



REACTION

Chemicals Magazine

Twenty-third edition/July 2017

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Reinventing the
chemical company with
digital transformation**

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KPMG GLOBAL CHEMICALS INSTITUTE

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Introduction

Welcome to the latest edition of REACTION Magazine. It's been a really strong start to the year in most places within the industry with earnings growth strong in the US, Europe and China. While there are some headwinds in the latter — as we move into the second half of the year — due to a slowdown in the automotive and construction segments and delayed decision making while we wait for the outcome of the People's Congress in September, the overall sentiment in the global industry remains positive — despite the seemingly never-ending geopolitical turbulence around the world.

In this edition, we take a look at how digital transformation is reinventing the chemical industry, look at the implications deriving from human rights reporting and explore what changes to trade and customs practices mean for maintaining an optimal strategy.

As ever, our global chemicals and performance technologies team remains active in the industry and it was great to see so many of you at our recent chemicals roadshow in the

US and at our 4th Annual European Chemicals Conference in Dusseldorf.

We'll be back with our next edition in November with an outlook for the US chemical industry. If there are any other topics you would like us to cover in future editions of REACTION, please don't hesitate to contact us.

And finally, on a more personal note, after 10 years leading the KPMG Global Chemical practice it's time for me to take on some new professional challenges.

Effective 1 July 2017, I have passed the baton to Paul Harnick as my successor, as the KPMG Global Head of Chemicals and Performance Technologies. Paul has been COO of our practice for the last 6 years and brings a wealth of global industry experience — I know you'll be in safe hands.

I won't be disappearing entirely however, as I'll be remaining in my role as US Head of Chemicals.

I have been blessed to be able to interact with many of you over the past 10 years, and I look forward to continuing to interact with many of you in the future.



Mike Shannon
US Head of Chemicals &
Performance Technologies
KPMG in the US
+1 973 912 6312
mshannon@kpmg.com



Paul Harnick
Global Head of Chemicals &
Performance Technologies
KPMG in the UK
+44 20 76948532
paulharnick@kpmg.com

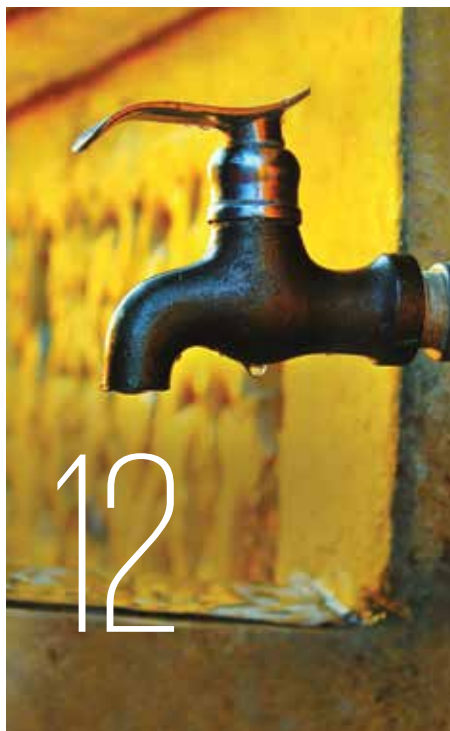
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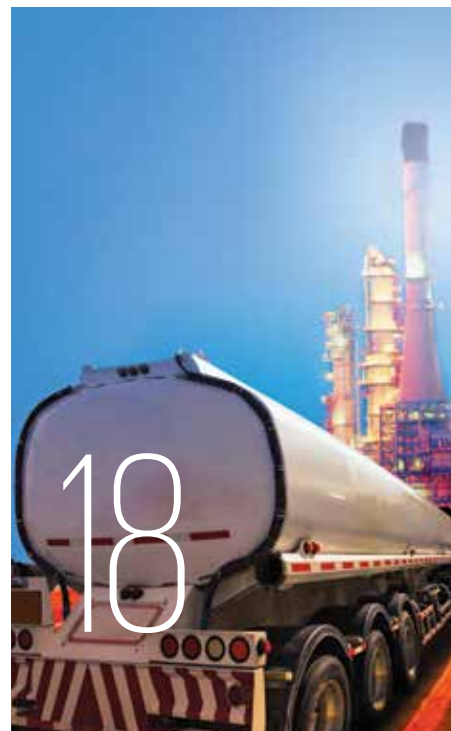
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Chemistry 4.0:

Reinventing the chemical company with digital transformation

By Dr. Bernhard Kneißel



Digital transformation has become a part of the fourth and latest industrial revolution. Although many industries are making great strides in digital transformation, the chemical industry has been more a laggard than a leader. However, to remain competitive and explore new opportunities, many chemical companies are using digital technology for smarter manufacturing, stronger customer relationships and faster innovation. In the front ranks of digital transformation are companies that are no longer selling chemicals; they're selling solutions to customers' problems through new business models for the delivery of enhanced services and customized specialty chemicals.

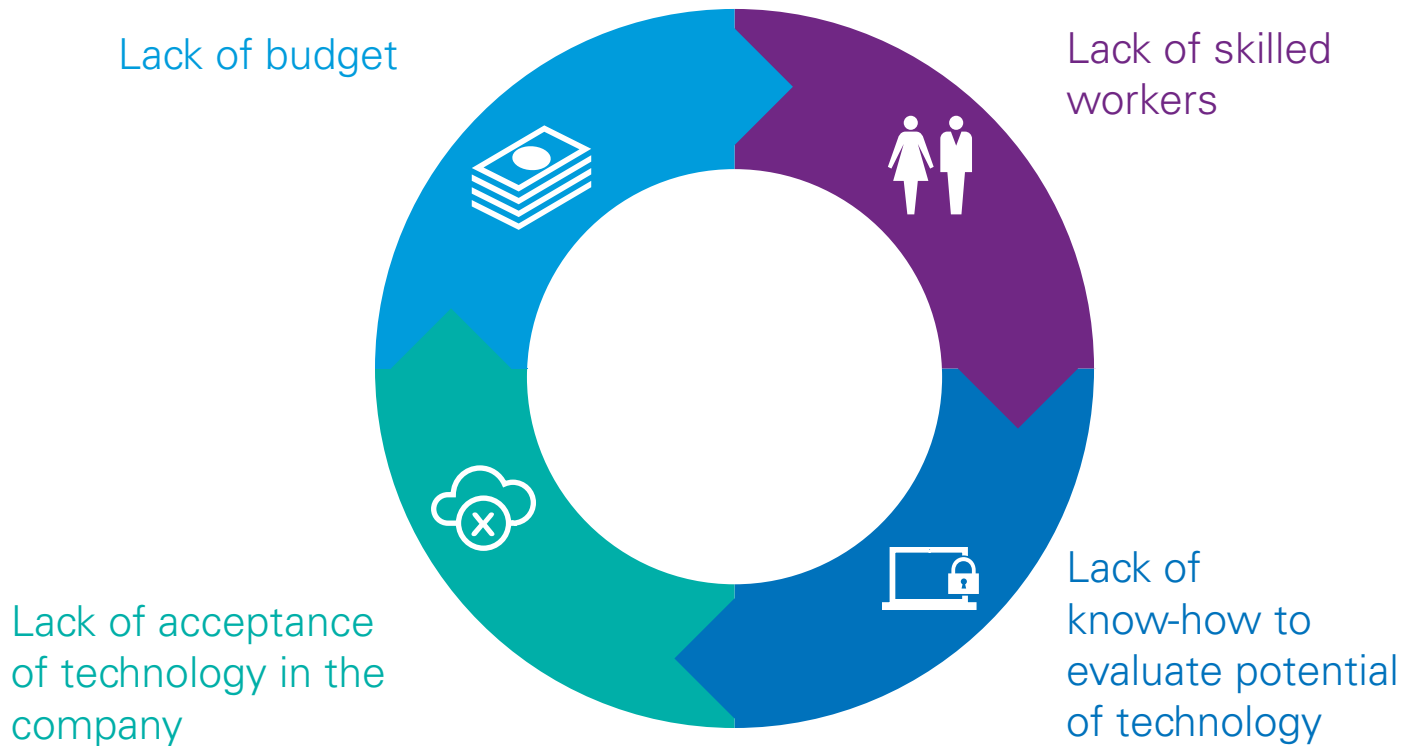


Making your next move

Maintaining a conservative attitude has often proved successful in the chemical industry. By its very nature, chemical manufacturing involves significant capital expenditures, long lead times for development, and massive infrastructures for supply and distribution. It's a three-dimensional chess game where you want to think carefully before making your next move.

On the global chessboard of the chemical industry, leaders are well aware of the potential of digital technology, but many are still moving cautiously and selectively in their progress toward real transformation. Chemistry 4.0 strives to digitize and transform every element in the value chain, but new technology is often limited to point solutions or upgrades

to existing systems and processes. In many cases, innovation is held back by a vicious cycle: the lack of budget for digital initiatives means that fewer resources and skills are acquired which, in turn, results in fewer digital achievements that could justify a larger budget for digital investments in the future.



Source: KPMG, 2016

In 2016, KPMG in Germany interviewed 75 CEOs, owners, managing directors and department heads from the chemical industry in Germany to ask for their assessment of the state of digital

transformations in their company.¹ Familiarity with digital transformation was a predominant theme among respondents, but 60 percent of chemical companies said their organizations did

not devote sufficient resources and competencies to digital initiatives.

A way out of this dilemma starts with the customer.

¹ Coming into Bloom: A study of the digital transformation of the chemical industry, KPMG, 2016



Customer-driven innovation

Today's customers know what they want — and they want it now. That's why increased growth and volatility in customer demand is helping to kick start innovation for manufacturers and the chemical companies that supply them.

Adidas is developing a new way to manufacture and deliver sneakers in a fraction of the time with digital technology.² Currently, their shoes are made mostly by hand in Asian countries. However, the cost of manual work outsourced to the region is rising and a labor shortage is anticipated in the years ahead.

More importantly, the manufacturing process takes up too much time for today's customers. From the first sketch of a new pair of sneakers to making and testing prototypes, ordering materials, retooling a factory, working up production and eventually shipping the finished goods to the shops can take as long as 18 months. Even refilling orders for existing models can take 2 or 3 months. Meanwhile, three-fourths of new sneakers are on sale for less than a year.

With Adidas's new SpeedFactory, most of the parts from raw materials such as plastics and fibers will be assembled onsite with computerized knitting, robotic cutting and 3D printing. This

process is designed to reduce the delivery time of even a customized order to less than a week or even a day.

Another example of innovation is Asian Paints, the largest paint company in India. Previously, they sold only paints and coatings. Now they have shifted to a downstream position with over 10,000 retailers, selling to create a catalogue of over 1,800 hues, shades and themes to create a personalized customer experience.³ In a similar way, a medium-sized German specialty paint manufacturer allows DIYers to configure their own color from a palette of basic colors when ordering from the company's website.⁴ For each order a radio chip is created to store relevant information that communicates directly with the embedded systems along the production line. This digitized chip enables the company to make its production more flexible, individualized and cost-effective as series production. Plus, the stored data ensures customers can reorder the same color mixture next time.

For chemical companies, individualized production means new markets for specialty chemicals, but it also means developing a far more flexible, customized and diversified portfolio that is backed by leaner operations and faster delivery of products.

² Adidas's high-tech factory brings production back to Germany, *The Economist*, 14 January 2017

³ <https://www.asianpaints.com/colour/colour-catalogue.html>

⁴ Federal Ministry of Education and Research, "Industry 4.0," October 2013. Quoted in *Coming into bloom: A study on the digital transformation of the chemical industry*, KPMG International, 2016



Getting closer to the customer

Digitization enables companies to provide end-customer solutions and new services by adapting business models. For this to work, understanding customers and customer demand is essential. Not surprisingly, 55 percent of chemical executives in the survey cited above say that increased customer proximity through digital network expansion and customer integration is one of their three highest priorities.

However, forecasting demand for specialty chemicals can be difficult in the face of multiple distribution channels, high-service levels and consistent performance that retail customers demand. In addition, industrial customers have large, erratic consumption patterns, and expect stock to be available whenever they need it. Production constraints, whether batch or continuous, also complicate the process.

Demand modeling analytics incorporate internal and external elements such as market trends, seasonal demand profiles, and order history by product and account. Demand collaboration brings together demand and forecast data from multiple sources in a web-based platform, helping to support better promotion planning, forecasting and monitoring of customer demand.

Improved forecasting and knowledge about the customer can improve connectivity, increase customer proximity and strengthen customer loyalty. By providing manufacturers with tools and platforms oriented to their value chains and requirements, chemical companies can successfully integrate themselves into their customers' businesses over the long term, further deepening their understanding of their customers.

Getting closer to the customer supports out-of-the-box thinking about product and service delivery. The EcoTrainer by Evonik, for example, is a complete mobile production plant on wheels in container format. It can be used at various customer locations and facilitates laboratory tests and process development, as well as subsequent industrial production in the same infrastructure.⁵

BASF's automotive paint division is using performance-based contracting that varies according to each customer.⁶ Automobile manufacturers have the option of CPU (cost per unit) billing. This means that they no longer have to pay for quantities of used paint but only for perfectly coated vehicle bodies. In addition to paint coatings for system suppliers, BASF also offers numerous services in order to ensure the greatest possible impact on work results.



From plant to platform

One of the most innovative changes in the chemical industry is the shift that has seen chemical companies become software companies. In effect, they are no longer selling chemicals; they're selling solutions to customers' problems through connectivity or across digital platforms. These technology solutions open up new sales channels and enable a closer relationship with customers, matching demand and supply on a customer-by-customer basis.

A chemical company supplying chlorine for swimming pools now produces and sells sensor-based automatic dispensing machines. This makes it much easier for customers to keep their water chlorinated without testing and additional work. Instead of having to price based on a commodity (chlorine), the company can price based on value (pool cleanliness).⁷

In another example, a German chemical company uses a business-to-business

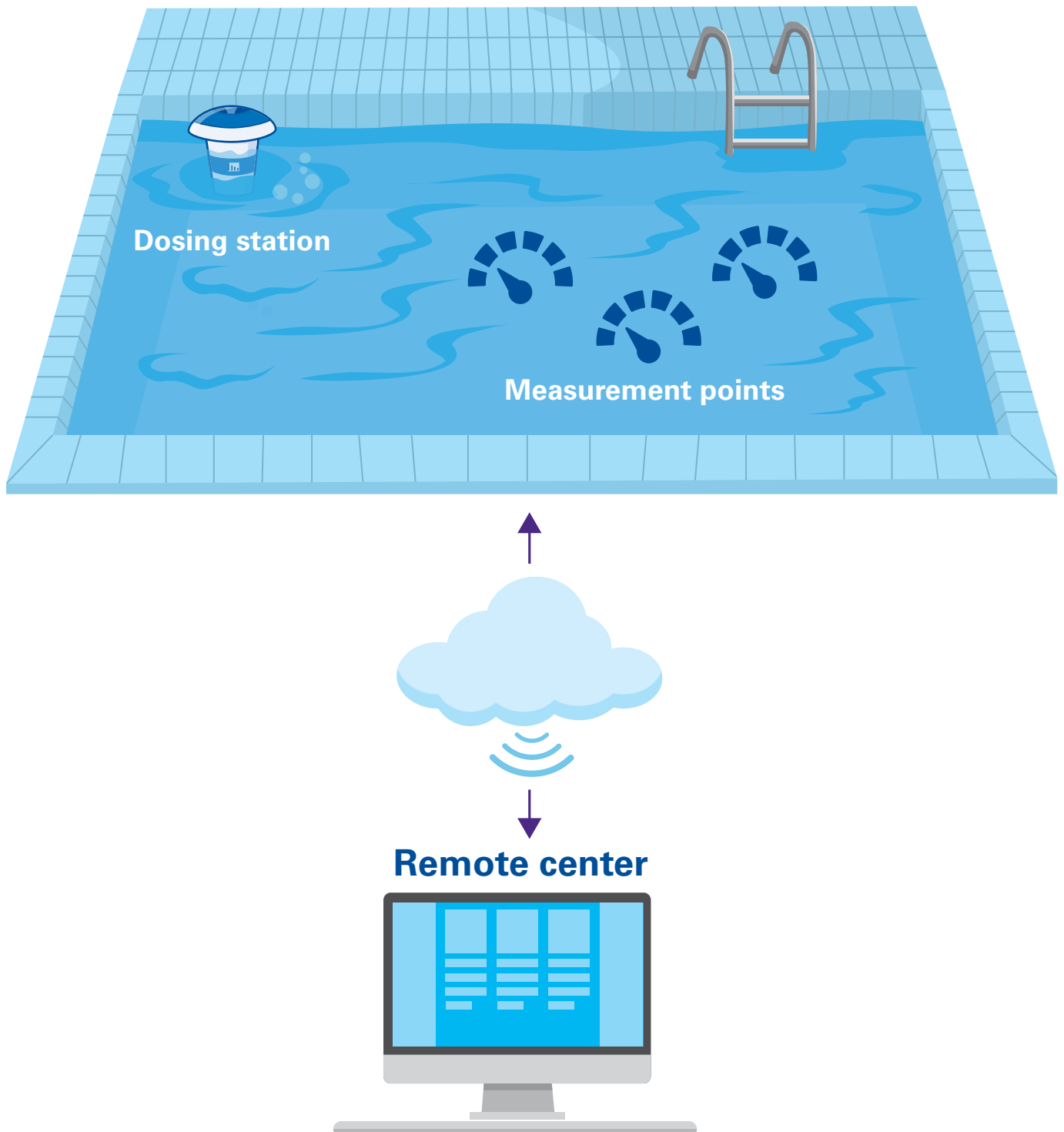
(B2B) online shopping platform from a Chinese provider to make its products more available to small and medium-sized companies in China. Similarly, other chemical companies have used a host of other online shopping platforms in the B2B area, including Alibaba, Amazon, Wer liefert, Europages and Marktplatz Mittelstand. Using these platforms, customers can easily compare products, services and costs, and providers have a direct overview of their competitors' offers.

⁵ Evonik Industries AG, product story no. 68, 12/22/2014

⁶ BASF SE (BASF Coatings, Services), <http://www.basf-coatings.com/global/ecweb/en/>

⁷ KPMG research, Chemistry 4.0: Digital Transformation Of Chemical Industry, March 2017

Bacteria in a swimming pool can be controlled remotely with an underwater sensor connected in a feedback loop to a device that dispenses chlorine.



Source: KPMG in Germany, 2017



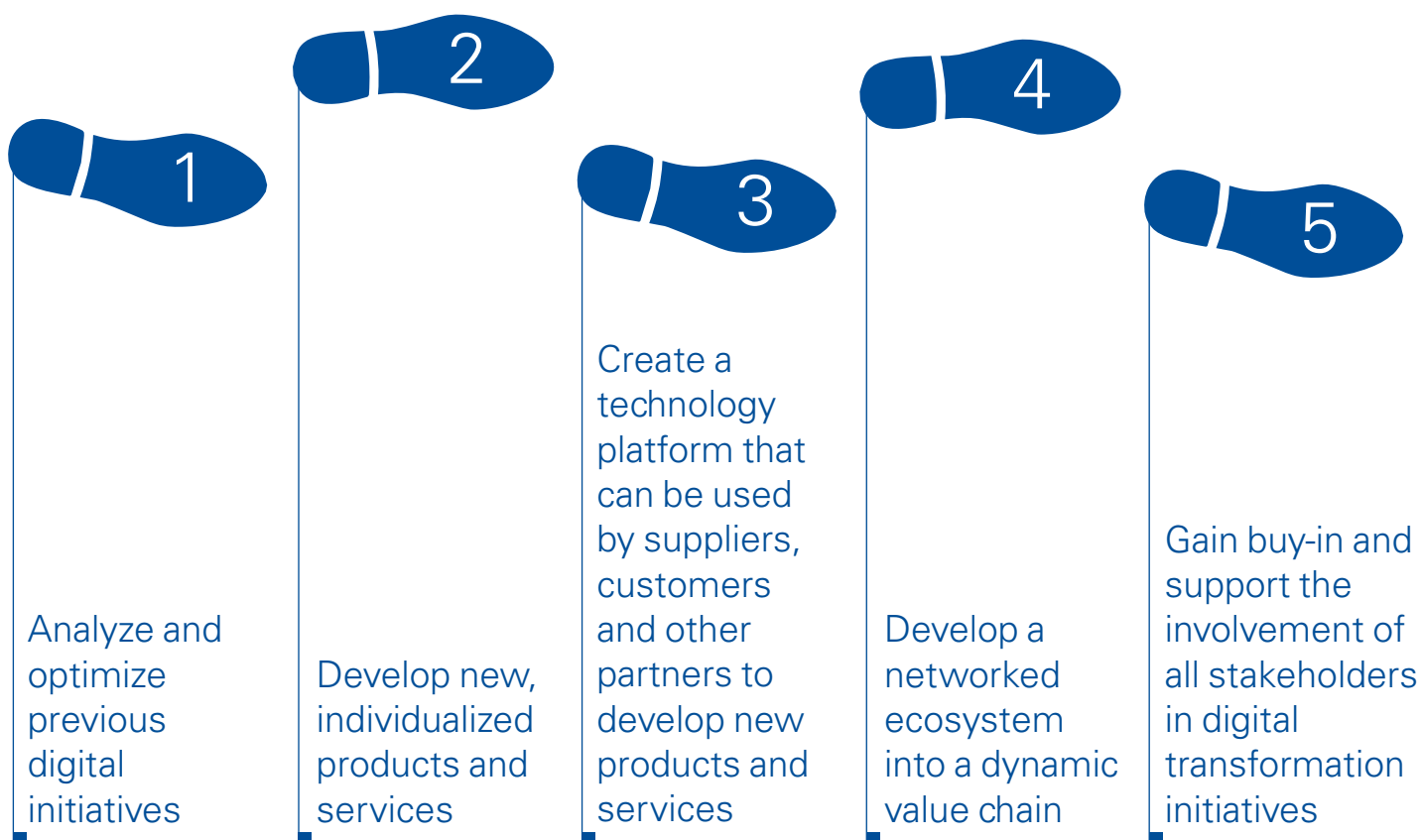
Steps toward transformation

Chemistry 4.0 is an imperative. The question is where to go next. Leading companies are positioning themselves to transform their business models to deliver tangible customer results versus selling increasingly

commoditized chemical products. The era of digital technologies transforming industries, inevitably leads to a dynamic environment full of unexpected challenges and disruption. However, the chemical industry must make the

process of digital transformation and Chemistry 4.0 their own. This is the only way to ensure sustainable, quick and financially viable development.

Depending on a company's requirements, the following steps should accompany the transformation process:





Author



Dr. Bernhard Kneißel

Director
Deal Advisory, Strategy
KPMG in Germany
+49 221 2073-1606
bkneissel@kpmg.com

Dr. Bernhard Kneißel joined KPMG in Germany in 2014 through the acquisition of Stratley AG. He has more than 10 years of top management consulting experience — and more than 20 years of international experience in the chemical and utility industries. He is an expert on chemical processes, including rarely used ones.

Making human rights a priority

By Richard Boele, Jerwin Tholen and Paulien Eckhardt



Support for human rights is undeniably the right thing to do. It's also a complex business issue that involves almost every aspect of a company's operations, its contractors, its suppliers or business partners and its relationships with employees, the surrounding community and government. A human rights policy that is well-designed and diligently implemented can help a company 'do the right thing' while still managing business risk and preserving its social license-to-operate.

Applying a human rights lens

In the business world, we can think of ‘human rights’ as a kind of holistic lens showing the impacts that companies have on people.

Positive impacts can include improved worker health and safety, equality in the workplace, and innovation to support environmental protection and product safety. Negative impacts can involve damage to people’s health through pollution, environmental accidents, and health and safety failures; underpayment of workers; creating or failing to address unsafe or unhealthy

working conditions; or discrimination against employees.

Over the years, a growing number of statements and declarations have helped expand and deepen our definition and understanding of human rights in business. These documents include the International Bill of Human Rights,⁸ the 2015 UN Sustainable Development Goals (SDGs),⁹ and the International Labor Organization’s Declaration on Fundamental Principles and Rights at Work.¹⁰ Of particular importance is the 2011 UN Guiding Principles on Business and

Human Rights which formalized the responsibility of businesses to respect human rights.¹¹

As a result of these documents, along with growing attention in the media, companies have felt increased pressure to identify and address human rights risks for people both within and outside their organization. Managing impacts on people with a human rights lens can help identify issues, build trust, enhance a company’s social license-to-operate, and achieve better outcomes for both the company and society.



Key issues for chemical companies

Although all companies are responsible for respecting human rights, a number of issues are especially relevant for today’s chemical companies:

Environmental and safety concerns:

Through innovation and global initiatives, such as Responsible Care and Together for Sustainability, the chemical industry has driven continuous improvement in environmental protection, employee safety, and stewardship throughout the supply chain.¹² Nevertheless, sourcing, manufacturing, storing and distributing chemicals is a complex process that can have unforeseen consequences for people and the environment, sometimes leading to significant legal and regulatory actions.

Supply chain liabilities:

Because chemical companies often have large, complex multi-tier supply chains stretching across multiple regions, it can be difficult to gain visibility of their supply chains beyond direct Tier 1 suppliers. At the same time, human rights issues and risks typically become more acute deeper in the supply chain. A Tier 1 supplier with an excellent human rights record can be doing business with Tier 2 and Tier 3 suppliers that violate human rights.

Reputational risks:

Growing scrutiny by investors, analysts, trade organizations, media outlets and individual citizens on social media increase business risks for a chemical company’s brand and reputation. Stock market indices, such as the Dow Jones Sustainability Index and

FTSE4Good, are demanding more detail and transparency on human rights.¹³ Assessments, one being the Corporate Human Rights Benchmark report,¹⁴ can also influence a company’s reputation and create adverse effects on equity pricing, business relationships and attractiveness as an investment.

Emerging markets

Unforeseen human rights issues can be found anywhere, but certain emerging markets offer a unique set of problems in visibility and practices, including labor practices, disposal of waste products, water management and sourcing of raw materials. Although companies usually conduct thorough due diligence in these markets, human rights issues can arise after operations begin.

⁸ www.ohchr.org/Documents/Publications/Compilation1.1en.pdf

⁹ www.sustainabledevelopment.un.org/sdgs

¹⁰ www.ilo.org/declaration/lang-en/index.htm

¹¹ www.business-humanrights.org/en/un-guiding-principles

¹² <https://www.icca-chem.org/wp-content/uploads/2015/08/Responsible-Care-Global-Charter.pdf>; also <https://tfs-initiative.com/>

¹³ Addressing human rights in business, KPMG, December 2016, <https://home.kpmg.com/xx/en/home/insights/2016/12/addressing-human-rights-in-business-executive-perspectives.html>

¹⁴ <https://business-humanrights.org/en/chr/b>

Growth risks

While companies might be managing human rights risk effectively within their own operations and supply chains, it can be difficult to identify latent risks in business partners or merger and acquisition targets. Chemical companies acquiring assets, entering partnerships or developing joint ventures extend the scope of their liability — a fact must be incorporated into the corporate growth strategy.

Language and culture barriers

Chemical companies with plants, suppliers and markets in multiple regions need to find ways to support

human rights despite differences in language and culture. Technical terms such as 'rights holders,' 'salience,' 'remedy' and 'grievance' are not universally known. Even the term 'human rights' can have perceived political overtones that lead to misunderstandings.

There can also be clashes between a multinational's values and commitment to respect human rights and the prevailing cultural values in certain countries where it operates. For example, societal views on race, gender roles and sexuality are frequently based on long-standing religious or cultural traditions that cannot be easily changed.

“You need to have the tone set at the top, which in our case means our Chairman and the Board. They are absolutely clear in their commitment to zero tolerance of human rights infringements.”

Ramakrishnan Mukundan
Managing Director and CEO
Tata Chemicals





Making a positive business case

Despite the risks discussed above, we should keep in mind that human rights performance is not just a matter of prohibitions or a problem that needs to be fixed. In fact, strong support for human rights can serve as part of a company's overall strategy for sustainability, providing a valuable opportunity to gain competitive advantage, strengthen business relationships and support steady growth.

For example, working with suppliers on human rights issues can be

an opportunity to develop closer relationships. Some companies report long-term benefits from helping their suppliers to improve their workplace and labor standards. In the same way, smaller companies serving as suppliers to large multinationals can develop an explicit human rights position in order to attract and retain business accounts, especially when these multinationals demand such standards from their suppliers and business partners.¹⁵

Effective human rights practices can also give a company improved access to

new markets, consumers and investors while creating more stable operating environments and promoting better community relations. In addition, a company recognized as a champion of human rights has an advantage in recruiting and retaining resources, a key benefit these days where talent scarcity is a growing issue for many sectors.



Developing a human rights policy

Recognizing both the moral imperative and business advantages of supporting human rights, companies can still find it difficult to support an effective human rights program. For many companies, developing, revising or expanding a governance policy dedicated specifically to human rights can lead to a number of key benefits.

First of all, the presence of a human rights policy shows that a company understands its responsibility to respect human rights. It also provides a basis for embedding the responsibility to respect human rights through all business functions. Developing the policy can identify policy gaps and initiate a process that alerts the company to new areas of human rights risk. It elaborates on the company's commitment to respect and support human rights, and it can build increased trust with external stakeholders and help address their concerns. A policy can also foster the development of in-house learning, management capacity and leadership on human rights issues.

Companies should keep in mind that developing a human rights policy is an ongoing process. Many companies update their policies on a regular basis as they gain experience with identifying and addressing their human rights issues. The following steps can help develop an effective policy:¹⁶

Assign senior management responsibility to drive the process.

Regardless of who instigates the project, a member of senior management will typically need to be appointed to lead the process, sign off on the final policy and assign resources needed for its implementation.

Involve cross-functional personnel in the process to build understanding, know-how and a sense of common purpose.

The company needs to capture in-house knowledge from across multiple business units and functions, consider varying legal jurisdictions, draft the policy, and oversee training and reporting.

“

Make sure you have your own operations in order and strong standards in place for your employees; otherwise you cannot expect contractors and suppliers to get it right.”

André Veneman

Director of Sustainability
AkzoNobel

¹⁵ A Guide for Business: How to Develop a Human Rights Policy, UN Global Compact, www.unglobalcompact.org

¹⁶ Ibid.

Map existing company policies to identify human rights coverage and gaps. This will help companies identify any priority issues. Most companies find that long-standing corporate policies and codes of conduct already address human rights, but they do not use human rights language in policies on, for example, diversity, nondiscrimination, bullying or harassment, health and safety, minimum-age provisions, or working hours.

Consult with internal and external stakeholders. In addition to ensuring that the policy is informed by relevant internal and/or external expertise, the company should identify key stakeholders. This is to help ensure that the policy is fit for purpose and addresses expectations. Companies should also consider involving socially responsible investors, clients, civil society experts, consumers, campaign groups, academics and community

groups. Involving potential critics in the process will give a reality check.

Communicate the policy internally and externally and stipulate expectations. No policy can be effective unless it is communicated to all relevant stakeholders. The policy should be publicly available and disseminated to all employees to raise awareness and explain expectations. It should also be communicated actively to other parties, in particular business partners and affected stakeholders.

Reflect human rights policy in all operational policies and procedures. Companies should carefully consider the impact on other policies and practices. If the human rights policy is not effectively disseminated, reflected in other policies and procedures, and embedded in management across all functions, neglect can quickly become reality even with all the best intentions in place.

Authors



Richard Boele

Global Head of KPMG's Business & Human Rights Network
+61 2 9346 5858
rboele@kpmg.com.au



Jerwin Tholen

Director, Sustainability KPMG in the Netherlands
+31206 564584
tholen.jerwin@kpmg.nl



Paulien Eckhardt

Manager, Sustainability KPMG in the Netherlands
+31206 564509
eckhardt.paulien@kpmg.nl



Further actions to consider

There is no standard approach in developing human rights governance. Each company is influenced by a multitude of factors such as the operational and management structure of the company; the business and national culture of the country where the company is headquartered; and the length of time that the company has been working on human rights.

However, senior leaders in chemical companies can consider taking the following actions in alignment with their human rights policy:

- Set the tone at the top by appointing a specific board member with responsibility for human rights.
- Make sure that the CEO and board members are clear in their commitment to respect human rights.
- Build human rights actions into annual business unit plans and ensure that accountability resides with heads of business units.
- Integrate human rights risks into the corporation's risk management process.
- Establish a clear line of reporting to the board on the most severe human rights risks and impacts so issues can be rapidly addressed at the appropriate level.

Trade and customs: Strategies for an uncertain future

By Doug Zuvich, Heidi Mustonen and Christine Griffith

The one thing that businesses do not like is uncertainty. This definitely holds true for global chemical companies facing an increasingly uncertain world trade environment. Potential disruptors are everywhere — rapidly changing regulations, shifting trade relationships and volatile geopolitical issues continue to interact in complicated ways to increase uncertainty. However, leading chemical companies are finding security in their ability to respond quickly and capitalize on opportunities as a result of their investment in building global trade management programs that leverage the best of today's global trade technology along with advanced strategies around people, process and organization.



Today's global trade environment is undergoing a series of tectonic shifts, creating some of the highest levels of uncertainty in years. Under the Trump administration, the US has withdrawn from discussions around joining the Trans-Pacific Partnership. At the same time, China is expanding its Asian presence with its "One Belt One Road" project that involves increased trade and economic development with over 60 countries. China and other Asian countries are also supporting new multi-lateral trade and investments through Regional Comprehensive Economic Partnerships.

In North America, the US, Mexico and Canada are heading towards renegotiating the North American Free Trade Agreement (NAFTA) after the US Trade Representative notified Congress of the President's intent to renegotiate NAFTA on 18 May 2017. In addition to seeking changes to NAFTA, the US is also considering a border adjustability tax, and new anti-dumping and countervailing tariffs. New anti-dumping and countervailing tariffs are also appearing in other jurisdictions, such as India, which recently implemented such measures on certain chemical imports from China, Iran, Indonesia, Malaysia and Taiwan.

In Europe, the European Union (EU) has been shaken by the UK's imminent exit. Further, the EU is still getting accustomed to the recently enacted Customs Code, which has a wide range of changes impacting the industry.

Compounding these uncertainties are security issues involving North Korea, China's growing presence in the South China Sea, and ongoing complications involving trade and rapidly changing economic sanctions in multiple countries.

For chemical companies in particular, changes in regulatory and trade restrictions are having a major impact. These changes do not always come with a warning. For example, in June 2016, the US Bureau of Industry and Security Bureau updated the Export Administration Regulations to reflect

changes pursuant to the Australia Group. As a result, diethylamine is now a controlled product under the Export Control Classification Number (ECCN) 1C350, which requires an export license in most cases to most destinations. This change was immediate and did not have a grace period, causing shipments to be instantly held at ports across the US.

Reform to the US Toxic Substances Control Act (TSCA) is underway. This has included a number of changes, most notably the 'inventory reset' rule, which requires manufacturers and importers to research each chemical substance they either have manufactured or imported at any time in the past 10 years (from 22 January 2017) and then notify the Environmental Protection Agency (EPA). This rule was recently finalized on 22 June 2017. Final rules were also issued to select chemicals as high or

low priorities for risk evaluation, and set out how the EPA will evaluate the risks of high-priority chemicals.

In addition to regulatory changes, technology is progressing and changing the operational aspects of trade. US Customs and the various Partner Government Agencies (PGA) are now connected electronically via the Association for Trade Compliance (ACE) system. Further, as of 27 March 2017, ACE is now the preferred method to file TSCA certifications at the time of import, as well as to file notices of exportation and abandonment. Considering the fact that over 45 PGAs exist, each with their own rules and regulations, this will significantly increase visibility for government agencies and therefore increase compliance responsibilities for importers.

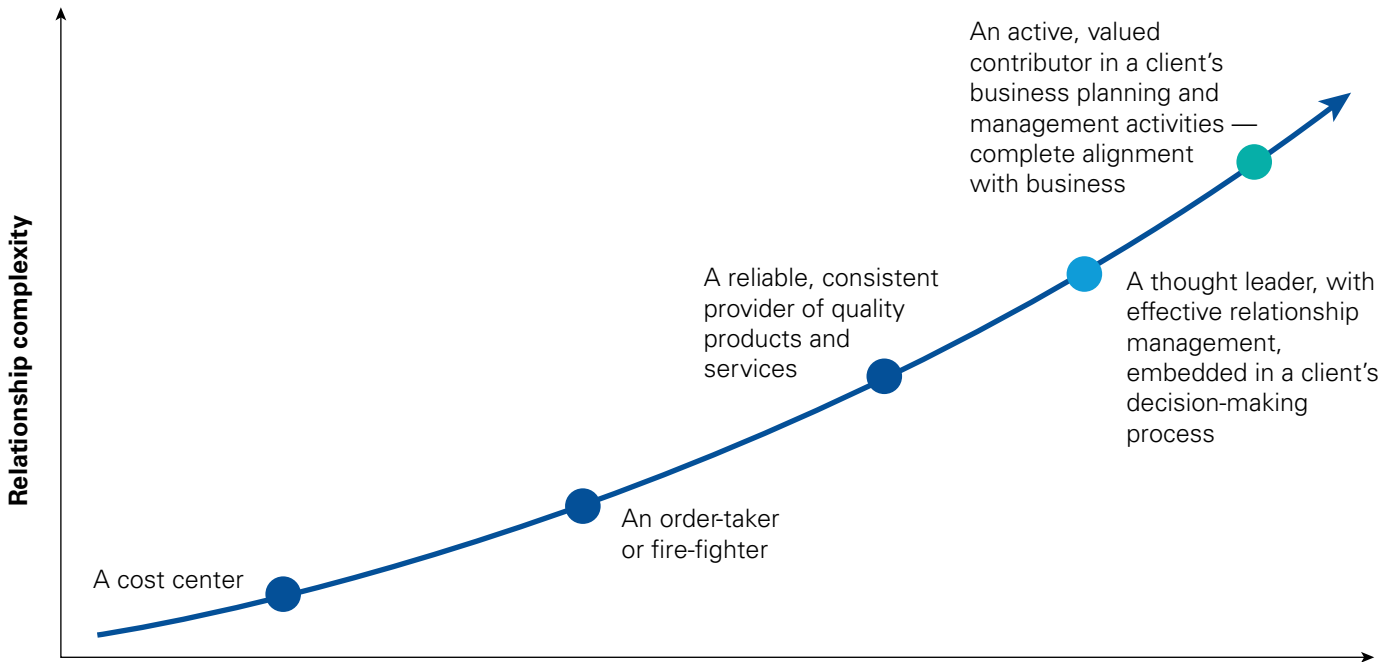


Global trade as a business driver

The global trade function is the adhesive that binds together all parts of a business. It ties together every function, and is impacted by almost every regulatory or business change.

A robust and comprehensive global trade program can create agility, business optimization and direct bottom line impacts. The global trade function is no longer looked at as a cost center,

but an influential and critical driver of the overall mission and financial goals of the enterprise.



Source: KPMG in the US, 2017

Agility and organization

The ability to meet customer commitments through the current volatile business environment requires trade professionals to be thoroughly integrated throughout the business. It

is impossible to be a 'one-man show'. A department of one or a trade function operating in a silo will not allow the business to be flexible and responsive.

Equally, the trade organization cannot be a 'one-size fits all', so it is critical

for businesses to identify their target operating model. Undertaking a thoughtful analysis is key. You must find the right focus, and the right balance in order to be effective.

To inform choices about the best operating model to achieve business goals, the following should be addressed:

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Source: KPMG in the US, 2017

You should also consider opportunities for centralization, regionalization, outsourcing or shared services.

With the right structure, the aforementioned challenges in today's business environment become opportunities and not hindrances. The integrated trade function is the common thread throughout the enterprise charting the course.

Flexible processes and maintaining compliance

Once you determine the optimal organization structure, you must determine what processes and oversight is necessary to promote compliance and business continuity. For example, what level and type of service and support is each role responsible for? Where do processes need to be localized, but still require corporate oversight? The appropriate and necessary frameworks, documentation and supporting capabilities to provide consistent operational instruction and guidance, and to effect governance over the functions and their activities is as unique as a fingerprint. This may include the development of policies, minimum standards, global business processes, standard documentation, performance tracking and reporting processes.

You might ask, how is this any different than what I have already done or has been in place? The answer is simple. The days of stagnant processes are over. Things are changing too rapidly in today's business environment and you cannot be flexible or agile if your processes are too constraining or do not provide room for continuous updates.

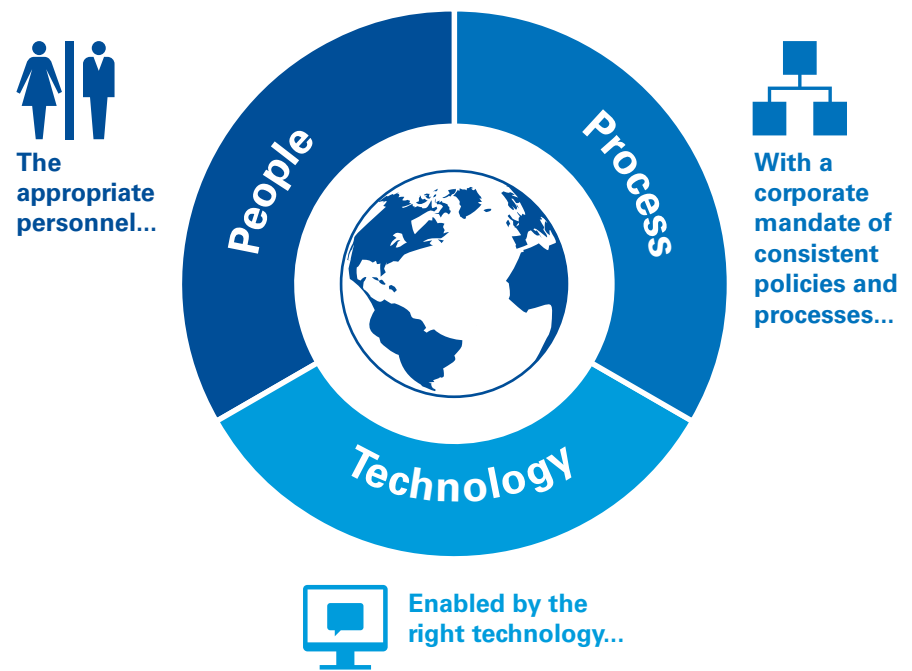
Historically, processes for review and update were minimal and would identify only certain regulatory or business changes to prompt modification. Today, process revision activities need to be built into the necessary processes and be a fundamental part of overall policy in order to react in a timely manner.

Bottom-line savings and automation

As previously mentioned, trade functions are no longer the cost centers they were once perceived to be. In fact, those who have invested in their trade organization have seen the drastic bottom line impact that can be realized. By reducing redundant work activities, departments now have

more time to explore opportunities, increase performance, delivery and customer satisfaction, leverage trade opportunities for cost reduction and increase the overall profit margin. This has given trade compliance the key to realizing the organization's strategic goals.

However, the right organization, and the best supporting policies and procedures only gets you part of the way. Top performing trade compliance functions are enabled by global trade management automation solutions. Automation allows companies to alleviate redundant tasks from their teams, provides for less human intervention in certain activities and increases compliance.



Source: KPMG in the US, 2017



Conclusion

Although the outlook for global trade remains uncertain, it is certain that those chemical companies that invest now in building the infrastructure of their global trade compliance programs will have the competitive advantage and will be in a stronger position regardless of what the future holds. The most common opportunities for such centralization of the trade function for the chemical industry, include import and export classification determinations, denied party screening and hit resolution and the management of free trade agreements.



Authors



Doug Zuvich

Global Practice Leader
KPMG in the US
+1 312 665 1022
dzuvich@kpmg.com



Heidi Mustonen

Managing Director,
Trade and Customs practice
KPMG in the US
+1 415 963 5571
hmustonen@kpmg.com



Christine Griffith

Global Chemicals Tax Lead
KPMG in the US
+1 713 319 2324
cgriffith@kpmg.com

KPMG in the industry

KPMG in the US

Michael Shannon, Paul Harnick, Mark Harrison, Frank Mattei and Norbert Meyring were on a recent US roadshow visiting key chemical clients.



KPMG in Germany

KPMG in Germany held their annual Chemicals Roundtable 'Strategies for growth: M&A, innovation and digitalization' in Düsseldorf on 27 June 2017. With an assembled panel of experienced speakers, including Mike Shannon and Paul Harnick, they discussed global industry trends and the power of innovation as well as the drivers of M&A activity and growth opportunities. They also heard from companies on how they are using digital means to drive growth and efficiency.



KPMG in the Netherlands

Innovation powered by KPMG: Winning start-ups to help AkzoNobel and the industry become more innovative and sustainable.



In early June, the *Imagine Chemistry 2017 Challenge* finals drew to a close with an awards ceremony, where 10 winning startups were invited to collaborate further with AkzoNobel. The *Imagine Chemistry Challenge* was launched in 2017, inviting start-ups and researchers to help solve real-life challenges faced by AkzoNobel's Specialty Chemicals business. Over 200 submissions were received from around the world, providing new solutions in the core business of Specialty Chemicals. While the three joint development agreement winners — Ecovia, Industrial Microbes, and Renmatix — all focused on very different areas of sustainable chemistry, what they did have in common were proven technologies that made sense in AkzoNobel's portfolio. Ecovia (US), proposed BioGel, a polyglutamic acid from fermented renewable biomass.

Industrial Microbes (US), proposed a biocatalysis of ethylene to ethyleneoxide based on micro-organisms, helping to make consumer goods less expensive. Renmatix (US), provided a solution to convert biomass to sugar.

To run this global open innovation challenge, AkzoNobel and KPMG in the Netherlands joined forces; this unique partnership is the reason the challenge carries the subtitle 'Powered by KPMG'. *Imagine Chemistry* will host a series of events designed to embed open innovation in AkzoNobel's way of working and forge partnerships with start-ups whose ideas present new opportunities for growth. Following the success of this year's edition, *Imagine Chemistry* will take place again in 2018, with the finals being held in Sweden.





Global Chemicals Institute webcasts

REACTION 22 webcast: GCC chemical companies on the move as global competitors

Following the release of REACTION 22, **Oliver Gawad**, Senior Director, Deal Advisory, Strategy, Industrials & Chemicals for KPMG in Saudi Arabia, recently hosted the latest REACTION webcast. The webcast featured Oliver's latest article in REACTION 22, which discussed GCC chemical companies on the move as global competitors. He covered key topics such as the shift in the chemical industry's competitive landscape, the challenges associated with the changing chemical industry and the strategies GCC chemical companies have been exploring which have been demonstrating strong potential for sustainable growth. To listen to the latest REACTION webcast, please click [here](#).

REACTION 21 webcast: Building a sustainable supply chain

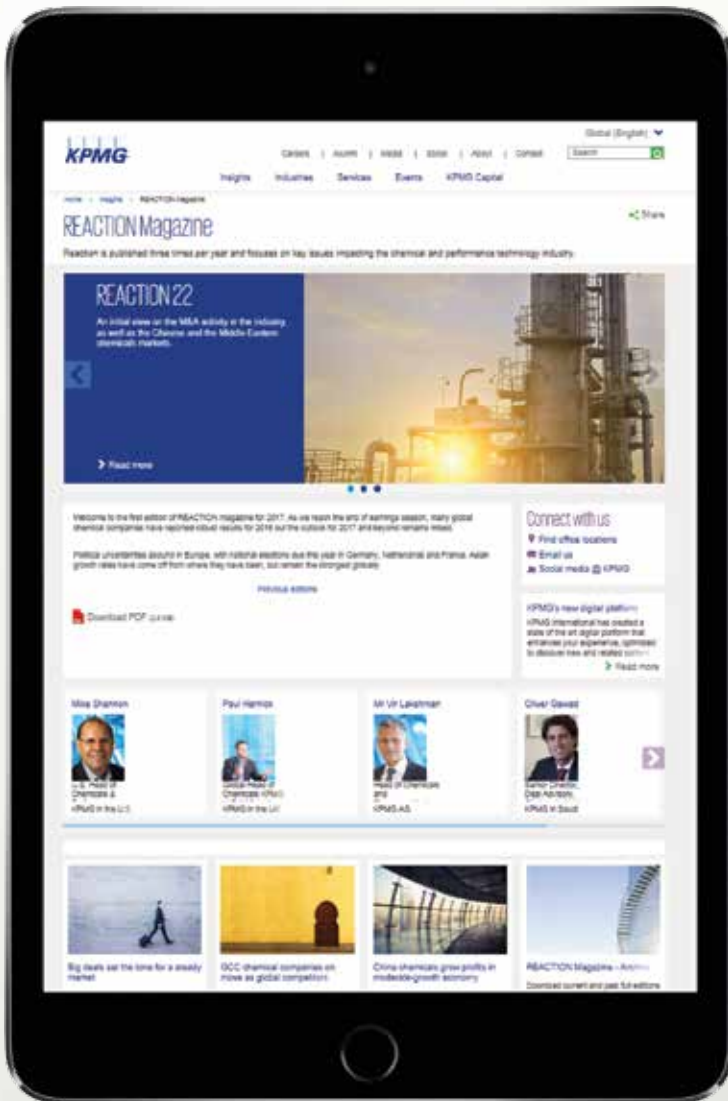
Climate change is one of the biggest global challenges today for global chemical companies. Their supply chains — long, lean and increasingly complex — are especially vulnerable to disruptions from major storms, flooding, drought, rising temperatures and other climate-related events. Investors and regulators are showing increasing interest in how companies identify and mitigate climate-related risk. These calls only recently have been backed by reporting recommendations published by the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD). As with most crises, climate change presents both risks and opportunities for the chemical industry. Successful companies and their suppliers are rethinking their supply chain strategies, helping to mitigate risk and support sustainability in the 21st century. Listen to **Steve Tonner**, Sector Leader, Chemicals & Performance Technologies, KPMG in Australia, and **Christian Hell**, Senior Manager, Sustainability Services, KPMG in the Netherlands, discuss these issues. Listen to the webcast [here](#).

REACTION 20 webcast: Big data means big opportunities for chemical companies

Big Data and next generation analytics are now being used by leading chemical companies to enhance manufacturing, fine-tune pricing, improve marketing and support innovation. Success depends on recognizing that Big Data is more than an incremental change in technology — it is a strategic transformation for the industry. Join **Martin Kaestner**, Managing Director, Data & Analytics, KPMG in the US, as he discusses these issues. Please listen to the webcast [here](#).

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chemicals@kpmg.com | kpmg.com/chemicals | kpmg.com/reaction

Contacts

Paul Harnick
**Global Head of Chemicals &
Performance Technologies**

KPMG in the UK
+44 20 7694 8532
paulharnick@kpmg.com

Steve Tonner
KPMG Australia
+61 (3) 9288 5377
stonner@kpmg.com.au

Anselmo Macedo
KPMG in Brazil
+55 11 2183 3152
amacedo@kpmg.com.br

Robert Jolicoeur
KPMG in Canada
+1 416 777 3733
bjolicoeur@kpmg.ca

Norbert Meyring
KPMG China
+86 (0)21 2212 2707
norbert.meyring@kpmg.com.cn

Valerie Besson
KPMG in France
+33155686199
valeriebesson@kpmg.fr

Vir Lakshman
KPMG in Germany
+49 211 475 6666
vlakshman@kpmg.com

Vikram Hosangady
KPMG in India
+91 98410 85580
vhosangady@kpmg.com

Ikuo Mori
KPMG in Japan
+81 3 3548 5168
ikuo.mori@jp.kpmg.com

Camal Handor
KPMG in the Netherlands
+31206 568596
handor.camal@kpmg.nl

Oliver Gawad
KPMG in Saudia Arabia
+966118748500
olivergawad@kpmg.com

Miguel Angel Castelló Sanz
KPMG in Spain
+34 914 563 556
mcastello@kpmg.es

Martin Rohrbach
KPMG in Switzerland
+41 58 249 71 28
martinrohrbach@kpmg.com

Mike Shannon
**US Head of Chemicals &
Performance Technologies**
KPMG in the US
+1 973 912 6312
mshannon@kpmg.com

Christine Griffith
Global Chemicals Tax Lead
+1 713 319 2324
cgriffith@kpmg.com

Nancy Barrett
Global Marketing
+1 416 777 8197
nancybarrett@kpmg.ca

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Designed by Evalueserve.

Publication name: REACTION Magazine — Twenty-third edition

Publication number: 134440-G

Publication date: July 2017

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