out this year by IBM demonstrated that digital leaders are more



profitable and growing faster than digital laggards. The good news from the survey for petrochemical companies is that 80% of those polled expect innovative chemical industry incumbents to lead the process of digital change in the sector, compared to 23% citing the GAFAs companies, 22% companies from other industries, and only 12% expecting smaller companies and start-ups to lead the race.

Further examples of digitisation in practice were given by Ellen Naaijken, Senior Business Manager, Containerised Chemicals at the Port of Rotterdam, which has been investigating ways by which a port authority can boost supply chain performance through the application of digital technologies.

The Port of Rotterdam is moving away from just being a landlord and is looking to help shippers and forwarders optimise their supply chains. And, like other ports, it is well placed to do so as it has a unique, neutral independent position with regards to supply chains but is connected to all the parties involved. In addition, the port's harbourmaster role means it already has access to a lot of relevant information, e.g. about ship movements.

One long-running example of how the Port of Rotterdam can leverage that position is the Portbase® Port Community System (PCS), a neutral hub which currently digitally connects around 14,500 users in 4,000 companies and handles some 90 million

messages every year. To move things forward, the Port of Rotterdam has now established a new department, Digital Business Solutions, to connect to new digital possibilities and leverage the access the Port of Rotterdam has to big data in the form of vessel and container movement information.

An early example of this approach is the port call optimisation system, Pronto, which enables collaborative vessel planning. A wide range of stakeholders were involved from the start, each demanding standards to be defined and applied globally, which required cooperation with other ports. The Port of Rotterdam piloted this system, which delivered a 20 per cent reduction in port times for deepsea container ships.

Ms Naaijken reported on a current project that is being piloted with a few parties on supply chain visibility, looking closely at container passage through the port. Another pilot project, the Supply Chain Optimisation and Performance Engine (SCOPE), so far involving three chemical companies, aims to identify where improvements can be made in the supply chain from and to the hinterland, covering barge, rail and road transport.

In summary, Ms Naaijken said, digitised systems demand cooperation and standardisation if they are to have a material impact. Understanding the interests and behaviours of all parties in the supply chain is

half of the solution. Finally, implementation must be done on a step-by-step basis, delivering continuous improvements for all involved. "But with our pilots we are clearly making progress," she said.

Judith Kleinen, Category Manager Rail & Storage for SABIC, and Frederick Ronse, Founder and CEO of OVINTO, described how the use of sensors can aid visibility in the transport of bulk chemicals by rail and how the use of IoT and big data predictive analytics can improve the efficiency of that supply chain.

"Shipments go on rail and enter a black hole," Mr Ronse said. OVINTO sensors, mounted on rail wagons, use satellite communications at very low energies to track railcars. This started out as a safety project but is now beginning to use the data that is made available to identify the most efficient route and to connect with ERP systems. This is still a work in progress, especially when it comes to dealing with the traction companies, but it has already shown gains in supply chain optimisation, asset utilisation and process optimisation. That delivers better customer satisfaction.

Technologies such as this – and there are other providers in the market – help make rail transport more visible and give shippers greater confidence. That should help take more cargo off the roads. Industry can already take advantage of such services.

RESHAPING THE SUPPLY CHAIN

20TH JUNE 2018 - AFTERNOON

The second track, moderated by Nicholas Vijverman, Research Associate at Vlerick Business School, looked at reshaping the petrochemical supply chain through the use of digital technologies. Daniel Lievens, CEO of NxtPort, described some of the possible futures that could emerge from the gathering, analysis, sharing and application of the data that is already being collected.

The problem at the moment is that a complex supply chain ecosystem has developed that lacks an integrated information flow. Individual silos have been optimised but this has resulted in a sub-optimal performance of the supply chain as a whole. Mr Lievens quoted figures suggesting that even a simple shipment will involve up to 30 people and organisations, necessitating more than 200 different interactions and communications. As a result, up to half the cost of moving a container is related to paperwork.

NxtPort's mission, therefore, is to make ports and their related transport and logistics chains better, safer, more efficient and more profitable through the application of digital technologies. It sees itself as a data custodian, generating trust in the system, and as a community facilitator by gathering a "coalition of the willing". Co-creation is a fundamental aspect of its work, inviting open innovation by all parties in the supply chain ecosystem. The final element is the monetisation of the gains achieved through a data and solutions marketplace.

Such an approach can work with a range of industries and a range of transport modalities. Mr Lievens offered a number of examples, such as: the use of Blockchain concepts to improve security in the release of containers from the terminal; a neutral platform for the collection and delivery of verified gross mass (VGM) data; the digital re-use of cargo information for customs declarations; standardisation of the transport

instructions from principals to carriers; and automation of export declarations.

NxtPort has the potential to provide a platform for the chemical community in terms of vessel arrival times, tanker rotation and terminal occupancy, discharge reports at storage terminals, safety data sheets for dangerous goods, transit documentation for customs declarations, and oversight of rail operations.

Peter Devos, Managing Director of ECTA and Project Leader e-ECD, spoke about the digitisation of the EFTCO Cleaning Document (ECD) and the development of the e-ECD. Across Europe, more than 3 million paper ECDs are currently issued each year and these ECD documents can get lost, are error-prone, create documentation logistics inefficiencies and can result in unsafe operations. It was realised that digitising this paper-driven ECD process offers a great opportunity to improve



“Up to half of the cost of moving a container is related to paperwork”

DANIEL LIEVENS
CEO OF NXTPORT

with the hand brake on” – to a collaborative “outside in” supply chain mindset in which the whole ecosystem works together. That transition has been facilitated by the chemical logistics industry associations with the support of their members.

At the time of the Brussels workshop, the e-ECD pilot project was running, involving 20 companies. Mr Devos expected that the e-ECD application would be launched late in 2018 with full roll-out at EU level starting 2019.

Mr Devos listed some of the lessons learned during the process. The commitment by each of the industry associations was vital; it was also found that Responsible Care provides a solid common ground for discussions, for working together and sharing data to improve safety within the chemical logistics chain. A community or ecosystem of different companies does not have a single “boss” but, he said, it does need a trusted leader to be successful.

In terms of technology, the concepts are easy but the function of the platform

solution must match the objectives of the project. Start out with realistic ambitions and scope: the transformation journey may reveal more potential. It is important to have a strong cross-community team, including IT partners. And there has to be a business case for the change; project funding can be a long and intense process. Finally, he advised, “stay humble”; the project can only become a real success once it is operational.

Dr Bharat Bhardwaj, General Manager of Noahs Ark Chemicals and CEO of GoBuyChem, introduced the GoBuyChem digital platform, which translates the established personal experience of online shopping to the buying and selling of chemicals. It provides buyers with a way to search different suppliers, compare prices and ask for quotes; it also provides sellers with a cost-effective route to market.

The GoBuyChem concept has extended into the development of a partner network for the physical delivery of chemicals and to the provision of financing and invoice collection. By minimising the administrative costs and effort involved in the transaction, it releases value for buyer and seller.

safety and efficiency across the supply chain. During the project journey in 2017, the e-ECD project team identified NxtPort as the IT platform of choice for data sharing across Europe.

But, Mr Devos said, the project is not just about paperless operation: it is about sharing data across a multiple of logistics stakeholders in a smart way, creating transactional B2B visibility and preparing for the future chemical logistics supply chain. Along the way it also ensures data quality and compliance and, through the use of a neutral platform, provides trust in the system.

Development of the e-ECD process can be seen as a typical example of the change that needs to be made if the digitisation journey is to be successful. On top of a digital mindset, it involves a transformation from the current “silo’ed supply chain mindset”; accepting of the status quo – something that Mr Devos described as being like “driving



PETER DEVOS - MANAGING DIRECTOR OF ECTA AND PROJECT LEADER E-ECD

“The basic approach to cyber-security is to put in place layers of protection”

TONNE MULDER
CHIEF INFORMATION SECURITY
OFFICER AT ROYAL VOPAK



SAFETY AND SECURITY

20TH JUNE 2018 - AFTERNOON

The third track looked at ways to mitigate the safety and security challenges posed by digital technologies and was moderated by Vlerick Business School's Joachim Van den Bergh. Tonne Mulder, Chief Information Security Officer at Royal Vopak, revealed that there are reports of cyber-attacks every day, showing the potential they have to make a huge impact on organisations reliant on digital processes.

Three years ago, Vopak started a company-wide cyber-security assessment project, including the assessment of the vulnerability of business information. It also analysed near-miss cyber-security incidents over the previous 18 months.

Vopak brought in a team of hackers to carry out a penetration test to highlight any weak points. It also tested gate security to include physical threats.

Cyber-security is now seen as Vopak's ninth fundamental for safe operations; as with its approach to safety, the first element of its

cyber-security strategy is to prevent an attack. If one does occur, it is then vital to know as soon as possible that it has happened and to be prepared to react. The organisation also needs to be able to recover quickly.

The basic approach to cyber-security is, as with safety, to put in place layers of protection and network segregation so as to limit the impact of any attack. But more fundamentally, Vopak needed to know what digital assets it had – both hardware and software. “You can't protect them if you don't know what you have,” Mr Mulder said. Also, it is known that 90 per cent of attacks come via an end point device (e.g. laptop, desktop, ...); those end points must be protected. It is also vital to remember that changes to software can open up gaps in the protection.

Vopak has had to look at crisis communication and response. An operational incident at a terminal is a local event and is locally managed; a cyber-security failure can cross terminals, countries or offices and needs a different approach to management. There also needs to be a different level of

awareness among employees: they need to think about cyber-security and not just click on an incoming email.

Contracts are now starting to take cyber-security into account and in the summer of 2018 Vopak was planning to carry out its first cyber-security test with a customer. The aim of this was to see if operations could continue in the event of an IT failure.

Mr Mulder had some important lessons to deliver. Increasingly, terminals have networks of operational technology (OT) taking data from sensors on tank gauges, pumps, valves and other equipment. It is vital that the OT network is never connected directly to the internet – that is a major vulnerability. Any OT network should connect to the office system.

Finally, in order to be able to keep track of all networks within the organisation, it is very helpful if software can be standardised across the terminal network.

Fernando Gómez is the Head of Chemistry and Advanced Materials Industry at the World



FERNANDO GÓMEZ - HEAD OF CHEMISTRY
AND ADVANCED MATERIALS INDUSTRY AT
THE WORLD ECONOMIC FORUM



ANDY JONES - HEAD OF RESEARCH AT
THE INFORMATION SECURITY FORUM

Economic Forum (WEF), the international organisation dedicated to public-private cooperation, with a mission to improve the state of the world.

In 2015/16, WEF conducted a study into the digital transformation of various industrial sectors. It found that, in the chemicals sector, digitisation was largely focused on doing things more efficiently, including in the supply chain. The challenge was to identify what pockets of benefits could be opened up by the digitised organisation, particularly through innovative ecosystems and value-chain collaboration. A similar analysis of the oil and gas sector displayed a similar pattern to chemicals, but with the addition of issues relating to new energy sources.

There are parallels, Mr Gómez said, with industry's experience with security and safety systems. There are plenty of opportunities for digital technologies to help improve safety, especially in terms of worker safety, asset protection and processes. For instance, data analytics and deep learning can help with the advanced modelling of chemical hazards; integrated sensors and connected devices can monitor exposure levels; virtual reality can be applied to training, inspection and maintenance activities; Blockchain systems can guarantee vessel and documentation integrity; and data analytics of process variances can help minimise human error.

Mr Gómez said that collaborative approaches to digitisation are needed to preserve value in the safety chain. Digitisation can inspire confidence in the genuine contributions made by businesses to society through

increased transparency. Businesses will still compete for talent and market share but can increasingly collaborate through platforms; and building a tactical approach to implementation and risk management encompassing resources, processes and values.

While the fourth industrial revolution is often defined only based on digital technologies, it is, Mr Gómez said, human-centred in a way that previous industrial revolutions have not been. It is important to remember this during the digitisation process. All companies say their employees are their most important asset; the digitisation process must illustrate that.

Business must ensure that digitisation does not introduce new hazards to the organisation or its people. At the moment there are gaps in technology governance, in areas such as autonomous vehicles and cross-border movement of data. It will require collaboration across the value chain to address issues such as these.

Andy Jones, Head of Research at the Information Security Forum, gave the audience an idea of what it is like to be under cyber-attack. He focused on the Industrial Internet of Things (IIoT) – where control systems meet the internet. This interface has its own embedded vulnerabilities and, while safety is its primary function, this is now being challenged.

IIoT systems normally include an 'air gap' between the control system and the internet but, in reality, this is often missing, usually

because of subsequent changes to the system. This opens up a crucial vulnerability that can be exploited. Recent attacks have been well planned, Mr Jones said, involving substantial input of skill and time, but are also unpredictable and unpredictable.

In an increasingly interconnected world, each organisation needs to consider how vulnerable it would be to an attack on its customers, suppliers or other parties, and vice-versa. Each organisation needs to know what contingency plans its suppliers have in place and know how quickly they would be informed. Each vulnerability needs to be contextualised in proportion to the risk involved.

When building for resilience, it is advisable to expect the worst. Could your core business survive a prolonged degradation? It will be necessary to get back up and running within hours of an attack, not weeks. Companies should create a plan to 'reboot' after an attack. The June 2017 Petya cyber-attack highlighted the need to have people in place who remember how to do things manually – in the future that knowledge may be harder to find if there is no one left in the organisation who knows how to do stuff without computers.

Organisations need to think about 'black swan' events and "think the unthinkable". "We digitise because there are opportunities," Mr Jones said. This process brings new risks so we have to learn to manage them. Industry does the same in other areas of its operations, and rehearses its responses – the same applies to digital threats.



“Who should drive the change – and how can we get everyone involved?”

PROF. DR. ANN VEREECKE
PARTNER AND FACULTY DEAN AT VLERICK
BUSINESS SCHOOL

END OF THE DAY

20TH JUNE 2018 - AFTERNOON

Delegates had heard a lot during the first day and – as expected – there were more questions than answers. Prof. Dr. Vereecke returned after a brief coffee break to summarise the discussions and she identified seven issues that had come up time and again.

1. Safety, security and sustainability go hand in hand. Is digitisation making the supply chain safer and more sustainable? Is it creating new vulnerabilities? How do we train people to operate in that environment?
2. Talent for digitisation in the supply chain is a major issue. How can businesses develop the right people? How can the petrochemical industry work together in this field?

3. Platforms seem to be both a threat and an opportunity. Is this a win/win situation or 'winner takes it all'? How do we create trust across industry? Do we need standards? Who should be in charge?
4. Digital innovation is one thing but how do we get to true digital transformation? What will the new organisation look like?
5. How do businesses create a culture of digital innovation? How can they stimulate experimentation? Should this come from within the organisation or can it be brought in from outside?
6. Everything moves so fast and we cannot say what this conversation will look like

in five years' time. How can businesses plan for a digital unknown?

7. Digitisation will inevitably have an impact on people and their jobs. Is this 'dehumanising' the supply chain? Who will lose out? Or is this an advantage for corporate branding?

Prof. Dr. Vereecke challenged the audience to choose which of these issues should be taken forward to the second day and, using digital technology in the form of voting via smart phones, the audience judged the following three priorities:

- Platforms
- Culture
- Transformation

to which Prof. Dr. Vereecke added her own topic: who should drive the change and how can we get everyone involved?

The audience was challenged to ponder these questions and come to the second day of the workshop with their ideas and opinions.



DINNER TIME TALK

20TH JUNE 2018 - EVENING

Before all that, though, the meeting reconvened after a short break at Le Plaza Hotel nearby for cocktails and dinner, during which Frank Ruland, Vice President and Global Head of Industry Partner Management for Energy and Natural Resources Industries at SAP, gave his view on digitisation in the chemical supply chain or, as he termed it, “the self-balancing petrochemical network”.

Digitisation is nothing new, Mr Ruland began. Of the 15 top petrochemical companies in the world, 14 already run SAP solutions, going back to the 1970s. “There’s no need to be afraid now!” Industry should embrace the change.

But, established chemical industry models are being increasingly challenged, through price volatility, greater regulatory requirements, complexity in global supply chains, faster product development, mass customisation and shifting portfolios. Today’s strategic models such as proximity to customers and feedstocks or in-house intellectual property and technological know-how no longer secure a sustainable competitive advantage.

New business priorities focus on delivering customer outcomes, rather than products; on using elements of the Internet of Things (IoT) to streamline operations, maximise

asset performance and shrink cycle times; competing as part of an ecosystem, through integration up and down the supply chain; and adjusting strategies to respond dynamically to market opportunities and needs.

Some chemical companies are already using digital technologies to create an ‘intelligent enterprise’ that delivers higher revenue and shareholder value. This means creating innovative business processes to drive efficiency in operations, and engaging with customers to protect their bottom lines. It also means minimising consumption and environmental impact all along the supply chain, helping to protect brand reputation.

Intelligent technologies have the potential to optimise, extend and transform the business. This can be done step by step – there is no need for a ‘big bang’, Mr Ruland said. He advocated starting by using technology in the supply chain to optimise existing processes, before extending current processes beyond efficiency gains to capture new sources of value. Businesses can use historic data points to develop product quality predictions, and transform the value chain or business models to capture new revenue streams. This means going “beyond molecules” to a full transformation. Look to other industries to get an insight into what the future business will look like.

Mr Ruland offered four strategy elements in the digital supply chain. Firstly, a customer-centric organisation plans for and delivers to a ‘customer segment of one’ – effectively a bespoke service, rather than a range of off-the-peg services. It involves a touchless supply chain with processes based on real-time demand, responsive and flexible planning and the use of a network of business partners and omni-channel logistics.

The predictive – rather than reactive – business operates through a network of ‘digital twins’: digital copies of physical assets and products. That produces data and asset intelligence that can be used to drive new service and business models.

Smart automation can be used to personalise products, develop flexible manufacturing cells, automate activities and processes and find applications for machine learning and artificial intelligence. There is potential too for 3D printing and automated additive manufacturing.

Total visibility and access to data are key to connecting the supply chain. That involves creating a digital mirror of the business and connecting with the business network. It enables the organisation to ensure compliance with regulatory and sustainability imperatives and to perform risk management, all in real time.

With digital transformation, it is all about the supply chain, Mr Ruland concluded. The value is not just about realising efficiencies and reducing costs, but about driving revenue through new business models.

LEO BRAND - CHIEF INFORMATION
OFFICER AT ROYAL VOPAK

VOICE OF EXPERIENCE

21ST JUNE 2018 - MORNING



The second day of the workshop promised to find some answers to all the questions raised during the first day. In that effort, it was aided no end by the willingness of Royal Vopak to share its experience of the digital journey so far, a journey that it is around half-way through, according to Leo Brand, Chief Information Officer for the company.

Royal Vopak seeks to achieve leadership in five areas, based on its founder's mentality and the values it has drawn on over the past 402 years. These are leadership in service, operations and people, having leading assets in leading locations and, more recently, leadership in technology.

The IoT, Mr Brand said, will revolutionise all value chains and drive out inefficiencies. Given that storage terminals exist to handle inefficiencies in the supply chain, by balancing product flows, that is a challenge to companies such as Vopak. As an indication of inefficiency in the bulk liquids supply chain, demurrage costs are huge. Technology can help manage that inefficiency.

Within five years, Mr Brand said, Vopak will have one million sensors deployed across

its network. That will generate a lot more data and give greater control. He identified the most important technologies as mobile internet, the automation of knowledge work by capturing experience, and IoT and Cloud computing, which will help handle the volume of real-time data being generated.

The use of advanced analytics of large volumes of data from sensors will allow the organisation to move along a knowledge curve. Simple systems report what has happened; basic analysis can determine why it happened; predictive modelling tells the operator what will happen next; machine learning and artificial intelligence will be able to optimise operations. That may well mean that employees currently working in planning will be redeployed.

On a practical level, there are a lot of efficiencies to be gained from sharing information, for instance in truck scheduling. Transport companies have the data and, if that were to be shared with terminals, both sides would benefit. There is no point in Vopak collecting its own data if it is already available elsewhere, Mr Brand said. Opening that up to partners in the supply chain is a question of trust.

The move to open source systems in the operating technology (OT) environment is well under way, via architectures such as Supervisory Control and Data Acquisition (SCADA), Distributed Control Systems (DCS), Manufacturing Execution Systems (MES) and so on. This is delivering real-time data. Mr Brand predicted that OT and IT systems will increasingly merge.

Vopak decided to develop its own software to differentiate its processes compared to its competitors. The main aim of the development is to speed the physical arrival-to-departure and the financial order-to-cash process. As part of this, Vopak moved from a generic enterprise resource planning (ERP) software and to "best-of-breed" systems that allow standard processes across the organisation and makes it easy to ensure that all locations are up to date with the latest version of the software.

The next step is what Mr Brand defined as 'enterprise technology' (ET); this will involve investing in people and systems for advanced analytics, allowing the company to sweat the huge volume of unstructured data it has. It will also involve the use of Blockchain-based distributed ledgers for smart supply chains.

EVERYONE OFF TO WORK

21ST JUNE 2018 - MORNING

It is important to remember that all three layers – OT, IT and ET – will have to interact with systems outside the company, both up- and downstream in the supply chain.

Vopak has spent time and money recently on generating digital copies of its terminals and their piping and instrumentation diagrams (P&IDs) through 3D scanning. This is the only way to ensure that all P&IDs are up to date. It also allows changes to be tested on the digital twin before being implemented in real life.

Organisational change will require leadership from the top but senior managers will need help. IT people used to work in the basement; an indicator of change will be when they start taking part in client meetings – as they are beginning to do in some companies, Mr Brand said.

Two years ago, Vopak set up a digital innovation team. It looks at available technologies and demands from customers and aims to develop tools to bring the two together. There is sometimes no obvious return on investment (RoI), Mr Brand said, so leadership needs to be prepared to invest risk capital. For instance, Vopak is currently experimenting with Blockchain but does not expect to see much impact for around five years. Such a situation challenges the established business mindset of seeking a quantifiable RoI, particularly in public companies with shareholders who expect a quarterly dividend.

Furthermore, it signals a transformation from a 'let it happen' mindset, in which IT leads the process, to 'make it happen', which is designed to deliver benefits, both for the company and for its customers.

Mr Brand summed up his presentation with a list of the main learnings Vopak has taken from the digitisation process:

- The journey needs vision and leadership from the top to manage the change
- Middle management sees it as a threat (possibly with good reason)
- Frontline people become really important
- There is a need to invest in digital training
- Recruitment is key at all levels
- Experimentation is a key element.

It was now time for the audience to put the 'work' into 'workshop'. Prof. Dr. Vereecke explained the idea of the 'Digital Café': each attendee was given a ticket showing which of several tables they would sit in on for three 20-minute sessions. Splitting the audience up into small groups allowed each to give his or her own ideas and opinions on the four questions that had been posed the previous afternoon. The table facilitators collected those responses, which were collated and filtered and the results presented by four speakers.

Dirk Verstraeten, Director of Global Logistics Procurement at Covestro Deutschland, spoke on platforms. Various speakers had mentioned the need for platforms, ideally neutral, to support the implementation of digital solutions but it was not clear what form these should take or who should operate them.

Mr Verstraeten said: "we won't have a platform overnight." It will be a long process. We are still living in a traditional environment; any change will require an open mind and a willingness to go beyond the established boundaries. We can no longer think in our silos, or even within our own companies – it is a common problem. We should start by getting 'digi moments' integrated into our daily lives and meetings until it becomes part of our DNA, in the same way we handle other topics such as reliability or sustainability.

Some concerns were addressed: what would intermediaries operating such platforms do with all that data? From the Logistics Service Provider's side there seems to be a stronger interest in maintaining a personal relationship in business but will this be needed in the future? Who is going to pay for the different initiatives and multiple start-ups? A possible work around could be to disconnect in early stages the conceptual design from the financing issue.

Some helpful suggestions were made. Companies could cooperate on the joint development of platforms, before a third-party steps in to do so. Starting off small will help build up trust but it will remain important to make it transparent where the value will come from.

There is a possible role for industry associations – including EPCA – to come up with definitions, standards and a framework for industry platforms, as ECTA has done in the development of the e-ECD. There are plenty of commercial partners available that could take the project on. The chemical industry went through a similar process years ago with the Chemical Distribution Institute (CDI) audit scheme and the ECTA Code so some quick wins are available.

Peter Devos gave his opinion on two topics. Value is only being generated when companies operationalise the digital best practices and turn such practices in a new standard way of working. And any platform must best be operated as a neutral, not-for-profit business model, avoiding the issue of 'data ownership' or 'data monetization' while encouraging 'data sharing' and collaboration.

THE 3 TOPICS

1. PLATFORMS

Are platforms the best way to go and, if so, who should be in charge?

2. CULTURE

How can businesses foster a culture of digital innovation and experimentation?

3. TRANSFORMATION

How do we move from innovation to transformation and what does this mean for the organisation?



The second question, how to create a culture of digital innovation, was addressed by Patrick Meersmans, Director Supply Chain Solids, Europe for SABIC. The petrochemical industry, he said, is by nature very risk-averse; this culture does not fit easily with the need to experiment in the digital arena and to be allowed to fail. Nevertheless, industry does need to open itself up to those possibilities.

For instance, safety issues are talked about freely within companies; we can do the same with digital ideas and provide incentives for those who come up with workable concepts, within a 'no blame' culture. It could be a good idea to share stories of failure just as much as stories of success (like we do with safety). What challenges and difficulties have been faced? That would help industry as a whole move forward.

"Are we really listening to our customers?" Mr Meersmans asked. Companies need also to think about their external relations. Industry could certainly do more and this would help guide the process of innovation. Companies can also think about establishing a digital campus to provide the space and time to experiment. Obviously, that means a budget will have to be allocated. Companies should also look outside their boundary for knowledge.

EPCA has a role to play in attracting digital-aware young people, Mr Meersmans said. One idea would be to run further workshops for new entrants to our companies in order to capture new and fresh ideas (versus the traditional setup where mostly senior representatives attend).

Jean-Christophe Hermand, Logistics Manager, Refining & Base Chemicals at Total Petrochemicals & Refining, reported on discussions surrounding the move from digital innovation to digital transformation. Today, for many companies,

digitisation is about improving existing processes and the Rol is often clear; that will not necessarily be the case in the process of transformation as its tomorrow value is hard to predict.

There is a human element too: companies need to recognise that people will have to be open to accepting changes to their current jobs for the process of digital transformation to be successful. A lot of people do not know a lot about digital issues and might need to be trained using self-learning tools for example. Operational teams will generate a lot of ideas and concepts that will require a strong digital support to enable the transformation. And should the support not be there, these ideas will not be studied or implemented and people will stop having them.

Cultural change is needed within the company, as alongside the existing ways to consider project according to their Rol, a more agile one will have to be developed for the digital transformation. The "fail fast" approach is OK for digital transformation, not for running the company.

Mr Hermand cautioned against waiting for standards to be established – "Opportunity may not be there tomorrow," he said. Every good idea needs to be allowed to proceed for itself. But companies should avoid reinventing the wheel: look outside the company, or even the industry – the solution may already be available on the market.

Different players in the supply chain have different structures and that needs to be recognised before looking at transforming the whole system. In that regard, EPCA has a role to play as it has a unique overview of the industry given that its members comprise both chemical producers and logistics service providers. Ms Ciuciu noted that some IT companies are also EPCA members.

The fourth question, how to drive change for digital innovation, was answered by Gina Fyffe, Executive Director/CEO at Integra Petrochemicals. There was a clear message that innovation lies within each of us: individuals need to take responsibility, everyone needs to lead. This is not a top-down nor a bottom-up issue.

Individuals can (and often do) cross-mentor without instruction and, once it works with a couple of people, the practice can spread. But people need to accept the need for change and realise that failure is allowed.

Companies can help the process by establishing cross-functional, flat hierarchies – a "happy band of brothers and sisters" - and create an environment within the company that makes it comfortable for people to talk outside the organisation. Ms Fyffe also mentioned financial issues, saying "the way companies focus on ROI risks killing innovation."

Some of the changes that the organisation will have to go through will be scary for many; each company will need people who can manage change and the process needs to be transparent – people need to know what's going on, in a timely fashion.

She supported the idea of EPCA conducting all these different potential activities provided that a dedicated budget is allocated for them. There is a lot to do and, as had been noted, trust is a big issue; EPCA can play a role for the chemical community in demystifying the digital transformation. The language of digitisation is also a barrier for some: perhaps training classes might help.

The chemical industry is a digital laggard, as the audience had already heard. On the upside, this gives it the opportunity to learn from those industries that have already gone through the process. "Being a laggard means you don't have to make the same mistakes as everyone else," Ms Fyffe said.

EPCA could spearhead the training process and become an innovation incubator. A space is needed where people can get together to discuss common issues. "It's nice to talk – but when are we going to do it?" Ms Fyffe asked. "We cannot leave here today and leave it all behind. EPCA can do something to help continue the conversation."

SUMMING UP

21ST JUNE 2018 - MORNING

“Plenty of things have happened over the past 24 hours,” said Prof. Dr. Vereecke as she summarised the events of the past day and a half. The success of the event was due in no little part to EPCA leadership, the contribution of the members of the EPCA Supply Chain Programme Committee and to Ann Vereecke’s involvement in leading the proceedings, but also reflected the efforts that all those attending had put into the discussions.

Prof. Dr. Vereecke listed the things that should be taken away from the workshop and that all those attending should consider in the framework of their own organisations.

1. The race is on! A lot has changed since work started on the Vlerick Business School/ EPCA survey 15 months earlier and there is a clear sense of urgency within the petrochemical industry.

2. The process of digitisation involves a change of mindset. We are all in charge: we should move as an industry but as individuals too.

3. Every company should pay attention to the changes occurring in the supply chain and adapt its own logistics accordingly, under pain of falling behind its competitors.

4. The process of digitisation starts with a strategy. Companies need to set goals and determine what they can do in the future that they do not do now – and vice versa. This needs leadership and commitment from the top. Echoing Ms Kalmar, she said there is a lot that could be done; companies need to focus on what should be done. Customers will tell you what they need and companies need to set aside a strategic budget to deliver on those demands.

5. Industry seems unclear on standards – but what do we mean? Does this just involve definitions, or technical standards? Who will take the lead? Do we even need

to standardise? Should we not just get on with it and let the standards emerge?

6. IT and OT are coming together. This will create new issues, especially in terms of cyber-security.

7. Industry seems to regard cyber-security as a separate problem and something that can be left to the cyber-security officer to deal with. Prof. Dr. Vereecke said she was not sure that that is the right approach; cyber-security concerns need to be addressed throughout the process.

8. The future will be about talent. It is vital that industry starts to attract, empower

and train the right people with the right skills to undertake the digitisation journey.

“Just do it!” were Prof. Dr. Vereecke’s final words. “You will fail here or there, but win overall. Think big but start small,” she recommended.

Bringing the workshop to a close, Johan Devos said he had found the two days “very inspiring”. There is no way back now, he said: “We must embrace digitisation within our industry.”

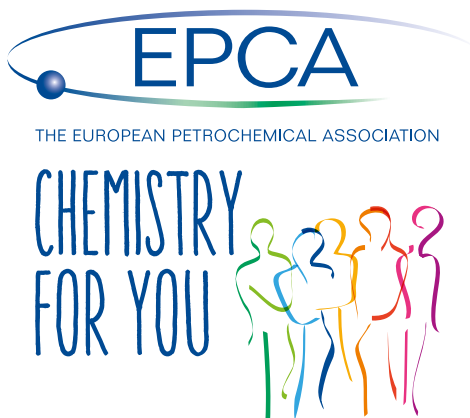
“This was an important meeting,” Mr Devos concluded. It placed supply chain professionals in a position where they were challenged by IT people. “EPCA will continue this journey,” he promised, with more discussions planned for the business sessions at the 52nd EPCA Annual Meeting in Vienna in October 2018.



PROF. DR. ANN VEREECKE
PARTNER AND FACULTY DEAN AT VLERICK BUSINESS SCHOOL



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Based in Brussels, EPCA is the **primary European Business Network** for the global petrochemical business community consisting of chemical producers, their suppliers, customers and service providers. It operates for and through more than 700-member companies from 54 different countries that represent an aggregate turnover of over €4.7 trillion and employing over 6.2 million people. EPCA **organises conferences and events** in Europe offering members all over the world the opportunity to meet industry leaders and selected external stakeholders and stay abreast of international market developments as well as technological and societal trends. EPCA also **supports** members on **specific topics** that underpin the sustainable development of the global petrochemical industry by developing knowledge via research projects with external partners (e.g. academic institutions and consultancies).

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