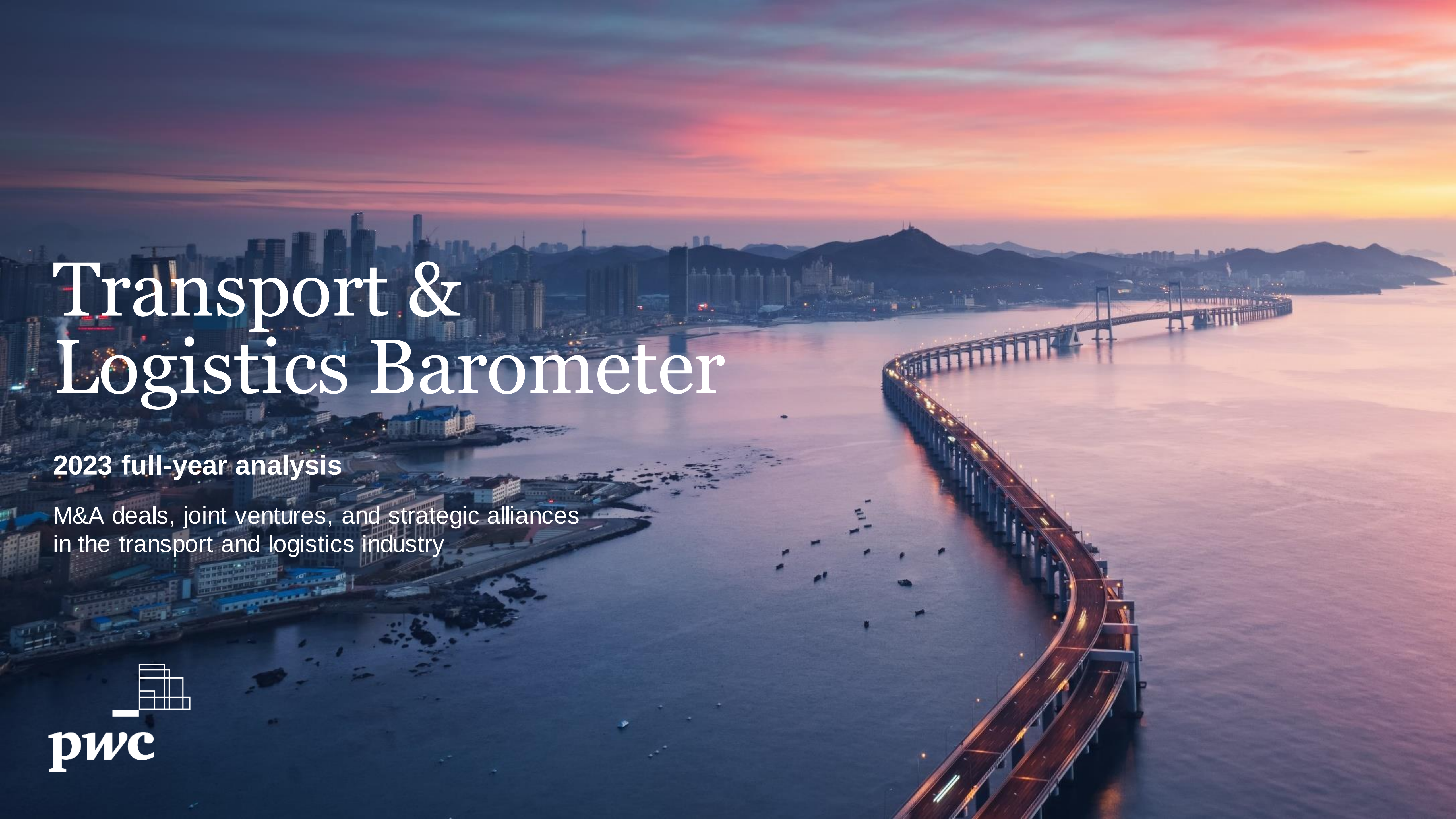


Transport & Logistics Barometer

2023 full-year analysis

M&A deals, joint ventures, and strategic alliances
in the transport and logistics industry

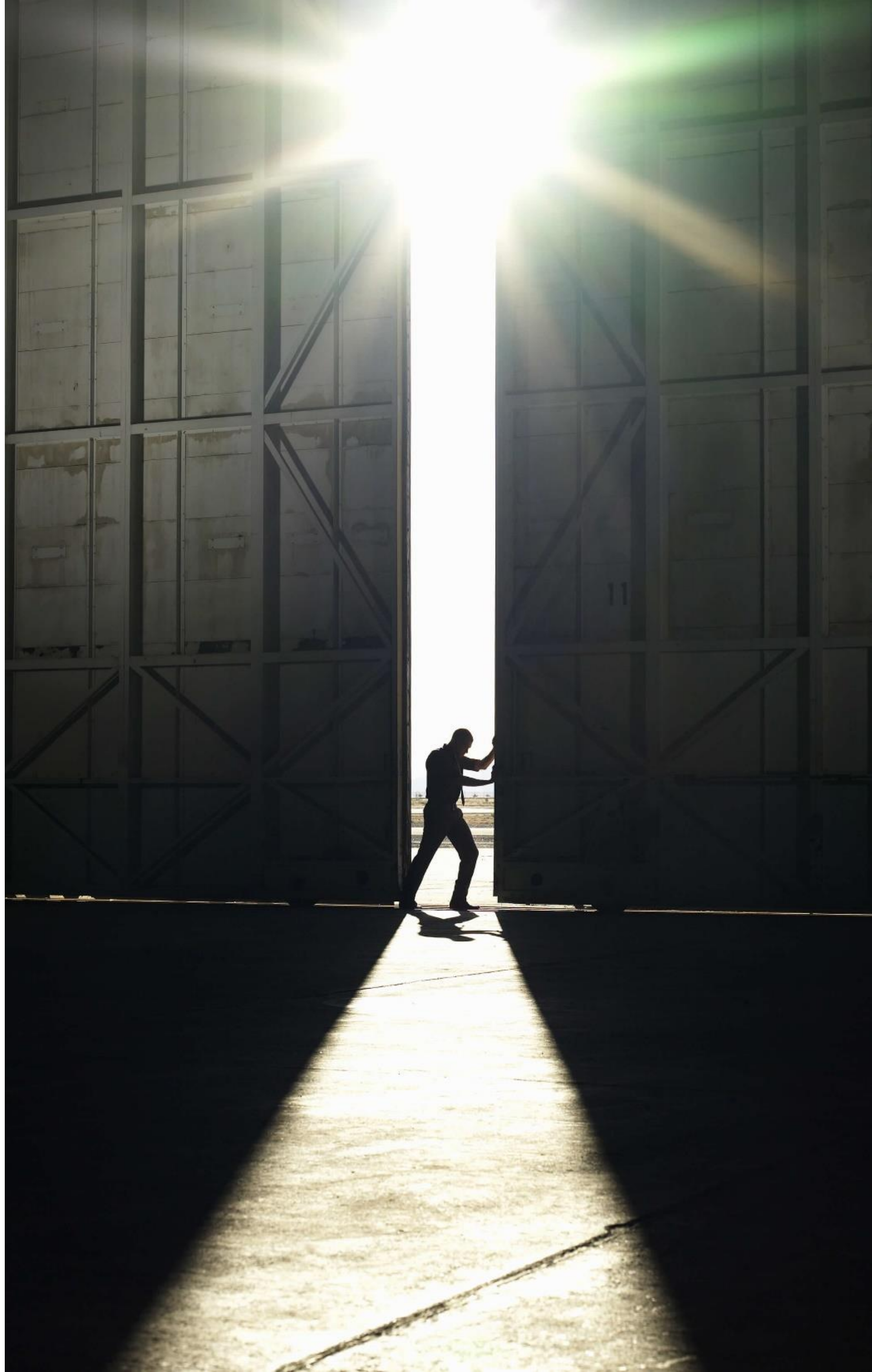
strategy&
Part of the PwC network

This publication was developed in collaboration between the PwC Transport and Logistics practice and Strategy&, PwC's global strategy consulting business. Our purpose is to build trust in society and solve important problems.

Strategy& is a global strategy consulting business uniquely positioned to help deliver your best future: one that is built on differentiation from the inside out and tailored exactly to you. As part of PwC, we build winning systems at the heart of growth daily. We combine our powerful foresight with this tangible know-how, technology, and scale to help you create a better, more transformative strategy from day one. As the only at-scale strategy business part of a global professional services network, we embed our strategy capabilities with frontline teams to show you where you need to go, the choices you'll need to make to get there, and how to get it right.

www.strategyand.pwc.com/

Agenda



1
Summary

Summary

Port infrastructure investments

have been the subject of much controversy for years as ports are critical infrastructure and crucial bottlenecks in the globalised economy. During the pandemic, the overall importance of ports and terminals has been realised even by the public. Purchases and sales in port infrastructure have seen a significant increase since 2015; the transaction volume has totalled around USD 100 billion since then. A shift in target regions can be observed - the surge in deal activity predominantly takes place in Asia and Middle East. Additionally, investments in ports and terminals in Africa by foreign investors gain importance due to Africa's strategic position in global trade routes – especially for the Maritime Silk Road – and being the source of raw materials. The importance of controlling these gateways will increase further in a time of uncertainty and conflict. As a result, Europe is at risk of losing influence and control in economically important regions - with far-reaching consequences for supply chains, sales, procurement, raw materials and energy.

185

mergers and acquisitions (M&A) worth at least $50 million were announced in the transport and logistics (T&L) industry in 2023 – by far the weakest level in the past ten years. The total deal value reached a new lot at $74.6 billion. The 35% share of financial investors in terms of deal value has never been lower (2022: 64%), due to the ongoing difficult financing conditions for large takeovers. The average deal value of $403.3 million fell by 40% YoY, indicating that rather smaller deals were announced.

Decarbonisation

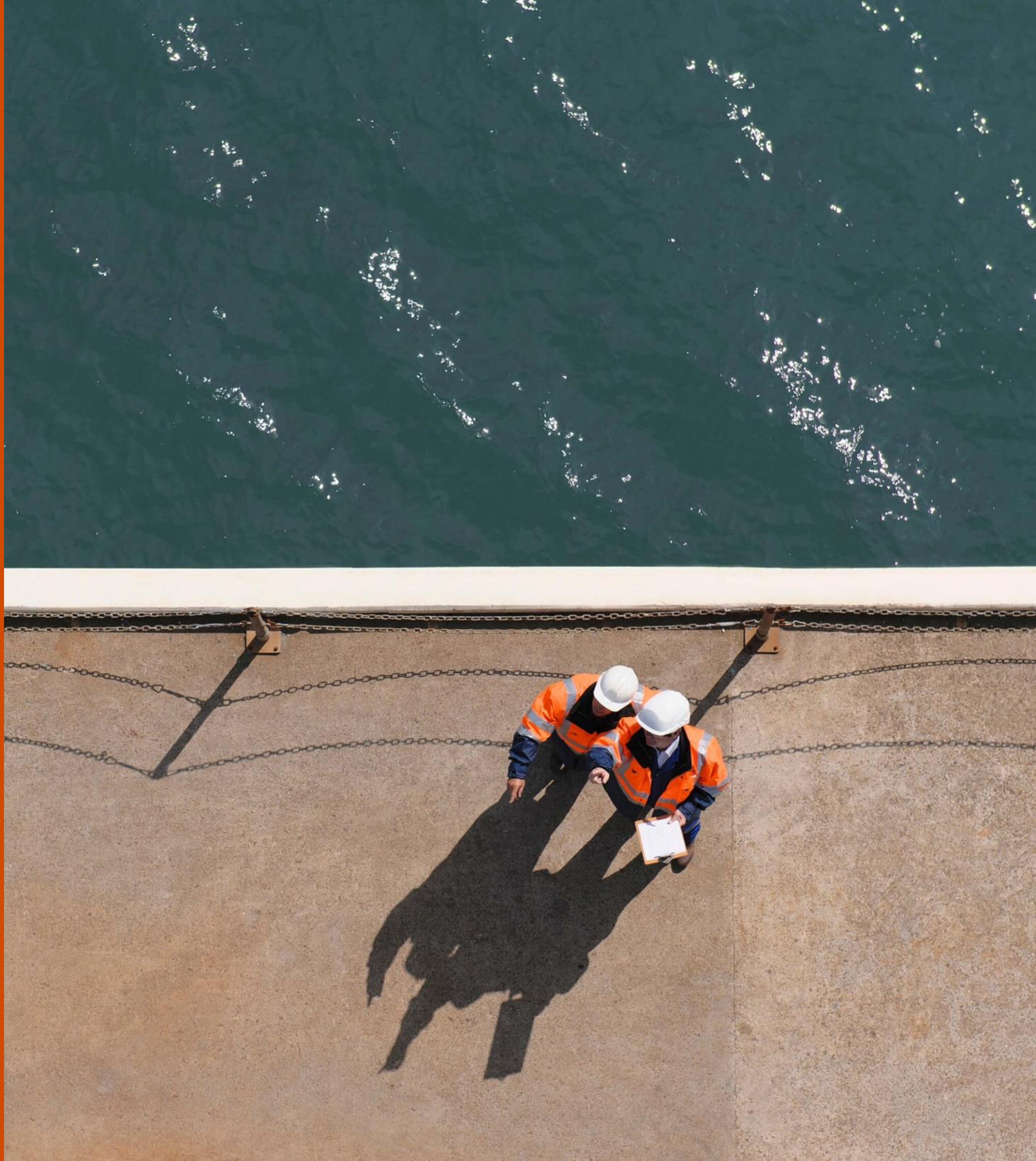
is a major transformation driver for the logistics industry. In analysed strategic partnerships and alliances over the last 5 years, energy-efficient fleets and assets emerge as the most active decarbonisation lever (32% of partnerships), closely followed by those targeting low-emission energy sources (31%). More than half of the analysed partnerships focus on road freight decarbonisation. Fostering strategic alliances and partnerships to drive the sustainability transformation can have a profound effect on logistics companies' business models. By building strong long-term partnerships and market offerings with suppliers and customers, logistics players can accelerate the sustainability transformation and transform the asset base together with those customers who are committed to investing in sustainable solutions.

The outlook

In 2024, the transport and logistics industry will have to operate in an environment of considerable uncertainty and risk. Ongoing geopolitical conflicts are coming to a head and new ones are arising, ultimately contributing to increased geoeconomic fragmentation. The global economy, global trade and, consequently, transport and logistics operations are forecast to grow only moderately. Notwithstanding these headwinds, T&L companies must continue their transformation efforts. Looking at the deep-dive topics of this edition, we will certainly see more port and terminal deals in 2024 as well as increased strategic partnerships and alliances as the industry drives its decarbonisation efforts forward. Overall, we believe dealmaking opportunities will continue to emerge in 2024; hence, we expect a moderate growth in M&A, after the historic low of 2023.

2

Introduction



Introduction

After 2022, a year marked by a loss of growth momentum, trade disruptions, persistently high inflation, and tight monetary policies, the first half of 2023 showed signs of recovery: global headline inflation decreased over a couple of months with the easing of supply constraints and weakening demand, and China's full reopening after three years of Covid measures. GDP growth was stronger than expected, but fragility remained high, and the global economy started to moderate in the second half of 2023 as dampened trade, tight financial policies and rising interest rates have shown their effects more clearly. While headline inflation continued to decrease in most countries, core inflation stayed persistently elevated. New geopolitical disruptions and an uptick in oil prices have contributed to economic uncertainty and a slowdown of economic activity. The T&L industry was not spared from these developments, but the effects were felt in the individual subsectors.

Container shipping subdued

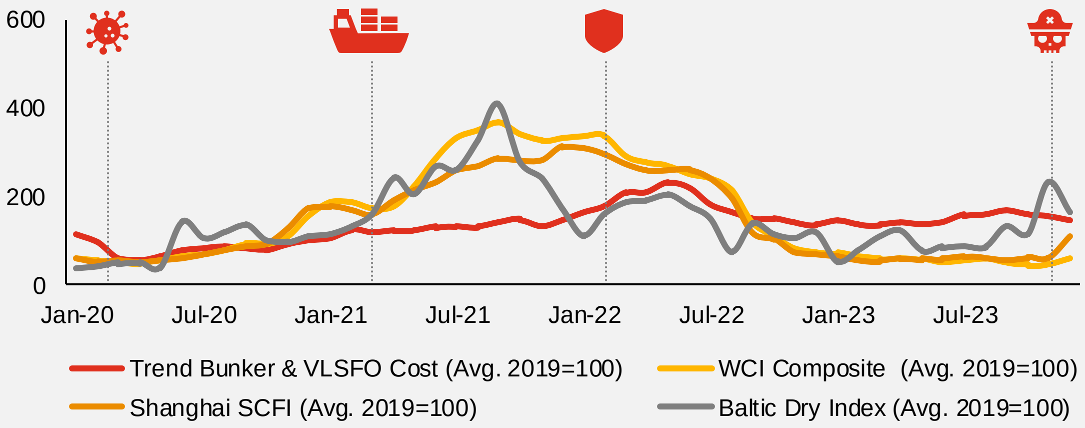
According to the Institute of Shipping Economics and Logistics (ISL) as well as the Leibniz Institute for Economic Research (RWI), container throughput developed weakly in the first quarter of 2023 amid a deteriorating economic situation.

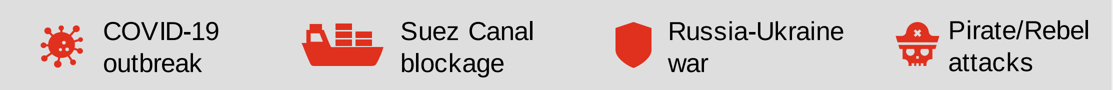
Throughput picked up somewhat in the second quarter, driven by the recovery in China and other regions of the world, while Europe lagged well behind. Increased energy prices, and the loss of purchasing power and demand for international products, were felt more pronounced here than in many other regions. In the third quarter, the recovery was mainly driven by container throughput in China, while a decline in European ports was in line with weaker foreign trade. At the end of the year, the declines in Europe weakened slightly.

Container freight rates remained on a downward trend throughout 2023, reaching pre-Covid levels in the last quarter of the year. In August, however, rates rose for the first time in over a year, with further increases following in November and December. Demand for container shipping has been subdued, while at the same time, container shipping capacity is increasing in line with the number of ships put into operation. Falling freight rates are the logical consequence. Meanwhile, events like the current conflicts in the Red Sea led to an increase in spot-rates immediately. These developments indicate that rates are now reacting more sensitively to demand and supply dynamics, which can trigger rates in either direction. It is not predictable how long the situation will go on.

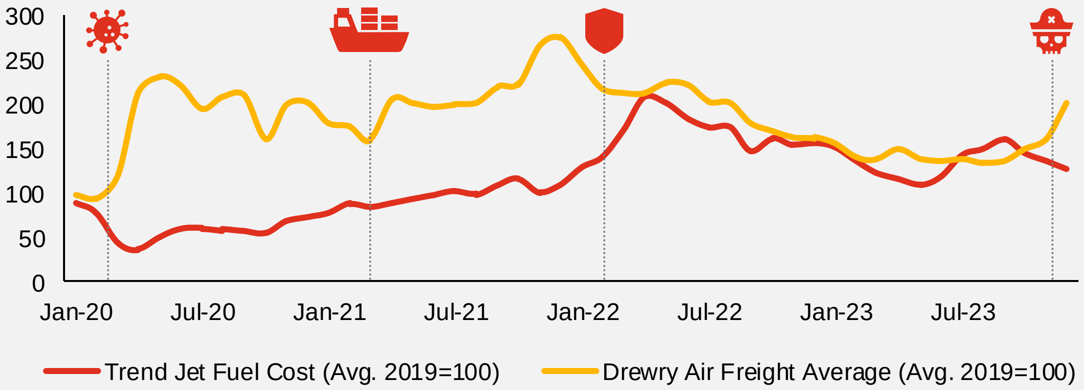
Sources: OECD, RWI/ISL, Drewry, Transport Intelligence

Global Marine freight rates compared to Bunker and VLSFO cost trend





Global air freight rates compared to Jet Fuel cost trend



Sources: PwC Research based on Bloomberg, Baltic Exchange, Drewry, Shanghai Shipping Exchange data. Trends in fuel costs are based on average Bunker and VLSFO as well as average Jet Kerosene prices as quoted in Singapore and Rotterdam.

Air cargo weakened

Air cargo continued to stumble in 2023 amid declining demand and global trade. Industry-wide cargo ton-kilometers (CTKs) continued to decrease until mid-2023 but picked up in the second half of the year, recording strong growth of 8.3% YoY in November. However, regions developed differently: Latin America achieved annual CTK growth, while North America and Africa surpassed their pre-pandemic levels. Capacity grew steadily with the rising belly freight capacity of increasing international flights. As a result, industry-wide available cargo ton-kilometers (ACTKs) were 4% above pre-Covid levels in November.

Air cargo rates declined until summer but picked up slightly in September, with the slow start of the sector's usual peak season at the end of the year and rose more pronounced in October. This was due to the increase in global freight volumes and an easing in the addition of capacity as global belly capacity returned to pre-Covid levels. At the end of the year, severe weather conditions, volcanic activity, and the geopolitical situation led to a reduction in capacity, and, thus, rates continued to rise slightly. However, freight demand remains fragile and capacity abundant.

On the passenger side, the pent-up demand for air travel was robust throughout the year, with revenue passenger-kilometres (RPKs) increasing to 29.7% YoY in November, 1% below pre-Covid levels. The recovery was felt across all regions, with North America being the driving force due to strong domestic demand. In addition, the reopening of China contributed to the 2023 recovery of air travel, even if the region still lags behind others. The Middle East, North America, and South America exceeded their pre-pandemic RPKs by Q3 2023 and Europe and Africa are close to do so. In Asia Pacific, a surpassing of 2019s levels is anticipated in 2024. Overall, the airline sector is returning to profitability in 2023 with operating profits of approximately $41 billion.

Road freight under cost pressure

In road freight, one of the most pressing challenges remains driver shortage. According to IRU's global Driver Shortage Report, 7% of truck driver positions are unfilled in the surveyed countries, and between 55% and 75% of truck companies in most countries have severe or very severe problems recruiting drivers. Driver shortage has increased worldwide, with the exception of Europe and the United States, where driver demand has temporarily dampened.

Taking a closer look at Europe, the demand-side pressure continued to fall in 2023 due to consumer reticence and reduced manufacturing output, leading to growth in free capacity. Oil prices rose over the year driving diesel prices up, due to extended voluntary crude oil production cuts in Saudi Arabia, Russia, and other OPEC+ countries. Government fuel subsidies expired in many countries or will expire in the next months, putting operators under cost pressure. This is reinforced by rising labour expenses, rising maintenance costs, and an overall operational cost increase. The Eurovignette Directive, the "CO2 toll" for >7.5 tons trucks, that came into force on 1 December 2023, contributes to this with toll road surcharges that have an impact on profit margins. Germany and Austria are the first two countries to implement the new directive but other EU countries are anticipated to follow by spring 2025 at the latest.

The transport and logistics industry as a whole continued its normalisation path in 2023 following the turbulent years of the pandemic. However, the weakened trade has had a direct impact on companies in the industry and increased operating costs and new regulations are jeopardising margins and thus, profitability. This has already taken its first toll on smaller players, while other T&L companies are still benefiting from their high earnings from previous years and are looking for opportunities to grow and gain influence over supply chains, e.g., in the form of mergers and acquisitions. Nevertheless, they continue to be more selective in the current environment.

Sources: Baltic Exchange, IATA, IRU, Upply, Transport Intelligence

M&A activity at its lowest level for ten years

As was already apparent over the course of the year, 2023 was the weakest year regarding deal activity in the last ten years: 185 deals worth at least $50 million were announced in the T&L industry – a slump of 29% compared to the previous year and in line with the average over all industries. The first two quarters saw fewer announcements than the years before, and Q3 2023 marked the weakest quarter ever (39 deals), but M&A activity slowly rose again in Q4 (47 deals). The total T&L deal value of $74.6 billion (2022: $181.3 billion) was by far the lowest in the last decade, and the average deal value of $403.3 million fell notably compared to 2022 (-40%).

Looking only at freight-related targets, the number of announced deals fell by 27% YoY, and the total deal value ($46.4 billion) almost halved compared to 2022 ($82.2 billion). With 119 freight-related deal announcements, our assumption from the October 2023 edition of the Transport & Logistics Barometer materialised that M&A activity in 2023 ended up at a similar level to 2008 (111 deals). However, looking at the industry as a whole, taking both freight and passenger-related deals into consideration, the total number of deals and deal value in 2023 were even much lower than in 2008 (234 deals | $120.7 billion).

In line with the decreased thirst for M&A takeovers, only 16 megadeals, deals worth at least $1 billion, were announced in 2023 (2022: 32 megadeals), combining 50% of the total deal value in the T&L industry. Among these, predominantly strategic investors have been looking for targets in logistics and trucking, shipping, and passenger air, including infrastructure targets. All of these deals are still pending, with the exception of the Triton acquisition by Brookfield Infrastructure Corp, the only completed megadeal so far.

In the last quarter, some shipping-related megadeals were announced, with Belgian oil tanker company Euronav taking centre stage: its two major shareholders Compagnie Maritime Belge (CMB) and Frontline have agreed that CMB will acquire Frontline's stake and launch a takeover of the remaining shares then. As part of the agreement, Frontline will acquire 24 VLCC (very large crude carriers) tankers from Euronav. Another announced megadeal from Q4 has targeted the Scandinavian airline SAS, which secured an investment agreement (64.5% stake) with a consortium of Castlelake LP, Air France-KLM, Lind Invest ApS and Danish Government for restructuring aid of $1.2 billion. In November, the Spanish infrastructure company Ferrovial announced that it has reached agreements with Financial Investors Ardian from France and the Saudi Arabian sovereign wealth fund PIF to sell 15% and 10% of its 25% stake in London's Heathrow Airport held through FGP Topco Ltd. in two separate deals valued at $1.79 billion and $1.2 billion, respectively.

	2017	2018	2019	2020	2021			2022			2023		
	Total	Total	Total	Total	1H21	2H21	Total	1H22	2H22	Total	1H23	2H23	Total
Number of deals	280	223	257	253	148	175	323	144	117	261	99	86	185
Total deal value ($bn)	131.7	113.8	141.9	99.8	94.5	119.7	214.1	131.3	50.0	181.3	38.5	36.1	74.6
Average deal value ($m)	470.4	510.8	552.0	394.5	638.3	683.8	662.9	911.7	427.5	694.7	388.8	420.0	403.3

Source: PwC analysis, based on Refinitiv

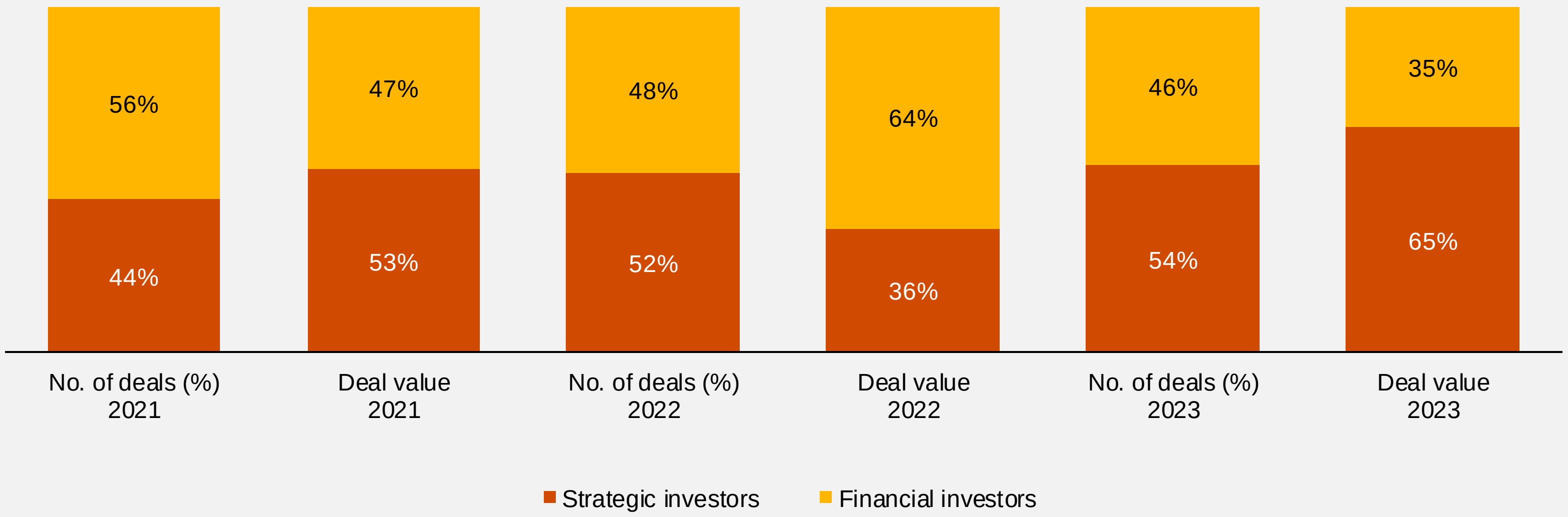
Financial investors hesitant

The current debt financing conditions and high-level interest rates continue to make things difficult for investors, particularly financial investors, to conclude large takeovers. The reluctance of the latter is evident in the deal value: while financial investors still accounted for almost two-thirds of the total T&L deal value in 2022, they were responsible for a low of 35% in 2023. In terms of the number of deals, the share of strategic investors (54%) also increased slightly compared to financial investors (46%). This reflects the focus of financial investors on smaller and medium-sized deals.

Regarding the median sales multiple, strategic investors paid higher prices (1.8x) compared to financial investors (1.3x). Overall, the median sales multiple reached 1.8x for full-year 2023 – in line with the ten-year average (2022: 1.7x). The sales multiples for passenger-related deals (2.1x) were higher than for freight-related deals (1.5x).

Deals with a volume greater than $50 million

Number and total value of deals involving financial investors



Source: PwC analysis, based on Refinitiv

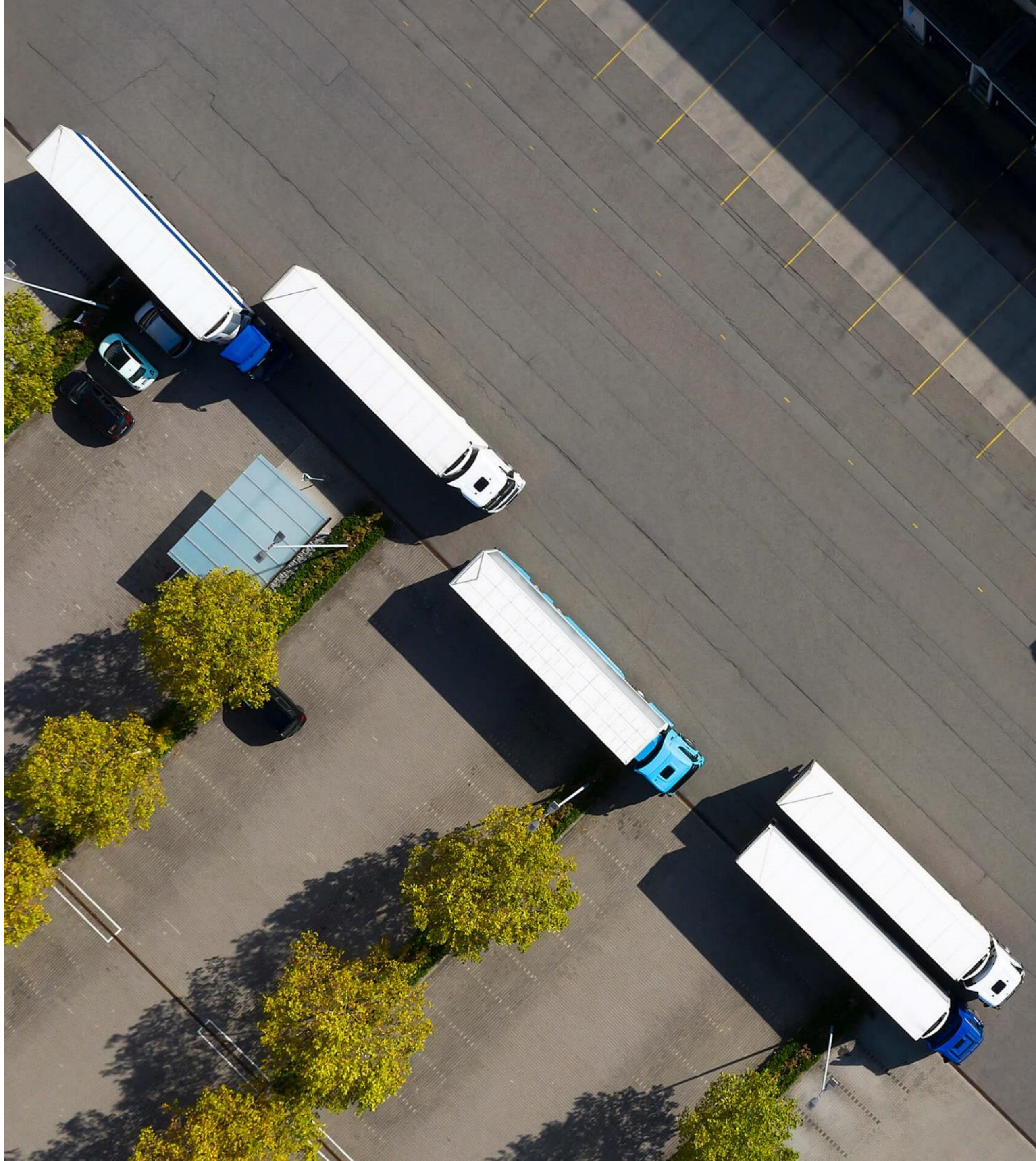
All regions felt declines

The slump in deal activity and the reticence among investors was felt in all regions. Although Asia Pacific recorded the most deal announcements, these fell by 37% YoY, and the deal value fell even more sharply (-67%). More than half of them relate to China and Hong Kong local deals, and 13% to targets in India. The total deal value was highest in Europe ($36 billion), driven by a bunch of megadeals that included European targets. Europe also had the second most deal announcements (62), and North America was in third place in terms of total deal number (54) and value ($28.3 billion).

What all regions had in common was that a high share of the deal announcements targeted logistics and trucking (41%). As has always been the case, this fragmented subsector continues to offer plenty of potential for consolidation. In Asia Pacific, North America and Europe in particular, investors were looking for targets in the areas of freight trucking, warehousing but also logistics consulting services. It comes as no surprise that shipping was the second strongest subsector (25% of all deals), including port infrastructure deals, with a focus on Asia Pacific and Europe and a few deals in North America.

Two trends have thus continued in the industry: a large number of horizontal integrations and vertical integration efforts, driven primarily by the major shipping companies, with the aim of diversifying, gaining control over hinterland transport, and being able to offer end-to-end solutions. CMA CGM announced the acquisition of Bolloré, the largest acquisition in the T&L industry in 2023, and acquired stakes in the terminals CSP Valencia and CSP Bilbao. MSC further diversified through the announced (partial) takeovers of intermodal operator Renfe Mercancías, German port operator HHLA, and French forwarder Clasquin, to name a few. On the target side, the bidding competition for South Korean flagship carrier HMM now seems to be on the finishing straight: Harim Group, together with a local private equity partner were selected as preferred bidder to acquire a 57.9% stake, and will probably create synergies with its bulk transport subsidiary Pan Ocean.

Source: PwC analysis, based on Refinitiv



Strategic alliances stable

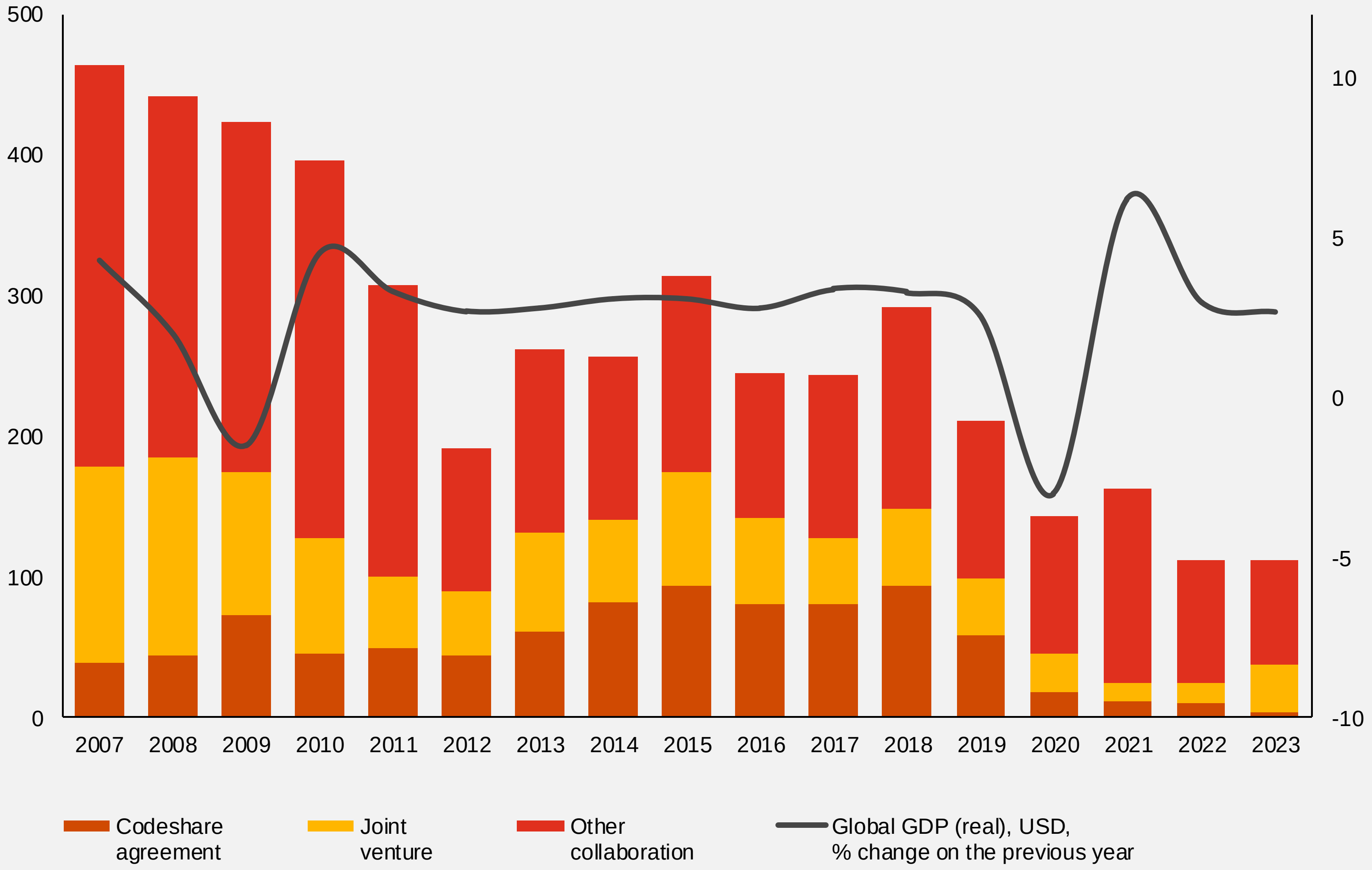
Cooperation agreements incl. joint ventures, codeshare agreements, and other forms of cooperation reached the same level as in 2022.

The downward trend of codeshare agreements continued and hit a new low for the fourth year in a row. While the number of other collaborations decreased further as well, it is striking that the announcements of joint ventures more than doubled compared to 2022, although still well below pre-pandemic years. In 2023, joint ventures and cooperation agreements aimed increasingly at decarbonisation, a topic we will deep-dive into in chapter 3.2.

In addition to cooperation agreements to improve operations and achieve growth, there were also a few in the areas of technology and automation. For example, A.P. Moller Maersk was involved to launch the first commercial autonomous trucking lane between Houston and Oklahoma City, and to introduce an AI-driven automated fulfillment centre in Dallas.

Other companies partnered in the fields of autonomous driving, drones and the Metaverse. Steps have also been made to extend supply chains, to offer an end-to-end service to customers or to make supply chains more resilient (e.g., Abu Dhabi Ports, COSCO Shipping, DHL Supply Chain). In addition, we saw a number of collaborations at airlines in terms of connectivity and customer service (e.g., Air Canada and United Airlines, Delta Airlines, and Grupo Aeroméxico).

T&L joint ventures and strategic alliances
(number of alliances announced and change in real global GDP)



Source: PwC analysis, based on S&P Global Capital IQ and IHS

3

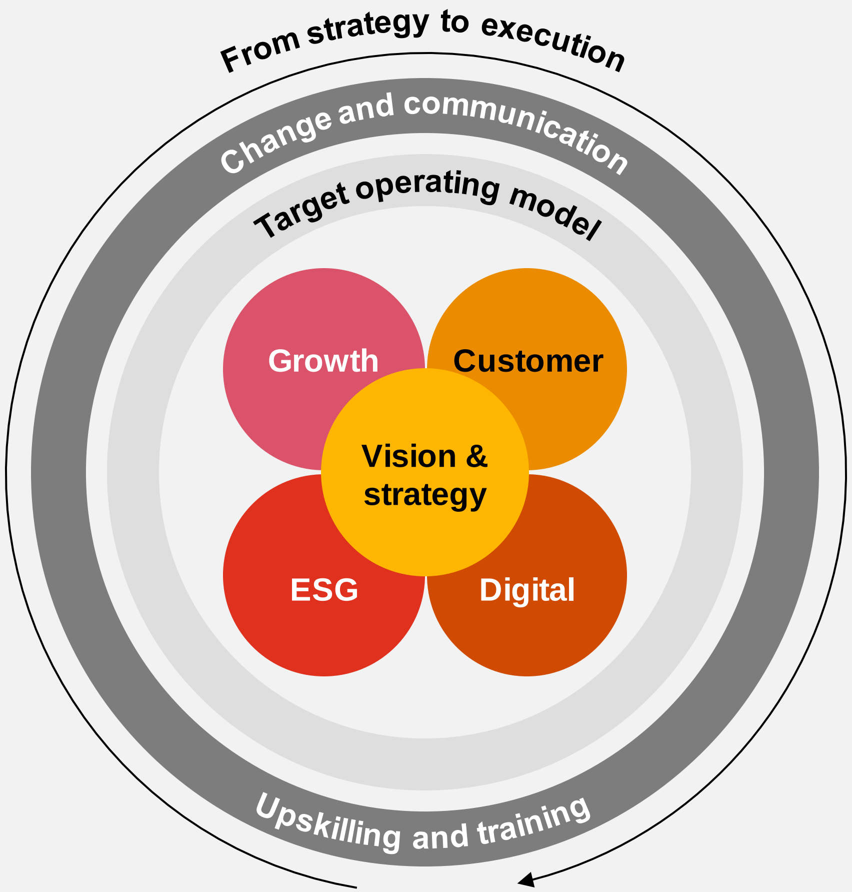
Transact to transform

Seven transformation areas from strategy to execution

In the face of challenging conditions marked by an uncertain economic outlook and volatile freight rates, T&L companies are under intense pressure to undergo transformation. How can M&A, joint ventures, and strategic alliances play a role in driving this transformation agenda, allowing these companies to reinvent themselves for sustained long-term success?

The imperative for change is fuelled by four key drivers: achieving customer excellence in a challenging B2B environment, accelerating digitalisation across logistical value streams, decarbonising transport and logistics operations as a core element of a comprehensive ESG programme, and addressing the constant need for growth and market recalibration. The transformation agenda, therefore, should stem from a clear vision and strategy, fortified by an effective operating model and supported by rigorous plans for change, communication, upskilling, and training, driven by executive-level leadership.

The October 2023 edition of the T&L Barometer was exclusively dedicated to an in-depth exploration of the "Growth" transformation area, delving into the strategic significance of mergers and acquisitions throughout the transport and logistics value chain. In this edition a particular emphasis is placed on port investments, which have sparked discussions on the strategic importance of infrastructure within the transport and logistics sector. Additionally, within the ESG realm, we examine how partnerships and investments are being utilised to address the increasingly urgent matter of decarbonisation.



strategy&
Part of the PwC network

pwc

Source: PwC/Strategy&

3.1

Ports – The hidden gems of a globalised supply chain

Why are port acquisitions a hot topic?

As often quoted, shipping is the backbone of our globalised economy, with around 90% of the global trade volume transported across the sea. Ports are the gateways to these trade routes and hold economic significance through the import and export of goods as well as raw materials or even energy (as cargo or fuel). Furthermore, they carry substantial geopolitical importance as they grant access to seaborne trade and, therefore, to independence from other countries. Because of the significance of ports as nodes of geostrategic power and, therefore, being considered as critical infrastructure, M&A activity regarding port infrastructure regularly gains media and public attention besides the government attention due to the ports being critical infrastructure. Investors can gain influence over regional cargo traffic through investments in port infrastructure – especially shipping companies invested in ports and terminals to extend their service offering and gaining more influence on the supply chain.

During the early 2000s, the privatisation of infrastructure was a fast and secure way to attract investments and to overcome economic problems in several countries worldwide. A well-known example of foreign direct investment in critical port infrastructure is the acquisition of a majority stake in the port of Piraeus through the Chinese state-owned shipping liner COSCO. Consequently, the largest port in Greece and one of the most important European logistic hubs is now steered by a shipping line from Asia. COSCO established the port as their most important European hub but there are still debates regarding the dependency from this Chinese company.

The participation of large shipping companies in terminals has long been standard practice in many port cities around the world. In Hamburg, however, where Germany's largest port is located, they have remained an exception for the last years with the exemption of Hapag-Lloyd being invested in the HHLA Container Terminal Altenwerder. With the finalisation of COSCOS's minority share acquisition of HHLA Container Terminal Tollerort after a long discussion in the public media and governmental institutions and MSC's plan to acquire 49.9% of HHLA (Hamburg's port operator), the development of shipping companies investing into port infrastructure can now also be observed in Hamburg.

Sources: Handelsblatt, HHLA

Ups and downs in port infrastructure deals

The global value of M&A transactions regarding port infrastructure has experienced significant swings between 2005 and 2023. After the total value of announced port infrastructure deals in 2006 amounted to $10.5 billion, the financial crisis plunged the shipping industry into a deep structural crisis. While the shipping crisis persisted up until the end of 2018, the deal value related to port infrastructure started to pick up again in 2015 due to a substantial increase in trade volume worldwide. The exceptionally high value of announced deals in 2016 of $20.8 billion was predominantly related to deals in Australia and was not maintained in the following years. Nevertheless, the cumulated deal value since 2015 amounts to almost $100 billion.

During the pandemic, the strategic importance and bottleneck position of ports and terminals was recognised not only by the commercial sector but also by the public eye. This had an impact on port infrastructure deals, indicated by the trend reversal of increasing M&A activity in 2020 after three years of consistent decline.

Since then, the level of announced deal activity remained at a relatively high level in 2021 and surged to a local peak of $15.3 billion with 20 announced transactions in 2022. With global trade going back to normal the willingness to invest in port infrastructure in terms of average deal value also appeared to increase until 2022.

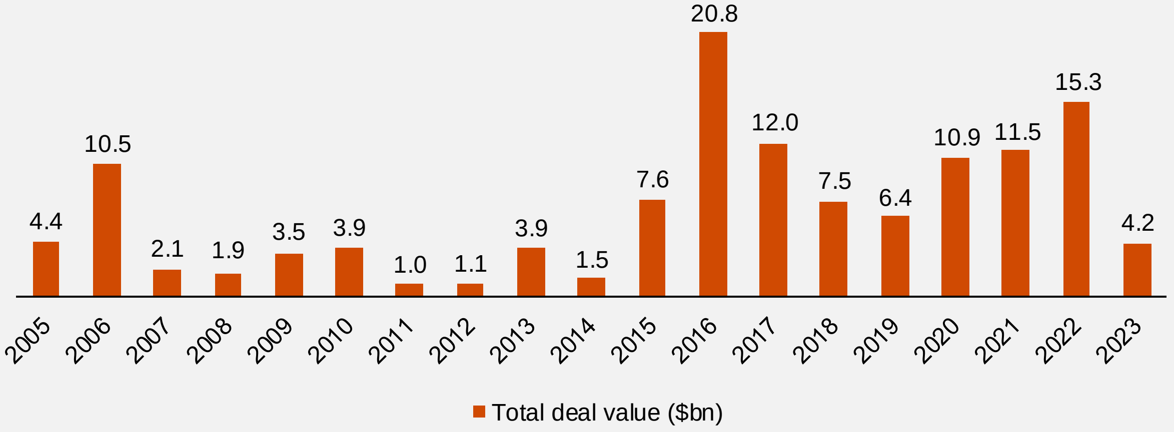
Similar to other T&L subsectors, the global deal value of announced deals experienced a significant decline in 2023. While the increased costs of debt financing led to a decrease of larger deals, the takeover activity is still high with a total of 16 announced deals in 2023. Among these, the largest is the aforementioned intended acquisition of a partial interest in the state-owned Hamburger Hafen und Logistik AG through MSC ($0.65 billion). The majority of these announced deals took place in China.

The discussed data only considers transactions of existing port infrastructure. Of similar importance are new port and terminal projects like in Damietta, Egypt, where (in several cases) foreign direct investments lead to the construction of new ports and terminals along new trade routes or trade routes that gain importance.

Sources: PwC analysis, Hapag-Lloyd

Announced deals in port infrastructure

(total deal value and number of deals from 2005–2023)



Source: PwC analysis, based on Refinitiv. Not including withdrawn deals

Shift to Asia & Oceania as target regions for M&A activities

The extent of a developed port infrastructure is linked to two deciding factors. Firstly, it is contingent on whether a country is a sufficiently large producer of goods for the global market, and secondly, on whether a country is a significant consumer of goods from the global market. While this holds true for many Western countries, Northern European ports have often been incorporated into global trade for centuries. The ownership structures are, therefore, long settled and distributed among terminal operators and major shipping companies. Ownership changes occur primarily when an operator rotates out of a stake; otherwise, there is minimal activity in this segmented market, like in the larger US or larger European ports. One example might be the acquisition of shares in Jade-Weser-Port from Maersk by Hapag-Lloyd. Among many other factors, the significant investments in Rotterdam by Maersk led to a revaluation regarding their participation in the only German deep-sea port, which facilitated the transaction in the first place.

In order to secure regional influence and economically lucrative positions, investors seek out regions where the economic upswing, marked by an increase in exports and imports, necessitates a connection to global trade – either through deep-water-ports or ports which will become more efficient due to new technologies. Especially in Asian countries (e.g., China and India) the industrial upswing led to a significant increase in takeover activity regarding port infrastructure.

The 15th PwC Reederstudie – published in November 2023 – showed the expectation of many shipping companies that there will be a shift in trade patterns due to wealth gains in Asia with growing interregional trade and countries establishing themselves as beneficiaries of a trend to become more independent from China as a production hub (mainly Thailand and Vietnam, which are offering a limited deep-sea port capacity at the moment but are expected to invest in that infrastructure to improve the existing capabilities).

The increasing deal activity since 2015 predominantly takes place in Asia and Middle East (China, India and UAE). Of the 184 announced (and not yet withdrawn) deals from 2015 to 2023, around 64% were related to port infrastructure in Asia and Oceania. The majority of the 117 deals in the region were related to port infrastructure in China (including Hong Kong), accounting for 74 announced deals. Among the largest transactions in China are the acquisitions of a 15.0% stake ($2.8 billion) by the state-owned China Cosco Shipping Corp Ltd. in the Shanghai International Port (Group) Co Ltd, a provider of port and harbour operation services (Seller: Shanghai Tongsheng Investment Group). Furthermore, (a subsidiary of) China Merchants Group Co Ltd. raised its stake in Ningbo Zhousan Port Co Ltd. – also a provider of port and harbour services – from 2.2% to 21.0% ($2.2 billion) through a privately negotiated transaction.

Announced deals in port infrastructure
(number of deals per region from 2005–2023)

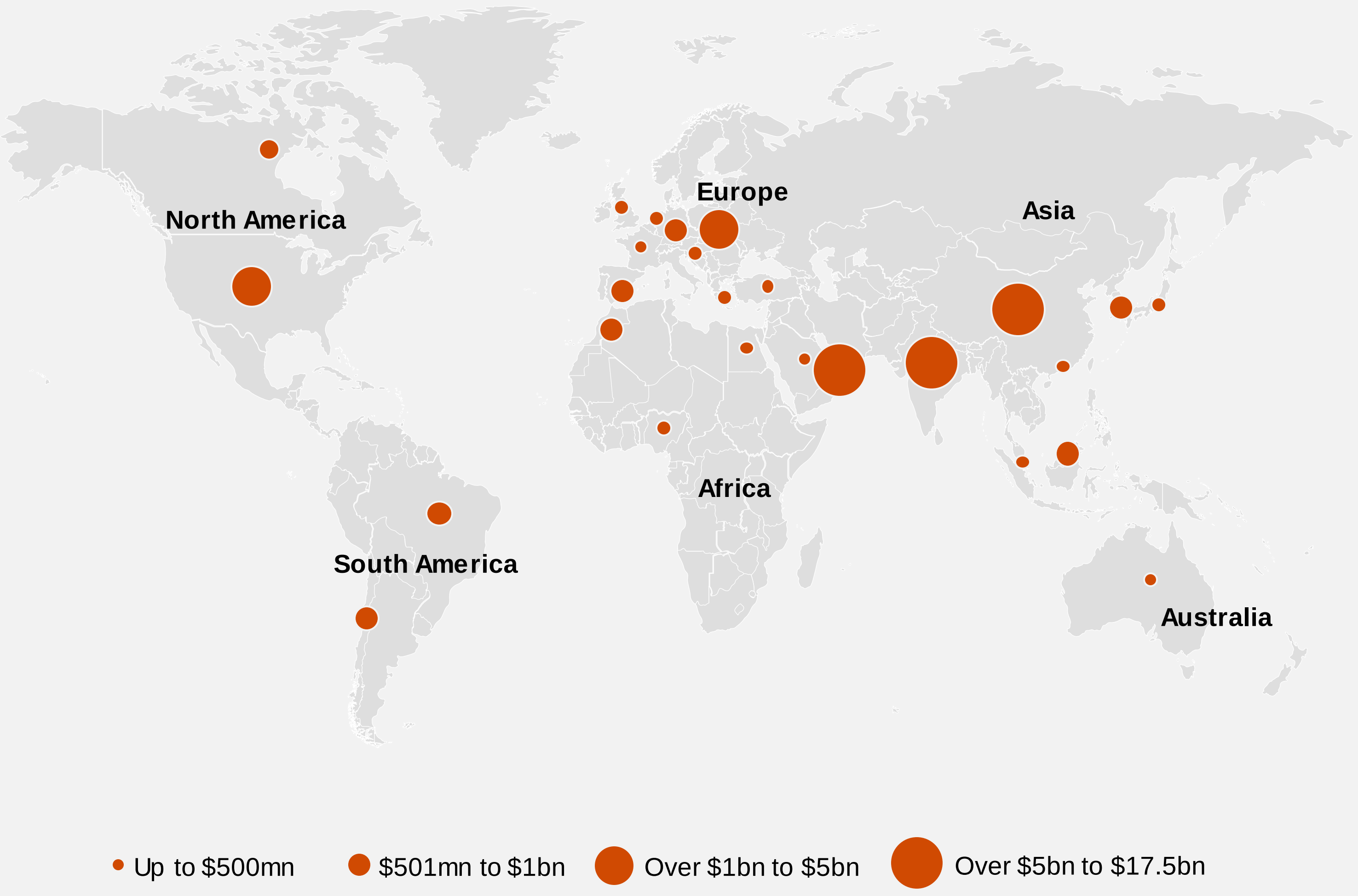
	2005–2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2015–2023
Asia & Oceania	30	7	10	21	7	15	16	17	14	10	117
Europe	21	6	6	8	3	1	4	2	3	3	36
South America	8	0	2	3	2	3	0	1	2	0	13
North America	13	2	1	2	0	2	1	1	0	3	12
Africa/Undisclosed	4	0	2	0	0	0	1	2	1	0	6
Total	**76**	**15**	**21**	**34**	**12**	**21**	**22**	**23**	**20**	**16**	**184**

Source: PwC analysis, based on Refinitiv. Not including withdrawn deals

The nation with the second-highest number of port deals is India, constituting 8% of the total number of deals, which are mostly executed by Adani Group. India combines a long coastline and significant economic growth but had to invest significantly in its port infrastructure to enable efficient import and export and further growth. Another player with a substantial deal value in the Asian region are the UAE. The largest transaction in UAE is the acquisition of a 21.9% minority stake in UAE assets of DP World PLC, a Dubai-based provider of marine cargo handling services and overall logistics services, through the Canadian state-owned Caisse de Depot et Placement du Quebec. The deal was announced and conducted in June 2022. The total deal value was $5.0 billion of which $2.5 billion was paid in equity, and the remaining half was paid by debt. Between 2015 and 2023, a total of eight port infrastructure deals were announced in the region, thereof four in 2022 and 2023. It is expected that other countries in the Middle East will follow by investing more in their maritime infrastructure to establish themselves not only as export countries for raw materials like crude oil, but new forms of energy and other goods produced in that region.

If the focus is shifted from the number of port infrastructure acquisitions to the total deal value in USD, a similar pattern emerges. Not only does China have the highest number of deals, but it also leads in the total deal value. Despite China's numerical dominance, however, the cumulative deal value is only marginally higher than that of the UAE. While China and India reach average deal values of roughly $0.4 billion and $0.5 billion, the average value of announced port infrastructure deals in UAE between 2019 and 2023 exceeded a value of $1.8 billion. The ports there are crucial for the UAE to extend their logistics footprint as regional hubs. Therefore, the UAE, as well as other countries in the Middle East region, are investing in new technologies and extended hinterland connectivity.

Announced deals in port infrastructure
(total deal value per region from 2019–2023)



Source: PwC analysis, based on Refinitiv. Not including withdrawn deals

Transaction activity driven by local giants

The deals of the nearer past were mostly driven by larger shipping lines, which intended to enrich their service portfolio to increase resilience and control of the supply chain. The global independent port and terminal operators like Hutchinson, PSA and others, which have significantly grown in the late 90's and early 2000's, concentrated themselves on investments in the existing port infrastructure or conducted deals regarding services, which are near to the port area like hinterland transport and logistics.

While the most frequent buyers of port infrastructure around the world are conglomerates of investors, a small number of individual companies have also carried out multiple acquisitions in the period from 2014 to 2022. Local giants in the active transactional landscape in Asia and the Middle East are major domestic corporations like COSCO or the Adani Group. The access to ownership stakes in critical port infrastructure in China and India is strictly limited, hence port deals almost exclusively involve domestic parties. Therefore, there is essentially no presence of foreign investors. Local giants like the Adani Group partially cooperate with larger liner companies (e.g., in case of Adani with MSC or CMA CGM) to secure the utilisation of the terminals but the controlling stake remains with the local party. The limitation contributes to the absence of non-Indian or non-Chinese global port operators such as Hutchinson, AD Ports, PSA and others, while COSCO alone has executed five acquisitions in the Chinese region between 2014 and 2022. In contrast, foreign investments in ports are the norm in the European region (e.g., Hamburg, Le Havre and Piraeus). Here, the other competitors indeed demonstrate willingness for port acquisitions, as in 2019, a consortium of buyers, including PSA, acquired all shares of the largest deepwater container terminal in Poland (DCT Gdańsk), for around $1.3 billion.

A continuing limiting factor of deal activity by foreign global players in the Asian market is that port infrastructure deals are sometimes not in line with the company-specific investment strategy. The primary aim of M&A activity of global port operators tends to be the enhancement of supply-chain-robustness and vertical diversification. AD Ports, for example, places the focus of its M&A activity on building supply chain density along existing key trade routes. Since the vibrant deal activity in the Asian region is strongly related to new trade routes (especially intra-Asian), these deals diverge from the M&A strategy of big players like AD Ports.

Sources: PwC analysis based on Refinitiv, J.P. Morgan

Investments in Africa and the Middle East

In addition to the numerous acquisitions of existing ports in the Asian region, new ports and terminals have been built near the Suez Canal (like Damietta in Egypt), and more port projects are intended in Africa, especially on the East Coast. Those projects often cover the extension of existing port facilities to handle more cargo types and become more efficient, or the construction of new ports which will be built on a green or brown field basis. A lot of these investments are financed or co-financed by Chinese investors. Africa is the largest regional component to China's Belt and Road Initiative – as of 2022 China is involved in 61 port projects (through financing, construction or operation) in 30 African countries. The competition between the Maritime Silk Road and the EU's Global Gateway program fuels a race of investments in African infrastructure. From 2021 to 2027, the European Union has set the goal to provide an investment sum of €300 billion as part of the Global Gateway project. This funding aims to prioritise and advance transport infrastructure projects in Africa in order to catch up to China. Apart from China and the EU, the USA and the UAE are also increasingly invested in African port infrastructure; approximately 12 ports are operated by state-owned enterprises of the United Arab Emirates.

The significant importance of the region around the Suez Canal also attracts military presence from various nations (USA, Japan, China, France, etc.) to the port of Djibouti, since geopolitical influence near the most important maritime route is crucial. The importance of controlling infrastructure in this area will remain significant, and the actual attacks on commercial vessels in that region and the consequences (avoidance of travelling the Red Sea without military protection) demonstrates the vulnerability of this very important trade route and has significant effects on the global supply chain.

Concluding remarks

Seaborne trade will remain the backbone of our globalised economy and the ports are the gateway to global trade. The supply chain disruptions during the Corona pandemic underlined: not the shipping capacities have been the key problem, but the ports have been the crucial bottlenecks – not only for specific shipping companies but whole countries and their economy. Attempts at nearshoring to reduce dependence on China will not bring production back to Europe but rather to other Asian countries. Consequently, the high significance of port infrastructure for global trade will remain unchanged. China demonstrates that port investments often have a planned investment horizon of many decades.

From a geographical perspective, port space or the opportunity to establish new ports is limited. Therefore, maritime infrastructure will continue to be a crucial instrument of power and independence and a coveted resource for investors. The relevance of that topic is expressed through currently more intense discussions, e.g., on the implementation of a joint EU-strategy, but there are miles to go to end up with a EU-port strategy, how to deal with foreign investments and strengthening the position of the European ports. Considering that ports and their infrastructure are capital-intensive businesses, significant investments are necessary to finance the overall transformation of the larger European hubs, but several potential investors, who have been driving the investments in the port infrastructure worldwide in recent years, are located outside the EU.

If regulations, especially in non-European regions, allow for investments, the activity in the market for port control and port construction projects can be expected to continue. Among the establishment of new ports due to shifting trade patterns, investments in existing ports will proceed considering the necessity to invest in new technologies and enable the readiness to handle new kinds of vessels and goods (like methanol and ammonia).

Sources: Tagesschau, DVZ

3.2

Decarbonisation – The major transformation challenge

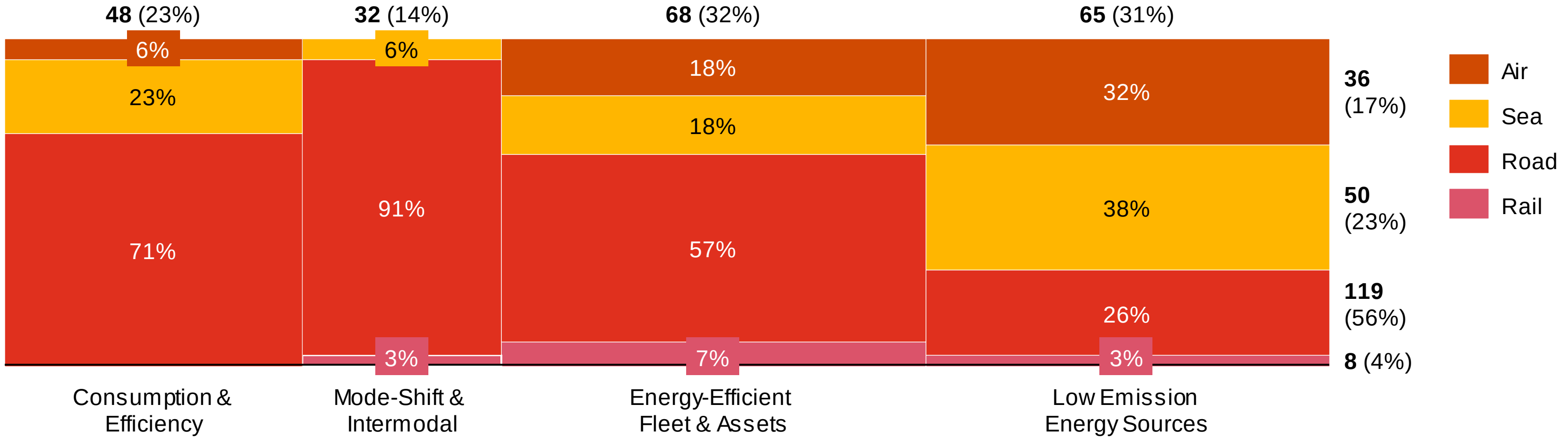
The decarbonisation transformation takes up speed

While mergers and acquisitions provide rich insights into transport and logistics industry dynamics, the vehicles of choice for engagements in environmental sustainability are joint ventures, partnerships and investments. Looking at such mechanisms since 2018, we see how decarbonisation is gaining momentum and how it is enabling new forms of partnerships.

It comes as no surprise that the logistics industry feels the pressure of a "sustainability timebomb". Freight transportation accounts for about 8% of global GHG emissions, and logistics players need to tackle emissions along their entire network and across all modes of transport. There are four main levers to address the environmental challenge in logistics and hence rationales for respective partnerships, collaborations and investments.

Energy-efficient fleets and assets emerge as the most active area (32%), closely followed by low-emission energy sources (31%). Over the last 5 years, these topics have taken up speed with respect to number of partnerships and investment value. The actions taken differ according to transport modes along these levers as depicted below. Road (56%) is by far the most active area, mirroring the extent to which it is contributing to overall emissions. Sea (23%) and air (17%) show significantly less activity. Low emission energy sources are the only category where we see more air and sea freight related collaborations than in road freight.

Partnerships along decarbonisation levers and transport modes (2018 – Q3 2023)



Decarbonization levers in logistics

Consumption & Efficiency

Reduce consumption or increase the efficiency of transport by e.g. higher truck utilization, build-up of shared fleets or routing optimization

Mode-Shift & Intermodal

Smartly utilize multimodal transports, e.g. by leveraging sustainable last-mile solutions

Energy-Efficient Fleet and Assets

Bring low/zero-emission vehicles and assets to market maturity and use

Low Emission Energy Sources & Infrastructure

Explore climate-friendly energy sources and develop respective infrastructure, e.g. for Sustainable Aviation Fuels (SAF)

Sources: Strategy&, Climate.mit.edu; Strategy& analysis based on CapitalQ data for strategic alliances, joint ventures and private placements, complemented by press research; 2018-Q3 2023

Focused decarbonisation of land transport

Logistics players and automotive OEMs are actively collaborating on advancing the decarbonisation in land transport. Operational viability is already proven for last-mile deliveries, where we see progress in the electrification of fleets and new business models around local delivery employing a fully decarbonised model with electrically powered vehicles. The range of battery-electric trucks increases continuously and examples like DPD's 1,099km drive on a single charge – even if performed on a test track – show that distance becomes less of a limitation for alternative powertrains. A POC conducted by Fraunhofer ISI and REWE Group showed already in 2021 how most regional distribution distances can be operationally viable. Companies like UPS initially adopted a "rolling laboratory" approach to test different powertrain options. But while we expect hydrogen-powered fuel cell trucks to remain an option for heavy-duty long-distance traffic on defined corridors, the competitiveness and wide adoption of other options to decarbonise trucking are questionable (e.g. catenary hybrid trucks).

Higher vehicle costs have often been cited as a major impediment to a wider electric fleet adoption, but the total cost of ownership of battery-electric trucks is already expected to outperform internal combustion engine technology in most use cases as early as 2025 (as of 2030 for hydrogen-powered fuel cell trucks). Higher vehicle costs are compensated by lower energy costs (refer to Strategy&'s Truck Study for a detailed analysis of powertrain options, infrastructure requirements and ramp-up scenarios). Logistics players are acting on this, as prominently shown by collaborations of e.g., DHL Group with Volvo Trucks, Dachser with Mercedes-Benz Trucks, or Saia with Daimler Truck North America.

The Swedish electric truck company Einride provides an example of how investments into sustainable long-distance trucking increased over the years with its latest rounds bringing it to over 650 mn USD in accumulated funding. The collaboration with DB Schenker led the way in deploying electric vehicles in challenging long-distance transport. Einride's announcement in 2022 to electrify heavy-duty freight in the US in a partnership with Maersk further adds to this success story. It shall not go unmentioned that there have also been setbacks like the recent insolvency of Volta Trucks. Being confronted with the insolvency of its battery supplier, Volta Trucks could not hold on to its production schedules and ambitious upscaling plans. The case reveals the dependency on key suppliers and the future of Volta Trucks is unclear at the time this article is written.

The charging infrastructure is a key limiting factor for the electrification of road transport. We see partnerships built to address this topic by ramping up electric charging capacities for their own operations (e.g., DHL Express, FedEx) and also teaming up with technology and energy providers to advise customers on their charging infrastructure needs (e.g., Ryder and ABB in the US). In addition, logistics companies are taking action by initiating bigger charging hubs as the example of Sweden's largest e-truck charging hub shows (Falkenlev Logistik's electric truck depot). While these examples showcase how logistics players can effectively build their depot charging infrastructure for mid-range distance delivery fleets, it does not yet solve the challenge on long distances. Having a sufficiently dense network of mega chargers on motorway service stations proves to be a bottleneck that is limiting the faster adoption of electric trucks even in light of continuously increasing truck driving ranges.

Besides these levers, greater routing efficiency and load optimisation remain drivers of investments and partnerships. Financial investors but also automotive OEMs were active in financing companies that achieve a reduction in GHG emissions through more efficient road transport, e.g., Volvo Group Venture Capital investing in digital service for shared truckloads.

Modal shift is less prominent in the announcements. Start-ups that decarbonise last-mile delivery have secured funding and range from deployment of electric vans to drone deliveries, with the latter expected to be relevant only for specific deliveries at limited scale. While being in fierce competition with road freight on transit times and costs, the higher sustainability of transport is a key argument in favor of rail. The increased efforts to make the mode shift to rail happen are visible in the establishment of new services (e.g., Getlink and CAT Group on automotive vehicle rail service between the UK and mainland Europe) and infrastructure for intermodal operations (e.g., the joint venture of Samskit, duisport and TX Logistik on operating the intermodal terminal in Duisburg). Looking ahead, we expect to see industry players cooperating even closer to investigate which cargo can be transitioned to the tracks and how to make this shift operationally and economically viable.

Sources: Decarbonmile.com, EU-startups.com, Electrive.com, Fraunhofer ISI, Greencarcongress, Strategy&, PR Newswire, Dachser, GlobalNewswire, Traxn.com, Einride, Ecomento.com, Petrolplaza.com, Marketscreener, ETN.news, Volvo Group, In.marketscreener.com, DVZ

Sea freight focussing on low-emission energy sources

Maritime transport contributes about 3% to global GHG emissions and is thus among the main areas for reduction measures. The International Maritime Organization (IMO) has set the goal to reach net-zero GHG emissions around 2050 with indicative checkpoints in 2030 and 2040, striving for 30% and 80% emission reduction in respective years compared to 2008. By introducing ship carbon rating and management measures (e.g., the "Energy Efficiency Existing Ship Index" (EEXI) and the "Carbon Intensity Indicator" (CII)), the IMO is increasing transparency with the goal to incentivise shipowners and operators to reduce emissions. Beyond such measures, the EU has extended its Emissions Trading System (ETS) to maritime transport as of this year, thereby establishing a market-based mechanism that incentivises the reduction of emissions more stringently.

As a result, there is an increasing number of partnerships for sustainable shipping emerging (e.g., Maersk Tankers, Mitsui, Cargill), a trend that is confirmed when looking into the order books of freight ships. We overall see a share of ~15% of vessels coming to the market until 2028 that can run on alternative/ e-fuels. This share differs according to ship type, but having 31% of new container ship orders until 2028 ready for alternative fuels shows its market relevance. One example is last year's ship order by CMA CGM featuring a large part of methanol-powered ships. In addition, projects to harness wind power for large vessels have been worked on for years but they are now entering into commercial use, with the first bulk vessels being retrofitted with large sails that reduce emissions (e.g., WindWings project and WindChallenger projects for wind-assisted propulsion technology). In this context, it shall also be mentioned that measures such as slow steaming can have a significant emission reduction effect but in contrast to alternative fuels they have direct lead time implications.

In the area of e-fuels, there are alternatives to drive the decarbonisation of shipping (e.g., hydrogen, ammonia and e-methanol). Partnerships and investments reflect this diversity of solutions with a focus on building the necessary infrastructure. Port authorities are key players in this, serving the overall global industrial decarbonisation effort as well as the decarbonisation of shipping itself. We see ports actively driving the production of clean energy sources together with energy companies (e.g., NorthH2 consortium including Groeningen Seaports on green hydrogen and Abu Dhabi Ports on a green hydrogen to ammonia project) and also building strategic partnerships to establish the respective energy supply chains (e.g., Port of Amsterdam on green hydrogen supply chain). Acting in partnerships is ever more important as technology and standards related to storage and refueling are not yet established and ports face space restrictions for alternative fuel operations.

These efforts on shipping decarbonisation are leading the way but the challenge is of considerable scale. Our recent survey among shipping companies provides a snapshot of the scepticism about reaching the CO_2 reduction targets stipulated by the EU Commission for 2030 (74% of responding shipping companies see it as definitely or probably not attainable). And the insecurity regarding future leading fuel and propulsion technologies is seen as hampering a timely investment in new sustainably fueled vessels as well as taking the aforementioned infrastructure decisions.

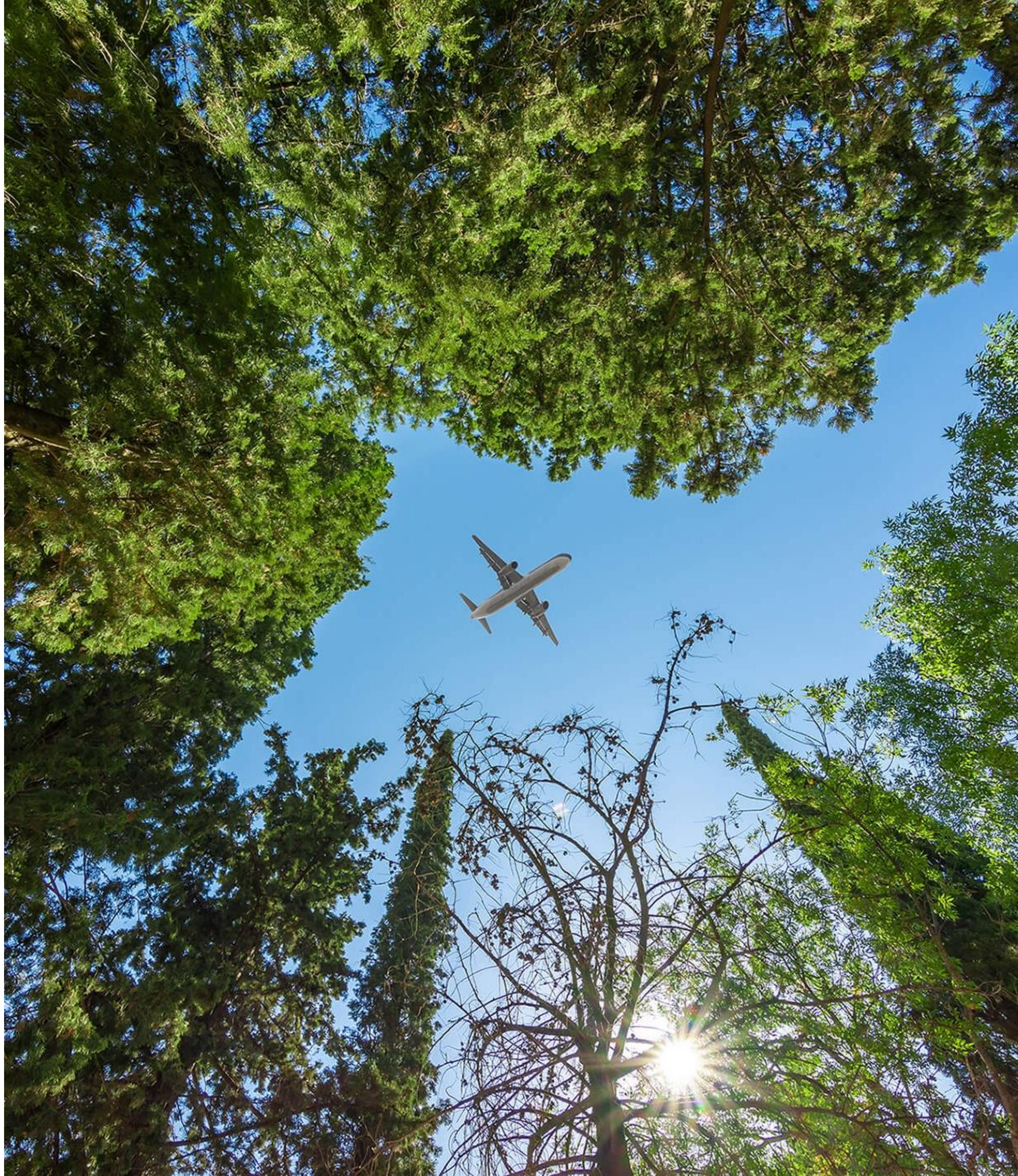
Sources: UNCTAD, Marine Environment Protection Committee, International Maritime Organization, European Commission, Maersk Tankers; analysis based on order book data from Clarkson Research Services Ltd, Macaubusiness.com, Seatrade-Maritime-com, Mol-service.com, North2.com, Taqa.com, PR Newswire, PwC

Air freight with focus on Sustainable Aviation Fuels (SAF)

While there are alternative propulsion technologies to reduce emissions in airfreight and partnerships driving these new technologies (e.g., ADP Group preparing for aircraft hydrogen era, Korean Air and Incheon International Airport for hydrogen infrastructure), they will only come into effect in the mid- to long-term. Other ways to reduce emissions include e.g. fleet renewal with more energy-efficient aircrafts. However, the current focus is on sustainable aviation fuels (SAF) as the key option for reducing airfreight GHG emissions of existing fleets. SAF is expected to contribute more than 50% to the net-zero ambition of the aviation industry and we have investigated potential cost impacts, relevance and different technologies in a separate study (refer to Strategy&'s SAF Study on ramp-up scenarios and cost implications). The high significance of SAF manifests itself in dedicated programs by carriers and their collaboration with forwarders. Etihad Cargo's partnership with DSV, Bolloré Logistics and United Airlines and the news on DHL Global Forwarding's agreement with IAG Cargo are just some examples of major SAF programs that secure capacities and enable forwarders to offer GHG emission-reduced air freight services to shippers. These offtake agreements are key in providing security for investments in the build-up of SAF capacity.

A shortage of supply and high-level investments required under significant uncertainty will be the bottleneck for the extensive use of SAF going forward. As highlighted in Strategy&'s recent SAF Study, an estimated up to 1,000 billion EUR in CapEx will be required to establish SAF refineries to satisfy net zero-enabling demand by 2050. This poses a huge challenge for the whole ecosystem of public and private stakeholders. We already see examples of cooperation in wider industry networks to create SAF infrastructure and supply chains (e.g., Vancouver airport on BioPortYVR initiative). But concerted actions shall go further and remove roadblocks by (1) investing in demonstration facilities and plant development projects to prove that the technology can produce at mass scale, (2) diversification of feedstock to reduce dependence on availability and price fluctuations, (3) hedging of financial risk to ensure significant investment, (4) clarification of regulations to provide greater certainty for stakeholders and (5) further upskilling of corporate customers to increase awareness around SAF and attract new investment. With targeted action, SAF is a considerable lever in reducing the 2.5% CO_2 emissions currently contributed by global aviation.

Sources: Air Liquide, Nasdaq, Strategy&, Transportandlogisticsme.com, Bolloré Logistics, Environmentenergyleader.com, Caafi.org



Looking at these developments in decarbonisation transformation we can conclude that:

Decarbonisation is a major transformation driver for the logistics industry. We see activities along all transport modes – in each with its own dynamics and maturity. Much current focus is on land transport as a main contributor to global emissions.

Logistics companies need to foster strategic alliances and partnerships to effectively drive the sustainability transformation. In the long term, this can have a profound effect on their business models. By building strong long-term partnerships and market offerings with suppliers and customers, logistics players can accelerate the sustainability transformation and transform the asset base together with those customers who are committed to investing in sustainable solutions.

Logistics players can gain an advantage by spearheading these discussions in light of tightening regulation and a potential market pull for more sustainable transport. Acting on the sustainability transformation will ensure that they stay on top of a fast and dynamically evolving agenda.

4

Outlook

Outlook

In 2024, the transport and logistics industry will have to operate in an environment of considerable uncertainty and risk.

Geopolitical conflicts continue to increase. In addition to the war in Ukraine, another political conflict has escalated in the Middle East. Other political tensions, particularly in Asia, continue to exist and harbour the risk of political or even military escalation. In addition to the parties to the conflict themselves, the USA, the EU and other major powers would also be affected. Their national security concerns could lead to even stricter regulation with regard to foreign direct investment and sanctions, thus fuelling existing trade conflicts or causing new ones, ultimately leading to increased geoeconomic fragmentation. Indeed, we've witnessed that trade between the two blocks of China and its allies and the US and its allies has stagnated since 2020.

But there are also signs of easing. Interest rates seem to be stabilising while global inflation has been declining steadily and is forecast to reach 5.8% in 2024. Global economic growth will remain moderate, albeit stable at around 3.0%, according to the IMF and OECD. The outlook for global trade is relatively strong, though. The WTO recently halved its 2023 forecast from 1.7% to 0.8%, but predicts 3.3% for 2024, citing "increased trade in goods closely linked to the business cycle, such as machinery and consumer durables, which tend to recover when economic growth stabilises".

Mixed outlook for T&L

As retailers and wholesalers are reducing their inventories at the same time, demand for transport and logistics services is unlikely to increase significantly in the short term. The forecasts for real growth in sea and air freight are, therefore, very low at +0.4% and +0.2% respectively. Transport Intelligence is not much more optimistic for European road freight transport with a growth forecast of +1.7%. The contract logistics market is proving to be somewhat more resilient to economic and cost fluctuations. The growth expectation is 3.7% and thus at a pre-pandemic level. Asia, clearly the largest contract logistics market, also has the highest growth expectation at 6.5%, while North America and Europe (after negative growth in 2023) are lagging significantly behind at 1.8% and 1.4%, respectively.

Regardless of geopolitical and macroeconomic conditions, transport and logistics companies must continue their transformation efforts without restriction. Digitalisation, ESG, customer orientation, and a future-proof positioning in growth markets with robust business models – all these challenges must be approached with a clear vision and strategy. Long-term transformation programs require a targeted use of resources and financial means. Finding the right partners and establishing effective cooperation models will be another critical success factor – be it through M&A, joint ventures or strategic alliances.

Sources: IMF, OECD, WTO, Transport Intelligence

Transformation driving deals and strategic partnerships

We will certainly see more port and terminal deals in 2024. Hapag-Lloyd alone recently announced its intention to invest in up to 15 more port terminals, to name just one example. Investments will take place especially in Asia, Middle East and Africa, providing emerging economies better access to globalised or inner regional markets.

European ports are faced with a conflict between investment requirements and policy considerations. They need financially strong partners to upgrade their infrastructure (especially intermodal capabilities) and implement new technologies for increased efficiency. However, upcoming discussions regarding the regulation of foreign investments could make it more challenging for ports and terminal operators to find foreign investors who would be satisfied by holding a minority participation.

The decarbonisation of transport, which was in focus of this issue of the T&L Barometer, will be of high relevance far beyond the year ahead. We expect to see increased strategic partnerships and alliances to match competencies and share investment risks. It is to be monitored closely to what extent logistics companies will go into a leading role in such partnerships and actively drive industry transformation with customers and suppliers.

Moderate growth in M&A

Overall, we believe dealmaking opportunities will continue to emerge in 2024; hence, we expect a moderate growth in M&A, after the historic low of 2023. Interest rates will likely remain high in the mid term, but the looming interest rate turnaround by the central banks should have a positive impact on the M&A climate.

Sources: Transport Intelligence, S&P Global Market Intelligence

This applies, in particular, to financial investors. Financial sponsors – sovereign wealth funds, private equity and venture capital investors have plenty of cash for acquisitions. For example, global private equity dry powder at midyear stood at a record $2.49 trillion, up more than 11% since the close of 2022. They are, therefore, still in a position to make larger deals. Coupled with a slightly more positive economic outlook for the coming year, this suggests that financial investors will once again become increasingly involved in M&A activities in the logistics sector.

Still, current market conditions may continue to give strategic buyers an edge. Whether or not freight markets have bottomed out, strategic investors who benefited from the higher freight rates of the past few years may now be more confident in taking a longer-term view of the rate cycle and invest accordingly. Strategic investors often have fewer constraints when raising capital than their financial counterparts. Greater access to capital may encourage companies with strong balance sheets to acquire and consolidate smaller competitors challenged by the current cost of capital. Finally, strategic investors may be more inclined to pursue technology-driven deals that promise greater returns when scaled across a larger organisation.

Technology-infused deals that carry the promise of transformational returns will likely continue to be attractive, and strategic buyers may be well-positioned to take advantage of such opportunities. Additionally, investments in last-mile delivery capabilities are likely to remain a key focus for companies, as e-commerce purchases have shifted from traditional "big and bulky" goods and non-perishables to food and beverage products and pharmaceuticals.

5

Appendix: Deals in figures, methodology, contacts

Megadeals = deals with a value of $1 billion or more

For comparison

H1 2023: 5 deals, $16.0bn
H1 2022: 19 deals, $98.7bn
H2 2022: 13 deals, $24.6bn

Megadeals in 2023

Announcement	Target	Target nation	Buyer	Buyer nation	Deal status	Deal value ($bn)	Sector
Apr-23	Bolloré Logistics SAS	FR	CMA CGM SA	FR	Pending	5.12	Logistics/Trucking
Apr-23	Triton International Ltd	BM	Brookfield Infrastructure Corp	US	Completed	4.71	Other
Sep-23	Attica Motorway Concession	GR	Gek Terna Holdings Real Estate Construction SA	GR	Pending	3.51	Infrastructure – Road
Jun-23	US Warehouse & Distribution Property Portfolio	US	Prologis Inc	US	Pending	3.10	Logistics/trucking
Oct-23	Four toll roads of Puerto Rico Highways & Transportation Authority	PR	Abertis Infraestructuras SA	ES	Pending	2.85	Infrastructure – Road
Oct-23	24 vlcc tankers of Euronav NV	NL	Frontline Ltd	NO	Pending	2.35	Shipping
Oct-23	50.1% remaining interest in Euronav NV via tender offer	BE	Compagnie Maritime Belge NV	BE	Intended	2.07	Shipping
Aug-23	Omni Logistics LLC	US	Forward Air Corp	US	Pending	1.88	Logistics/Trucking
Dec-23	Hawaiian Holdings Inc	US	Alaska Air Group Inc	US	Pending	1.83	Passenger Air
Nov-23	15% stake in FGP Topco (25% stake in Heathrow Airport held by Ferrovial)	UK	Ardian SAS	FR	Pending	1.79	Infrastructure – Airport
Mar-23	GMR Airports Ltd (49%-stake held by Aeroports de Paris)	IN	GMR Infra Developers / GMR Airports Infrastructure Ltd	IN	Pending	1.54	Infrastructure – Airport
Jul-23	Blueridge Transportation Group LLC	US	Abertis Infraestructuras SA	ES	Pending	1.53	Infrastructure - Road
May-23	Cargo-Partner GmbH and 62 related companies & subsidiaries	AT	Nippon Express Europe GmbH / Nippon Express Holdings	DE/JP	Pending	1.53	Logistics/Trucking
Oct-23	SAS AB (64.5% stake)	SE	Investor Group led by Castlelake LP and Air France-KLM, including Lind Invest ApS and the Danish government	US	Pending	1.20	Passenger Air
Nov-23	10% stake in FGP Topco (25% stake in Heathrow Airport held by Ferrovial)	UK	Public Investment Fund	SA	Pending	1.20	Infrastructure – Airport
Oct-23	Euronav NV	BE	Compagnie Maritime Belge NV	BE	Pending	1.06	Shipping

Source: PwC analysis, based on Refinitiv

Subsector analysis

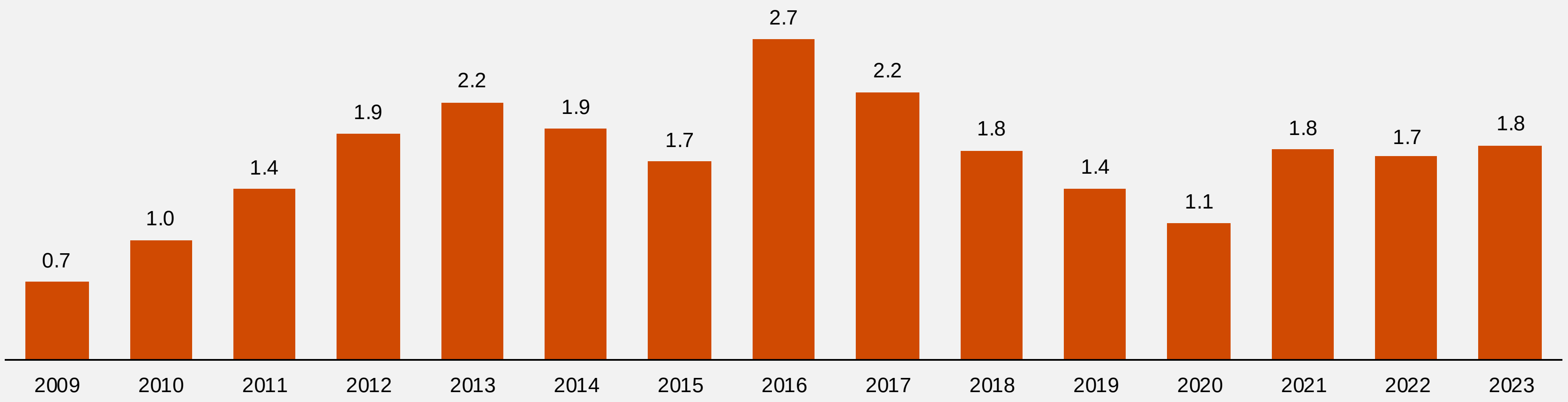
All deals (incl. infrastructure)	1H2021		2H2021		1H2022		2H2022		1H2023		2H2023	
Total value ($bn)	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value
Passenger Air	19	12.9	16	31.7	16	9.2	18	7.8	9	3.4	14	8.0
Passenger Ground	13	9.0	20	13.8	26	64.5	17	6.9	15	4.6	12	9.9
Rail	4	36.2	4	3.2	2	0.2	6	3.7	0	0.0	3	0.6
Logistics and Trucking	73	25.1	98	53.2	70	38.7	44	15.7	45	17.3	31	7.6
Shipping	27	6.3	32	13.4	21	11.5	24	12.4	25	7.8	21	9.5
Other	12	4.8	5	4.4	9	7.2	8	3.5	5	5.4	5	0.5
Total	148	94.5	175	119.7	144	131.3	117	50.0	99	38.5	86	36.1

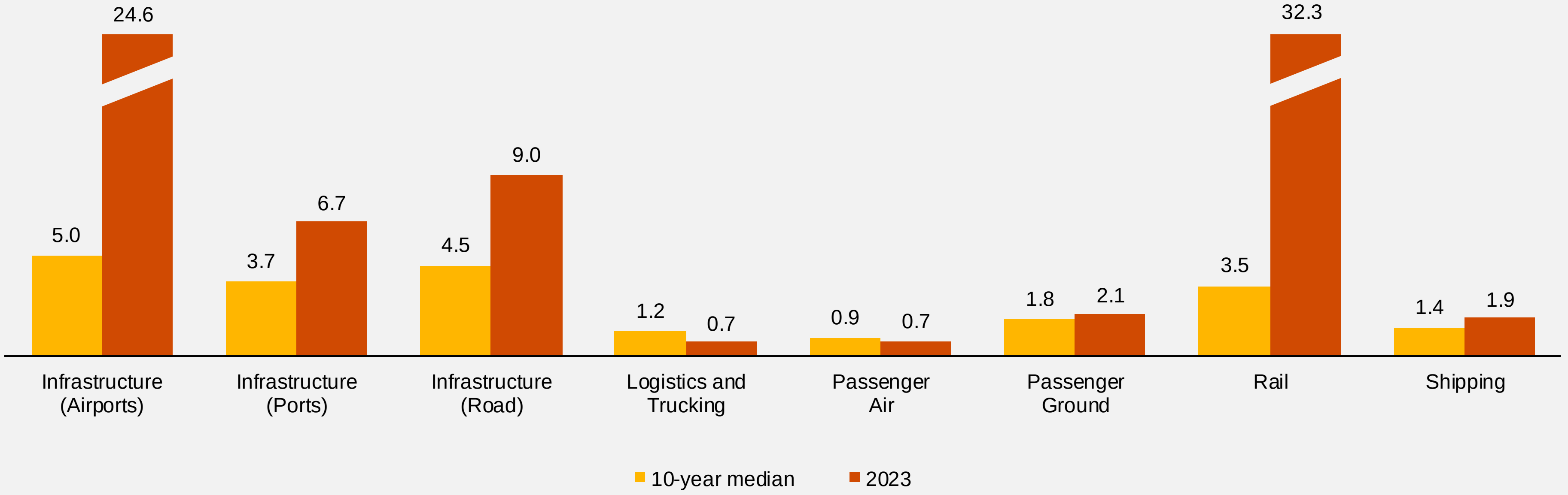
Infrastructure	1H2021		2H2021		1H2022		2H2022		1H2023		2H2023	
Total value ($bn)	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value
Infrastructure (Airports)	8	8.2	6	27.2	6	1.2	7	2.5	5	2.0	3	3.1
Infrastructure (Road)	10	4.2	8	9.8	15	59.2	14	6.6	10	3.1	9	9.6
Infrastructure (Ports)	11	3.1	13	8.6	8	6.5	12	8.8	8	2.2	8	2.0
Total (infrastructure)	29	15.5	27	45.5	29	66.9	33	17.9	23	7.3	20	14.7

Freight vs. passenger	1H2021		2H2021		1H2022		2H2022		1H2023		2H2023	
Total value ($bn)	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value	No. of deals	Total value
Freight	101	35.5	132	69.0	93	50.3	69	31.9	67	29.3	52	17.1
Passenger	47	59.0	43	50.7	51	81.0	48	18.1	32	9.2	34	19.0
Total	148	94.5	175	119.7	144	131.3	117	50.0	99	38.5	86	36.1

Source: PwC analysis, based on Refinitiv. Deals with a value greater than $50 million

Median of value/ sales multiples

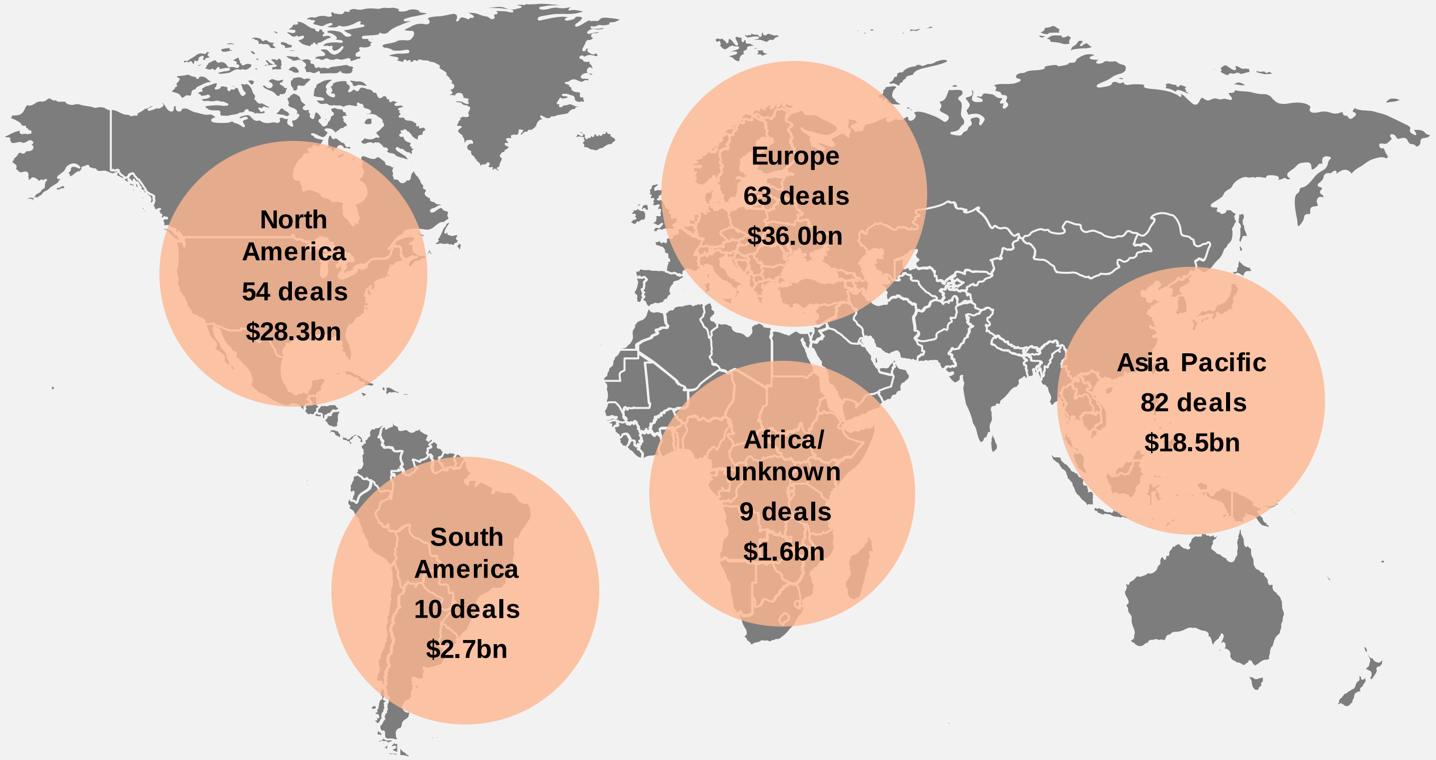




Source: PwC analysis, based on Refinitiv. Deals with a value greater than $50 million

Regional distribution of deals

Europe	No. of deals	Value ($bn)	Ø value ($m)
Local	46	26.7	581.0
Inbound	7	3.0	431.8
Outbound	10	6.2	624.1
Total	63	36.0	571.2
Asia Pacific			
Local	63	14.2	224.7
Inbound	15	2.4	157.6
Outbound	4	2.0	506.6
Total	82	18.5	226.2
North America			
Local	35	18.8	536.8
Inbound	9	6.9	766.1
Outbound	10	2.6	257.7
Total	54	28.3	523.3
South America			
Local	7	2.3	329.4
Inbound	3	0.4	116.7
Outbound	0	0.0	0.0
Total	10	2.7	265.6
Africa/ unknown			
Local	0	0.0	0.0
Inbound	0	0.0	0.0
Outbound	9	1.6	176.3
Total	9	1.6	176.3

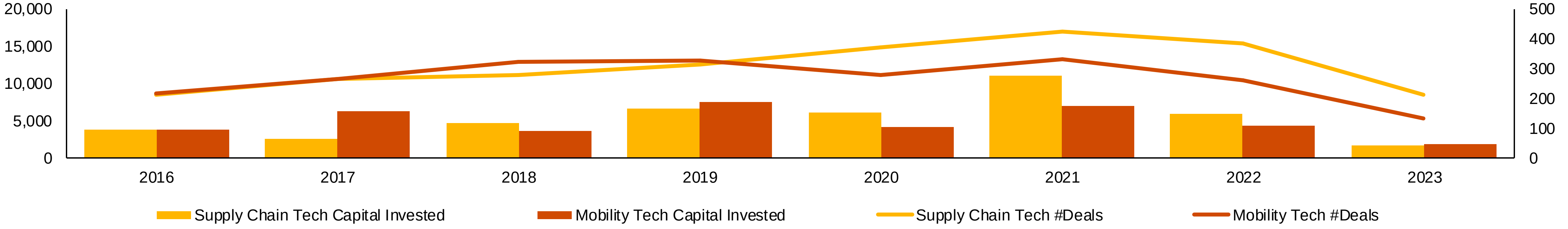


Local = target and buyer in the region
Inbound = target in the region, but buyer outside the region
Outbound = target outside the region, but buyer in the region

An inbound deal in one region is also an outbound deal in another. Inbound and outbound deals are, therefore, recorded twice in the list

Source: PwC analysis, based on Refinitiv. Deals with a value greater than $50 million

VC Investments in T&L related Tech Verticals
(no. of deals and sum of Capital Invested in $mn)



Selected venture capital deals

Deal date	Company	Company nation	(Lead) Investor	Series	Deal value ($mn)
Sep-23	Conigital	UK	Undisclosed Private Equity Investor	Series A	626.3
Apr-23	Zipline (Logistics)	US	Anderson Investments	Series E	330.0
May-23	J&T Express	ID/CN	unknown	Series F	200.0
May-23	JOLT Energy	DE	InfraRed Capital Partners;	n/a	165.1
Nov-23	GreyOrange	US	Anthelion Capital Partners, Blume Venture Advisors, Mithril Capital Management	n/a	135.0
Jun-23	Ruqi Mobility	CN	Guangzhou Automobile	Series F	118.4
Mar-23	Deepway	CN	SB China Venture Capital, Weiqiao Pioneering Group; Qiming Venture Partners	n/a	111.4
Jul-23	Qianhai Yueshi	CN	Cofco Capital, Shenzhen Kingdom Sci-tech Company, Goldport Capital	Series B	85.9
Jan-23	BRETON Technology	CN	Hunan Chasing Fund, Inner Mongolia Eerduosi Resources Company	n/a	83.2
Nov-23	Xpressbees	IN	Ontario Teachers' Pension Plan	n/a	80.0
Jan-23	Outrider (Road)	US	Abu Dhabi Investment Authority, B37 Ventures, Lineage Ventures, Nvidia, Presidio Ventures, others	Series E	73.0
Jan-23	Leekr Technology	CN	Beijing Automotive Group Industrial Investment, CAS Investment Management, others	Series E	58.2

Sources: PwC analysis, based on Pitchbook, Forbes

Methodology

This report analyses the current industry environment and global transaction and strategic collaboration activities in the T&L industry.

The analysis covers all mergers, acquisitions, sales, leveraged buyouts, privatisations and acquisitions of minority interests with a transaction value greater than $50 million. All transactions announced between 1 January and 31 December 2023 have been included. Project transactions, such as public-private partnerships – which are more common than corporate transactions, especially in the field of infrastructure – do not fall within the scope of the analysis.

The data for the transaction analysis is derived from Refinitiv and includes all deals announced where the target company comes from one of the NAICS industries listed below. Historical data is continuously updated. The analysis included all transactions whose status at the time of analysis was "completed", "not yet completed because of antitrust approval procedures", "unconditional" (buyer-side conditions have been met, but the deal has not yet been completed) or "withdrawn".

The data for the strategic collaboration analysis is based on information from S&P Global Capital IQ, covering private placements data and key strategic alliance-related developments disclosed by listed companies related to the T&L industry.

The venture deals analysis is based on the Top 100 Transport & Logistics VC-Deals in Pitchbook announced until November 2023, including mobility verticals.

Sectors and assigned NAICS industries

Passenger Air: scheduled passenger air transportation; non-scheduled chartered passenger air transportation; air traffic control; other airport operations; other support activities for air transportation

Passenger Ground: highway, street, and bridge construction; all other specialty trade contractors; commuter rail systems; bus and other motor vehicle transit systems; other urban transit systems; inter-urban and rural bus transportation; taxi service; limousine service; school and employee bus transportation; charter bus industry; special needs transportation; all other transit and ground passenger transportation; other support activities for road transportation

Rail: line-haul railroads; short-line railroads; support activities for rail transportation

Logistics: gas distribution; freight transportation arrangement; packing and crating; all other support activities for transportation; postal service; couriers; local messengers and local delivery; general warehousing and storage; refrigerated warehousing and storage; farm product warehousing and storage; other warehousing and storage; process, physical distribution and logistics consulting services

Trucking: general freight trucking, local; general freight trucking, long-distance, truckload; general freight trucking, long distance, less than truckload; used household and office goods moving; specialised freight (except used goods) trucking, local; specialised freight (except used goods) trucking, long distance

Shipping: deep-sea freight transportation; deep-sea passenger transportation; coastal and great lakes freight transportation; coastal and great lakes passenger transportation; inland water freight transportation; inland water passenger transportation; port and harbour operations; marine cargo handling; navigational services to shipping; other support activities for water transportation; regulation and administration of transportation programs

Other: scheduled freight air transportation; non-scheduled chartered freight air transportation; other non-scheduled air transportation; mixed-mode transit systems; commercial air, rail and water transportation equipment rental and leasing; passenger car rental; passenger car leasing; truck, utility trailer and RV rental and leasing

Contacts

Ingo Bauer
Partner, Transport, Logistics and Tourism Industry Leader

ingo.bauer@pwc.com

Dr André Wortmann
Partner, Coordinator for Transport and Logistics Deals, PwC Europe

andre.wortmann@pwc.com

Dr Peter Kauschke
Director, Transport, Logistics and Mobility

peter.kauschke@pwc.com

Burkhard Sommer
Deputy Head, Maritime Competence Center Germany

burkhard.sommer@pwc.com

Philip Wöbse
Manager, Research Center

philip.woebse@pwc.com

Miriam Kröger
Partner, Digital Transformation

miriam.kroeger@pwc.com

Sebastian Pieper
Director, Transport and Logistics, Strategy& Germany

sebastian.pieper@strategyand.de.pwc.com

Dr Daniel Haag
Director, Transport and Logistics, Strategy& Germany

daniel.haag@strategyand.de.pwc.com

Elisa Domnik
Business Development, Transport and Logistics

elisa.domnik@pwc.com

We would like to thank the following experts for their valuable contributions to this report:

Renan Santos, Senior Manager, PwC United Kingdom

Stefan Westerwalbesloh, Manager, PwC Germany

Luis Carl Müller, Senior Associate, Strategy& Germany

Phillip Robbers, Senior Associate, Strategy& Germany

Johannes Tauchert, Senior Associate, Strategy& Germany

Arne Jürging, Associate, PwC Germany

Martin Krause, Marketing and Communications, PwC Germany