



UIC FREIGHT DEPARTMENT  
**Eurasian Corridors:  
Development Potential**

February 2020



INTERNATIONAL UNION  
OF RAILWAYS

ISBN 978-2-7461-2897-2

**Warning**

No part of this publication may be copied, reproduced or distributed by any means whatsoever, including electronic, except for private and individual use, without the express permission of the International Union of Railways (UIC). The same applies for translation, adaptation or transformation, arrangement or reproduction by any method or procedure whatsoever. The sole exceptions - noting the author's name and the source - are "analyses and brief quotations justified by the critical, argumentative, educational, scientific or informative nature of the publication into which they are incorporated" (Articles L 122-4 and L122-5 of the French Intellectual Property Code).

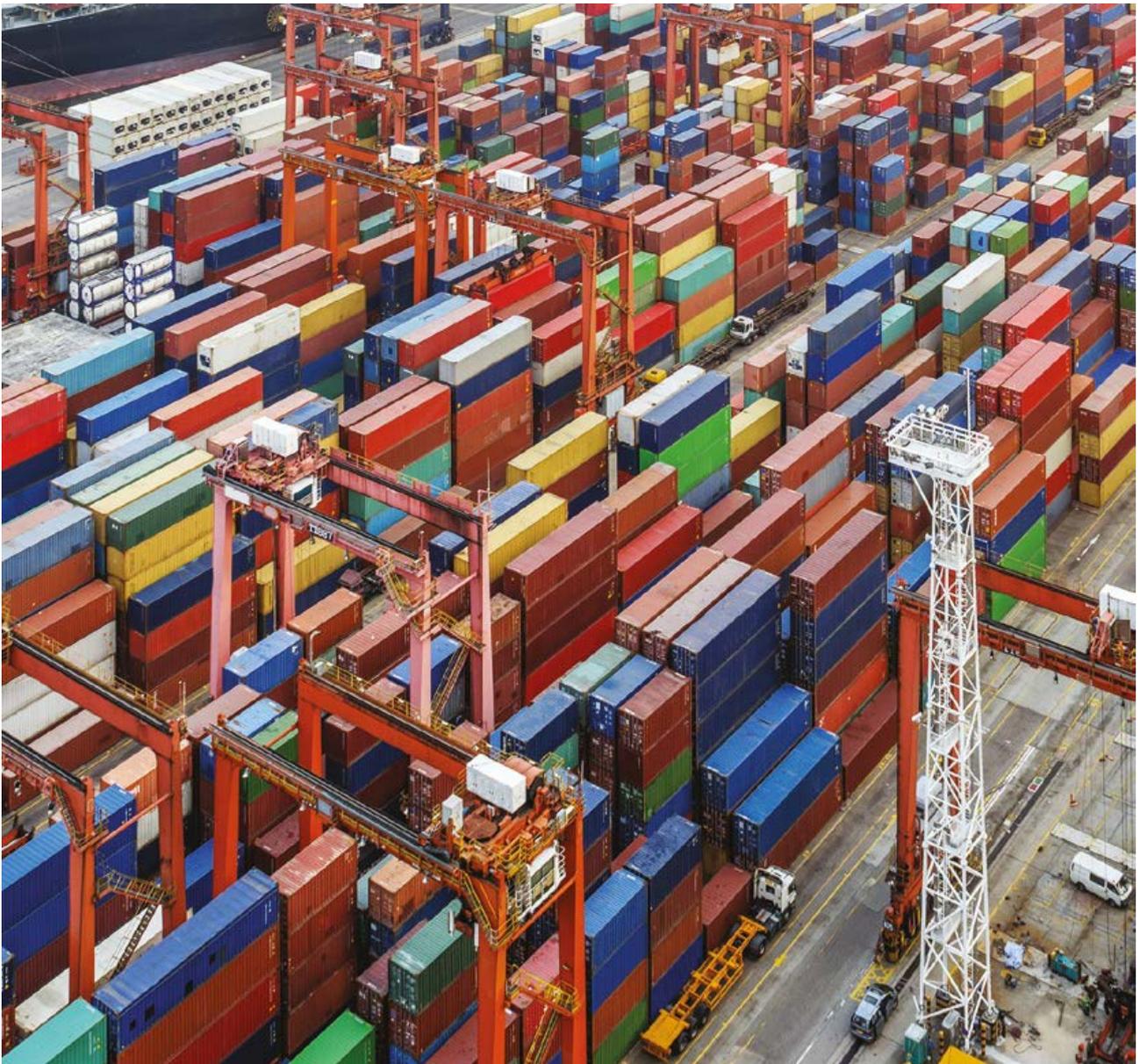
© International Union of Railways (UIC) - Paris, 2020

# Background

As the worldwide railway organisation, UIC is particularly committed to supporting the successful implementation of international rail freight services at world level. Particular attention has been paid since 2010 to rail freight corridors linking Asia, the Middle East and Europe. The latest study, carried out in 2017 in collaboration with Roland Berger Transportation Consultancy, showed that Eurasian rail cargo transport has grown significantly in recent years. The number of operated trains rocketed from ~300 in 2014 to nearly 1,800 in 2016 and again doubled the following year. Interviews with stakeholders confirmed that a number of improvements have driv-

en the volume development on Eurasian rail routes. However, there is still room for efficiency and quality gains in areas such as waiting times and processes for border crossings and customs, and in reliability and client information to increase the attractiveness of rail transport for logistics service providers. In addition, a series of developments will affect the way existing corridors were initially envisaged to develop. These range from infrastructure projects to pricing policies.

It is in this context that UIC commissioned a study from the Infrastructure Economic Centre.



# Study objectives

This study proposes an analysis:

-  of major changes undergone over the past couple of years on the Northern routes
-  a volume forecast for the period to 2030 based on existing macroeconomic background
-  an analysis of the elasticity of the demand for rail freight transport in relation to the level of Chinese subsidies, the digitalization of processes, border crossing improvements and speed of transit.

About 95% of Euro-Asian transit in both directions (and including Asia – Central Asia traffic) goes via Russia, while other 5% refers to Middle corridor and other routes.

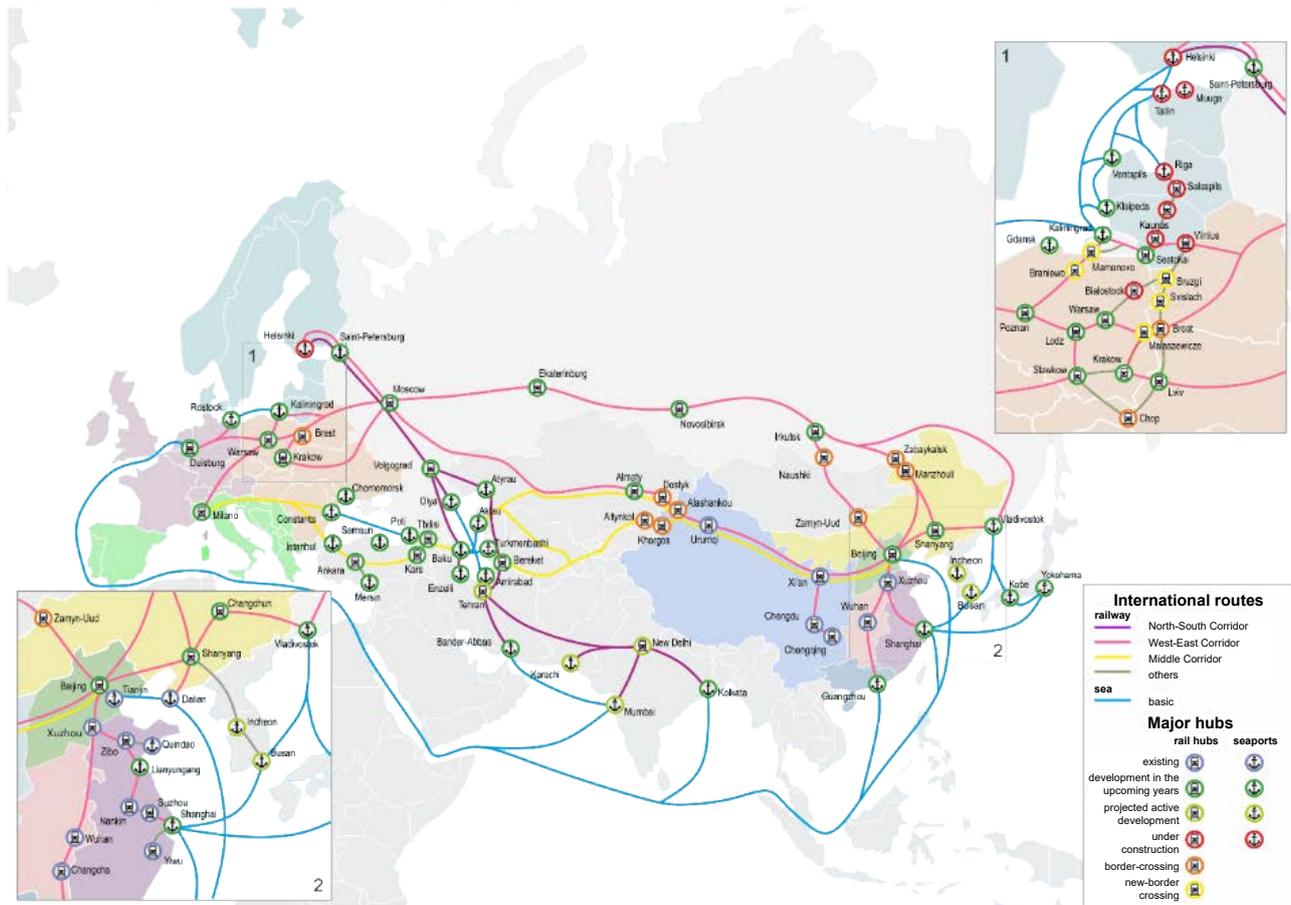
In 2018 75% of traffic passed by Dostyk – Brest segment, about 15% via Zabaikalsk / Manzhouli, and about 10% via Mongolia.

New border-crossing terminals are being developed at the border of the EU in order to address the possible bottleneck issue in Poland, Belarus and Russia by 2030, which will be caused by the estimated growth of traffic.

In addition, hub developments are planned by 2024 along the Middle corridor (especially in Turkey), in the Baltic countries and along North – South corridor as illustrated under figure 1..

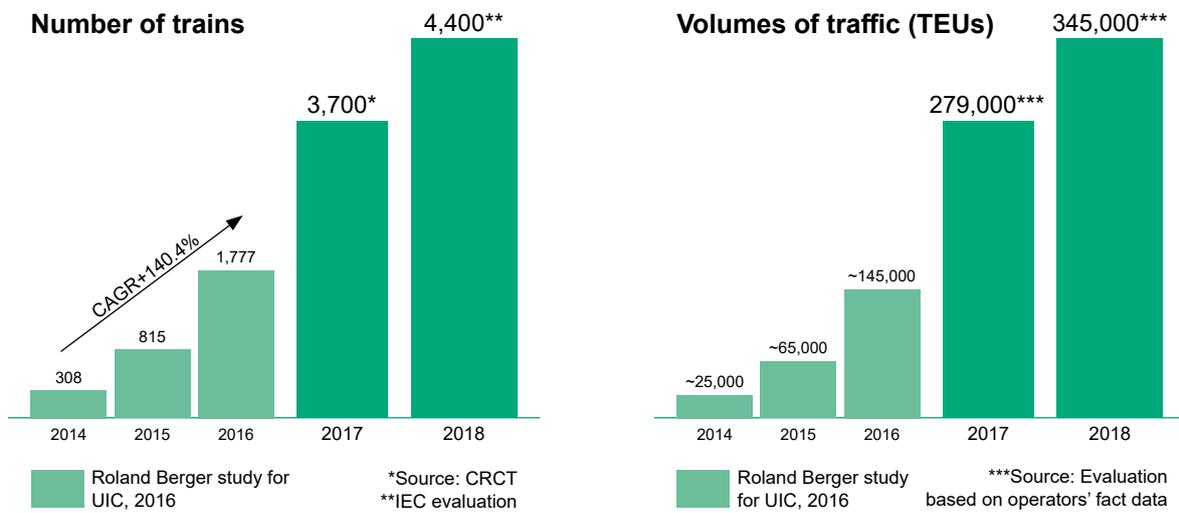
In 2018 the ratio of westbound to eastbound transit traffic (transit only) was about 56,6% to 44,4% for all traffic and 67,6% to 32,4% for loaded containers.

Figure 1. Major transit routes, existing and planned hubs in 2019.



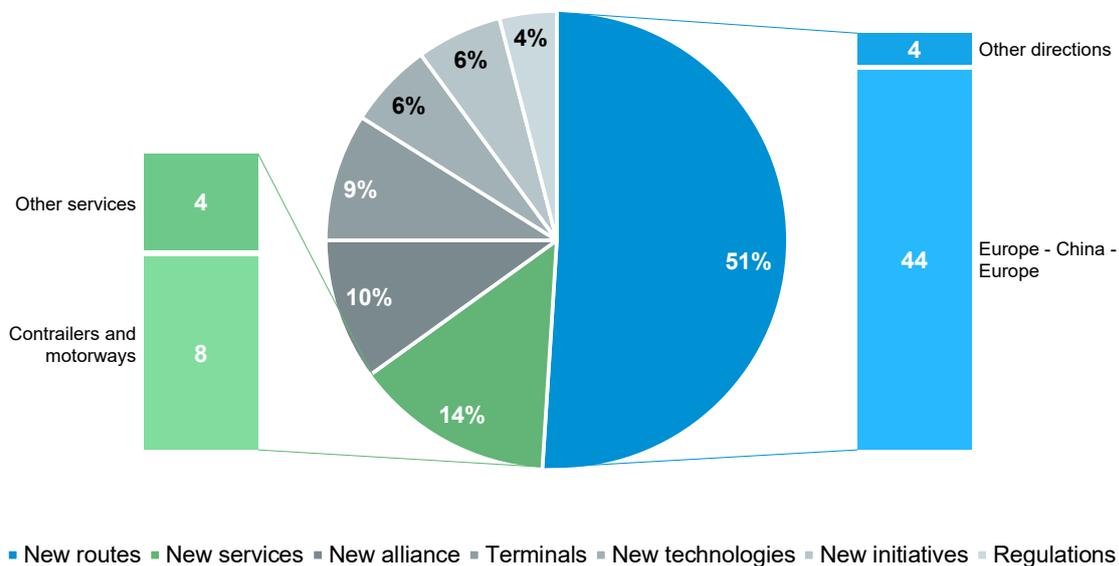
Source: IEC based on OSJD, CAREC, ECO, UIC, Middle Corridor Association information.

Figure 2. Key statistics of Eurasian rail freight transit 2014-2018.



This resulted in operators actively searching for niche markets (commodities requiring special conditions of transportation: foodstuffs, autos and machinery, chemicals, etc.) and innovative solutions for balancing flows. Partnerships and cooperation were key to achieving this and to raising the overall number of services and destinations.

Figure 3. Major changes in Eurasian rail freight transit since 2016.



Source: media and corporate resources 2016-2019, total number of cases considered: 101, analysis of IEC.

## Evaluation of the market potential

Three macroeconomic scenarios were considered for the study: pessimistic (supposing trade wars, geopolitical tensions and health crisis), baseline (supposing stabilization of growth) and optimistic (supposing acceleration of growth rates of largest economies and further globalization). The modelling is based on the baseline scenario.

The macroeconomic background under baseline scenario supposes favorable conditions for further growth of Eurasian traffic until 2030, but also increasing disbalance between eastbound and westbound traffic ranging between 42-43% to 58-57%.

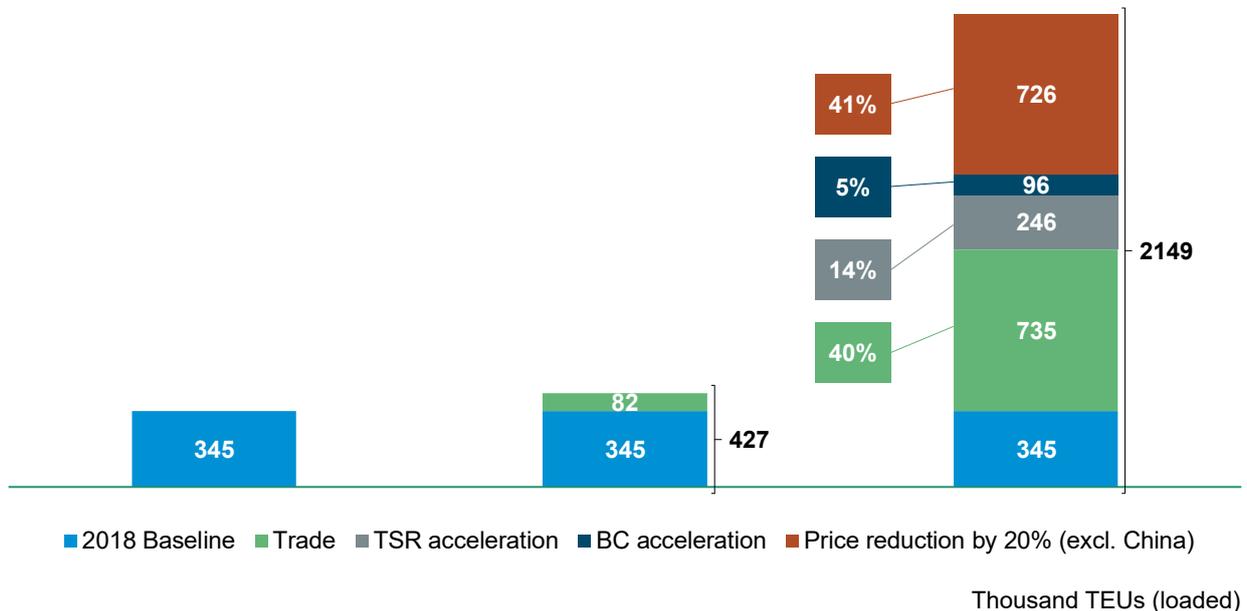
The share of rail transportation in overall volumes is not likely to change much. In 2018 it varied from

0,1% to 9,1% for different European and Chinese regions and in 2030 it may grow to 1,0% - 9,8%.

Still the bottom and top volumes of the market in 2030 can vary: from less than 450 thousand TEUs under pessimistic scenario and unfavorable factors, such as decrease of rail subsidies in China, to more than 2 m loaded TEUs in 2030 under optimistic scenario coupled with positive factors, such as digitalization, infrastructure improvements and support measure for rail transportations.

These factors, infrastructural, operational and economic, were one by one tested with a model for this study.

Figure 4. Bottom and up alternatives of Eurasian rail freight transit.



Source: IEC forecast with TMF® software.

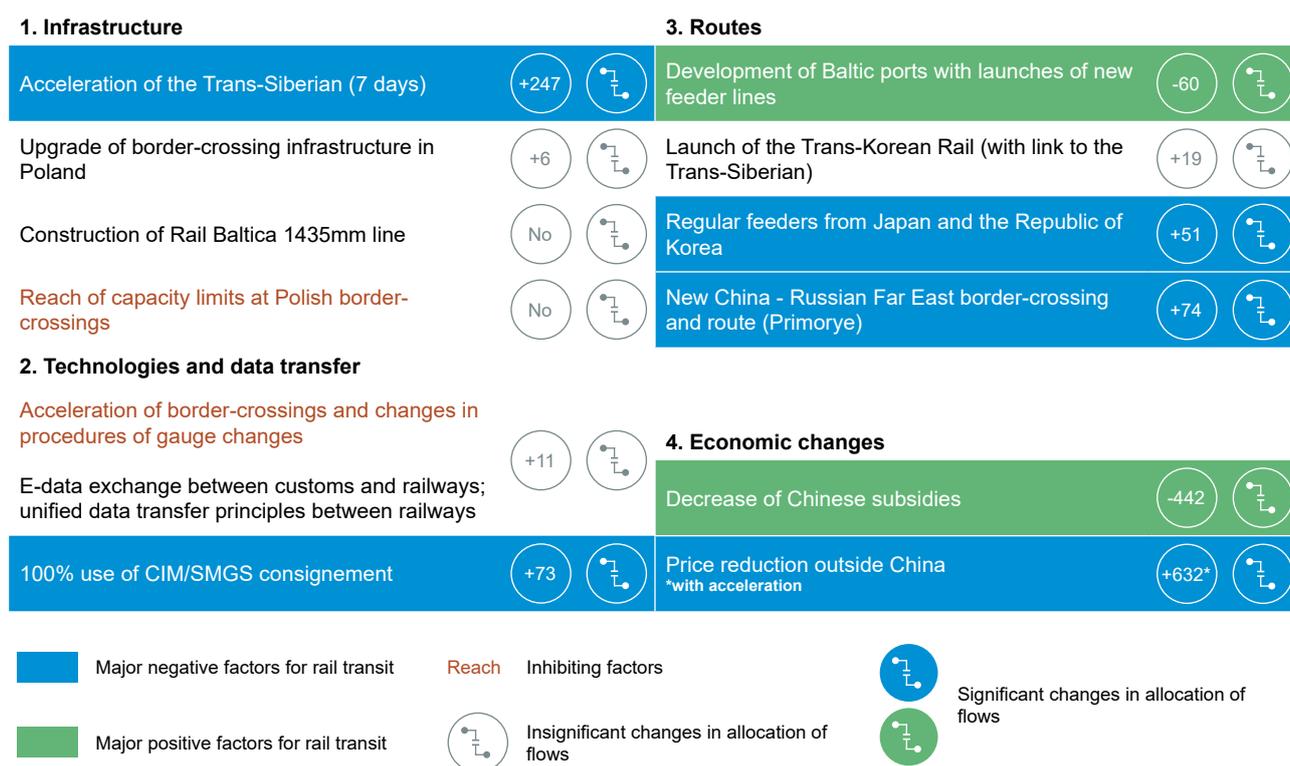
## Impact assessment of some levers

According to the modelling results, rail transit is more sensitive to price than to speed. Speed increase along the Trans-Siberian, the launch of regular feeder lines from Republic of Korea and Japan, and 100% use of CIM/SMGS consignment note are perceived to have the most positive impact on volume development.

On the other hand and not surprisingly, the decrease of rail subsidies in China and port development programmes are the factors most detrimental to volume growth.

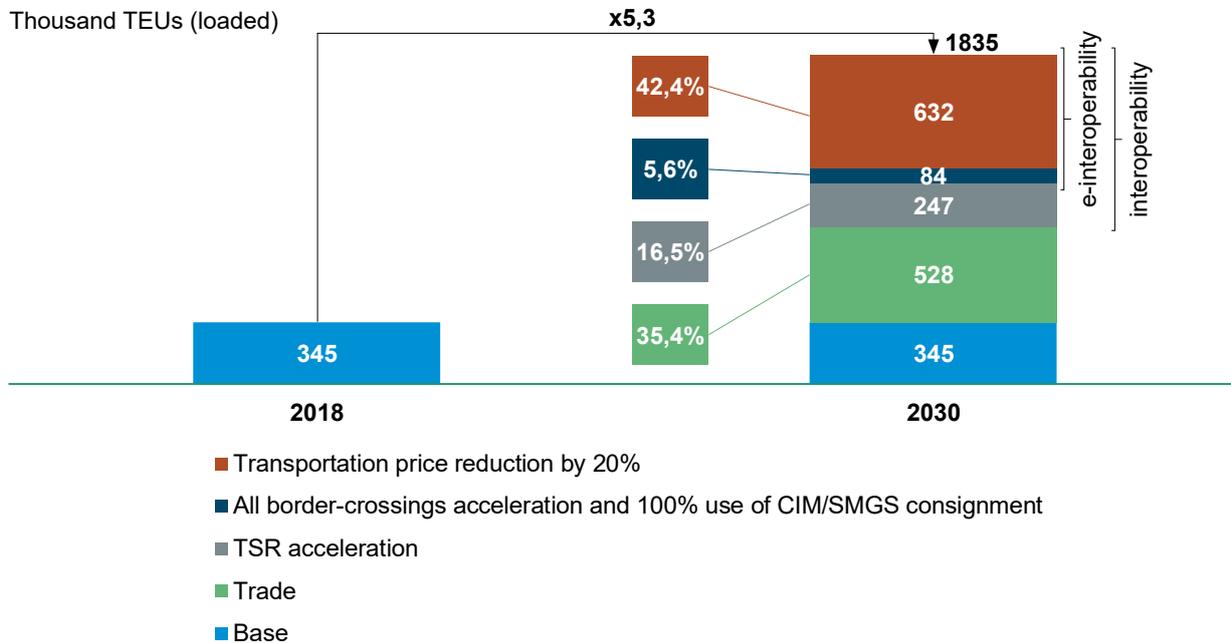
Capacity of border-crossings and speed of border operation are important but their impact on the attractiveness of rail is mitigated as illustrated by the figure below.

Figure 5. Evaluation of impact of different factors and events on the development of Eurasian rail freight transit.



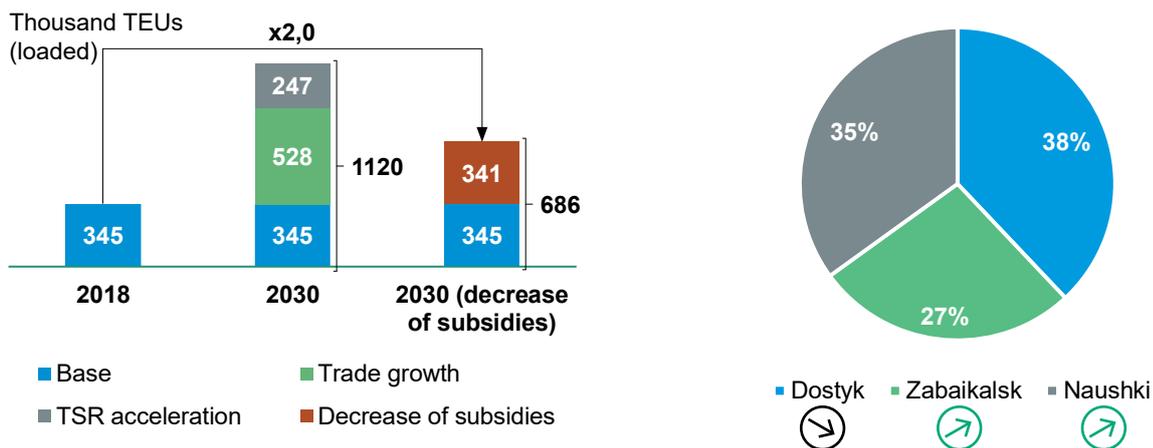
The “best rail case” option which would combine speed increase/reduction of transit time, more use of e-technologies and the reduction of overall price along the corridors brings the most benefits to the market.

Figure 6. "Best rail case option" of Eurasian rail freight transit growth.



Under more realistic scenario, decrease of Chinese rail subsidies from 50% to 20% will be a key stressing factor for the sustainability of the Eurasian rail transit system.. This should lead to a reallocation of flows, market reshape and emergence of new services.

Figure 7. Projected transit volumes under decrease of Chinese subsidies option and allocation of flows by major border-crossings.



What changes and challenges will most probably arise in case of the decrease of subsidies?

The reduction of Chinese subsidies is likely to have a drastic impact on flows and see a reallocation across the routes. Southern routes via Kazakhstan are likely to be the first impacted and see their volumes decrease. This is due to the fact that most of the cargo currently transported heavily relies on subsidies which will then shift to sea). With the exception of commodities sensitive to time or requiring specific conditions of transportation (such as food-stuffs, machinery products, chemicals, etc.)

In a second step, it is likely that we will witness a market reshape in the sense that new opportunities will arise for market players on the northern routes and less for southern routes (via Kazakhstan and the Trans-Siberian and Middle Corridor).

Third, niche and “high-tech” services, including e-services, are to develop as a market response to decreasing competitiveness with deep sea by price. The latter is also true for generally unfavorable economic conditions corresponding to pessimistic scenario.

Finally, an intensification of cooperation projects among both business and governmental stakeholders is possible, also as a response to falling competitiveness.

As the survey presented in the study shows, a corridor-based approach is in high demand. Negative changes in flows may stimulate the realization of such approach and its transfer from theoretical solutions to practical decisions and actions.



## Mitigating measures

As the modelling shows, the best solution to mitigate these difficulties is a coordinated joint work along ocean-to-ocean corridors, which can be an important part of international sustainable development policy.

The objective of the initiative is a development of rail transportation along Eurasian corridors, from ocean to ocean, thanks to further integration of segments on 15200 mm and 1435 mm area, including links to the Republic of Korea and Japan.

It can raise the overall competitiveness of rail transportation, also under unfavorable external conditions and help coping with inequality of flows in different directions thanks to creation of a balanced network of logistics hubs combining transit flows with exports and imports.

The initiative can include:

- coordinated development objectives of segments;
- coordinated infrastructure development plan (to assure debottlenecking):
  - for linear infrastructure;
    - for border infrastructure;
    - for multimodal integration.
  - coordinated operational plan:
    - digitalization and e-interoperability
    - firm schedules along the corridors;
    - tariff policy, including long-term;
    - technical interoperability;
    - renewal and upgrade of rolling stock.
  - uniform information on segments and routes, including capacities, time, pricing and perspective load;
  - uniform marketing plan;
  - international monitoring.

## Rail enhancements and international trade

Growth of Eurasian rail freight transit may contribute to sustainable economic growth by inducing additional trade growth and by decreasing the environmental impact. According to estimations, “best rail case” option may induce additional 25 m tons of exports. In fact, development of other transportation modes, of course, does also induce international trade. But rail does it in the most sustainable way.

The modelling shows that the ‘best rail case’ option supposing intensive international collaboration may induce +3% trade growth.

This means that rail improvements may back up and boost sustainable economic growth, that is also true and even more important for under pessimistic scenario of economic recession.

INTERNATIONAL UNION OF RAILWAYS  
16, rue Jean Rey - 75015 Paris - France  
Tel. +33 (0)1 44 49 20 20  
Fax +33 (0)1 44 49 20 29  
E-mail: [info@uic.org](mailto:info@uic.org)

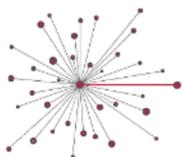
Published by: UIC - Freight Department  
Director of publication: Sandra Géhenot  
Cover and layout: Ludovic Wattignies  
Photo credit: Adobe Stock  
Printing: UIC

ISBN 978-2-7461-2897-2  
Copyright deposit: February 2020

[www.uic.org](http://www.uic.org)



#UICrail



INFRASTRUCTURE  
ECONOMICS  
CENTRE

