alice | Alliance for Logistics Innovation through Collaboration in Europe

WHITE PAPER

Increasing the Use of Rail and Intermodal Transport in Europe: Integration of rail freight information with other supply chain solutions

Contents

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Executive Summary and Recommendations

The ambition of the European Commission and some industry leaders on modal shift, increasing rail and intermodal transport compared to road transport, collides with the reality. The blunt facts paint a completely different picture: Over the last two decades the so-called modals shift hasn´t gained any ground. As we speak rail market share has even started declining.

While most endeavours by Europe´s Rail Joint Undertaking (ERJU) and other EU driven programs show a strong focus on rather "technical aspects", the workgroup in ALICE focused on the **market acceptance of rail and intermodal solutions by the very customers of the system, the industry**.

In Q4 2022, ALICE ran a survey and a Workshop[1] in which shippers were asked how they rate the competitiveness of rail and intermodal freight compared to road transport. While rail sector recognised road and rail to be equally competitive, shippers identified major shortcomings on rail and intermodal transport (Figure 1)[2]

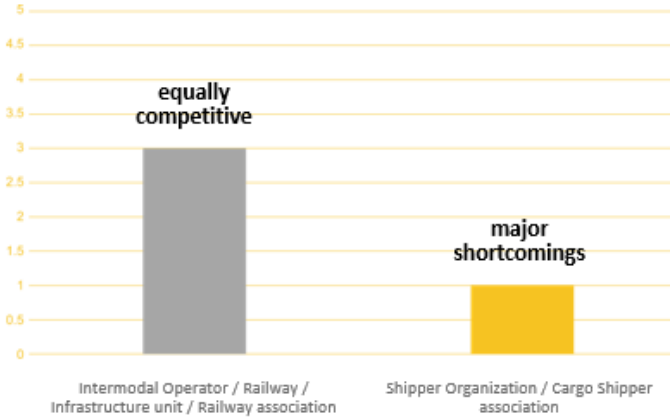

Figure 1. Competitiveness of Rail & Intermodal versus road views of shippers and rail sector

As a next step, we investigated in which areas the perception of rail performance between the customers (shippers as cargo-owners) and the rail-system deviates most. In essence the biggest gap was found in "**the lack of integration in other supply chain solutions".**

"The competitiveness criterium with the biggest difference in perception is integration with other supply chain solutions."

Based on the findings we conducted a workshop to understand how shippers would aim to describe the "***desired outcome and value proposal"*** for such an integration and learn how the rail sector would react to these goals.

In essence shippers demand full transparency and visibility as key elements to take the right decisions during planning and execution tracking. Most importantly shippers need to access this information

[1] https://www.etp-logistics.eu/workshop-railfreight/

[2] Main findings from the ALICE survey, 2022. The overall competitiveness is displayed as median (geometric average) to limit the impact of outliers.

within their ERP (enterprise resource planning) or TMS (transport management system) and not as stand-alone solution which are not ready for plug & play integration, but accessible to the rail system actors (worst case) or the LSPs (logistics service providers) only.

In reaction to this shipper-driven workshop, we´ve asked the rail stakeholders to elaborate a joint answer. It became evident that despite two workshops and the option to organise more if needed, obtaining a unified response from rail providers to shippers proved to be challenging. The rail stakeholders referred to a set of island solutions which already exist, but partially accessible for the rail actors (railway undertakings and infrastructure managers), intermodal operators or intermodal forwarders and not integrated with shipper IT tools. As a Director in DG Move stated in a recent call, *"finally intermodal transport is managed in islands"*.

Looking forward, the rail sector and its supporters missed out the opportunity to make the very customers (shippers) the core of their efforts. Continuous improvements of the technical, organisational and legal framework will not suffice to let rail and intermodal transport take the role it should play.

All in all, the conclusion of the white paper can be encapsulated into what we call the "island problem":

ALL future market related projects should firmly ensure plug & play accessibility of the solutions to all stakeholders involved in the end-to-end supply chain.

Data exchange will be an important topic to address following principles of open standards and common data language as well as universal interfaces across applications and systems.

For a general outlook we can simply quote our fellow, professor Alan McKinnon, since the statement he provided in 2018 is still perfectly true and revealing:

"In summary, there are many legitimate reasons for companies continuing to rely heavily on trucking and resisting governmental efforts to get them to transfer more of their freight to lower-carbon modes. Achieving the ambitious targets that have been set for modal shift will require more radical initiatives…."[3][4]

[3] Alan McKinnon, in "Decarbonizing Logistics" (2018), chapter "*Sifting Freight to Lower-Carbon Transport Modes",* p. 120

[4] It shall be noted that there are a couple of projects and initiatives , such as Trans4m-r project and FA1 project, which try to sort the issues from an end-to-end supply chain point-of-view. However, apart from the results being expected in a few years, the problem with data sharing will still persist

1 Background

On European rail and intermodal freight, the hopes, goals and expectation of the Commission do sharply contrast with the market reality[5].

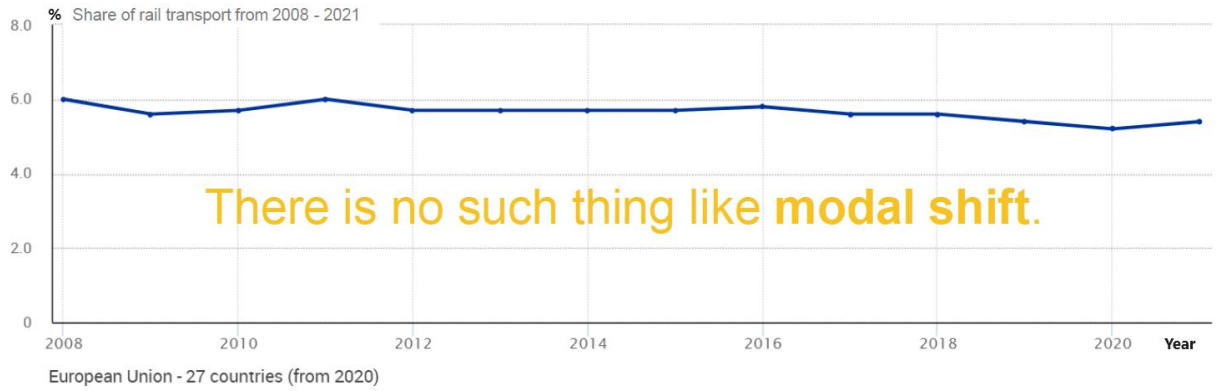

Figure 2. Market share of rail freight 2008 – 2021 (% of all modes incl. maritime, inland waterways, road transport, air freight) – source Eurostat

The European Commission adopted the Sustainable and Smart Mobility Strategy[6] driven towards increasing the use of less CO2 intensive transport modes setting the objective: *rail freight traffic will increase by 50% by 2030 and double by 2050*. While rail and intermodal transport have been largely funded and prioritised transport mode for more than two decades, rail freight still saw its transported volumes decrease over the same period while intermodal managed to keep its market share. Most recently, combined transport even lost ground due to sharp increase of energy cost and other reasons falling outside the scope of this whitepaper.

Bluntly spoken there is no modal shift. The joint market share is even declining [7].

On the other hand, intermodal and rail transport are suggested to play a major role in the decarbonization of the European industry. Programs such as Horizon Europe or the Fit-for-55 did incorporate the target to double volumes from rail freight over the next 25 years. The Greening Freight Package issued by DG Move (Directorate for Mobility and Transport) is supposed to bring with further facilitations for the intermodal operators.

Modal shift is also one the main measures to decarbonize its operations according to shipper interviews. A survey from 2022[8], conducted among Transporeon´s shippers, revealed the intention to

[5] EUROSTAT. https://ec.europa.eu/eurostat/web/transport/data/database. More information here: Eurostat Freight transport statistics - modal split, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Freight_transport_statistics_-_modal_split

[6] Sustainable and Smart Mobility Strategy (2021). https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12438-Sustainable-and-Smart-Mobility-Strategy_en

[7] Among others: UIRR Newsletter Q2.2023, http://uirr.com/en/media-centre/newsletters/2023/mediacentre/2623-uirr-newsletter-q22023-weak-performance-continues.html

[8] Transporeon, unnamed internal survey among 70 shippers, February 2022

shift 15% of all land transports from road to intermodal, which is double of today´s intermodal market share only. Single corporations claim they moved up to 40% of their products that way.

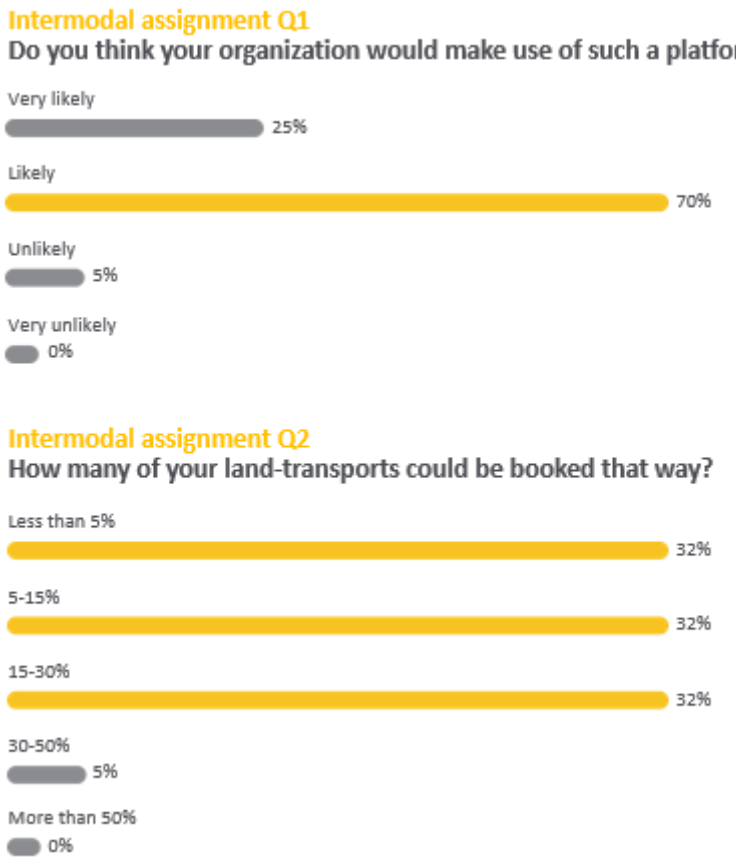

Figure 3 Results from a shipper survey by Transporeon, 2022.

Since over the years there seems to be a focus on the more technical side, ALICE´s thematic group 4 – Global Supply Network Coordination and Collaboration – was eager to figure what insights a focus on the market could bring to the table.

In an initial survey a total of four stakeholder groups have been asked about their perception of rail competitiveness compared to road transport in separation:

- shippers (in their authority as actual customers of the rail system, cargo owners and initial planners of transport modes),
- the rail sector incl. railway undertakings, intermodal operators, infrastructure managers,
- intermediates, namely forwarders and logistics service providers, as well as
- other stakeholders and experts

whereas the focus lied on comparing the shipper view with the railway perception. However, it was also very interesting to see how the intermediates answered on some questions.
A total of 108 respondents, from the ALICE network and beyond, answered the survey. The event was conducted in Nov. 2022.

2 Survey findings

The leading question on the overall competitiveness revealed the huge discrepancy between foreign and self-perception:

The industry sees major shortcomings in intermodal and rail freight whereas the railway sector felt it was equally competitive.

If we look at the intermediates, we notice that the average judgement was rather in line with the rail sector´s perception, driven by about 1/3 agreeing with the shippers and another 1/3 which judged intermodal and rail freight to be even more competitive. Going into more details it is to understand that this polarization it appears that some intermediates did put a higher value on the environmental footprint.

Apart from the overall competitiveness we were looking into 12 pre-defined criteria to understand where the perceptions from the industry and the rail sector differ most, still keeping one eye onto the answers from the intermediates:

The interpretation on the **"integration of information into other supply chain solutions"** was the criteria with the highest perception gap it was followed another three criteria with almost exactly the same gap:

- transit-time
- on-time-performance
- lack of appropriate connections / services matching my flows

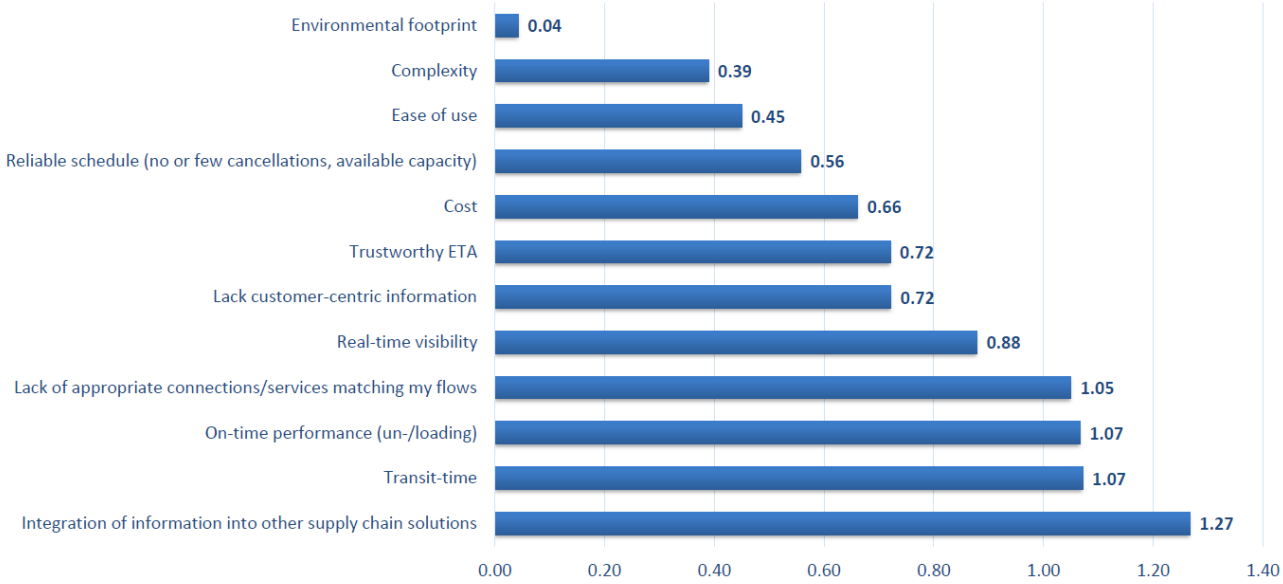

Figure 4. ALICE survey 2022. Perception gap on all 12 detailed performance criteria. Shipper perception versus rail sector.

The only criteria where shippers and the rail sector had an equal impression was the environmental footprint. On all other criteria shippers perceived the rail and intermodal performance inferior.

Very interesting also to see how the intermediates' view related to the other stakeholders on the criteria. Intermediates agreed with the shippers only on (long) transit-time and cost level (being mostly competitive to road transport). As regards cost, we´ve got to consider that the intermediate will include the cost of the first and last mile into their judgement, while the rail sector is usually neglecting those. The intermediates' perception on (the lack of) real-time visibility was similar to the shippers.

More surprisingly the intermediates expressed a significantly better opinion on several criteria, compared to the shippers:

- on-time-performance
- integration into other supply chain solutions
- customer centric information
- trustworthy ETA
- ease of use
- complexity

An attempt to explain this phenomenon:

- the supply chain solution of an intermediate is a different one, LSPs claim they´ve got to interact with > 50 platforms and solutions in order to execute their business, so they don´t complain same as a shippers who are used to work with a very small number of solutions only; recently few LSP operation systems even offer limited direct integrations to some providers.
- in this picture the intermediate is the customer and not the shipper.
- the ETA the intermediate looks at is the one of the train at the train terminal destination whereas shippers in the essence only watch the arrival at the final unloading point; so either the train´s on-time-performance is much better compared to the truck which does the last mile, or – alternatively – the shipper never learns about the ETA since the information isn´t passed on if the ETA deviates from the original delivery date, in all fairness we need to stress that a train´s delay of only one hour at a terminal may cause a delay of a full day at the destination[9]

Last point of attention is that the intermediates' perception on the environmental footprint is the worst of all interest groups. This may again be explained because the intermediates' judgement includes first and last mile operations as part of the picture to a larger extent than the shippers' view.

[9] it isn´t operationally feasible to track an intermodal trailer from a terminal at any time to any destination and return the same day with a backload; to miss the backload however would increase the last mile trip cost by 100%

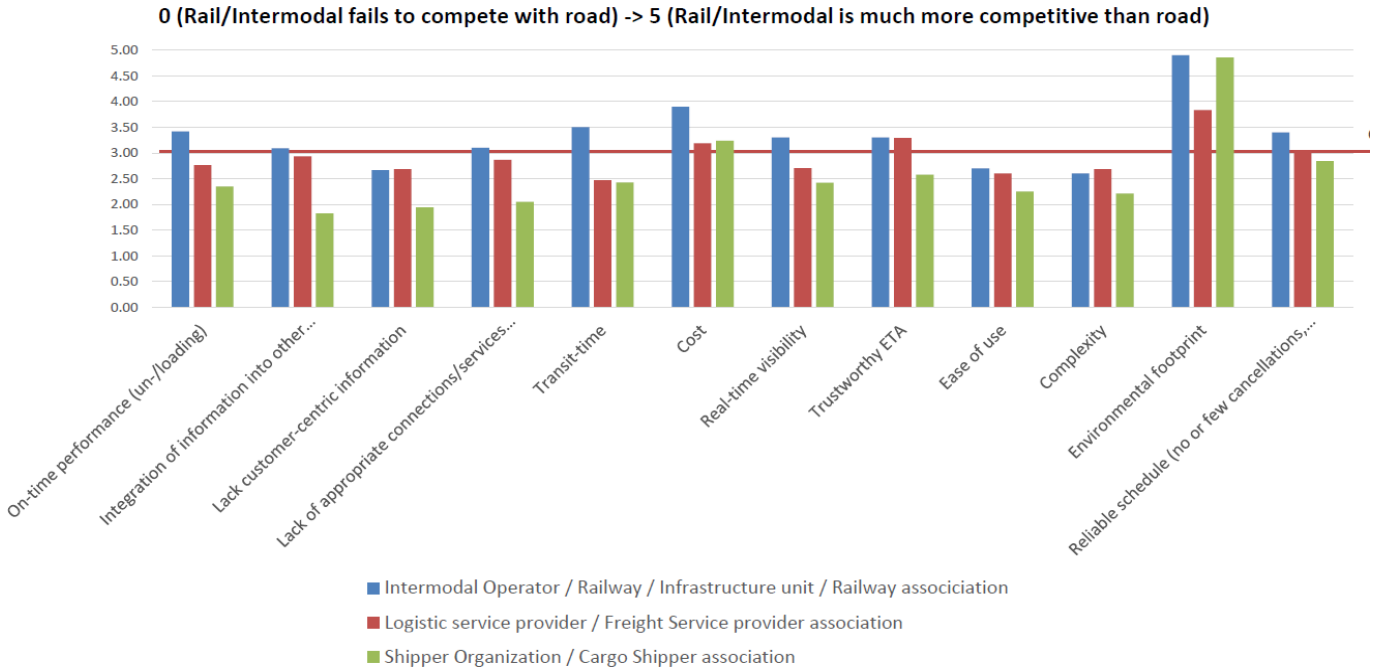

Figure 5. ALICE survey 2022. Details on groups perceptions by each criteria.

3 Workshop findings

The survey was followed by a workshop to which participants from both focus groups – shippers on one and the rail sector on the other hand – have been invited to. Subject of this workshop was the criteria with the highest degree of deviating perception, the lack of Survey participants have been expressively invited to, those who had declared interest in a follow up.

Looking back the workshop was two-folded and included three appointments:

In a first attempt the industry was asked to define the desired outcome, as if it was the year 2030 and their information requirements would have come true.

In a second step the rail system representatives (having listened to the first attempt) should describe what had to happen (within their own scope and also outside) to make this outcome come true.

The first step went very well. In the essence shippers desire rail related visibility within their ERP (enterprise resource planning) and / or TMS (transport management system) which isn´t given as of today:

- a kind of **map** on possible connections incl. train schedules, transit-time, reliability and loading unit information to map their own lanes with rail corridors; for short-term planning dwell times, actual transit-time and best days for departure and arrival add value; this map must not (only) appear as a visualisation.

- for execution the most important element is a **reliable ETA warning** in case the planned ETA at the destination (not only at the arrival terminal) cannot be met; real-time visibility (GPS based) is needed beyond status-messages based track-and-trace; a part of the industry would require sensors which and extended set of data (temperature, humidity, …)

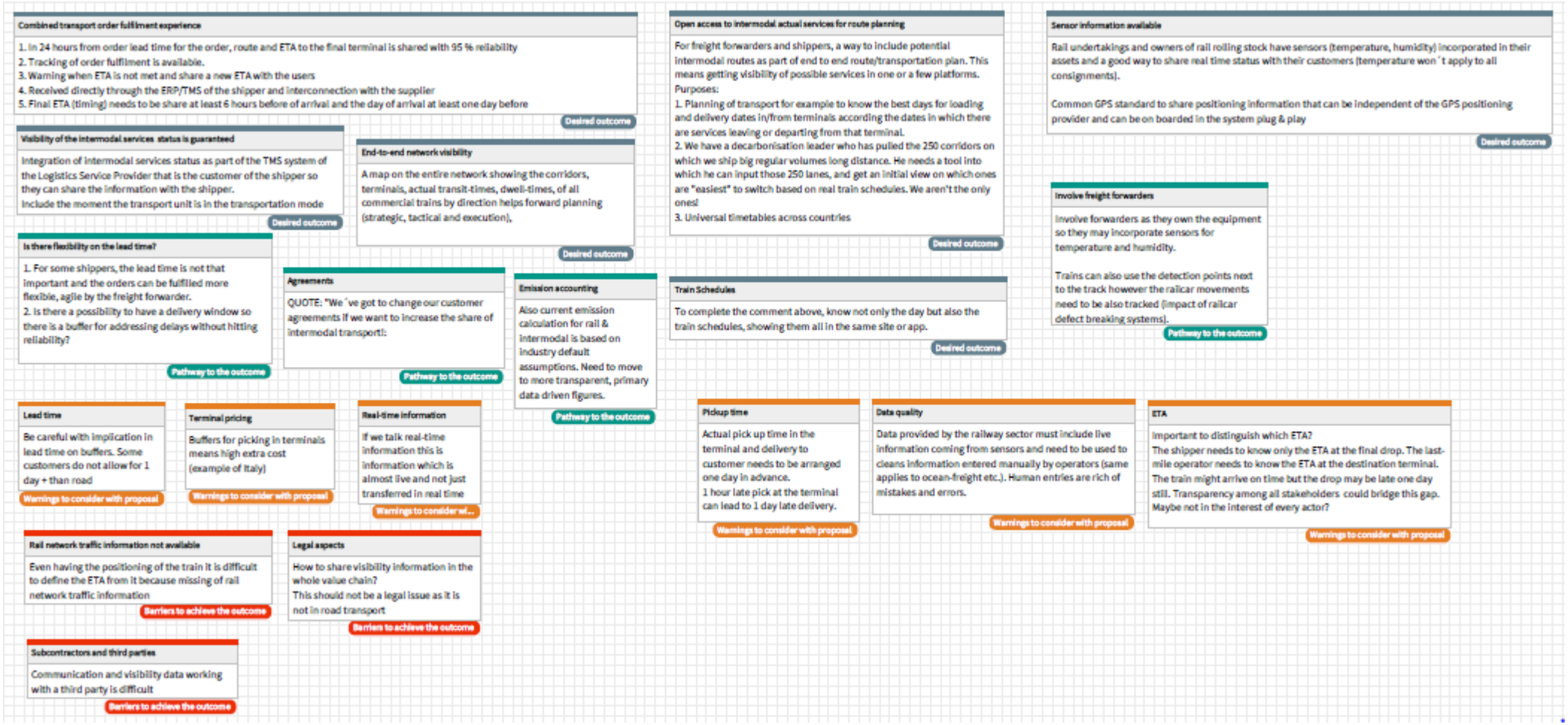

Figure 6. ALICE workshop drawing board shippers workshop, 2023. Shippers defined the desired outcome (grey) to integrate information on rail and intermodal transports into their supply chain solutions. Also thoughts on the pathway (green), warnings (orange) and barriers (red) have been noted.

It shall be noted that shippers cannot obtain the above information today, neither within their ERP / TMS nor via other sources easy to access (plug & play).

In the specific environment of rail and intermodal transport it appears that the consolidation function provided by the LSPs (logistics service providers) is rather seen as a showstopper which is hindering the transparency than an accelerator which facilitates the use of rail freight.

In the second step the rail sector representatives have met to reply to the shipper´s demand and explain how they managed to provide the shippers with the desired outcome. They were invited to also declare what political, legal, technical or other milestones where needed to achieve this result:

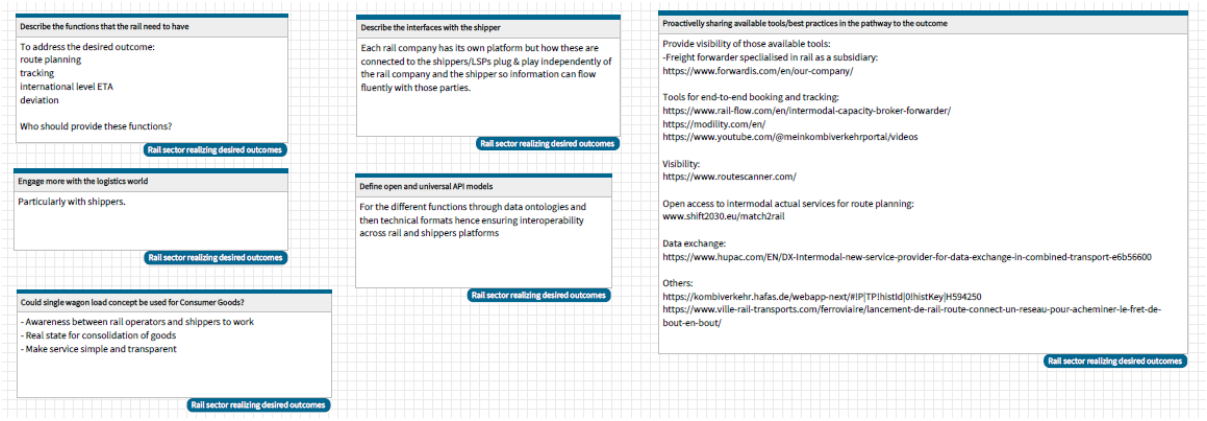

Figure 7. ALICE workshop drawing board rail sector, 2023: Rail sector representatives answered to the desired outcome (grey) suggested by shippers.

Two workshops have been held and delivered interesting discussions among the participants that included 12 representatives of rail undertakings and intermodal operators.

During the discussion the rail sector representatives still shared one common reaction: *"What is your problem, the solutions are already there?*!" Without going into details, the exemplary tools, they listed[10] face several shortcomings compared to the desired outcome as specified. All or most of them are:

- island solutions, without integration into any ERP or TMS
- not accessible to shippers in particular (designed to share information within the rail-sector or – in best case – with a LSP logistics service provider)
- not providing any real-time and / or sensor-based information
- not providing the desired coverage (containers only, some flows only, …)

From a shipper point of view the current tool landscape may be a seen as starting point only. However, they are insufficient as of today and need to be developed further, in the interest of rail. The rail sector isn´t fully aware of the industry being the very customer of their system and the need of direct data to obtain what is called "customer experience" today.

The tools which are available need to become ready for plug & play integration into ERP and TMS landscapes and data must be ready to be shared with the industry. A discussion on data sharing

[10] See Annex

including a universal open model and framework to create common data language and execute data sharing between all actors in the end-to-end supply-chain will be required to achieve this.

On functional level solutions need to be enhanced and their coverage got to be extended. The availability of real-time data generally isn´t given today (manual status information only) and must be taken up.

Unfortunately, the two rail specific workshops failed to deliver a joint reply to the needs of the industry or the definition of mile-stones. Several efforts to come to a third meeting remained unsuccessful. Hence ALICE TG4 decided to create this whitepaper as kind of interim report and continue to tackle the other topics addressed in the survey:

- transit-time
- on-time-performance
- lack of appropriate connections / services matching my flows

Annex: ALICE workshop drawing board rail sector, 2023.