

Europe-Asia connectivity in the near and long term

Elena Rovenskaya
Program Director
Advanced Systems Analysis Program
International Institute for Applied Systems Analysis
Laxenburg, Austria

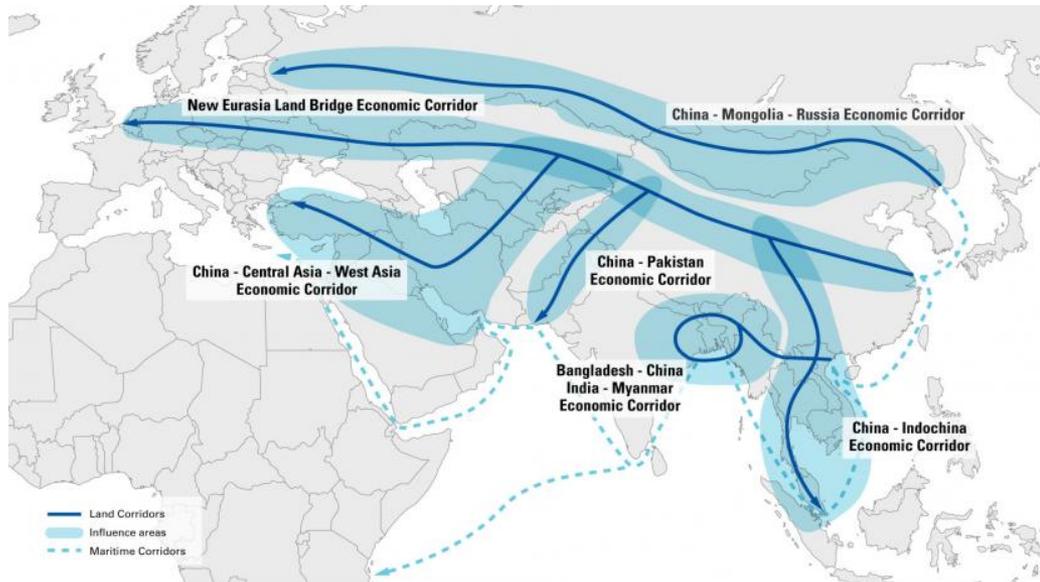
This work is a part of the Northern Dimension
Institute Think Tank Action



Co-funded by
the European Union



Eurasia is probably the most significant region right now in terms of business and politics



- Rising economic superpower China
- Rich and advanced single market of the European Union
- Resource-rich Russia stretched over a vast territory and recently emerged Eurasian Economic Union

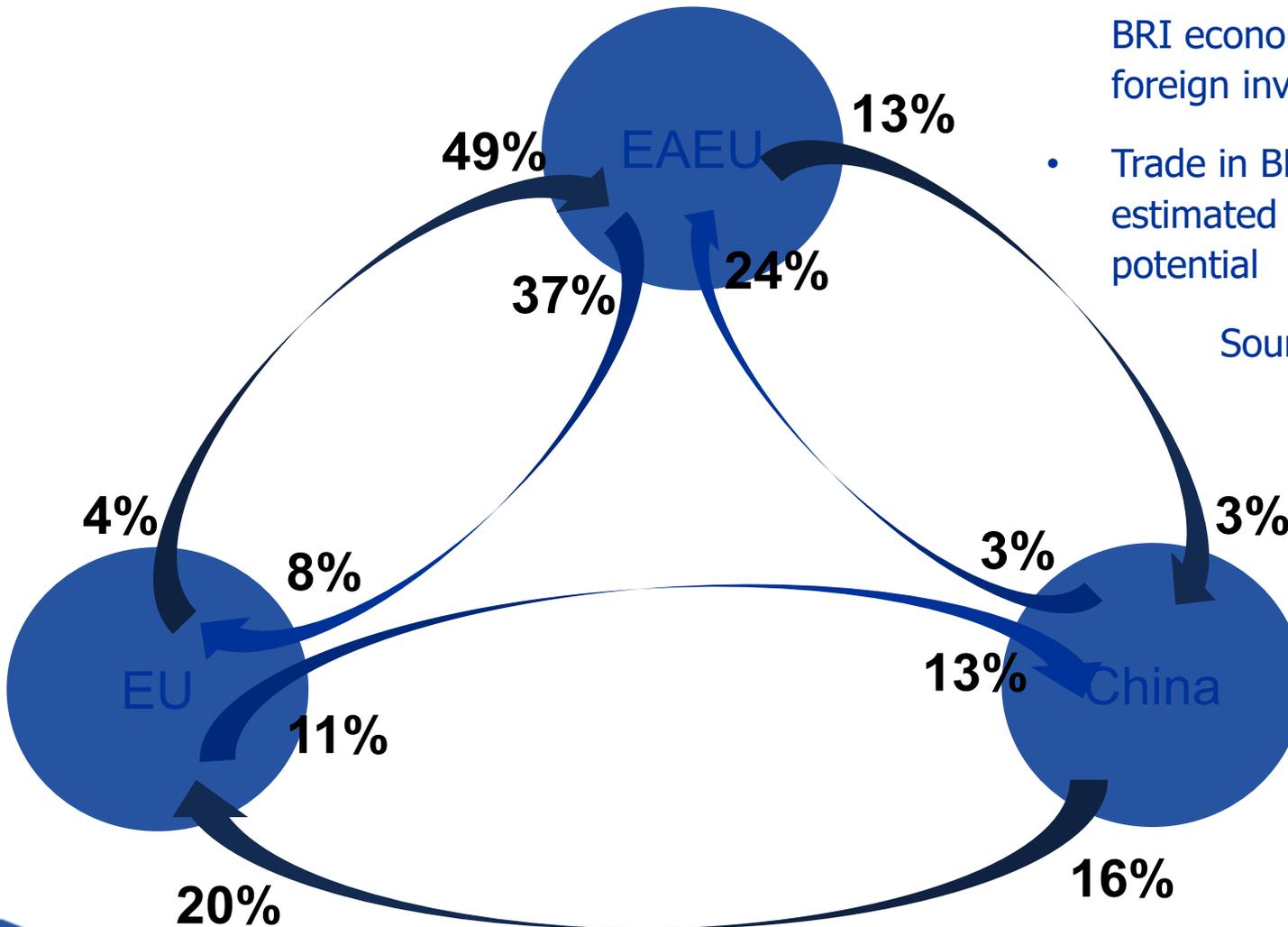
Source: iru.org

Region with numerous possibilities for cooperation and premises for competition

Major economic cooperation processes and initiatives in Eurasia

- Eurasian Economic Union: Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Russia
- Belt and Road Initiative: 197 cooperation agreements with 137 countries and 30 international organizations, of which 64 are from Eurasia
- EU's Eastern Partnership: Armenia, Azerbaijan, Belarus, Georgia, Moldova, and Ukraine
- EU-Georgia, EU-Moldova, EU-Ukraine DCFTAs
- CEPA EU-Armenia
- EU Strategy: Connecting Europe and Asia
- EU Central Asia Strategy
- EU-China Connectivity Platform
- C5+1: USA and Central Asia
- CIS Free Trade Zone
- EAEU FTA with Vietnam and Serbia
- EAEU Provisional Agreement with Iran
- EAEU Agreement on Trade and Economic Cooperation with China
- etc. etc.

Mutual trade in Eurasia: Big picture



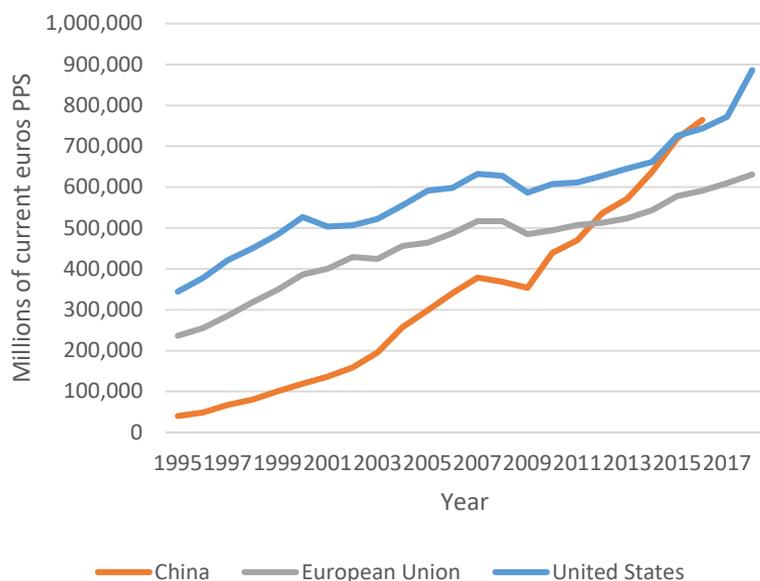
- Infrastructure and policy gaps in BRI economies hinder trade and foreign investment
- Trade in BRI corridor economies is estimated to be 30% below potential

Source: World Bank

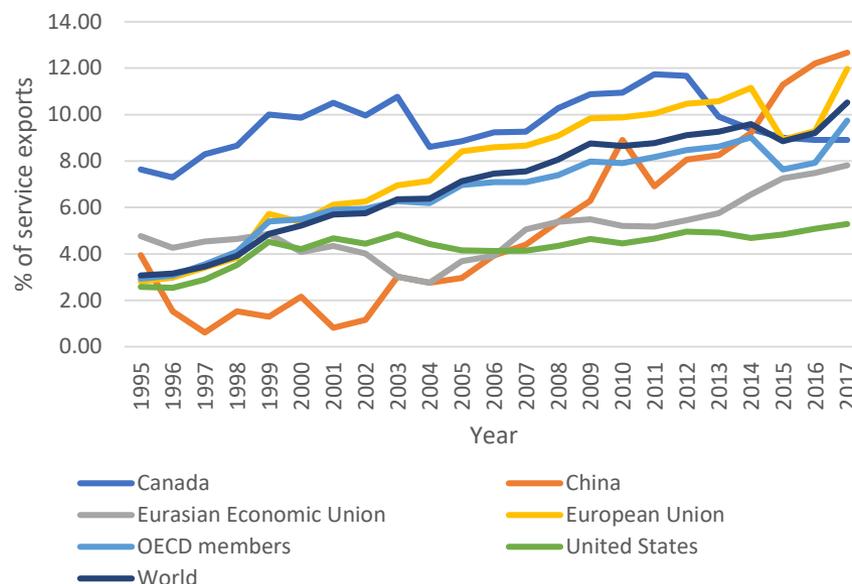
Trade and technology

- Trade has always been shaped by technology
- Current proliferation of digital technologies promises to transform the world economy and trade

ICT value added (Millions of current euros PPS), 1995-2018

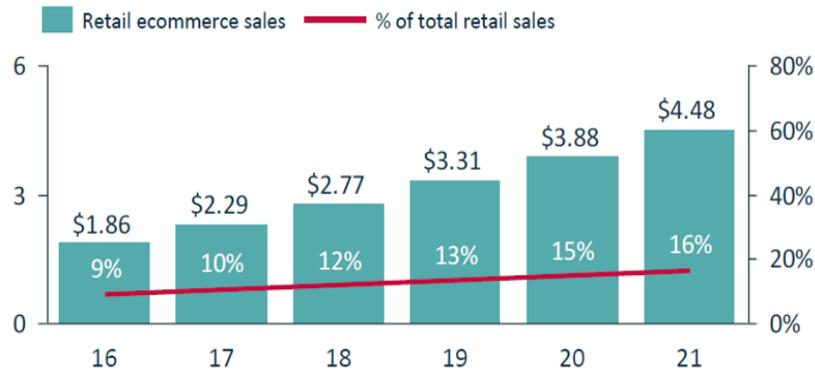


ICT service exports (% of service exports), 1995-2017

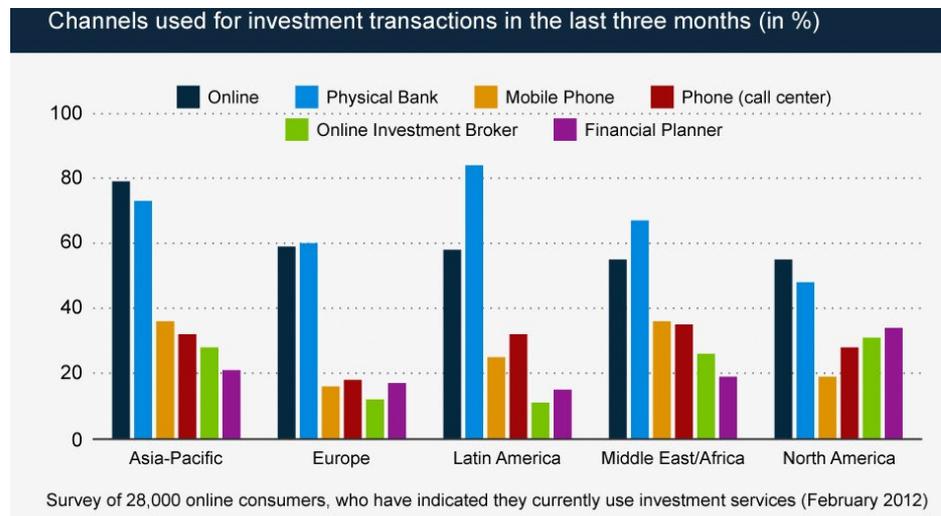


Source: European Commission

Retail e-commerce sales are growing worldwide



Online banking rivals physical branch banking

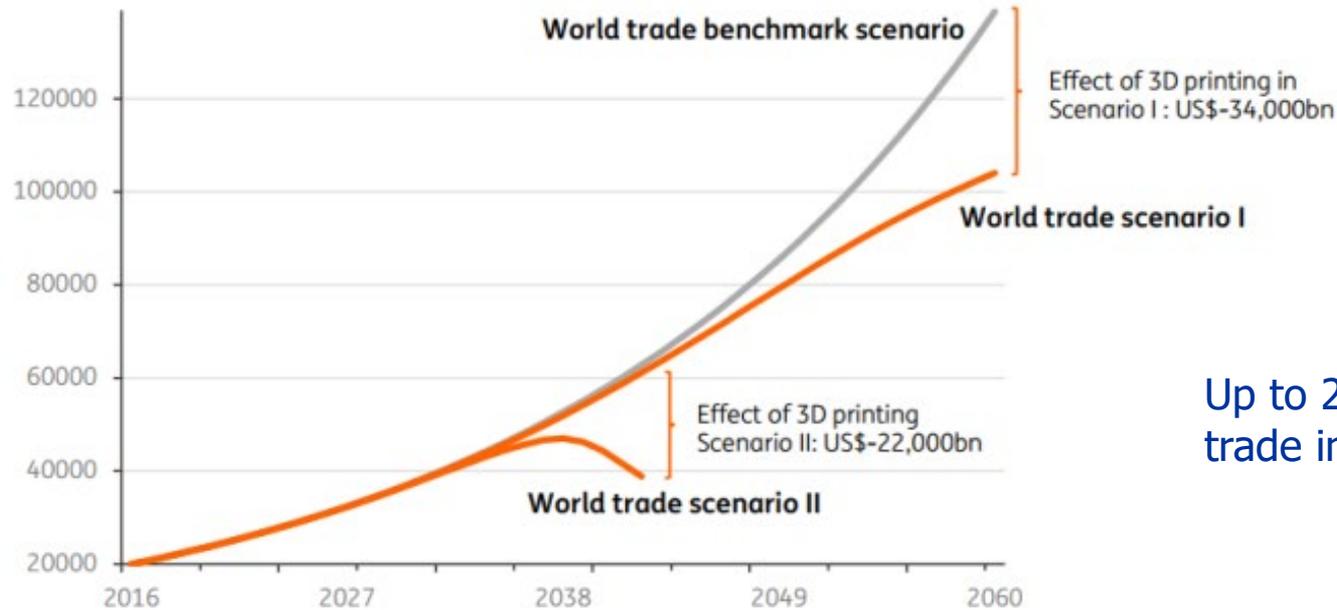


Source: Nielsen

Digitalization has potential to

- Further reduce trade costs
 - Transport costs
 - Transaction/search costs
 - Communication costs
 - Facilitate customs procedures
 - Facilitate cross-border payments
 - **WTO: cumulated trade cost reduction could reach 11% and global trade growth could be up to 34 percentage points larger**
- Increase the share of services in cross-border trade
- Impact on which goods are traded across borders
 - Possibility of reshoring
- Change the distribution of comparative advantages
 - Physical infrastructure may be less important
 - Skills, market size, quality of institutions, regulation of the intellectual property rights and data flows are likely to become important factors

3D printing



Up to 22% less world trade in 2040

Effect of 3D printing on world trade in goods and services, bln USD; Source: ING

Scenario I: current trend of investment in 3D printers and traditional machines continues

Scenario II: doubled rate of investment in 3D printers

Digitalization to reduce trade costs

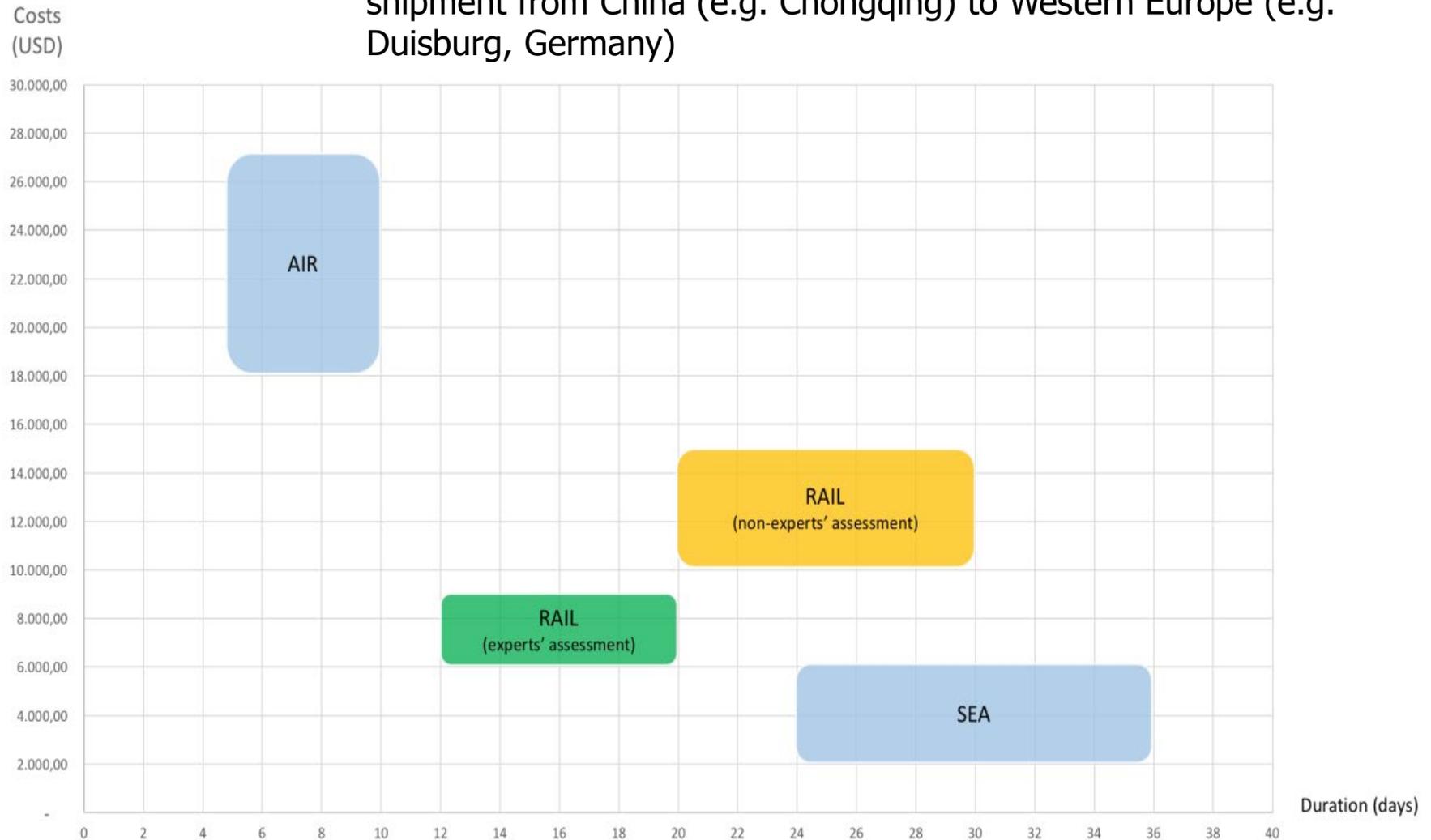
- Full implementation of digital trade facilitation (incl. paperless and cross-border trade facilitation) is projected to decrease trade costs by more than 26% in Asia-Pacific region cutting international transaction by about \$1.2 trillion annually (UN ESCAP).

Country/indicator	Documents to export (number)	Cost to export (US\$ per container)	Time to export (days)
China	8	823	21
India	7	1332	17
Japan	3	829	11
Russia	9	2401	21
South Korea	3	670	8
Azerbaijan	9	3460	27
Kazakhstan	10	5285	79
Kyrgyzstan	9	4760	63
Latvia	5	600	10

Source: Doing Business, World Bank

Competition?

Estimation (survey-based) of the standard TEU container shipment from China (e.g. Chongqing) to Western Europe (e.g. Duisburg, Germany)



Source: IIASA

Alternative routes between Europe and Asia

Alternative routes between Europe and Asia

Northern routes

- ~97% of total use
- Few border crossings
- High standard and good state of infrastructure – further improvements of capacity and standard on-going
- High transport efficiency and high operational performance in terms of quality (punctuality) and reliability
- Discrepancy of the regulatory infrastructure requirements (e.g., length of trains, electrification, axle load, gauges)
- Infrastructure bottlenecks - insufficient capacity at international border crossing points in the EU and EAEU countries
- Insufficiently harmonized procedures for crossing borders (EU-EAEU)
- Specific regulations within the bilateral intergovernmental agreements (quoting of transportations, restriction of a choice of routes) etc.

Source: IIASA; Troche 2018

Alternative routes between Europe and Asia

Southern routes

- ~3% of total use
- Multiple border crossings, political instability risks in some parts
- Longer distances
- Parts of current rail links are of low standard
- Facilitate “route competition”
- Geographically suitable to link economies even in Southern Asia (e.g. Middle East and India)
- In certain route options in the long term potentially no need for change of gauge (all standard gauge route)
- Certain route options require combination with sea transport (across Black Sea and/or Caspian Sea)
- Lack of harmonised regulatory framework

Source: IIASA; Troche 2018

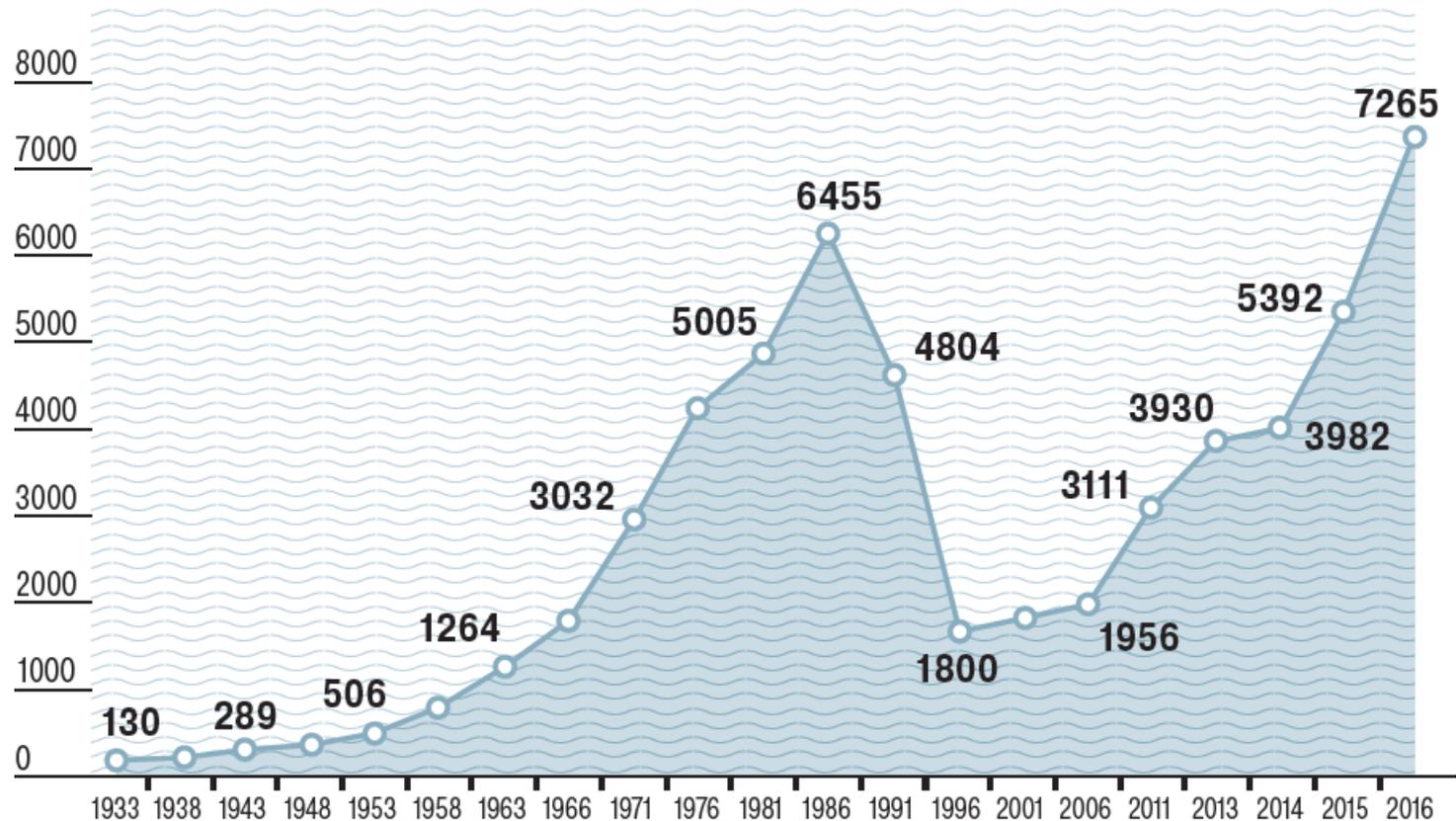
Some recommendations

- International coordination of the development of land transport corridors, including coordination of investment policies can have a multiplier effect
- Consider the trade-investment-services-IP nexus (Baldwin 2013), not just trade of goods!
- Investment into infrastructural bottlenecks:
 - 1) Border crossings (China-Russia, China-Kazakhstan, Belarus-Poland);
 - 2) Logistics hubs in the EAEU countries
 - 3) Poland's railway infrastructure
- Regulatory convergence wherever feasible

Source: IIASA

NSR shipping: Historical dynamics

Transportation volume over the NSR (including transit; thousand tons)



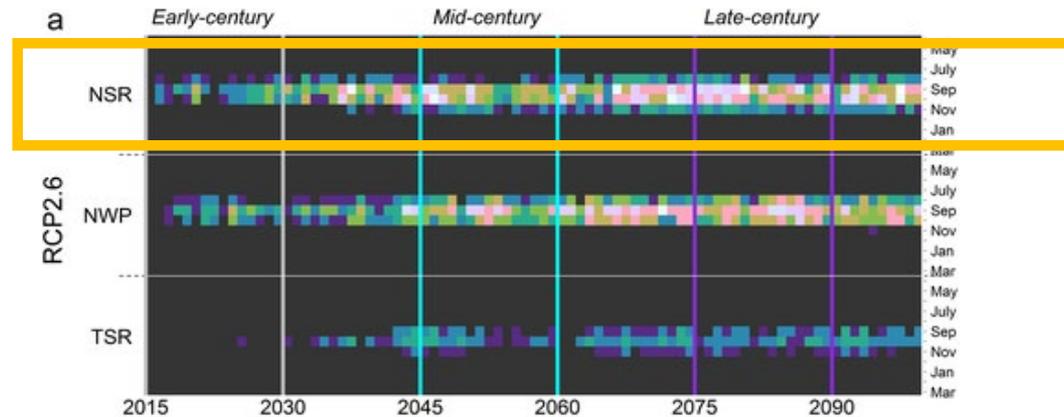
2017: 10.7; 2018: 20.2; 2019: 31.5

Source: Administration of the Northern Sea Route, Atomflot & fedstat.ru

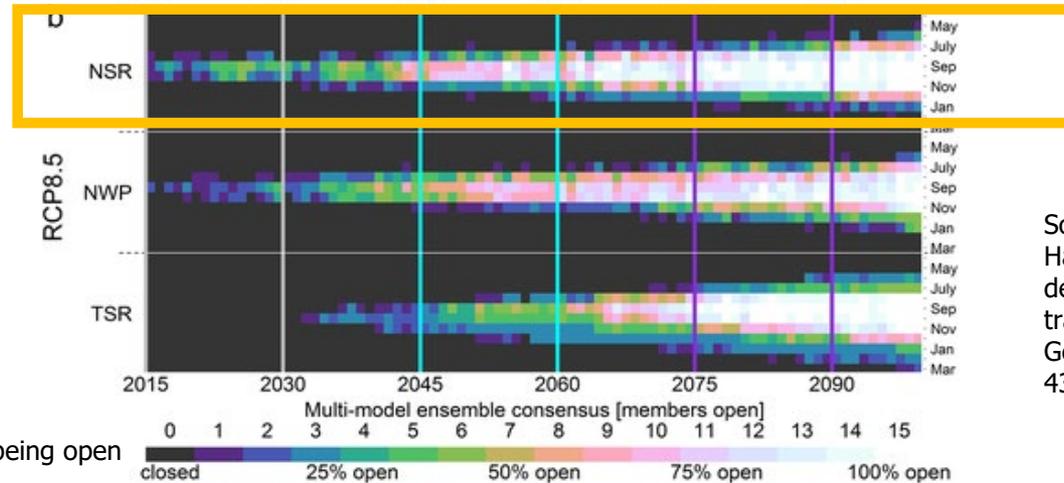
Accessibility of the NSR

Multiple alternative models project broadening the shipping season

Climate change under control



Extreme climate change



Source: Melia, N., Haines, K., & Hawkins, E. (2016). Sea ice decline and 21st century trans-Arctic shipping routes. *Geophysical Research Letters*, 43(18), 9720-9728.

Factors to influence shipping in the Arctic



Decreasing
importance

1. Risk of crew health and safety
2. Weather and geographic complexity
3. Fuel costs
4. Environmental concerns
5. Right of navigation
6. Search and rescue
7. Insurance costs
8. Transit costs
9. Stakeholder concerns
10. Maritime conventions
11. Communication
12. Crew costs
13. Ice-breaking services
14. Sailing time
15. Navigation
16. Ship construction

Source: Tseng & Cullinane (2018): Key criteria influencing the choice of Arctic shipping: a fuzzy analytic hierarchy process model. *Maritime Policy & Management*, 45(4), 422-438.

(according to a survey of senior executives of shipping companies based in Taiwan)

The strategy for the development of the Arctic zone of the Russian Federation until 2035

УКАЗ

ПРЕЗИДЕНТА РОССИЙСКОЙ ФЕДЕРАЦИИ

**О Стратегии развития Арктической зоны
Российской Федерации и обеспечения национальной
безопасности на период до 2035 года**

№ п/п	Показатель	Базовое значение	Целевое значение		
			2024 год	2030 год	2035 год
14.	Объем перевозок грузов в акватории Северного морского пути (млн. тонн)*	31,5 (2019 год)	90	130	
	в том числе транзитных перевозок	0,7 (2019 год)	1	2	10

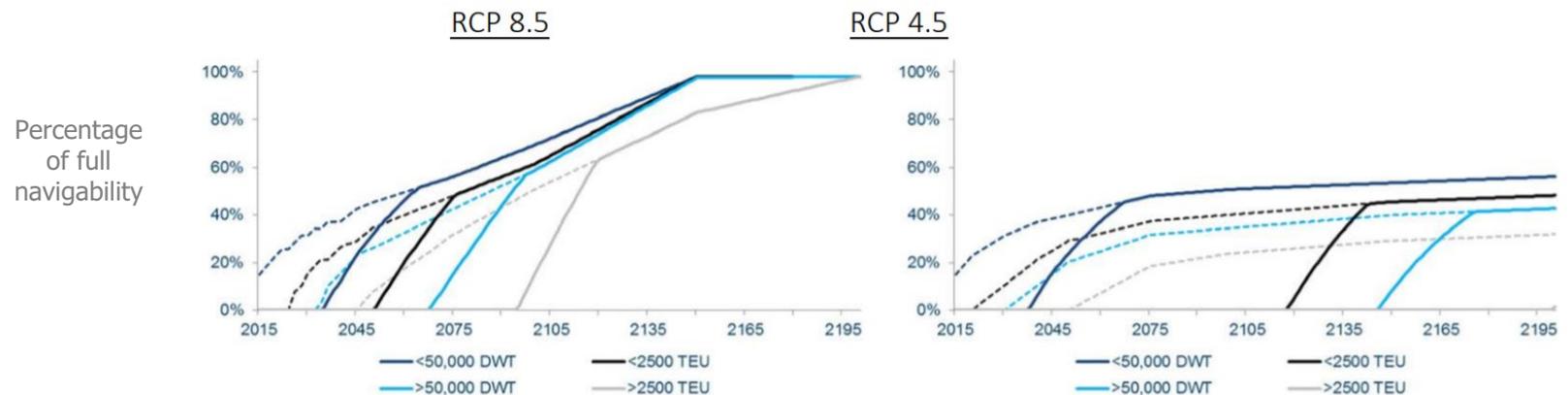
By 2035:

Total shipping volume over the NSR to increase by factor 4

Transit shipping over the NSR to increase by factor 14!!

A model that takes into account economic and infrastructure barriers for shipping

... Predicts the number of ships to take the NSR instead of Suez Canal, in relation to the number of ships under full navigability



Dashed lines: Maximum traffic through NSR (both routes) as determined by the sea ice conditions; Solid lines: Actual traffic due to infrastructure barriers; Dark/light blue: Bulk vessels; Black/grey: Container vessels.

- **RCP 8.5:** The NSR starts to become economically viable for “small” ships around 2035 (<50.000 DWT) and 2050 (<2500 TEU) and for “large” ships around 2070 (>50.000 DWT) and 2095 (>2500 TEU).
- **RCP 4.5:** The NSR will be utilised much later in the future, never with year-round operations and the business case for re-routing will not become positive for “large” container ships.

Questions? Comments?

Contact: Elena Rovenskaya, rovenska@iiasa.ac.at