GREEN(ING) OF TRANSPORT CHAINS: IMPLICATIONS TO BUSINESS MODELS

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This paper examines the transformation of business models in green transport through a case study involving cargo owners, land transport operators, and shipping companies. The study identifies four key themes driving green transport: commitment, collaboration, technology, and customer value, and examines how these themes shape emerging business models in the logistics sector. The findings reveal that leading companies are committing to better-than-regulation-standards. The study highlights the critical role of stakeholder collaboration in sharing infrastructure investments and risks, particularly in developing charging networks and renewable fuel supply chains. While market demand for green logistics is growing, especially among larger customers, the significant price premium for sustainable solutions remains a key challenge. The research indicates that business model transformation requires both technological innovation and new pricing strategies that balance cost with market acceptance. However, challenges such as inconsistent definitions of "green logistics" persist. This study contributes to the understanding of how logistics companies can effectively transition to sustainable operations while maintaining economic viability.

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1 Introduction

The logistics sector is under increasing pressure to adopt practices that enable the measurement, analysis, and mitigation of the environmental impacts of logistics activities – referred to as green logistics (Blanco & Sheffi, 2024). Transportation is the 2nd largest source of global greenhouse gas emissions[1], contributing about 15% of emissions. As climate goals gain focus, transport providers have a big role in decarbonizing supply chains. Regulations such as CSRD and Fuel EU maritime and increasing customer expectations urge to address climate change (Bendig et al., 2023) - all of which demand transformative changes to existing business models. The different transport actors do not necessarily perceive green transport in a similar way; cargo owners and logistics service providers' perspectives are seldom aligned, even though variation exist based on e.g. cargo owner's industries and the size of logistics service provider (Jazairy et al, 2021; Huge-Brodin et al, 2020). Green transport entails more than operational adjustments towards less emissions; it requires re-evaluation of how value is created, delivered, and captured across the supply chain, impacting business models of multiple parties (Bankel & Govik, 2024). Prior research has explored emissions reduction technologies (Shah et al., 2021), logistics optimization (Cheng et al., 2024), and regulatory compliance (Bendig et al., 2023). Business model innovations have been examined in electric trucks (Lind & Melander, 2023), the maritime transport (Jović et al., 2022), shared mobility (Turoń, 2022), urban mobility (Bellini et al., 2019), and taxi services (Saqib & Satar, 2021; Niemimaa et al., 2019; Heikkilä & Heikkilä, 2019). However, little research explores how greening transport affects business models across a transport chain, a key challenge in balancing sustainability and competitiveness.

This paper analyses *how companies in a transport chain provide greener delivery options and what implications it has on their business models.* Through a qualitative study, the analysis identifies four themes - Commitment & Compliance, Collaboration & Value Co-creation, Technology & Innovation, and Market Value & Demand - highlighting key components and business model implications in the transition to green transport. The paper is structured as follows: Chapter 2 reviews literature on business models and green transport. Chapter 3 outlines the research method, Chapter 4 presents the

[1] https://www.statista.com/statistics/241756/proportion-of-energy-in-global-greenhouse-gas-emissions/

results, and Chapter 5 discusses the findings, connecting these with reviewed literature and limitations of the research.

2 Literature review

2.1 Business models

A Business Model (BM) defines how an organization creates, delivers, and captures value for its customers (Teece, 2010; Osterwalder et al., 2005). From an architectural perspective, it outlines the processes for delivering a value proposition and capturing the resulting benefits (Troisi et al., 2023). BMs consist of three interdependent dimensions: value proposition, value creation, and value capture (Bocken at al., 2014). The value proposition defines an organization's offering to its target market, addressing needs while considering economic, social, and environmental factors (Lüdeke-Freund et al., 2019; Geissdoerfer et al., 2017; Ranta et al., 2018). Value creation involves the activities, resources, and partnerships needed to develop and deliver the offering (Amit & Zott, 2001). Value capture refers to the mechanisms that enable a company to retain part of the value it creates, ensuring financial sustainability through pricing, cost structures, and revenue models (Teece, 2010; Schürtz et al., 2017). BMs are dynamic constructs that evolve in response to shifting market demands and emerging growth opportunities (Pohle & Chapman, 2006; Lindgardt et al., 2012; Bucherer et al., 2012; Marolt et al., 2018; Pucihar et al., 2019; Saebi et al., 2017). These adaptations can range from incremental modifications to comprehensive transformations of the entire BM (Saebi et al., 2017; Eriksson et al., 2021).

2.2 Green transport and business model transformations

A key driver of business model evolution in transport sector today is regulatory pressure, pushing companies to enhance sustainability, particularly by reducing carbon dioxide (CO_2) emissions (Dechezleprêtre et al., 2022). Regulations now extend beyond limiting emissions from direct production activities and energy consumption (i.e., Scope 1 and Scope 2 emissions) to addressing the entire value chain, including freight and supply chain operations (i.e., Scope 3 emissions). Compliance is becoming a baseline, with leading companies taking proactive actions in reducing their environmental impact (Bendig et al., 2023). The expanding scope

of regulations forces companies to rethink and reconfigure their business models (Salihi et al., 2024), traditionally built on low costs and reliability (Baştuğ & Yercan, 2021; Ellram et., 2022). To stay competitive, they should offer greener transport options without compromising core performance. Environmental certifications have been suggested to show commitment to sustainability and to provide standardized frameworks for measuring and reporting environmental performance, though their credibility is debated (Chicca, 2024). Research indicates that sustainability is beginning to influence cargo owners' carrier selection (Davis-Sramek et al., 2020), bringing up a need for collaborative approaches where risk-sharing initiatives between carriers and cargo owners help overcome barriers to big sustainable investments. However, multitude of challenges exist related to business models, information sharing, and decision support systems and market structure. (Karam et al., 2021). Innovative technologies and digital solutions are essential for emissions reduction. Electrification, hydrogen, and biofuels reduce emissions (Folkson & Sapsford, 2022), while digital solutions improve emissions monitoring and logistics optimization (Noussan & Tagliapietra, 2020). Data transparency is now needed as stakeholders demand more detailed reporting throughout the transport chain (Haupt et al., 2024). Ultimately, market value and customer demand shape green business models. For example, green premium pricing has gained attention, though its implementation remains challenging in the cost-sensitive transport sector (Bertelè et al., 2024). Still, regulatory pressure and corporate sustainability commitments are fueling demand, creating possibilities for alternative green business models (Davis-Sramek et al., 2020). Trust-building is also becoming central in carrier selection. While trust traditionally takes time to develop (Dyer & Chu, 2000; Poppo et al., 2016), strong environmental performance can accelerate it in early stages of cargo owner-carrier relationships (Davis-Sramek et al., 2020). Green investments can serve as signals of trustworthiness (Blome & Paulraj, 2013) even before an initial relationship is established. Additionally, carriers who educate customers about sustainability practices demonstrate transparency and expertise, further enhancing trust (Bell et al., 2017). Therefore, trust between parties may build more rapidly than in traditional business relationships (Davis-Sramek et al., 2020), potentially giving carriers with green value propositions a competitive advantage.

3 Research method

Current research is part of the larger project "GreenConnect: Connecting green transition to competitive advantage in transport solutions." The main focus of this paper is on the transport chain of green products considered as a specific case (Farquhar, 2012; Yin, 2018). The investigated transport in this case includes land and sea transport, covering upstream sea transportation and downstream multimodal transportation. The selected part of upstream transportation of materials included in the case is performed by one shipping company BulkerCo. The downstream transportation of the end product starts with land transport TruckCo from the cargo owner's (ManuCo) premises, continues by shipping company RoroCo (184 km), and ends with land transport at the end customer, covering altogether 770 km. Timewise the transport takes about 17,8 hours, with an additional 1 hour of loading at the cargo owner's premises and the land transport operator's hub and waiting time at the port of departure.

To explore how companies in a transport chain aim to enhance green(er) delivery options within this specific case, a qualitative study (Creswell & Creswell Báez, 2021; Silverman, 2021; Hartley, 2004) was conducted from November 2023 to January 2025. The study consisted of 10 semi-structured interviews and four workshops with representatives of the companies of this specific case (see Appendix 1). These company representatives hold various leadership and specialist roles within their organisations, including positions such as directors, heads of units, managers, project coordinators, and specialists. With the first two workshops, the research team gained initial insights into the case and identified key aspects for further exploration (see Appendix 4). This phase supported the development of the interview framework, which was used in semi-structured interviews conducted in two stages. The first stage of the interviews concentrated on emission reduction goals, customer demand for emission data, and the role of data-driven and certified solutions for green(er) transport, as well as potential value and business benefits of offering green(er) transport solutions (see Appendix 2). The second interviewing stage focused on the impact of green transition on companies' business models, pricing, and collaboration in logistics networks for facilitating the transition toward green(er) transport (see Appendix 3). All interviews were conducted online (via MS Teams or Zoom), recorded and transcribed, except for one interview, where notes were taken instead due to technical disruptions. The interviews lasted between 25 minutes and 1 hour,

workshops ranged from 1 to 3 hours. Collected qualitative data (104 pages transcribed text and 21 pages workshop notes) were analysed using thematic analysis method (Creswell & Creswell Báez, 2021; Lochmiller, 2021; Rapley, 2021) which included initial coding, grouping and merging the codes that enabled to identify themes and subthemes. This process was performed independently by three authors during the initial phase of coding, followed by mutual discussions to compare, (re)structure, and create meaningful themes and subthemes. The analysis of the collected data enabled to identify four key themes seen as drivers that shape the evolution of green business models in transport chains. These themes not only reflect the current state towards green(er) transport but also indicate how different elements of business models are being transformed to address environmental challenges.

4 Findings

Our analysis resulted in four key themes (commitment & compliance, technology & innovation, collaboration & value co-creation and market value & customer demand) driving the business model transformation of greener transport that will be discussed in following sections, together with the possible implications for the business models of the transport chain companies.

4.1 Commitment & compliance

ManuCo is committed to voluntary emission reduction to better serve its customers with high sustainability ambitions, and to enhance the transition towards net-zero economy. Through its emission targets, it is committed to reducing also the emissions of transporting materials and end products. The transport service providers are all committed to reducing emissions: shipping RoroCo in phase with the requirements of regulations, while shipping BulkerCo and TruckCo have set much tighter schedules of their own. *"[The company] has implemented initiatives like ISO certification and benchmarks... They emphasize the importance of meeting and exceeding regulatory requirements…"* (BulkerCo).

Adopting regulation such as ISO standards and validation of emissions and reduction targets support consistent and credible emissions reporting but also help communicate the commitment and proactive approach to decarbonisation. In

addition to own activities, certification systems and verification of emissions are required from other supply chain actors. These are perceived critical in enhancing transparency and allowing consistent and reliable reporting of emissions, supporting accountability and addressing concerns for greenwashing. *"We are asking transportation companies to provide emissions according to the 14083 ISO standard, which is the new one… This ensures structured and unified emission reporting, building trust and eliminating greenwashing"* (ManuCo).

4.2 Technology & Innovation

Companies in a current study are increasingly adopting digital solutions to enhance emissions tracking, transparency and reporting capabilities. For instance, ManuCo is testing a Digital Product Passport, which *"helps us make the whole supply chain more transparent and gives us possibilities to make it greener as well"*. This system enables precise emissions calculations per transport leg, integrating API data from transportation companies for improved reliability and accessibility. Additionally, ManuCo is implementing new Transportation Management Systems that embed emissions reporting requirements into procurement processes and tenders. In parallel, two out of three transport companies have developed customer-facing emissions portals, allowing customers to access trip-level emissions data, analyze historical trends, and model potential emissions reductions through alternative fuel scenarios.

Beyond tracking and reporting, companies are testing and implementing several emission reduction innovations across their operations. Alternative fuels, such as biofuels and electric power, are under exploration and investment, though current technical limitations hinder large-scale adoption. As TruckCo explained: "*Our electric vehicle pilot projects aim to gather knowledge and experience to shape our future business models and operational practices"*. BulkerCo has developed a smart fleet optimizer, which allows it "*to make both economically and environmentally sound decisions*." Furthermore, BulkerCo has introduced virtual arrival, an operational practice where vessels adjust their speed and arrival times based on port availability rather than racing to port only to wait at anchor. Implemented profit-sharing contracts incentivize stakeholders to adopt this practice by equally distributing the resulting bunker fuel savings between parties. The demonstrated impact has been significant: "*We've adopted virtual arrival practices, saving 24% of emissions simply by implementing operational and technological changes."*

Despite technological advancements, the research identified key implementation challenges. The most significant hurdle is the high capital investment required for transitioning to a greener fleet, which poses financial barriers to widespread adoption. Additionally, the pace of digitalization varies among the interviewed companies. While some have developed advanced digital emissions portals, others lag behind - RoroCo, for example, still relies on Excel for emissions reporting, highlighting inconsistencies in current reporting practices.

4.3 Collaboration & Value Co-Creation

The findings show that, to develop charging networks, as well as availability and reliability of renewable fuels - both essential for driving green transport - the collaboration among stakeholders is a prerequisite. Companies with a direct customer connection emphasise that customers expect end-to-end green solutions across the entire supply chain. This increases pressure on companies to collaborate, alongside regulatory requirements and their own emission reduction goals outlined in the previous section. "*We're working with logistics and port operators to establish emission-free corridors because customers need a full chain solution, not just parts of it*" (ManuCo).

The way stakeholders collaborate is to establish risk-sharing initiatives where the contracts should be longer than one or two years. Longer contracts between stakeholders provide security for making big investments for green transport (e.g., investments related to renewable fuels). These long-term contracts are possible when in addition to strong partnerships, the companies that share the same values establish joint emission targets as part of a strategic collaboration benefiting both parties. Also, similar independent emission reduction targets between stakeholders can foster deeper partnerships, aligning business strategies with environmental goals. "*Some customers, like ManuCo, have clear emission reduction targets and collaborate closely with us to meet their sustainability goals"* (TruckCo).

The risk-sharing initiatives have made it possible to share financial benefits with customers, that is currently seen as an exception but might become more common in the near future. Companies who are taking proactive roles in emission reduction by anticipating future trends and customer needs (BulkerCo and TruckCo), position themselves as leaders in green transport by leveraging financial incentives, such as subsidies or tax benefits, for investments. This positioning not only strengthens their

market profile but also encourages new collaboration partners to join, accelerating adoption for environmentally sustainable practices in its entire supply chain. Concerning land transportation, the price of electric trucks, as well as availability of charging infrastructure, are currently barriers to green transport. Customers who have set ambitions emission targets might be the ones who invest to charging infrastructure that the company could use. This way of collaborating with clients enables to tackle financial barriers to achieving greener transport.

4.4 Market Value & Customer Demand

Customer demand is already recognised as one of the drivers of stakeholder collaboration in delivering green transport across the entire supply chain. Moreover, when companies offer fossil-free products, customers expect the transportation to be green as well. However, the analysis indicates that when a company positions itself as an active player proactively driving the green transition, it seeks to shape customer demand by communicating its economic sustainability goals before customers begin requesting this information. "*We have tried to train and educate [customers] before they even know they need this information*" (BulkerCo).

Trust is the basis for creating and sustaining relationships with customers, especially with those who prioritise environmental sustainability. By communicating openly on environmental targets, companies can attract customers who share similar goals and are interested in collaborating which is easier with forerunner customers. Transparency, through open communication and data-sharing for assessing the environmental impacts of transportation, enables companies to build or deepen trusting relationships with clients. However, another approach to facilitating green transport would be to distribute the costs across all customers. In this model, which is currently in an idea phase and not implemented, those contributing a small premium would be allocated green transport options, which could encourage broader adoption. This would benefit the entire supply chain but is particularly seen as a driver for shipping company RoroCo involved to the study, as they rely on stable demand and long-term commitments to justify investments in greener technologies and infrastructure.

4.5 Business model implications

The biggest uncertainties the transport chain companies face are the choice and cost of energy, the availability of infrastructure, technological readiness, the heavy investments required, evolving regulations, and customers' willingness to pay for green transport services. The business models should be able to tackle these challenges to ensure the successful transition toward a sustainable transport sector. When transforming the offerings towards greener transport services, the companies may change their **value proposition** in following ways:

1. From a Cost to Value Proposition: Emissions tracking can be transformed from a mere obligation to a potential competitive advantage and a new value proposition. As one respondent noted, "*We have received much praise from customers for this, as it's a value-added service not commonly offered"* (BulkerCo). However, while early adopters perceive this as a competitive advantage, scalability remains a concern.

2. Integrated digital-physical offerings: Bundling physical transportation services with digital emissions optimization capabilities increases customer switching costs and deepens relationships through continuous digital engagement. Companies investing in advanced digital capabilities can attract environmentally conscious customers and position themselves as sustainability leaders in their industry.

3. Carbon Market Integration: Interviewees also highlighted emerging business models where transport services integrate with carbon credits markets, creating opportunities for bundled transportation and carbon offset packages or even transportation services that generate carbon credits.

The **value capture** component of the business model may include:

4. Green Premium Opportunities: Advanced emissions tracking enables companies to quantify and market the "green premium" of lower-emission transportation options. For example, "*The portal has been continuously developed, introducing new features such as the ability to see, based on historical data, the emission reduction if, for example, 30% bio-blend were used in transportation"* (BulkerCo). This capability supports tiered pricing models based on emissions intensity, and outcome-based pricing tied to emissions reduction targets of the customer. However, inconsistent

definitions of "green logistics" by companies belonging to the same logistics chain, make it more difficult to provide end-to-end green transport to the end customer.

5. Balancing green costs: A share of the costs for providing greener transport services can be allocated to customers ordering non-green services, thus balancing the burden of and supporting the demand for green services. However, subsidizing green transport costs could mean losing customers, particularly in price-competitive segments.

Our results highlight the following options for **value creation** of transport chain companies:

6. Value-Sharing Partnerships: The virtual arrival service fosters shared benefits and risks. As described by BulkerCo: "*We've added clauses in contracts to share 50/50 the bunker savings from virtual arrival practices, which incentivizes clients to adopt greener practices.*" However, this approach also requires collaboration with port: *"We had to push for port authorities to recognize virtual arrival to ensure compliance with the 'first-come, first-serve' principle while still optimizing emissions."*

7. Risk-sharing partnerships: Long-term sustainability investments require risk-sharing mechanisms, but aligning the interests of various stakeholders remains a challenge. Transport providers, cargo owners, financiers, public actors and regulatory bodies need to establish clear agreements to ensure fair risk and reward distribution.

5 Discussion

Leading firms – such as our case transport chain – view compliance as an opportunity to differentiate through higher standards and sustainability certifications (Bendig et al., 2023; Dechezleprêtre et al., 2022). While past research (Noussan & Tagliapietra, 2020) emphasizes regulatory transparency, our study shows it can serve as a value-added service and deepen customer relationships. Digital solutions (Cheng et al., 2024) play an increasing role in value proposition and value creation, e.g. by making emission reduction more visible. However, their effective use depends on a firm's digital capabilities - those with higher digital maturity are better positioned to develop AI and data-driven business models, while less mature firms may struggle

to align digital tools with strategic transformation (Eriksson & Heikkilä, 2023; Sjödin et al., 2021). Collaboration is essential in the green transition. Our findings highlight the need for long-term contracts and shared sustainability targets to mitigate investment risks. Unlike studies that frame sustainability as a cost challenge (Ellram et al., 2022) we find that co-investments and risk-sharing accelerate green transport adoption. Market demand is crucial. Our results demonstrate that leading companies proactively shape the demand by educating customers and sharing value from technological and operational solutions (Blome & Paulraj, 2013; Bell et al., 2017). The potential for green premium pricing aligns with prior research on customers' limited willingness to pay for sustainability (Bertelè et al., 2024). However, we find that emissions tracking enables tiered or outcome-based pricing. A key challenge is the inconsistent definition of "green logistics" across logistics chains, which hinders fully transparent, end-to-end solutions. Several of the presented business models focus on increasing commitment: bundling digital and physical offerings enhances customer lock-in (Teece, 2010), while risk-sharing partnerships enable investments (Bocken et al., 2014). Cost-balancing distributes sustainability costs between eco-conscious and mainstream customers (Turoń, 2022). Solutions like virtual arrival demonstrate how operational adjustments can generate both economic and environmental value.

The current study has certain limitations, as the case study presented covered one transport chain involving several companies, most of which are forerunners regarding their approach to emission reduction. However, not all of them showed proactiveness or leadership in all respects, which allowed to recognize also differences within the case, such as in the utilization of digital solutions. Expanding the analysis to other cases (Hartley, 2004; Yin, 2018), covering e.g. companies with less ambitious emission reduction targets or transport chains reaching outside Europe, where regulation for emission reduction is less consistent and stringent, would allow cross-case comparisons, and thus, could be a fruitful direction for the future study. Furthermore, the recent simplifications of the EU sustainability rules (the sustainability omnibus) together with the US government decisions have increased uncertainty among businesses, which is likely to hamper the development of green logistics (Jazairy et al, 2021). Our data indicate that especially follower companies might hesitate in their investments decisions and adopting a sustainability focused strategy. Further research is needed to understand the effects these changes will have on the transport market, e.g. is there going to be a clearer division between

companies linked to 'green transport market' and the others forming 'black transport market'?

6 Conclusions

This study contributes to the understanding of how green transport affects business models within transport chains. It identifies four key themes - commitment & compliance, technology & innovation, collaboration & value co-creation, and market value & customer demand - as drivers of business model transformation. The paper presents seven alternative business models, which may help to push forward the green transport options.

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Appendix 1: Data collection

	Nov 2023	Feb 2024	Feb–Mar 2024	Sep–Oct 2024	Oct 2024	Jan 2025
	1st WORKSHOP	2nd WORKSHOP	1nd INTERVIEW STAGE	2nd INTERVIEW STAGE	3rd WORKSHOP	4th WORKSHOP
Cargo Owner **ManuCo**	4	2	2	2	4	3
Shipping Company **RoroCo**	1	1	-	1	1	1
Land transport operator **TruckCo**	1	1	-	-	1	1
Shipping Company **BulkerCo**	-	-	3	3	-	1
PARTICIPANTS TOTAL	**6**	**4**	**5**	**6**	**6**	**6**

Appendix 2: Interview framework, 1st stage

The aim of the interview is to understand the requirements and benefits of different stakeholders in green logistics. Some questions vary weather the interview is conducted with service provider or freight owner (questions 5-7, indicated after the specific question in an interview framework).

1. Could you first briefly tell about your current responsibilities in your company?
2. What are your company's goals in emission reductions? Do you think the goals are achievable in the timeframe? Why/ why not?
3. What kinds of means are used to reduce CO2 emissions?
4. How do you estimate that your company can achieve value added from emission reductions?
5. How much your customer currently wants to know about CO2 emissions of transportation (service provider)?/What solutions are you being offered by the logistics companies on transportation emission (freight owner)?
6. Do you have a systematic process how you offer emission data to your customers? What feedback have you received from them and how does it impact the emission reduction practices in your company (service provider)/What are your thoughts on the need to be verified or certified by an external party (freight owner)?

7. Does the emission data have to be certified or verified by a third party? What other ways does your company consider in providing reliable data to your customers (service provider)?/What are the key decision-making criteria in buying logistics services (freight owner)?
8. What gains is your company expecting from offering/using green transportation solution/services?
9. What bottlenecks or barriers (internal or external) do you face in offering/using green solution/services?
10. What are your thoughts on the twin transition? What type of data-driven solutions does your company provide to support green logistic solutions for your clients?
11. Anything else that you think is relevant in this theme that was not yet discussed?

Appendix 3: Interview framework, 2nd stage

In this discussion, we are particularly interested in the changes that the green transition enables or necessitates in the overall logistics chain, as well as in the business practices within your company. This discussion will support us to prepare for the upcoming workshops, where we aim to build an understanding of what changes the adoption of green transition will bring in logistic chain processes and business models.

Theme: Recent changes in green transition

Our GreenConnect project started last year in August (2023). What have been the main changes since then in terms of green transition?

Please provide a brief overview of your company's interests/situations in relation to the green transition.

- What do you see as the main opportunities and challenges currently?
- Why do these opportunities and challenges arise and what is needed to solve them?

Theme: Business models and practices – company perspective

How do changes in the transport sector towards more environmentally friendly directions shape your company's business?

- Can you provide some concrete examples of how these changes will affect business models and practices in the future?
- What impact in these changes have on pricing? How does it change?

Theme: Logistic chain – network perspective

Who are the other main actors in the logistics chain that can support the green transition in the transport sector?

- What is needed from these actors to facilitate this transition?
- How do you evaluate the role of your own company in relation to these other actors in the logistics chain for enabling the green transition?

Should the upcoming workshop[2] be company-specific or involve several companies?
Online or face-to-face? Can you suggest persons from your company who would be suitable for attending the upcoming workshop?

[2] At the end of each interview, we asked questions to better prepare for planning the fourth workshop with the same stakeholders interviewed in the second stage.

Appendix 4: Goals of the workshops

	Nov 2023	Feb 2024	Oct 2024	Jan 2025
	1st WORKSHOP	**2nd WORKSHOP**	**3rd WORKSHOP**	**4th WORKSHOP**
Workshop goal	The aim of the workshop was to make a final decision on the transport chain, which was used as a specific case in a project and in all following workshops. During the workshop, the transport chain in its full length was established and discussed in detail, along with the modes of transport, its restrictions, and the goals.	The aim of the workshop was to continue working on the transport chain selected in a previous workshop as a real-life case. Before the workshop, a detailed description of the case was shared with participants through a digital collaborative tool. This included a comprehensive overview of the entire transport chain, with specific information on each phase – such as responsible actors, detailed descriptions of the transport phases, calculated emissions, data ownership, applicable standards, and reporting practices, as well as future needs.	The aim of the workshop was to gather comments from participating stakeholders on the calculated emissions of the selected transport chain, as well as two future emission reduction scenarios and their impact to business.	The aim of the workshop was to establish a deeper understanding on the net-zero emission target for the transport chain, along with its perspectives and visions. First part of the workshop focused on identifying the emission reduction targets and timelines of the stakeholders involved. The second part concentrated on green logistics, exploring its current and future value propositions.
Workshop format	Online	Online	Online	Face to face