

Chemical Logistics Vision 2020
The next decade's key trends, impacts
and solution areas

**Highlights extracted for discussion at
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By Frank Andreesen, Chairman, Cefic Strategy Implementation Group Logistics

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Aim of today's presentation

Deloitte.

 cefic

Chemical Logistics Vision 2020
The next decade's key trends, impacts
and solution areas



September, 2011

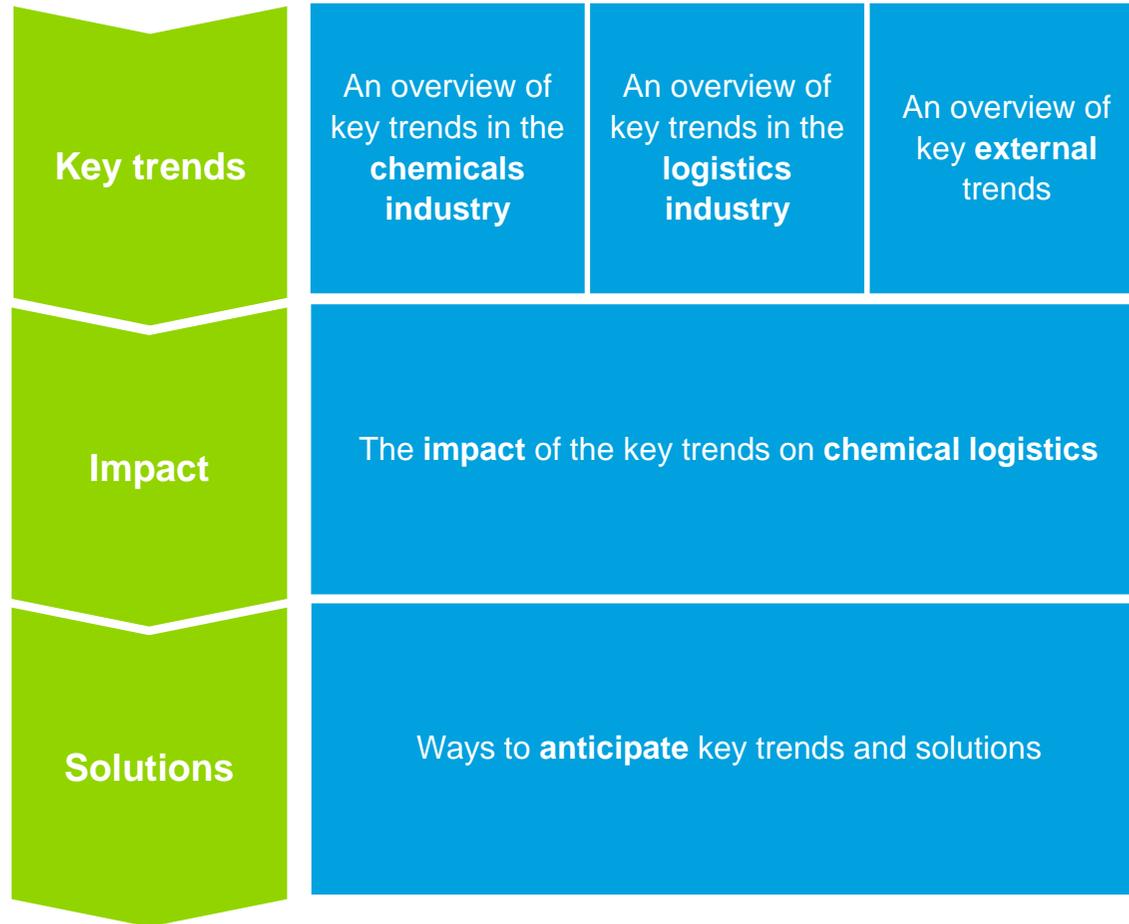
- Highlight the essence of the Chemical Logistics Vision 2020:
 - Key trends and impacts (= challenges)
 - Solutions
- Stimulate thinking what we can do to maintain a safe, reliable and efficient European chemical logistics network

Chemical Logistics Vision 2020 Report

- The report is the final output of a review initiated by the Cefic Strategy Implementation Group Logistics (SIG Logistics) to create a vision of chemical logistics over the next decade.
- This review started with a workshop on 18 October 2010, attended by 15 logistics managers from key players in the chemical industry, facilitated by Deloitte.
- The output from the workshop was combined with the findings from the Deloitte Chemicals 2020 studies and subjected to a comprehensive review.
- The final report was published in September 2011 and is available for download on the Cefic website: <http://www.cefic.org/Industry-support/Transport--logistics/Chemical-Logistics-Vision-2020/>

Key trends, impacts and possible solutions for chemical logistics are formulated based on insights from chemical, logistics and regulatory fields

Set-up of the Chemical Logistics Vision 2020



Key findings of the Chemical Logistics Vision 2020

Findings

Key trends

- Product flows in 2020 will continue to evolve. The role of developing markets in production and demand will become increasingly important
- Continued clustering of European chemical plant capacity
- Logistics capacity constraints due to insufficient infrastructure, assets and capable operators
- More emphasis on emission reduction, safety and security from both the general public and politicians

Impacts

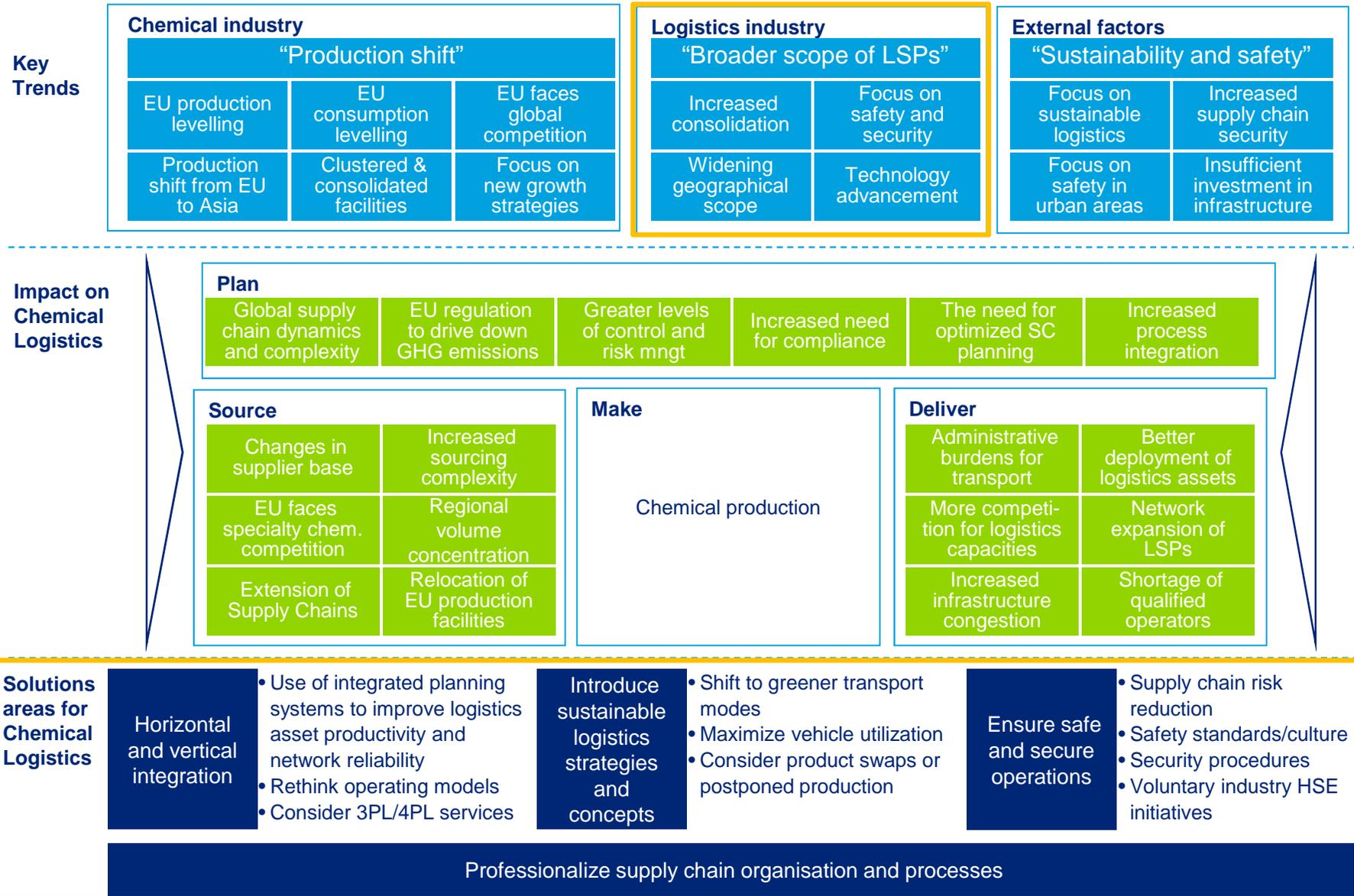
- Longer and more complex supply chains
- Higher supply chain costs and constant pressure on transport capacity, changing the power balance between shippers and LSPs
- Increased regulation, focused on emission reduction and further safety and security improvements

Solution areas

- Emergence of logistics agility as a solution is dependant upon many underlying drivers and enablers. The main objective is to balance costs, service levels, flexibility and sustainability. The report identifies four main solution areas:
 1. Greater horizontal and vertical integration along the supply chain to improve efficiency and productivity and ensure better asset deployment
 2. Increased focus on sustainable logistics strategies and concepts
 3. Continuous improvement in operational safety and security
 4. Further professionalization of the supply chain organization supported by training and process excellence

Cause and effect diagram for chemical logistics

*Today's focus

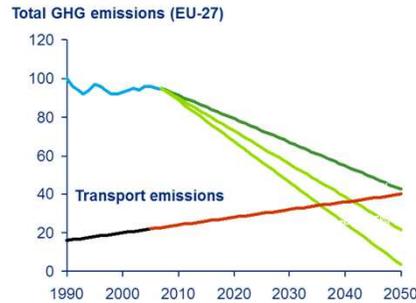


Key trends and impacts

From an external perspective, the focus on sustainability, safety and security will increase which leads to regulations and restrictions



Key external trends



Sustainability regulation

Security

Safety in urban areas

Congestion

Administration

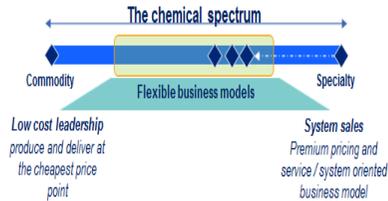
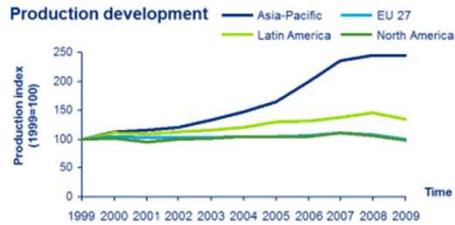
Impacts on Chemical Logistics

- 1 Need to significantly reduce emissions
- 2 More stringent security procedures
- 3 Even higher levels of alertness to safety
- 4 Increasing traffic and terminal congestion
- 5 Higher administration cost of logistics operations; slow down of supply chains

The chemical industry will experience a production shift which impacts global chemical supply chains and trade balance



Key trends in the chemical industry



- Stabilized EU production growth
- Levelled consumption
- Production shift
- Global competition
- Regional specialisation
- Clustered facilities Europe

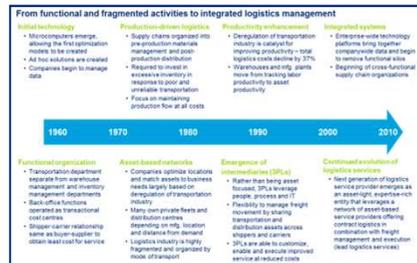
Impacts on chemical logistics

- 1 Even higher focus on total supply chain costs
- 2 Need to expand logistics networks into developing regions
- 3 Greater interdependence between regional clusters and need for better integration

In the next decade the logistics industry faces a broader geographical scope and increased focus on high-end services



Key trends in the logistics industry



Logistics outsourcing models	Service offerings	Relationship & pricing models	Key attributes
Integrated Services	Integrated Services	Partnership Value Based	Shared risk and reward Strategic relationship Broad supply chain expertise Knowledge- and information-based Advanced technology capability Adaptive, flexible, and collaborative
Contract Logistics (CL)	Specialized Services	Contractual Risk Sharing	Project management/contract management Single point of contact 3PL technology integration
Freight Management (FM)	Lean Logistics Services	Contractual Fixed and Variable	Enhanced capabilities Broader service offerings and geographies
Transportation Execution (TE)	Basic Services	Commodity Transaction	Focused cost reduction Niche services

Capacity constraints

Increased consolidation

Further sophistication of LSPs

Safety and security requirements

Broader geographic scope

Technology advancement

Impacts on Chemical Logistics

- 1 Increased competition for logistics capacities
- 2 Need for better deployment of logistics assets
- 3 Greater levels of control and risk management
- 4 Longer more complex supply chains
- 5 Process integration as key success factor

Logistics industry consolidation and further sophistication of LSPs enables new concepts, but capacities are likely to be constrained



Capacity constraints

Increased consolidation and further sophistication of LSPs

Safety and security requirements

Broader geographic scope

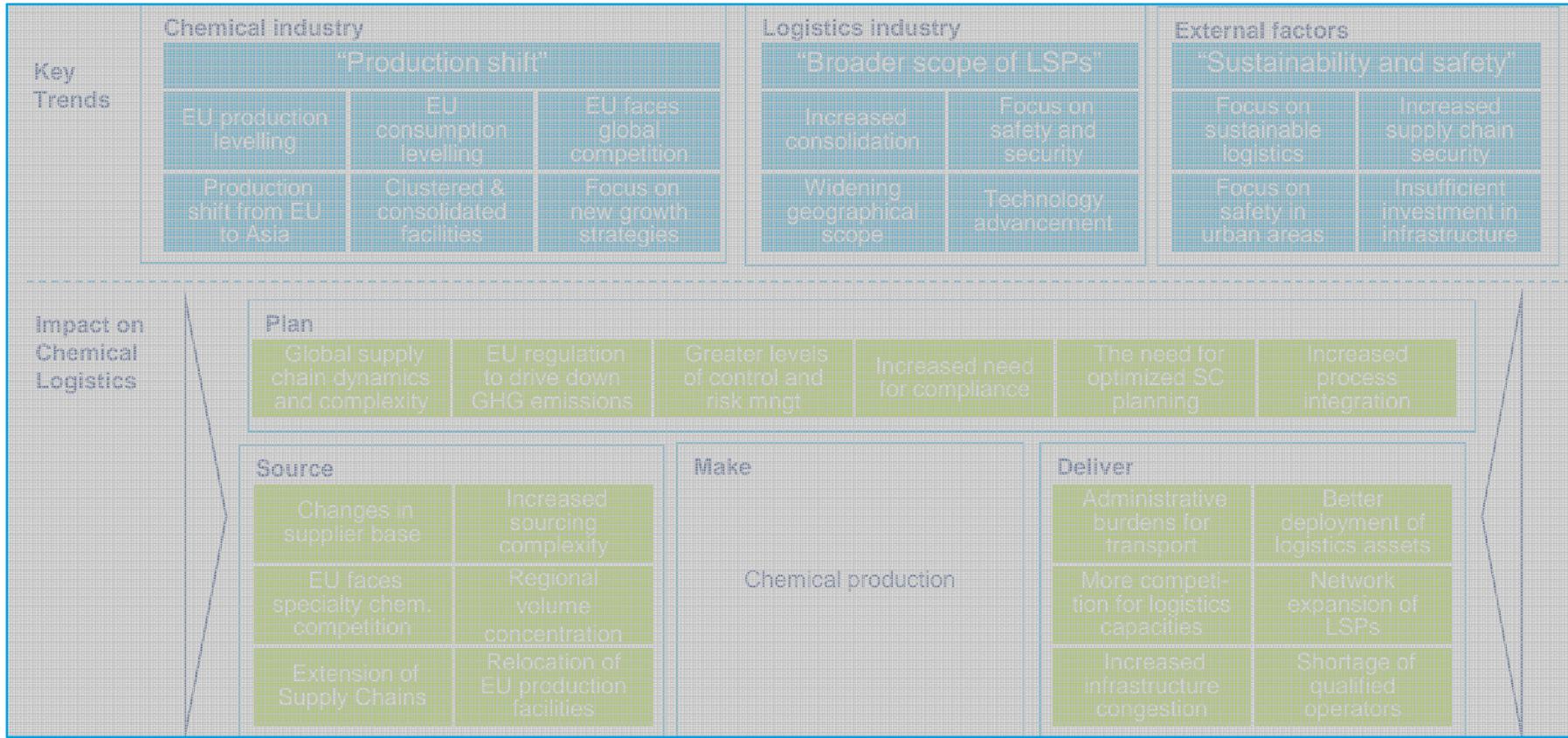
Technology advancement

Impacts on chemical logistics

- **Increased competition for logistics capacities**
Chemical shippers compete for increasingly constrained capacities.
- **Better deployment of logistics assets**
Consolidation of the logistics industry offers opportunities for both LSPs and shippers to achieve a higher level of integration. Effective adoption of sophisticated IT for better asset deployment, brings higher productivity, lower unit cost and better network performance.
- **Greater levels of control and risk management**
Safety and security risks require greater levels of control and better risk management throughout the supply chain, which in turn offers improvement opportunities .
- **Logistics expansion as enabler for integration**
The need for a greater network provides both challenges and opportunities to shippers and logistics service providers, driving further integration throughout the supply chain.
- **Process integration as key success factor**
The winners will be those that manage the increasing complexity through better process- and system integration, effective partnering along the supply chain and advanced technology deployment.

Solution areas

Cause and effect diagram for chemical logistics



Solutions areas for Chemical Logistics	Horizontal and vertical integration	<ul style="list-style-type: none"> • Use of integrated planning systems to improve logistics asset productivity and network reliability • Rethink operating models • Consider 3PL/4PL services 	Introduce sustainable logistics strategies and concepts	<ul style="list-style-type: none"> • Shift to greener transport modes • Maximize vehicle utilization • Consider product swaps or postponed production 	Ensure safe and secure operations	<ul style="list-style-type: none"> • Supply chain risk reduction • Safety standards/culture • Security procedures • Voluntary industry HSE initiatives
	Professionalize supply chain organisation and processes					

Improve horizontal and vertical integration along the supply chain in order to improve efficiency and productivity of asset deployment¹



What does this mean more specifically?

Examples from other industries demonstrate that strategic alliances can be established through better process and system integration.

- (1) Horizontally between shippers:** Rather than competing for constrained network capacities there is an opportunity for shippers to bundle transport demand with other shippers and jointly develop freight corridors on strategically important routes and shared distribution platforms.
- (2) Horizontally between logistics service providers:** LSP's may be able to complement each others networks, exchanging loads and sharing capacities, thus realizing higher productivity and overall improved reliability.
- (3) Vertical collaboration between shippers, their LSP's, raw-material suppliers and customers:** Visibility of transportation demand is essential and vertical information sharing would allow improvement in production planning. This sets the basis for strategic and tactical network planning to ensure sufficient transport capacity to meet demand "in the right place at the right time".

To take things forward does however require the **vision and willingness** to make things happen, followed by a **systematic approach** to understand the business case for collaboration and design and implement an operational framework for achieving the objectives aimed for by the parties engaging in collaboration.

Note: 1. Any actions to improve horizontal and vertical integration should be conducted in compliance with competition law rules

Continue development of sustainable logistics strategies



What does this mean more specifically?

Environmental and economic objectives are not in conflict. The recently published White Paper “Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system” of the European Commission clearly underpins that “sustainable transport” and “competitiveness” are compatible targets.

The challenges presented by the EC goals of lowering carbon emissions from transport by 60% by 2050 are an opportunity for shippers and logistics service providers to work together in order to increase the efficiency of our European logistics network.

In doing so, shippers and LSP’s need to put together strategies which encompass multiple generic concepts, for example:

- (1) Shift to “greener” transport modes:** Development of intermodal solutions for journeys > 300 km to achieve the optimal balance between costs, service levels and sustainability .
- (2) Improvement of vehicle planning and utilization:** Minimizing empty runs and increasing payloads leads to lower carbon emissions per tonne-km of goods moved as well as reducing costs. Horizontal and vertical collaboration supports this aim.
- (3) Product swaps or postponement of manufacturing steps:** Product swaps can avoid transport or minimize unit intensity. Postponement can work for long hauls, where large shipments of semi-finished or higher concentration materials are transported for later finishing or dilution.

There is an opportunity for LSPs to help their customers to find the optimum balance between cost, responsiveness and sustainability

Continuous improvement in supply chain safety and security



What does this mean more specifically?

- Relentless pursuit of supply chain risk reduction
- Continue safety programs (e.g. SQAS) to reduce risk of transporting (hazardous) goods
- Remain focussed on safe operational mind-set (e.g. safety culture programs)
- Supply chain visibility (including acquiring the Authorized Economic Operators status) to manage operational security
- Ensure a level playing field through harmonization of regulations and compliance across industry and geography
- Align safety and security commitment and capabilities of small, mid-size and large chemical and logistics companies with industry best practices
- Stress the importance of voluntary HSE initiatives (e.g. Responsible Care) in the chemical and logistics industry to improve the performance in the fields of safety, health and environmental protection, in addition to meeting legal requirements

Continuous improvement of safety and security standards will remain a high priority for chemical companies. This will require close co-operation with logistics service providers and joint improvement programs.

LSPs need to focus even more on safety and security aspects, facing increasingly complex regulations while having to maintain end-to-end control over longer more complex chemical supply chains

Summary – the essence of it all ...



How to turn challenges into opportunities

1. **Rethink your current way of working: Give serious consideration to partnering in order to achieve better integration, which results in better supply chain visibility and therefore basis for better strategic, tactical and ultimately operational network planning.**
2. **Collaboration and horizontal integration between LSPs is of limited value, for as long as this is not complemented by better vertical integration with their customers**
3. **Better integration is also the basis increasing levels of safety, security, efficiency and in consequence is making our chemical supply chains more sustainable.**

To achieve this requires CHANGE and that starts with each one of us and our willingness and ability to start challenge traditional boundaries and seek smarter more integrated ways of working in order to master the challenges on hand and make our supply chains more sustainable

Thank you for your attention!



Any questions?

<http://www.cefic.org/Industry-support/Transport--logistics/Chemical-Logistics-Vision-2020/>