



INSIGHTS provides opinions and thoughts on hot topics in the chemicals industry that are today or will become relevant in current and future M&A and business transitions.

## The Supply Chain Dilemma – A change in global product flow?

by Dr. Uwe Nickel

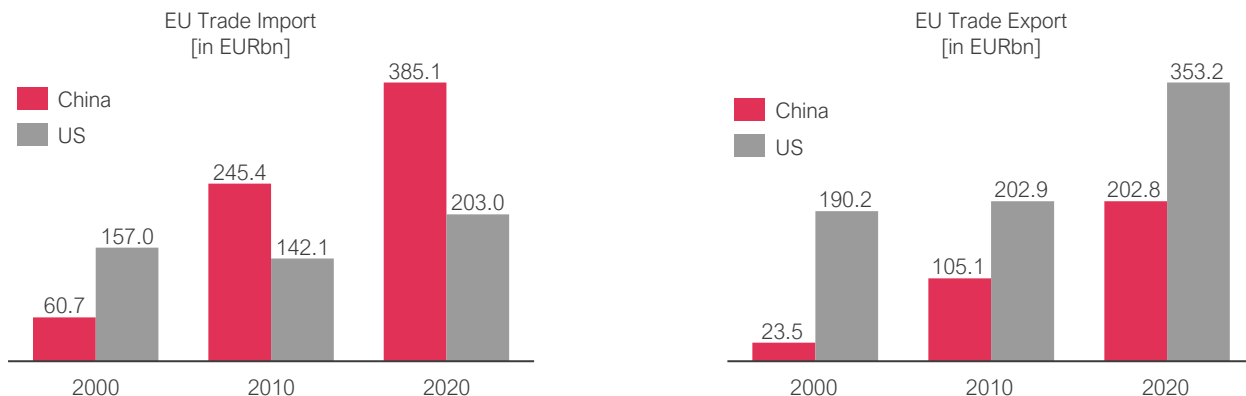
### ► Historical changes towards the East took place

Since the middle of the 80ties the supply chain of many chemicals has moved east. This was primarily driven by cheaper production costs in China or India, due to:

- lower raw material prices,
- a cheaper asset base compared to plants in the West,
- lower environmental and regulatory standards.

This trend increased over the last three to four decades. The lower quality that ended in lower prices in the beginning changed to “good enough quality” in many industries (e.g. Pigments, Surfactants, Intermediates, Additives and a wide range of plastics). The consequences had been drastic for most Operations, especially in the West. It changed the process chain of nearly all products and with them the value chain. Plants were shutdown, know how moved abroad and major parts of the Supply Chain moved to the East. China and India became the operational backbone for many products in the Specialty- and Agro-Chemicals as well the Pharmaceutical industry, for the last, especially in India.

Figure 1: Trade Balance between the EU, China and the US from 2000 to 2020<sup>1)</sup>



While that change of the Supply Chain was a shock in the beginning it became the new normal at the end of the 90ties and many companies moved their assets to the East as well. The industry became used to Chinese and Indian competition by the beginning of the 21<sup>st</sup> century and so the chemical world faced more global competition. Over time a certain balance took place:

- Chinese products improved and were marketed via traders in the west,
- Western companies-built plants in the East to serve their global market,
- Many Intermediates that were able to “travel” were dominated by Chinese and Indian producers.

The chemical Industry adapted its processes and businesses and initially started to play and later efficiently experience the global game.

### ► Another “new normal” that will change the chemical industry landscape

For 5 years changes happened that had a slow but constant impact on the Supply Chain of Chemicals.

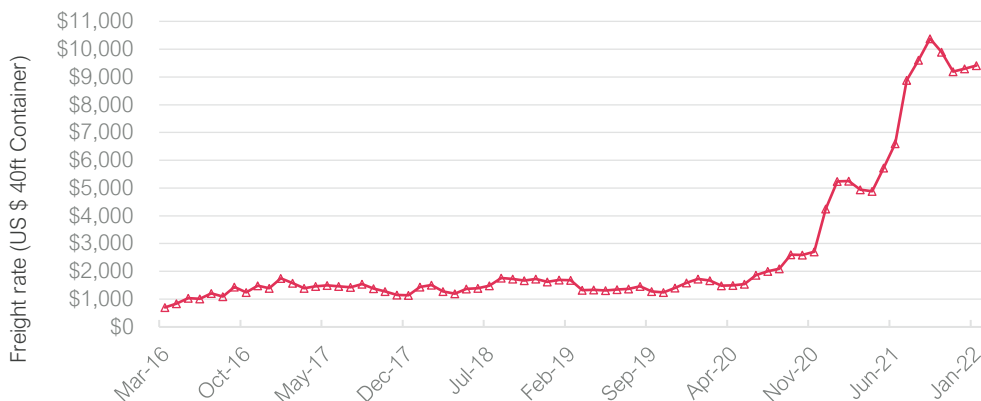
- No.1: Over many years SHE standards and regulatory control in China were low. In 2018 the Chinese government launched the “Blue Sky Initiative” which led to a government-driven closure of many small to midsize plants. Some larger producers had to shut down too but were able to upgrade facilities or due to their size were tolerated by authorities as long as they show improvements in the SHE sector.
- No. 2: The Trade war between the US and China showed limitations in exports from China at least to the US. Some of this supply was compensated by western companies, but they suffered from the supply Chain interruptions that took place due to the Blue Sky initiative.

Source: 1) Eurostat, European Commission

- No.3 The significant increase in transportation costs primarily due to the lack of vessels and shipyards at the same time.
- No.4 The rising costs in India and China due to regulatory and environmental changes as well as higher living standards (especially in China).
- No.5 The change of many feedstocks towards renewables, driven by the visible climate changes that caused governmental initiatives and regulations to reduce the Greenhouse Gas emissions until 2030 by 40% in the EU.<sup>2)</sup>
- No.6 The Covid reality that has impacted Supply Chains for 2 years.<sup>3)</sup>

Here are two of the above listed impacts that are described in more detail to demonstrate the impact.

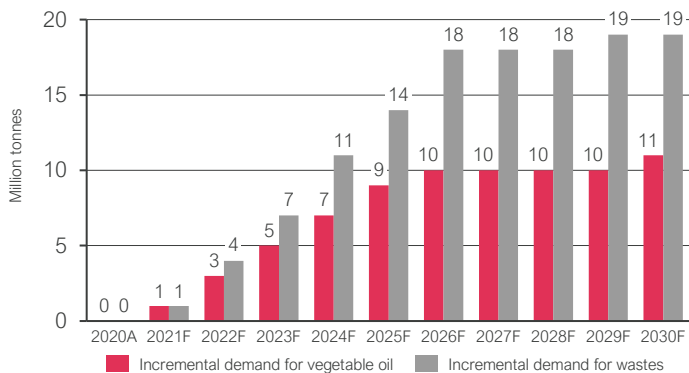
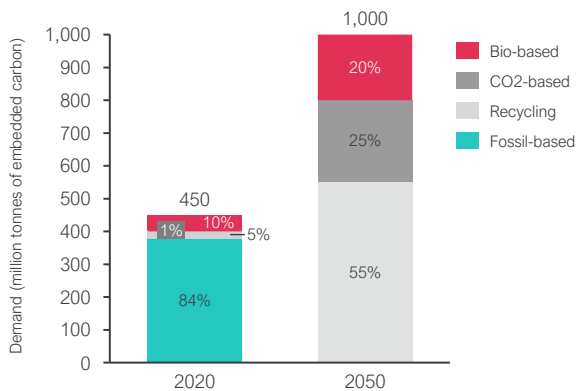
Figure 2: World Container Index: A weighted freight rate assessment of eight major east-west trades (Composite)<sup>3)</sup>



The change in logistics landscape and availability of ships has and will have a significant impact on freight rates – they will not return to prices seen 5 years ago. Even more the global reliability schedule dropped from >70% in 2018 to <50% in 2020 and to 30% in 2021.<sup>4)</sup> This is not only caused by the Pandemic crisis but more linked to the limited availability of vessels and overbooking of capacities – it lasted in Supply Chain interruptions. This will not be an episode while the number of new ships produced to fulfill demand dropped from 117 in 2011 to 23 in 2021 while each year nearly 50% of ships >100t capacity have been decommissioned.<sup>5)</sup> The shutdown of shipyards in the last two decades will restrict a fast recovery of capacities that are crucial for the chemical industry.

Figure 3: Global Carbon Demand for Chemicals and Derived Materials in 2020 and Scenario for 2050<sup>6)</sup>

Figure 4: Incremental feedstock demand from second generation advanced biofuels vs. 2019<sup>7)</sup>



Today there are 450 million tonnes (Mt) of carbon embedded chemicals. 85% of them are fossil-fuel-based, the rest is biomass- and recycling based. It is estimated that until 2050 this number will rise to 1000 million mt or in other words, the renewable based carbon production has to rise by a factor of 15.<sup>6)</sup> Furthermore, it is estimated that by 2026 the plant-based materials market will count for USD 85 bn.<sup>8)</sup> There are numerous projects running and many technologies either find their revival or new technologies based on well-known principles are in an early stage to convert bio-based feedstock into chemicals. One example is Castor Oil as a substitute - with 55% it has the highest oil content per unit. The market for its application is enormous, e.g. it is estimated that the global market for biobased plastics reaches 28bn USD at a CAGR of 26% by 2025. The problem is that it is only available from India and that the crop is very sensitive to climate changes. To use it on a broader scale for the chemical industry not only challenges like yield/unit have to be solved but also the availability in other regions. This will raise the need of easy accessible crop or side products which cannot be imported from far away but will be cultivated in the region in an efficient way to manage a changed supply chain for this kind of products to assure chemical products established in the markets.

Sources: 2) European Commission; 4) Sea Intelligence, GLP report; 5) Toepfer Transport/Briese Schifffahrt.; 6) Nova Institute 2021; 7) CME Group/Reuters; 8) AXIOS Sustainable AC Inc. 2022  
 Notes: 3) Even if this is significant it will not be described here while many articles have been written about it but it definitely changed the view of many companies on the "no limits, no borders" Supply Chain situation.

### ► Impact of a changed Supply Chain and its consequences in M&A

All of these implications and challenges on the Supply Chain will have an impact on companies and the market for transactions.

The key changes will be:

- A change in operations world – more companies will investigate into alternatives to China and India,
- Distributors have to rethink their business models and need to diversify,
- Chemical companies have to revisit their supply chains regarding availability of renewables,
- Agro-Companies and farmers will have a different position in the future by becoming key suppliers and strategic partners.

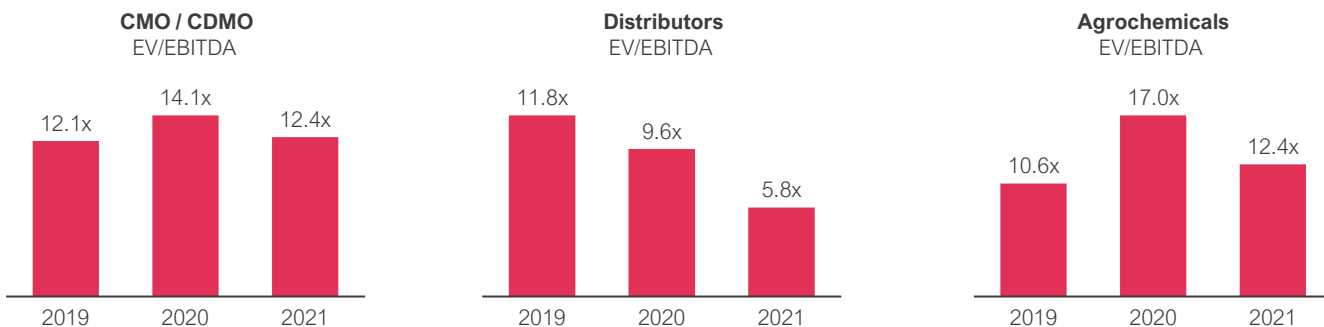
This will impact the whole of the chemical industry as well the transportation and energy supply industry.

In chemicals it will be primarily:

- Small to midsize companies – while need to transform as fast as large companies but not having sufficient development resources or a diversified portfolio,
- CMO, CDMO as well as fine chemical and API producers – while very much focused on Intermediates and Operations in ASIA,
- Distributors – while parts of their suppliers will be no longer competitive to generate margins on top,
- Farmer- and Agro-companies – while becoming game changers will tackle more downstream opportunities

These supply Chain changes will not only trigger the growth of circular chemistry<sup>9)</sup> but also the need to be more active in M&A especially for a.m. company clusters. Furthermore, strategic partnerships of chemical companies to secure the supply with the limited volumes of renewables will be key for success and another transformation of the industry.

Figure 5: Development of transaction multiples in relevant industries<sup>10)</sup>



There have been a rising number of transactions in the last twelve months in the relevant spaces. The multiples shown in Figure 5 are only delivering a snapshot. We have analyzed these areas in more detail and the ranges are much broader than shown, especially in the area of Chemical Distributors where trading multiples for larger enterprises are above 10x EV/EBITDA. The latest transaction of Caldic by Advent with a multiple of 15x paid is still on the high side. Many companies are looking for opportunities through bold on acquisitions to move faster into the renewable space and agro-companies benefit from a growing demand due to a growing population and can further benefit to changed feedstock demand of the chemical industry.

Sources: 9) INSIGHTS in chemicals 2021: "The age of Sustainability", 10) Capital IQ 20/01/2022

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We can offer further insights and details to the topic and the described industries as part of our comprehensive serve in Chemicals & Materials.

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