

# LogiChem

## SUSTAINABILITY THROUGH COLLABORATION REPORT



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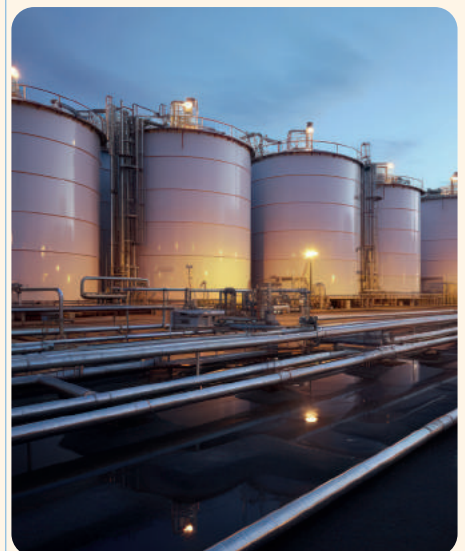


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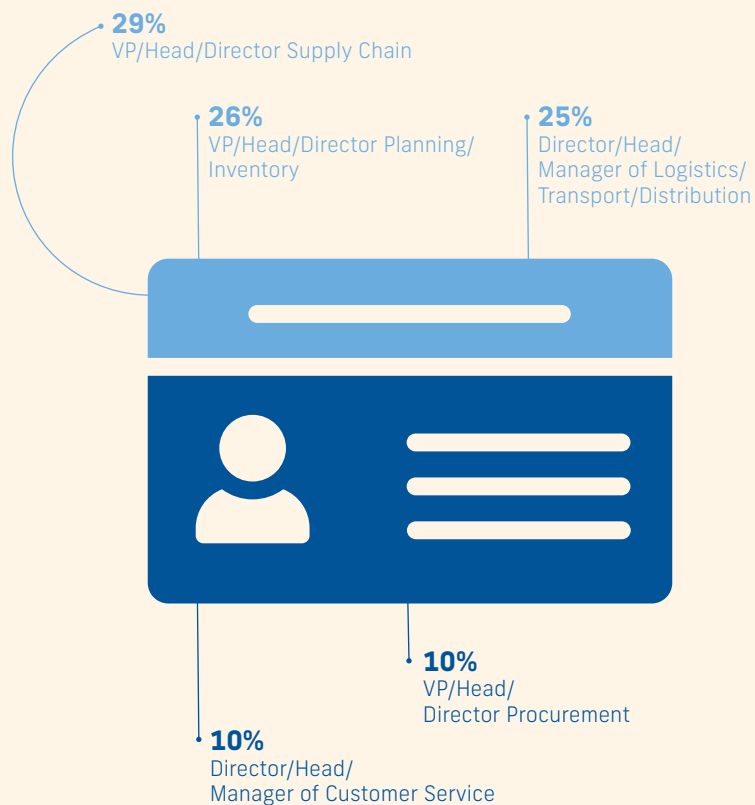
## Methodology

In Q4 of 2023, WBR Insights surveyed 100 chemicals supply chain leaders from organisations across Europe, to find out about the challenges they are facing in 2023 and the innovative solutions being brought to the table.

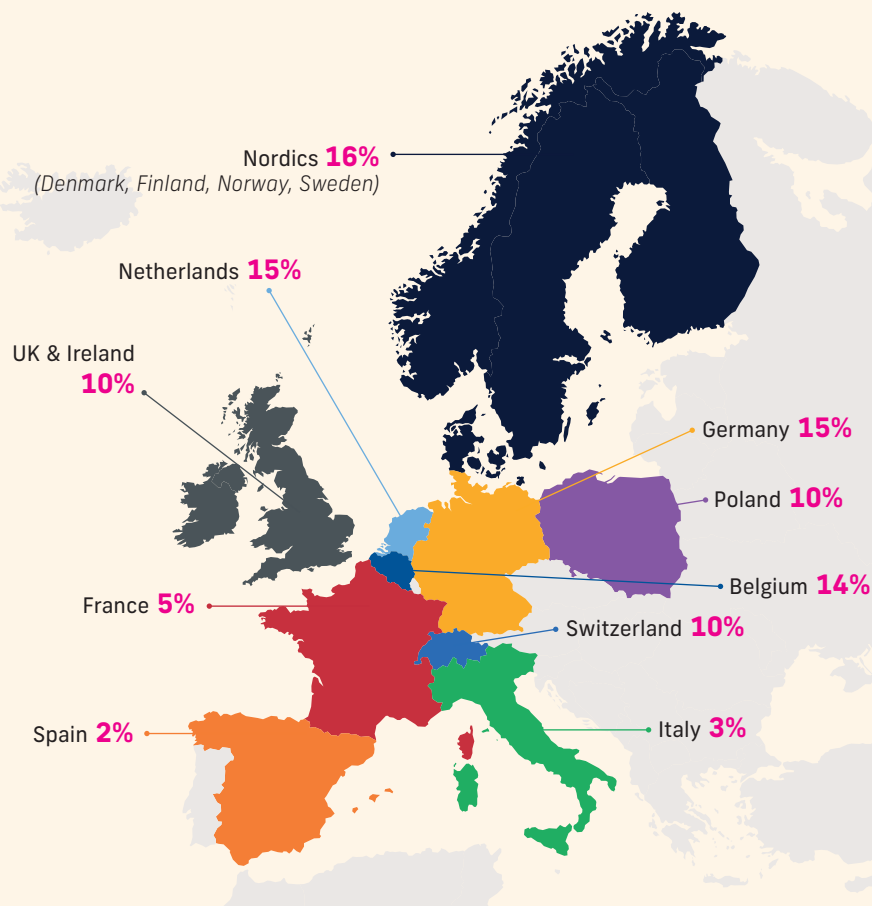
The survey was conducted by appointment over the telephone. The results were compiled and anonymised by WBR Insights and are presented here with analysis and commentary by EFESO, Ovinto and the LogiChem community.

The WBR Insights topics detailed in this report will also be covered in the event; download the agenda [here](#).

## Which of the following best describes your job title?



## Where is your organisation located?



# KEY FINDINGS

## 1

Chemical supply chain leaders face tough challenges around sharing data with key stakeholders in their efforts to reduce carbon emissions. Forty-six per cent of respondents said data silos remain their biggest challenge. With so many incompatible systems stretched across all functions, chemical manufacturers are struggling to access data in a standardised format which permits accurate and timely sharing.



## 2

In their efforts to reduce waste and minimise carbon emissions, many are implementing circular business models. Once successfully integrated, circular business models will be key value creators, lowering the costs of materials through recycling and decreasing energy consumption. According to our research, 84% of organisations surveyed are either developing a circular business model, or plan to implement one in the next two to five years.



## 3

A lack of proper infrastructure, tracking emissions and a reluctance to share data are just some of the challenges chemical manufacturers face in their collaboration efforts. Effective collaboration in this space requires total buy-in from all stakeholders, transparency, and a willingness to work together for future thinking. According to our research, this is something the industry is struggling with, and further progress is an absolute must.





# PART ONE

Building an Effective Decarbonisation  
Strategy by Promoting Open Data Sharing

## Part One

Decarbonisation goals loom ever larger as we approach crucial deadlines in 2030 and 2050. As a result, chemical manufacturers are actively formulating and implementing decarbonisation strategies. The ability to share accurate and timely ESG data will be a critical factor in their success.

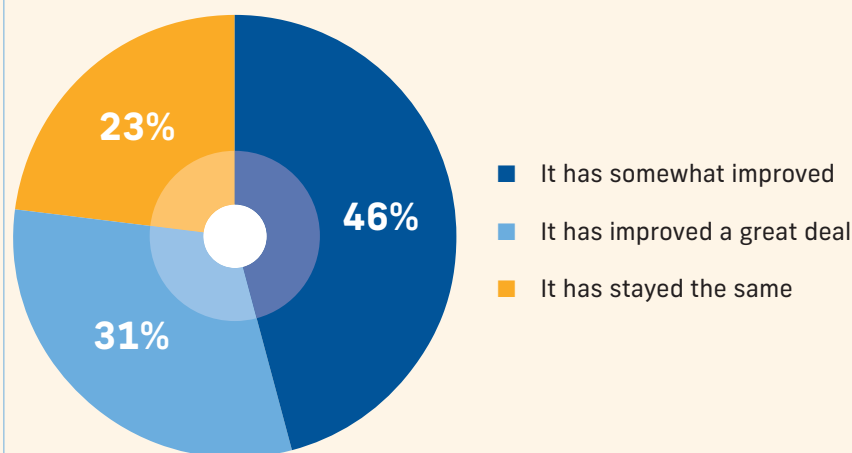
Encouragingly, our research reveals that 78% of respondents have witnessed an improvement in their organisation's ability to collect, analyse and share accurate ESG data, indicating significant progress in this area. Not a single respondent has seen it worsen.

Despite that, data silos remain a challenge for 46% of our respondents, while 36% said data privacy concerns were an issue when it comes to reducing emissions. Thirty four percent cited a lack of standardisation as a hurdle they will have to navigate.

To truly advance in this area, organisations must embrace a cultural shift towards open data sharing across all stakeholders. According to our respondents, this shift will help to increase transparency, measuring and reporting progress, enabling the alignment of sustainability goals within core business areas.

Elsewhere, the emergence of technologies such as artificial intelligence (AI) could help to tackle these challenges. Providing AI with a robust foundation for data analysis could help to generate valuable insights into the changes required for organisational transformation.

### How has your organisation's ability to collect, analyse and share accurate ESG data changed over the past three years?



"Transparency in ESG continues to be a key priority for all chemical companies. Although the situation has improved over recent years, it remains difficult to find common ground and standardisation on the how and what. We expect further streamlining of assumptions in the years to come to facilitate ESG reporting across the industry."



**Dr. Jörn Grosse-Wilde**  
Vice President Supply Chain, ROI-EFESO Germany

"I think the industry, generally speaking, has improved somewhat in recent years in our ability to accurately collect, analyse and share ESG data. That being said, what it involves is such a huge amount of data which needs to be filtered, and there are still lots of questions about ESG data. So, it is encouraging to see that for many respondents their ability in this area has improved, however I think many in the industry would be far from their end goals."



**Sabine Schultes**  
Head of Dangerous Goods Transportation, Henkel

"I think it is really encouraging to see that so many have said that their ability to collect, analyse and share accurate ESG data has improved over the past three years. ESG is still a relatively new concept for the industry, with there being no legal requirement to focus on the area for things such as ESG auditing. So, the fact that so many have told us they have improved in the data management area of ESG is great, and shows that the industry is getting ahead by broadening the reach of sustainability beyond just emission reduction."

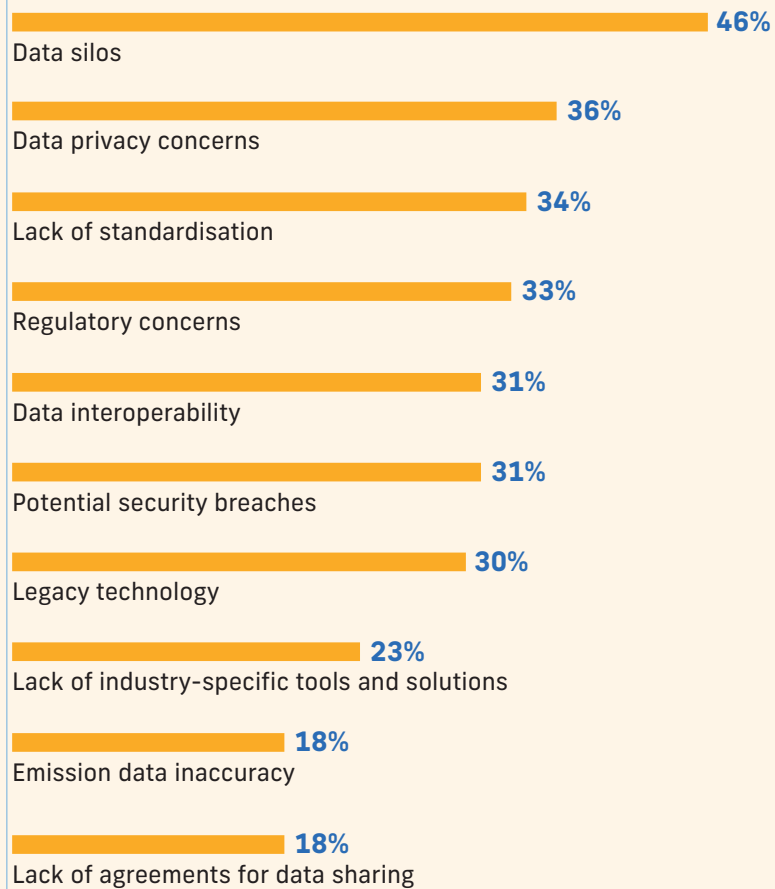


**Gabriela Martins da Silva**  
Content Director, LogiChem 2024

# DATA SHARING

## What are the top three challenges of sharing data with key stakeholders to reduce carbon emissions?

Respondents were asked to select three options



"Collaboration, with or without circular value chains, is the way to reduce carbon emissions in the future. Improved collaboration across the value chain, breaking down silos can however only be achieved with higher supply chain maturity than today. It will require improved processes, organisations, and system setups to enable sharing and jointly reducing carbon footprint in a win-win state of mind."



**Kristof De Coster**  
Vice President Supply Chain, EFESO

"We are really pushing sustainability across our whole business portfolio, but it is difficult to accurately measure emission data. I think there is definitely a lack of standardisation, and a lot of the data that is reported is not entirely accurate. For us, we have implemented eco transit, which we think is the best software solution out there, and will become the standard in the industry for carbon emission data on transportation. Once we have fully implemented the solution, it will allow us to report and share emission data knowing that our data is as accurate as possible."



**Justin Lanyon**  
Global Supply Chain Director, Arkema



**We asked our respondents how fostering a culture of open data sharing will help their organisation achieve its sustainability targets. Here is what they told us:**

"Open data sharing increases the level of transparency when it comes to measuring progress and creating compliance reports."

"Open data sharing will ensure business units focus on sustainability across processes by leveraging data to improve sustainable practices."

"Open data sharing will empower our organisational growth through public support and government partnerships."

"With the computing power available today, we can use AI and other tools to analyse all our data and get insights into how we can make changes towards a more sustainable future."

"It will be beneficial in aligning our sustainability goals to our core business areas."

"Once we see the connection between our operations and the emissions they generate, through data, we can take the necessary steps to implement greener options."

"An important lever in becoming more sustainable lies in collaborating with up- and downstream partners as organisations move towards a circular business model. Such ambitions can only be achieved with transparency and openness to share data. Developing ecosystems beyond company barriers, with or without third-party platforms will be essential for future business models."



**Fernando Cruzado**

Vice President & Head of Chemical Industry Northern Europe & Middle East, EFESO

"At our company, we have implemented a substantial data lake that aggregates information from our diverse systems. This cloud-based data-sharing solution serves as a comprehensive platform, enabling seamless access for all stakeholders to extract the necessary data and construct reports. Our organisational culture places a strong emphasis on data sharing, which is commendable. Nonetheless, we acknowledge the ongoing need for enhancement. Our focus involves expanding and customising the data within the lake to ensure its relevance and effectiveness in meeting evolving requirements."



**Maarten Jonkers**

Contract Manager Logistics, Shell

"Data sharing, from my experience, is relatively easy when it is between one business unit. However, as soon as you go to other branches and business units, companies begin to have different IT systems and it becomes much more complicated."

This is emphasised when third parties are involved, and with the majority of organisations outsourcing logistics to third-party providers, data sharing is even more difficult. Some may be reluctant to share, for various reasons. So, fostering a culture of open data sharing can be a challenge, not because people do not want to, but there are certain economic and perception risks associated with doing so by some third-parties, which makes it difficult."



**Sabine Schultes**

Head of Dangerous Goods Transportation, Henkel



# Circular Supply Chain in the Chemical Industry: A Sustainable Approach

By Dr. Jörn Grosse-Wilde, Vice President Supply Chain, ROI-EFESO Germany and Kristof De Coster, Vice President Supply Chain, EFESO

The chemical industry plays a pivotal role in multiple industry sectors, contributing to the production of essential materials for agriculture, healthcare, manufacturing, and countless other applications. However, traditional linear supply chains in the chemical industry have often been associated with significant environmental impacts and resource depletion. In response to these challenges, the concept of a circular supply chain has gained traction, offering a more sustainable and eco-friendly approach to the production and distribution of chemicals.

By closing material and energy cycles, a circular supply chain seeks to minimise waste, maximise the value of resources, and reduce environmental impact throughout the product life cycle. Here are key strategies and considerations to guide the establishment of circularity in the chemicals industry:

## 1. Life cycle assessment:

- Initiate the process by conducting a life cycle assessment, spanning from R&D, through production, to end-of-use and disposal, and evaluate the environmental impact at each stage. This analysis provides insights into where improvements can be made and identifies opportunities to reduce resource consumption and emissions.

## 2. Design for circular economy:

- Emphasise product design that aligns with circular economy principles. Consider factors such as reusability, recyclability, and ease of disassembly. Designing products with these considerations from the outset facilitates downstream processes like recycling and remanufacturing.

## 3. Material selection and traceability:

- Select suppliers and materials with a focus on reducing environmental impact and ensuring recyclability. Implement traceability systems using digital technologies like blockchain to track the origin and composition of materials. This enhances transparency and aids in the efficient separation of materials during the recycling process.

## 4. Recycling infrastructure:

- Invest in recycling infrastructure to support the efficient recovery and processing of materials. This may involve partnering with waste management companies or establishing in-house recycling capabilities. Closed-loop systems can be established, wherein waste from one stage becomes a valuable input for another, reducing reliance on primary resources.

## 5. Collaboration across the value chain:

- Foster collaboration with suppliers, manufacturers, and distributors to establish a closed-loop value chain. Improved

collaboration in supply chain planning, optimising material flows, and jointly investing in circular initiatives will result in more sustainable supply chains. Cross-industry collaboration is also essential for driving innovations in recycling technologies.

## 6. Digital technologies, data analytics and AI:

- Leverage digital technologies, such as supply chain control towers, data analytics or AI to monitor and optimise supply chain processes. Real-time data facilitates enhanced traceability, improved inventory management, and the identification of opportunities for waste reduction. Automation can further increase efficiency in material recovery and processing.

## 7. Circular business models:

- Explore and adopt circular business models that incentivise resource efficiency and product longevity. Models such as product-as-a-service, leasing, or take-back programmes encourage the return and refurbishment of products, e.g. process catalysts, extending their life cycle and reducing waste.

## 8. Organisational mindset, continuous improvement and innovation:

- Foster a culture of continuous improvement and innovation within the organisation. Encourage R&D activities to explore new technologies, materials, and processes that align with circular principles. Regularly assess and update circular strategies to stay ahead of emerging trends and opportunities.

## 9. Regulatory compliance and standards:

- Compliance with environmental standards is crucial for creating a supportive regulatory environment in the chemicals industry. Engage with industry associations and regulatory bodies to contribute to the development of standards that encourage and support circular practices.

Establishing a circular supply chain in the chemicals industry demands commitment, collaboration, and innovation. By considering circular principles in design stage, investing in recycling infrastructure, fostering collaboration, and leveraging digital technologies, the industry can transition toward a more sustainable and resilient circular economy, reducing its environmental footprint while creating economic value.





# PART TWO

Minimising Waste by Advancing Supply  
Chain Partnerships and Implementing a  
Circular Business Model



## Part Two

Waste management has long been a central concern for the chemicals industry and will continue to be of paramount importance in the years to come. Circular business models have become increasingly popular due to their ability to minimise waste generation. Additionally, recycling initiatives embedded into circular business models are not only reducing costs for organisations, but also mitigating their dependence on raw materials and associated price volatility.

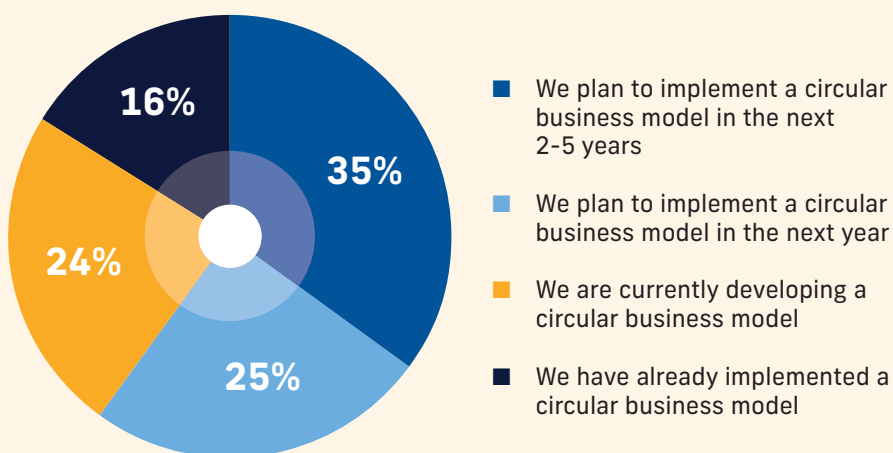
All of these factors are collectively driving value creation. Our research reflects this trend, with 84% of respondents indicating that their organisation is either actively developing a circular business model or plans to implement one.

Respondents also shed light on the primary drivers behind their circular business model strategies. Perhaps unsurprisingly, 66% cited sustainability targets, 50% pointed to legal requirements, and 44% highlighted cost reduction as key motivators.

Implementing an effective circular supply chain and benefitting from its associated value creation is a complex endeavour. Our research identifies the key challenges faced by supply chain heads, with 61% claiming the primary challenge lies in establishing a clear benefit case and securing necessary investment. Additionally, 47% identified overcoming organisational silos between the supply chain and sales teams as a significant hurdle.

To create an effective circular supply chain, there has to be total, consistent and clear communication between all teams and functions across the organisation. Therefore, it is no surprise to see that this is a key challenge for many, particularly as circular business models are so new to the industry.

### Circular business models will be an important value creator in the future; how is your organisation preparing for them?



"Chemical players have recognised the importance of circular business models to create value. Leading organisations have already established or are working on circular business setups (40%) to gain a competitive advantage. The foundational step is baselining with a life cycle assessment to understand the end-to-end value chain and main levers, complemented by target and ambition setting."



**Kristof De Coster**  
Vice President Supply Chain, EFESO

"We are on a five year journey of implementing a circular business model. While everyone in the industry is interested in them, they are expensive, and there is not much desire to pay the premium it would cost. So, by using things like mass balance, we are trying to find alternative ways to offer more circularity in our products without increasing the cost."



**Justin Lanyon**  
Global Supply Chain Director, Arkema





# CIRCULAR BUSINESS

## What are the top three factors influencing your organisation's circular business model?

Respondents were asked to select three options



"While we see a general conviction in the chemicals industry that linear business will be replaced by circular business approaches in many areas, the motivation is heterogenous: many companies still consider compliance with corporate sustainability targets or legal regulations as a main driver; however, leaders already realise business advantages from circular businesses, e.g. cost reduction, resilience and better access to raw materials."



**Dr. Jörn Grosse-Wilde**  
Vice President Supply Chain, ROI-EFESO Germany

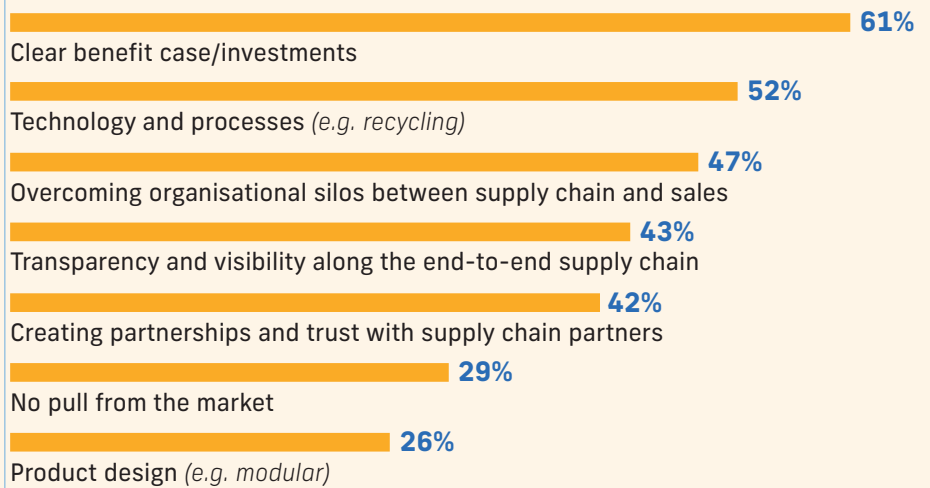
"I am perhaps unsurprised to see that legal requirements and sustainability targets are the top two answers here. I think for many though, their sustainability targets are based on their legal requirements, as it informs their ESG reporting."



**Sabine Schultes**  
Head of Dangerous Goods Transportation, Henkel



## CIRCULAR BUSINESS

**What are the top three challenges for creating a circular supply chain in your industry?***Respondents were asked to select three options*

"Leading players of the chemicals industry have formed initiatives to establish circular business models. Next to a clear benefits case and business continuity perspective, many companies show concerns that the needed technology will be available in due time (e.g. to extract valuable raw materials) as well as the recycling infrastructure."

**Kristof De Coster**

Vice President Supply Chain, EFESO

"In my experience, the main challenges are obtaining a clear benefit case, and little pull from the market. If we want to make all operations sustainable, we can do it, but all costs will go up 25%, which is not viable. There is a scale of economy issue, as only a few organisations are really pushing for it.

Therefore, things like hydrogen trucks are really expensive. Solutions are out there; the prices are just too high right now. I think as more push for these solutions, prices will come down, but we are around 10 years away from that point currently."

**Justin Lanyon**

Global Supply Chain Director, Arkema

"I think a big challenge with obtaining a clear benefit case is that it is so hard to find the true price of a product, from cradle to the grave. If you want to do a benefit case, or if you want to calculate investment in terms of circularity or sustainability, you need much more data than you needed in the past for certain investments such as a production site.

The effort of truly finding the ownership cost for all of an organisation's products would be immense, and for many it is simply easier and cheaper to pay for the waste. Going forward, I think if we had better availability of data to calculate true costs, then it would be a lot easier to create a circular supply chain, at least from a financial perspective. That said, building a circular supply chain, when achieved, would be very beneficial."

**Sabine Schultes**

Head of Dangerous Goods Transportation, Henkel

"Creating alternative feedstocks will be extremely expensive, and it is not a surprise to see that a clear benefit case is a challenge for many respondents when it comes to creating a circular supply chain. So many resources will go into assessing every product at each stage to see what it can be recycled and used for going forward once it has changed from its original raw material.

Creating a successful circular supply chain would involve high level communication between all departments and areas of the supply chain, which has historically been a challenge. Many organisations I speak to tell me they are undergoing a big structural reorganisation in the hope that they can work towards creating a circular supply chain in the future."

**Gabriela Martins da Silva**

Content Director, LogiChem 2024



# PART THREE

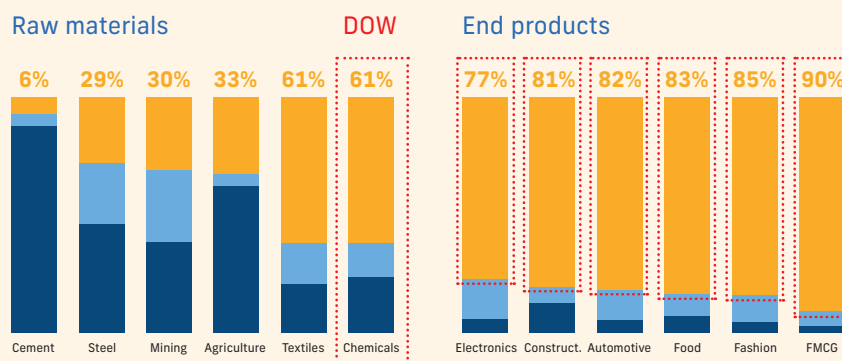
Be a Part of the Sustainable Future of the  
Chemicals Industry

The chemical industry is facing a monumental challenge as it looks to revolutionise operations and meet CO<sub>2</sub>-neutral requirements. Most organisations have focussed mainly on reducing their own emissions and Scope 3 emissions have largely been ignored as they are difficult to measure and track.

**However, change is on the horizon.**

According to a study carried out by Dow, 61% of the total emissions in the chemical industry comes from Scope 3 emissions, and targets cannot be met without tackling them.

## Dow carbon neutral and circular materials have an impact to cut customers CO<sub>2</sub>e emissions (Scope 3)

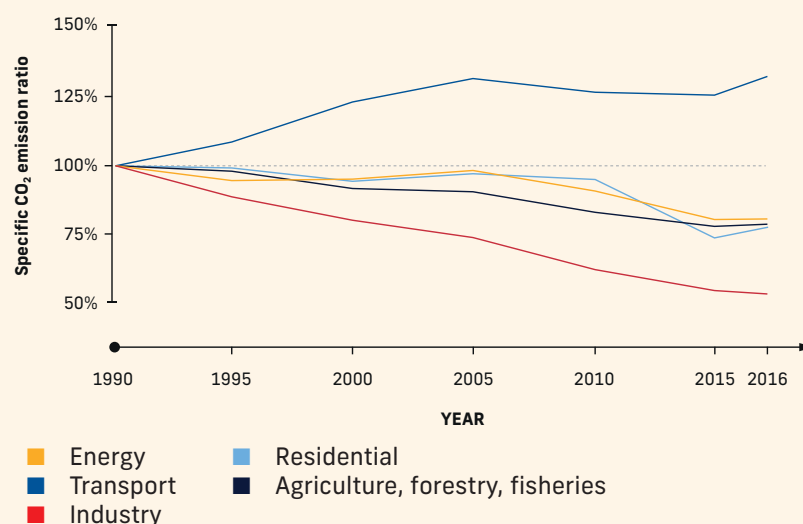


Emission split in Scopes 1, 2 and 3 upstream for selected industries (CO<sub>2</sub>e, 2019)

- Supply chain (Scope 3 upstream)
- Purchased power, etc (Scope 2)
- Operations (Scope 1)

Meeting these targets are set to become law with the European Union promising to pass legislation. When it comes into law, organisations will be legally responsible for Scope 3 emissions, which are currently calculated using inaccurate averages and multiples. As it stands, the chemical industry is not ready.

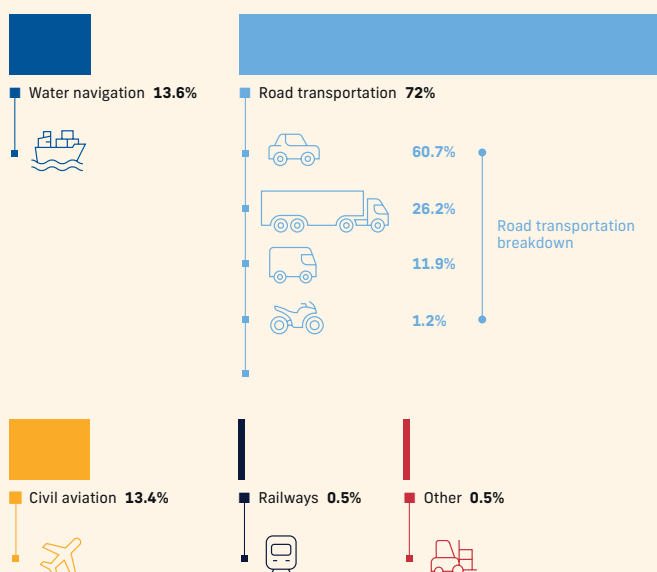
## Evolution of CO<sub>2</sub> emissions in the EU by sector (1990-2016)





## Be a Part of the Sustainable Future of the Chemicals Industry

Emission breakdown by transport mode (2016)



A new ESA demonstration project, called 'Scope 3' is aiming to change that. A consortium led by Ovinto is trying to gather the 'real' emissions, namely the exact 'primary' consumption data per trajectory. The aim is to move from averages and multiples towards the real scope 3 emission data and to:

- Develop a user friendly 'real emission/primary data' monitor for the different freight transport mode truck, rail, barge and maritime.
- Create as much traction as possible among petrochemical stakeholders and gather their requirements when it comes to monitoring and allocating exact scope 3 emissions.
- Anticipate European legislation towards the (petro) chemical industry, and by extension towards other industries as well, regarding the internalisation of real scope 3 emissions.

"While the legislation allows various methods, CEFIC promotes primary data. Recognising the challenges in data collection, especially from subcontractors, we propose making primary data mandatory in the future. Technical solutions are recommended to streamline the data collection process."



## What new legislation means

An interview with Joost Naessens, Director of Transport & Logistics, CEFIC

### Q: Can you tell us about the upcoming legislation?

A: There are many legislations in transport and logistics that are either incentivising or pushing for the use of low-emission transport solutions - for example, the shift from road to rail or inland waterways. The 'Greening Freight Transport' combines four regulations, including the harmonised accounting procedure for transport emissions.

### Q: What does the proposed legislation entail, especially when it comes to emission calculation?

A: The proposed legislation establishes a European framework for calculating emissions, leaning on ISO standards like ISO 16,083 and 18,043. It suggests companies wanting to publish emission information must adhere to this methodology. Three options are presented: primary data, modelled data, and activity-based values.

## Be a Part of the Sustainable Future of the Chemicals Industry

**Q: CEFIC has a clear position. Could you elaborate on your preference for primary data emission reporting?**

A: CEFIC advocates for primary data, emphasising the use of real fuel consumptions, kilometres, and tons for accurate emissions. This ensures transparency and allows companies to demonstrate their environmental efforts, potentially providing a competitive advantage.

**Q: How does the proposed legislation address challenges in collecting primary data and what is CEFIC's stance?**

A: While the legislation allows various methods, CEFIC promotes primary data. Recognising the challenges in data collection, especially from subcontractors, we propose making primary data mandatory in the future. Technical solutions are recommended to streamline the data collection process.

**Q: Moving beyond emissions reporting, can you shed light on another legislative proposal, like the revision of the Combined Transport Directive?**

A: The proposed revision introduces eligibility criteria for combined transport, emphasising a 40% reduction in total external costs compared to road-only transport. This necessitates accurate measurement of external costs, highlighting the need for tracking and reporting tools.

**Q: How do you see projects like the one you're involved in helping the logistics service providers and chemical companies in emission reporting?**

A: This project assists logistics service providers in collecting primary data efficiently, providing accurate emission intensity for specific operations. Additionally, it can enhance supply chain transparency for chemical companies by tracking rented equipment and improving emission intensity calculations.

**Q: What benefits do you anticipate for participants in this project?**

A: Participating in the project can help logistics service providers overcome barriers to providing accurate emission data, potentially improving supply chain transparency. For chemical companies, the project can offer enhanced tracking capabilities for rented equipment, aiding in emission intensity calculations.



# SUSTAINABLE FUTURE



## The role of the European Space Agency (ESA)

The project is being co-funded by ESA Space Solutions. One of their aims is to support organisations outside of the space environment with projects building applications using data coming from space technologies that are commercially viable while offering a benefit to society. As Ovinto develops its scope 3 'primary data' emissions monitor, they will be using data coming from space technologies such as GNSS (satellite positioning e.g. Galileo), satellite communications and Earth observation.

A consortium of experts have come together to help deliver a project that would not be possible without collaboration. Each part of the consortium will contribute vital information and resources to ensure the project will be revolutionary for the chemicals industry. Ovinto will lead the project as specialists in the development of software-as-a-service (SaaS) platforms for the rail and intermodal freight industry, and will be joined by:

- **CMB Tech:** Specialists in the development of hybrid hydrogen engines for vessels, trucks and locomotives. As part of the CMB Group, they are specialists in maritime transport.
- **Railnova:** Specialists in locomotive telemetry and monitoring.
- **RHEA Group:** Specialists in cybersecurity and data protection.
- **DGA Shipping:** Specialists in inland barge transport.





## The role of the ESA

An interview with Fausto Vieira,  
Technical Officer, European Space Agency

"It is about finding projects that are both a benefit to society and commercially viable. We also consider the environmental impact of the project and there is an element that looks at reducing emissions. That is important. It is not about developing new technologies for the sake of it, but addressing a specific need in a specific market."

**Q: Can you give us a brief overview of the project and your involvement in it?**

A: We are essentially a funding agency that, among other things, funds innovation in the use of space assets for new commercial services. The goal of the programme is to support companies in developing and launching new services that use space technologies to address real-world needs. It is about creating new services that are sustainable.

**Q: How do you determine which projects to get involved with?**

A: It is about finding projects that are both a benefit to society and commercially viable. We also consider the environmental impact of the project and there is an element that looks at reducing emissions. That is important. It is not about developing new technologies for the sake of it, but addressing a specific need in a specific market.

**Q: Can you tell us more about the specific technology being used in the project?**

A: The really interesting thing about this project is that space technologies are everywhere. This project is using a variety of space technologies, including satellite communications, GPS, and Earth observation data. These technologies are being used to develop a digital twin of the railway industry, which will be used to model emissions and identify opportunities for efficiency improvements. For instance, the digitalisation process relies heavily on localisation services provided by systems like GPS and Galileo. Moreover, satellite communications are utilised in tracking devices installed in rail tank cars, particularly those transporting chemical products. This connectivity helps transmit essential telemetry and sensor data, ensuring efficient and safe transportation.

**Q: What are the main benefits of the project in your opinion?**

A: As Technical Officer, my role involves supporting companies throughout the project life cycle. I assist in proposal preparation, conduct regular meetings with the companies, and monitor project milestones. It is essential to ensure that objectives are met, funds are utilised efficiently, and, ultimately, that the project aligns with its goals. I play a part in overseeing that public money invested in these projects is well-spent.





# Collaboration is at the heart of it

In addition to the team of experts that make up the project consortium, one of the main aims is to be a supportive cog in this transition for the federations. With that being said, the project is being carried out under the guidance and directives of the European Chemical Industry Council (CEPIC), the European Chemical Transport Association (ECTA) and the Supply Chain Programme Committee at the European Petrochemical Association (SCPS @ EPCA).

This is a project which has collaboration at its heart. From the funding, resources and belief that the ESA has provided to the invaluable emission data and technology that the expert project consortium continues to deliver, this project would be impossible without them.

The project is currently at the stage of integrating contributing users. Contributing users are able to provide user requirements regarding the development of the emission monitor. They will also be able to test the developed modules and validate the generated data, whilst giving feedback on how they see further development of the tool.

As part of the ESA's co-funding of the project, there is a formal requirement that the demonstration project be commercially viable, and that users are willing to pay for the developed service. For that reason, contributing users will need to pay a symbolical fee to join the 'Scope 3' demonstration project of €500 per month during the 24 months of the project.

The aim of the demonstration project is to provide a solution to gather 'primary data' from the different transport modi and distribute this to all relevant stakeholders enabling them to enhance their Scope 3 emissions reporting.



Besides the collection and distribution of the primary consumption, a simulator will also be built based on real consumption data allowing users to input their route, and see in real-time the cost and emission output of different routes and transportation providers.

The project wants to be the first SaaS that provides users with real data on their Scope 3 emissions. Equally, however, the project aims to not only be supportive and complimentary to the associations but also create a solution that is supportive and complementary to all organisations and their systems. The project knows that it will only work if all players in the market can use it.

The project wants to break down the barriers of emission data reporting and work with organisations to understand exactly what they would want in a solution such as this, as well as what they explicitly would not want.

Strict regulations are on the horizon, mandating that all organisations take responsibility for their Scope 3 emissions. It is crucial to proactively address this issue before it becomes a pressing matter.

## The Smart Emission Simulator

Ovinto has helped to develop the Smart Emission Calculator to provide visibility of the ecological footprint of the logistic flow of goods, across different transport modes and transport providers. It allows organisations to choose the route to go from A to B, not only based on time and cost, but also based on its ecological footprint.

Here, we provide an example outlining how it can work and the benefits it brings. Let us assume that company X wants to ship a load of 12 containers from Southampton to the Port of Antwerp. The simulation tool searches for possible routes and identifies modes of transportation that have the capacity available. It presents the following three options:

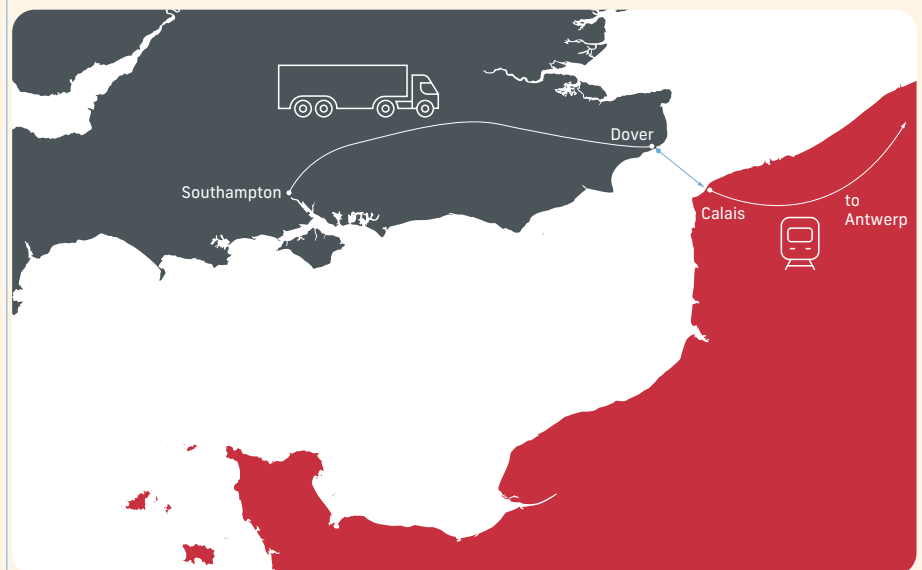
### Option A (ship and rail).

Transport the load from Southampton to Le Havre by ship; for this route, the simulation tool has identified a small container vessel that has the capacity available to carry the load of 12 containers. From Le Havre, the load continues its journey to Antwerp by train.



### Option B (truck and rail).

Drive to Calais by diesel truck, through the Eurotunnel, and continue by train from Calais to the Port of Antwerp.



## Option C (truck only).

Transport the load by truck, all the way from Southampton to the Port of Antwerp, through the Eurotunnel.



For each option, the smart emission simulator reports the CO<sub>2</sub> and NO<sub>x</sub> emissions for the journeys. For emissions calculations to be completely accurate, a real data platform is required offering real-time data on possible means of transport, their available capacity and CO<sub>2</sub> and NO<sub>x</sub> emissions. However, it does give insights into what company X could draw from a smart emission simulator.

Benefits include:

- Allowing company X to make a more informed decision on what route to take
- Visibility on the trade-off between transportation cost, time and emissions
- Results that could indicate greener transportation options such as eco-friendly ships
- Results that suggest collaboration with logistics providers who are investing in cleaner fleets that could improve the sustainability of any options.

The project firmly believes that upon completion of the demonstration phase, it will be able to present the EU with a comprehensive case study showcasing how this can be effectively achieved. This success hinges on the collective efforts of industry stakeholders and will flourish through the collaborative endeavours of all parties involved.

**Interested in joining the project or keen to find out more?  
Contact Frederick Ronse at Ovinto.**



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# PART FOUR

Combining Emission Reduction  
with a Wider Company Approach  
to Achieve Sustainability and  
ESG Goals



## Part Four

The success of an organisation's decarbonisation strategy hinges largely on a company-wide approach and a culture of collaboration. Our respondents emphasised that optimising overall fleet management capabilities through enhanced data collection and analysis is the most crucial factor aiding their emission reduction efforts.

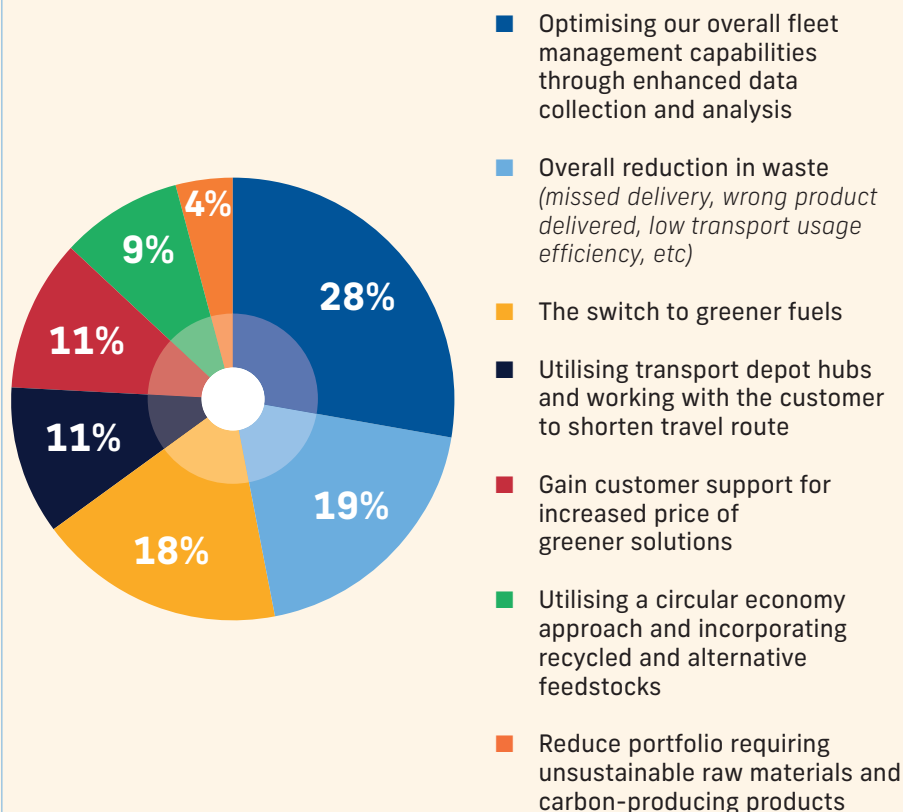
While a company-wide approach is crucial, effectively achieving decarbonisation goals extends beyond this to collaboration with external third parties – transportation solution providers in particular.

Many of our respondents recognise this as well, with 63% indicating that collaborating with transportation providers is either very important or most important to their overall strategy for enhancing the sustainability of their transportation network.

Transportation accounts for a significant proportion of overall emissions, so cooperation with transportation solution providers has never been more critical. Our research highlights that the two primary ways in which chemical manufacturers are collaborating to reduce emissions from their transportation network are by working to improve the transportation emission output of their suppliers (44%) and by collaborating with data providers to enhance the assessment of transport performance (40%).

However, the realities of collaboration presents challenges. Many respondents encounter obstacles when collaborating with transportation providers, ranging from a lack of proper infrastructure to monitor and track emissions to a lack of providers offering sustainable solutions at reasonable prices and an unwillingness to share emission data. With Scope 3 emissions constituting a substantial portion of overall emissions for chemical manufacturers, collaboration in this area is a crucial area for progress in the coming years.

### Which of the following factors will help your organisation reduce emissions the most alongside a company-wide approach to sustainability?



"In my opinion, I think we need to focus much more on capacity optimisation, even over the switch to greener fuels, as the technology is not there yet. If we were to focus on what we already have, improved fleet management is key, as we have costly transport due to poor loading quality which causes issues and accidents.

Equally, I think we have so many containers that are shipped with a lot of empty space, and often this is due to the added logistics behind having your chemicals shipped with another organisation's product. This results in shipping a lot of 'air' around the world. If we were to focus on optimising this area, I think it would go a long way to reducing emissions for the industry."



**Sabine Schultes**

Head of Dangerous Goods Transportation, Henkel

"Embracing a culture of data sharing is of paramount importance, as it serves as a transparent indicator of potential optimisation areas, particularly within fleet management. One specific area that stands out is load optimisation, which presents a substantial opportunity for improvement. Sharing data on existing inefficiencies can play a pivotal role in our collective efforts to minimise empty transport space and enhance overall efficiency."

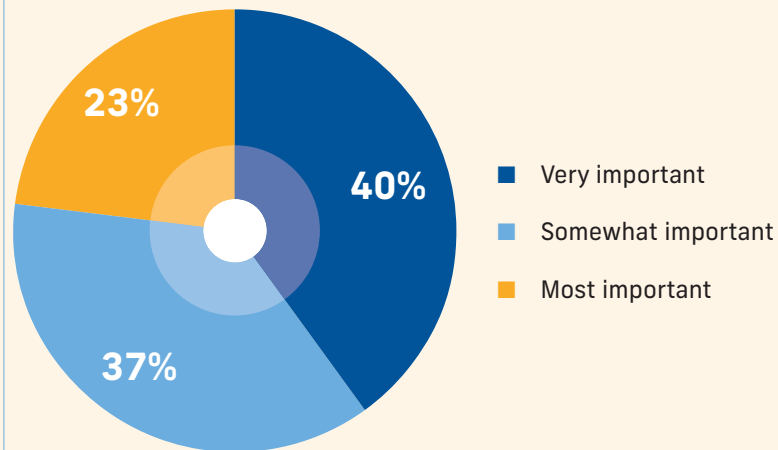


**Suzanne Roodenberg**

GM HSSE/Logistics, Shell

# EMISSION REDUCTION

How important is collaborating with transportation solution providers in your organisation's overall strategy to make its transportation network more sustainable?



"At Arkema, we are extremely focused on sustainability. However for us, transportation makes up only 8% of our total carbon emissions. So for us, we are prioritising the emission output from our petroleum-based raw materials, and there is little push from the market to tackle transportation-based emissions right now.

I am currently working on it a little because I am interested in this area, and I know we will need to tackle this in the coming years. Once we have solved Scope 1 emissions, Scope 3 will be extremely important, and the collaborative efforts with transportation solution providers will be key to these efforts once we do."



**Justin Lanyon**  
Global Supply Chain Director, Arkema

"From my conversations, I see that many are struggling with collaborating with transportation solution providers, particularly post-COVID. There are still real challenges to secure the capacity required to guarantee reliable delivery, meaning that many organisations are still working towards multi-modal transport solutions and including more variety in their transportation portfolio to achieve a balance between the top KPIs-better, faster, cheaper, greener.

With this being such a challenge, that has made the ability to go one step further and collaborate with suppliers to enhance their sustainability efforts even harder. This in turn places greater importance on reducing emissions in other areas of the supply chain, because it is so difficult to guarantee that the transportation available will also be in line with your CO<sub>2</sub> reduction goals."



**Gabriela Martins da Silva**  
Content Director, LogiChem 2024

# EMISSION REDUCTION

## How is your organisation currently collaborating to evolve its transportation network and reduce emissions?

Respondents were asked to select all options that applied



"There has definitely been a push for collaboration in the industry, and one of the main reasons, in my opinion, is the enhancements it can bring to tracking. Databases can be built where you can accurately know the emission levels of a certain shipment. This requires the fuel producers, the engine producers, and organisations all to work together to build these capabilities."



**Justin Lanyon**  
Global Supply Chain Director, Arkema

"The aspect of digitalisation is critical for us, and we approach it comprehensively, considering the end-to-end spectrum. This spans from optimising our site operations to implementing a recently introduced track and trace capability in Europe. Additionally, we focus on establishing strategic stock points in proximity to our customers, ensuring seamless connectivity with our systems. Adopting a holistic perspective on digitalisation is pivotal for us, and we complement this with collaboration with the right teams and third-party partners to select greener fuels and other sustainable solutions."



**Suzanne Roodenberg**  
GM HSSE/Logistics, Shell

We asked our respondents what challenges they are facing when collaborating with transportation providers to reduce emissions. Here is what they told us:

"No proper infrastructure to monitor and track emissions."

"A lot of transportation businesses are not willing to share data that can enable us to track the level of sustainability thoroughly."

"Greener options are generally higher priced than traditional options and there have to be enough clients to prefer that option."

"Finding a transportation company that provides sustainable services at a reasonable price is a big challenge."

"Transportation companies do not have the right infrastructure to accommodate new technological changes that will drive reduction in carbon emissions."

"To be able to share data and make changes they need to make certain upgrades and changes."

"For me, I see a lack of proper infrastructure as one of the main challenges to collaborating with transportation providers to reduce emissions. I may have a slightly different view on transportation as it only makes up 8% of our total carbon emissions, however the solutions out there currently cost too much, and the market is not willing to pay for it. Equally, for some solutions, the support grid is just not there. When solutions such as biodiesel become more readily available, and the support grid improves for things like H2-powered trucks, I think the industry will switch quickly to these alternatives. I just do not think that the industry is ready yet. The solutions are out there, but are too unobtainable."



**Justin Lanyon**  
Global Supply Chain Director, Arkema

"Collaborating with transport providers is definitely a challenge for the industry. They are willing to share the data, but are perhaps limited by costs and investments. I think a solution however is to talk much more with each other via the associations. Having those conversations on a higher level between associations, those discussions can be neutralised, and can be discussed in an open way."

Equally, I think there should be more understanding for the transportation providers and the pressures they are under, particularly with attracting drivers. I think having an understanding of the situations and limitations that transportation providers are in from manufacturers will go a long way to improving the collaboration efforts, which will in turn help with reducing emissions in this area."



**Sabine Schultes**  
Head of Dangerous Goods Transportation, Henkel



## Conclusion

While progress has been made in enhancing the industry's ESG data capabilities, challenges persist – notably surrounding data silos, privacy concerns and a lack of standardisation. To overcome these challenges, chemical manufacturers are realising that adopting a company-wide culture of open data sharing will be key to making meaningful progress in unlocking the power that data management enhancements can bring to the table when reducing carbon emissions.

Equally, with waste reduction being a top priority for many, there has been a trend towards the implementation of circular business models. Circular business models allow chemical manufacturers to create value by cutting costs, reducing reliance on raw materials, and minimising energy consumption. However, this strategy is relatively new and those working on them face challenges in investment, having the necessary processes and technologies, and overcoming operational silos.

Implementing a company-wide approach coupled with a collaborative culture with all stakeholders is paramount for successful decarbonisation progress. Collaborating with transportation solution providers, in particular, has been highlighted as a key focus, and heads of supply chain are facing challenges in these efforts, in part due to a lack of infrastructure for reporting data, increased costs and an unwillingness to share emission-based data from their transportation providers.

With regulations set to become more stringent and far-reaching, collaboration could be the key to evolving the chemicals industry towards carbon neutrality. Solutions are there, data is available and new technologies are emerging all of the time. Real progress hinges on coming together and sharing expertise and resources.



## Key Suggestions

# 01

### Make data sharing a cultural thing

There is still a lot of work to be done in overcoming data silos, and ensuring data privacy concerns are addressed. Fostering a culture of sharing data is needed to truly unlock the power of accurate ESG data and the associated benefits when it comes to your decarbonisation strategy. Working together to ensure everyone can access key information at all times will fuel technologies that provide greater insights such as AI and will also aid in your efforts to work with third-parties and pass on that culture when focussing on Scope 3 emissions.



# 02

### Unleash the value of circular business models

Many in the industry are realising the value of circular business models. Beyond waste reduction, which will go some way to reducing overall emissions, implementing a circular business model can cut costs and reduce reliance on raw materials, as well as the associated price volatility. While implementation challenges remain, adopting a circular business model can ensure you stay ahead of the curve at such a critical time for the industry.

# 03

### Understand your transport providers

If we want to truly tackle Scope 3 emissions, having the buy-in and willingness from third parties such as transportation solution providers is critical. As one of our contributors to this report told us, understanding the position transportation providers are in, and working with them to ease concerns around areas such as emission data sharing can go a long way to enhancing the accuracy and consistency of their data reporting.



# 04

### Work together

A collaboration report would not be complete without a suggestion to collaborate. There are so many people doing great work and there is the talent, technology, resources and time for real progress to be made. The coming together of everyone involved will propel the industry at a much greater pace, allowing for greater development, more effective collaboration and the ability to share, test, discuss and implement new processes, technologies and strategies that will assist everybody in achieving carbon-neutral targets.

## About EFESO, Ovinto and WBR Insights



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