ALICE webinar 2024-01-11

SARIL - Sustainability And Resilience for Infrastructure and Logistics networks

SARIL – handling disruptions in a sustainable way

https://www.weforum.org/agenda/2022/07/ripple-effects-from-russia-ukraine-war-test-global-economies/

An expert explains: How COVID-19 exposed the fragility of global supply chains

Jul 30, 2021

This article is published in collaboration with
The Conversation

How is the war in Ukraine impacting the global supply chain?

Jul 6, 2022

Portugal battles wildfires amid third heatwave of the year

8 August 2023

Europe heatwaves

Firefighters worked to contain the flames in Odemira on Monday

How One of the World's Biggest Ships Jammed the Suez Canal

Four months after the megaship Ever Given got stuck in the canal, neither the canal nor the shipping industry has addr some of the most critical issues that led to the grounding.

Devastating floods in Italy claim lives and leave thousands homeless

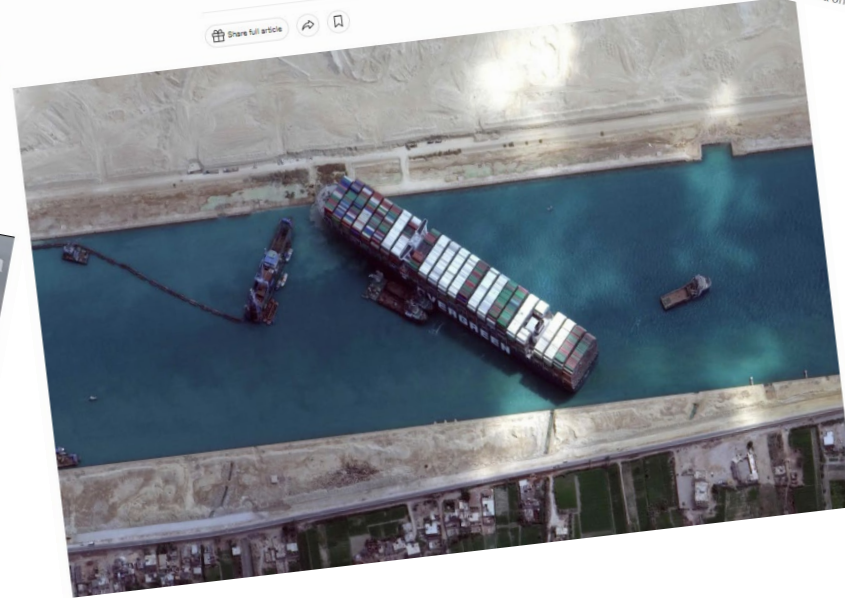Twenty-one rivers burst their banks after heavy storms across country cause landslides and submerge villages

https://www.bbc.com/news/world-europe-66435160

https://www.weforum.org/agenda/2021/07/covid-19-pandemic-global-supply-chains/

https://www.theguardian.com/world/2023/may/17/italy-storms-people-dead-thousands-evacuated-emlia-romagna

https://www.nytimes.com/2021/07/17/world/middleeast/suez-canal-stuck-ship-ever-given.html

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SARIL – towards green and resilient transportation

Decision support systems and concepts for resilient and sustainable logistics operations during disruptions.

Recommendations regarding disruption handling and green business models for logistics operators and authorities.

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Finish
31.05.2026

Mid-term
31.12.2024

Survey

Kick-off
01.06.2023

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SARIL Consortium
15 partners

Type of organisation:

- Research organisation
- University
- Company
- ETP (European Technology Platform)

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Expertise of the consortium

Expertise and end-user experience in logistics:

- 5 Companies
- 1 Research organisation

Resilience assessment and tool development:

- 2 Research organisation
- 3 Universities
- 2 Companies

Stakeholder involvement:

- 1 Research organisation
- 1 ETP

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Project goals

Resilience analysis considering sustainability:

- Quantitative resilience analysis for multiple interconnected geographical scales
- Combine resilience and sustainable logistics domains

Knowledge sharing:

- Availability of knowledge on (possible) disruptions for logistics operators
- Holistic approach for visualization of short- and long-term effects
- Real-time information sharing on infrastructure conditions
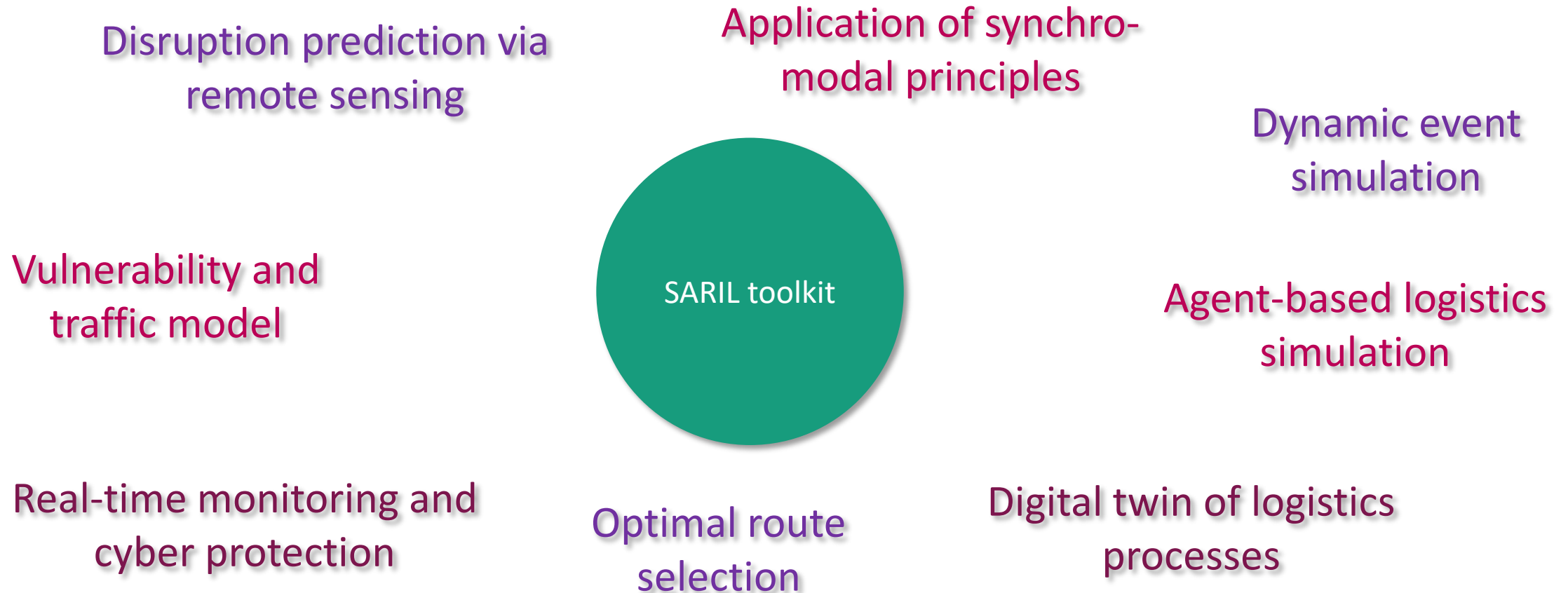- Cyber security for real-time data

Handling disruptions:

- Support decisions regarding competitive and sustainable alternatives in case of disruptions
- Synchro-modality to increase sustainability and resilience

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Toolkit for resilience and sustainability

Disruption prediction via remote sensing

Application of synchro-modal principles

Dynamic event simulation

Vulnerability and traffic model

SARIL toolkit

Agent-based logistics simulation

Real-time monitoring and cyber protection

Optimal route selection

Digital twin of logistics processes

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SARIL Scenarios

Three different scales for generalisable tools

Regional scenario

- Province of Mantua
- Flooding event endangering a bridge
- Cyber-attack disables access to critical information

National or cross-border scenario

- Iberian peninsula
- Low probability weather extremes
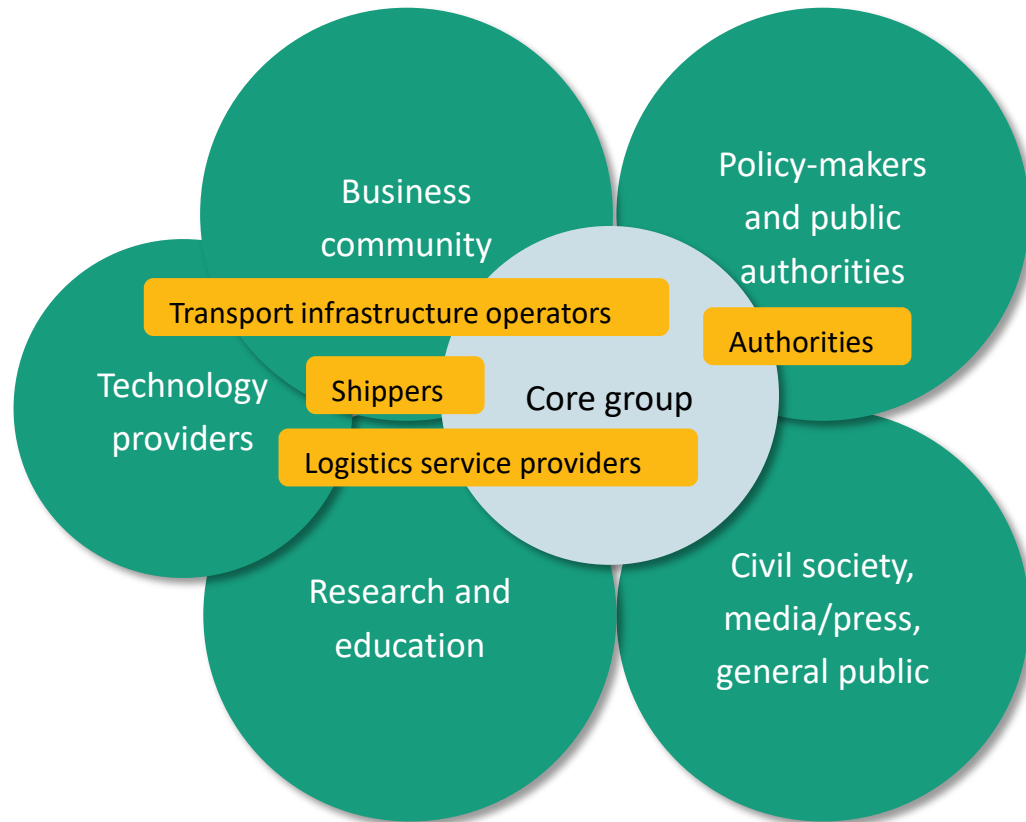- Wildfires and snowstorms

EU-wide or global scenario

- EU sea and land freight transport (Asia to Europe)
- Global threats like war and pandemic
- Large-scale transportation networks

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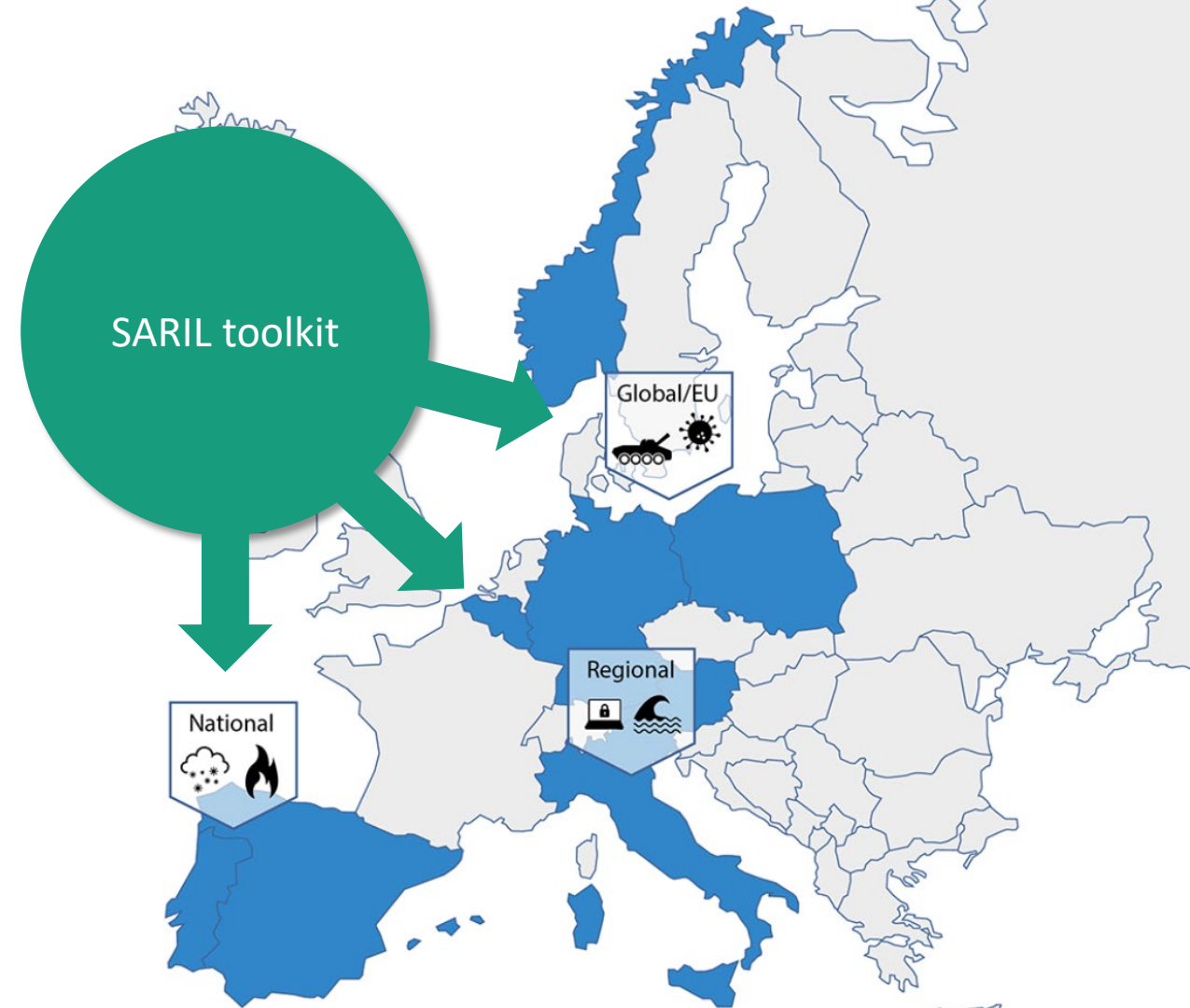
Stakeholder interviews
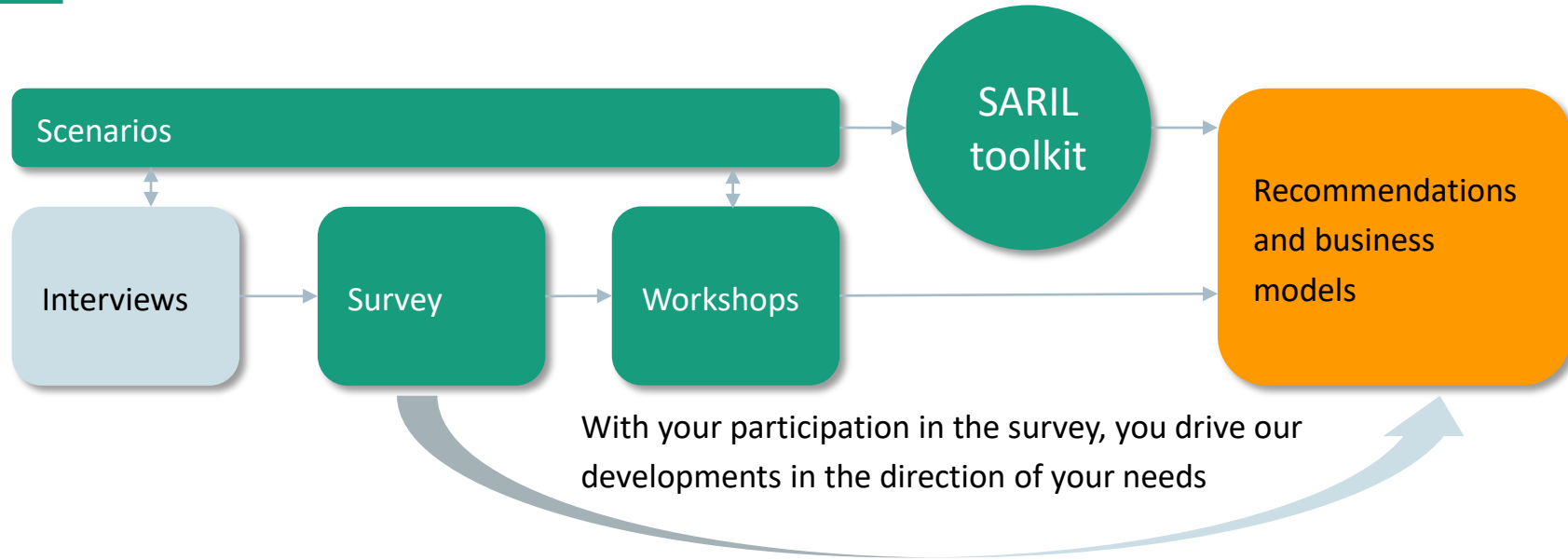## Scenario specific

Approx. 20 Stakeholders per scenario have been interviewed.

Main findings:

- What are the strategies and solutions of stakeholders to handle disruptions? *The answers have been used in the survey.*
- What are business aspects that are monitored? *These serve as input for the resilience metric.*

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Stakeholder participation in SARIL
Survey and more

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Scenarios ──────────────────────────────► SARIL ──────► Recommendations
   ▲                                       toolkit        and business
   │                                                      models
   ▼
Interviews ──► Survey ──► Workshops ──────────────────────►
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With your participation in the survey, you drive our developments in the direction of your needs

✓ Tick the respective box in the survey and you might be selected to take part in the workshops.

Possibilities to collaborate with SARIL:

- Participate in the survey
- Become a member of the Advisory Board

… and to get information (news/deliverables) about the progress in SARIL:

- ALICE platform
- SARIL website

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Thank you for your attention

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Publications:

M.N. Lorenzo et al., Standardized Precipitation Index (SPI) evolution over the Iberian Peninsula during the 21st century, Atmospheric Research, Volume 297, 2024, 107132, ISSN 0169-8095, https://doi.org/10.1016/j.atmosres.2023.107132. (https://www.sciencedirect.com/science/article/pii/S016980952300529X)

K. Schroven et al., Sustainability and Resilience for Infrastructure and Logistic Networks, submitted to ESREL 2024

M. Waldmann et al., The impact of sudden external disruptions on the resilience of logistics networks, submitted to ESREL 2024

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