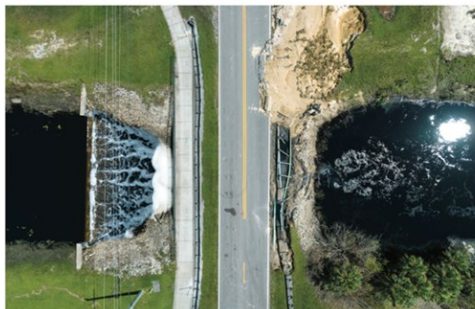


Data-driven Resilience in Transport Systems

Olaf Merk
ITF Annual Statistics Meeting
15 April 2025

Roundtable on Transport System Resilience (2023)



**Transport System
Resilience**
Summary and Conclusions

194

Roundtable

Main themes covered:

1. What are the main disruptions to transport systems and what are their impacts?
2. How to predict vulnerabilities in transport systems?
3. Which policy measures can be deployed to increase resilience of transport systems?
4. What do we recommend to governments?

What did we recommend?

Incorporate resilience into transport policy and planning systematically

- This includes integration of resilience into strategic transport planning, infrastructure appraisal, competition policies, and transport-related indicators.

Develop tools to reduce uncertainty about future disruptions

- Developing and deploying methods such as horizon scanning, risk assessment and prediction of vulnerabilities via analysis of network characteristics, digital twins or transport modelling.

Develop guidance on resilience measures for transport systems

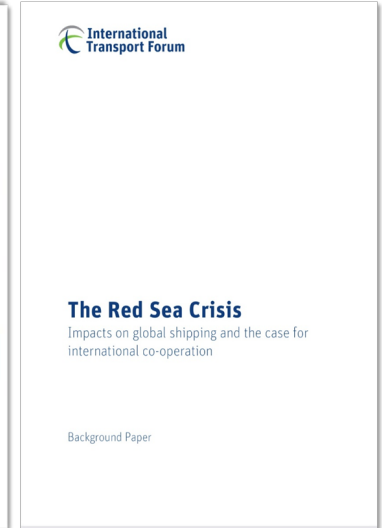
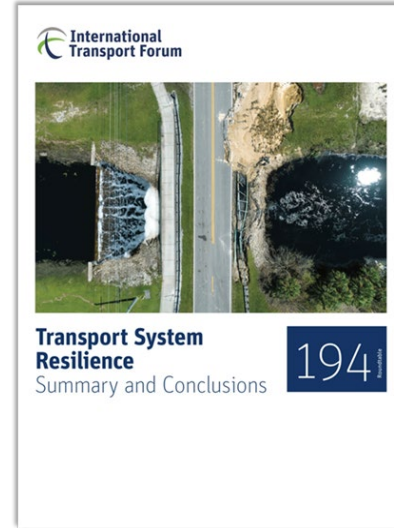
- Best practices on robustness and recovery of transport systems
- Costs of disruption, mitigation and adaptation in different circumstances
- Right balance between mitigation and adaptation in which circumstances?
- Embedding concepts such as redundancy and adaptability in transport decision making?

Improve global co-ordination to deal with impacts of system disruptions

G7 Transport Ministerial Meeting (April 2024)



- ITF Support to G7 Transport Ministerial (April 2024) focused on resilience of transport infrastructure
- ITF SG provided opening keynote speech, ITF secretariat support and background papers.
- Release of report Transport System Resilience



G7 Transport Ministerial Declaration, April 2024



G7 Transport Ministerial Meeting

“The Future of Mobility: Ensuring Global Connectivity in an Uncertain World”

Preamble

1. We, the G7 Transport Ministers, held a meeting in Milan, on 11-13 April 2024, under the chairmanship of Mr. Matteo Salvini – Minister of Infrastructure and Transport in Italy – to discuss and exchange approaches on the future of mobility.
2. Our meeting builds on the G7 Transport Ministers' Meeting held in Ise-Shima Mie on 16-18 June 2023 that reaffirmed the importance of accessible, sustainable, resilient, efficient, inclusive and equitable transportation systems and transparent, diverse, secure, sustainable, trustworthy and reliable supply chains, and reiterated the preeminent goal of ensuring safety across all modes of transportation. All these objectives continue to be important.
3. Our meeting took place in a context of poly-crises. Russia's illegal war of aggression against Ukraine, the attacks perpetrated by the Houthis against commercial vessels transiting in the Red Sea and the Gulf of Aden, growing concerns about costs-of-living, and many other crises affect transportation, including climate change and cybersecurity threats.
4. The convergence of these crises underlines the importance of our work to support the resilience, shock-resistance and adaptability of transport systems. Connectivity is a fundamental need of our modern society and one of the fundamental tenets of free-market democracies. As such, transport mobility is one of the drivers of social mobility, domestically and internationally. Better transport connectivity deepens labour markets, enables matching of demand and supply of skills and capabilities, and enables global value chains and the economic productivity that comes with these.

Key messages in recent G7 Transport declaration:

- Providing direction on Ukraine, resilience, sustainability, AI, cyber-security, maritime connectivity, health threats, accessibility, infrastructure, partnerships.
- Establishment of G7 Working Group on Transport Supply Chains
- “We underscore the need for developing policy guidance and toolkits to prepare for disruptions to transport systems, as well as identifying best policy practices for robustness, recovery, and horizon scanning to identify and mitigate risks.”

Terms of reference of Working Group

6 | ITF/TRC(2023)6

2. Transport network resilience to critical events (Working Group)

Motivation

Extreme weather and climate-change-induced natural disasters, the Covid-19 pandemic, and the war in Ukraine have had tremendous impacts on transport networks locally, nationally, and internationally. While many countries have experienced similar challenges, approaches to managing critical events, and planning for both anticipated as well as unforeseen disruptions to transport networks, differ considerably across territories. An opportunity therefore exists for member countries to share knowledge and experience on how governments and other stakeholders responded to such crises in the transport sector to ensure continuity, and recovery of, both passenger and freight services and to identify both successful strategies and pitfalls to avoid in the future.

Objectives

The purpose of this project is to develop and disseminate international best practice in transport network resilience planning that is flexible and capable of responding to different types of critical events. Depending on the relevant expertise of Working Group participants, particular focus will be given to three sub-topics; adaptation to climate change, management of epidemics and pandemics, and resilience to physical and digital geopolitical threats. The project would address key questions including: What can we learn from how these challenges were addressed to ensure future-proofing of mobility services in the time of poly-crises? How can existing transport modelling and planning tools be harnessed and further developed to proactively incorporate future risks, uncertainties, and impacts on different user groups? How can new ways of collecting and analysing data help improve passenger travel and supply chain resilience in cases of unforeseen disruptions? Do we have the right governance frameworks to address future challenges? What needs to be done to ensure that we are prepared?

To complement ITF staff expertise, the Secretariat will engage the [OECD Environment Directorate](#) and the [OECD Strategic Foresight Unit](#) to support this project.

This project will build off recent ITF work including:

- [Transport System Resilience Roundtable](#) – 2023
- [ITF Transport Outlook 2023](#) | ITF ([itf-oecd.org](#)) – 2023
- [Shaping Post-Covid Mobility in Cities](#) | ITF ([itf-oecd.org](#)) – 2023
- [Transport and the War in Ukraine](#) | ITF ([itf-oecd.org](#)) – 2022
- [Covid-19](#) | ITF ([itf-oecd.org](#)) – 2020/21
- [Adapting Transport to Climate Change and Extreme Weather](#) | ITF ([itf-oecd.org](#)) – 2016

Identify successful strategies and pitfalls. Particular focus:

1. adaptation to climate change
2. management of epidemics and pandemics
3. resilience to physical and digital geopolitical threats.

Main questions:

- Lessons to ensure future proofing?
- How to develop modelling and planning tools?
- How can new ways of data collection and analysis help?
- Which governance frameworks to address challenges?
- What needs to be done to be prepared?

Deliverables of Working Group

Module	Deliverable
Position Paper	1.Position paper
Data/modelling	2. Impact assessment
Tools to detect vulnerabilities	3.1 Simple tool to detect vulnerabilities in transport networks
	3.2 Best practices for horizon planning
	3.3 Mapping interdependencies and interfaces
	3.4 Prediction tool for cascading effects
Guidance on disaster management	4. Checklist for preparedness for disasters in transport (including skills and training)
Adaptation measures	5.1 Policy guidance on adaptation-mitigation trade off
	5.2 Guidelines on incorporating resilience in cost benefit analyses
	5.3 Overview of best practices for acceptability of adaptation measures
Critical supply chains	6. Assessment of potential dual transport infrastructure use
Case studies	

Thank you!

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