

Security and geopolitics shaping challenge-led innovation policy

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Introduction

**Challenge-led approaches,
missions & transformative
innovation policy**



Strengthening defence

Advancing climate change

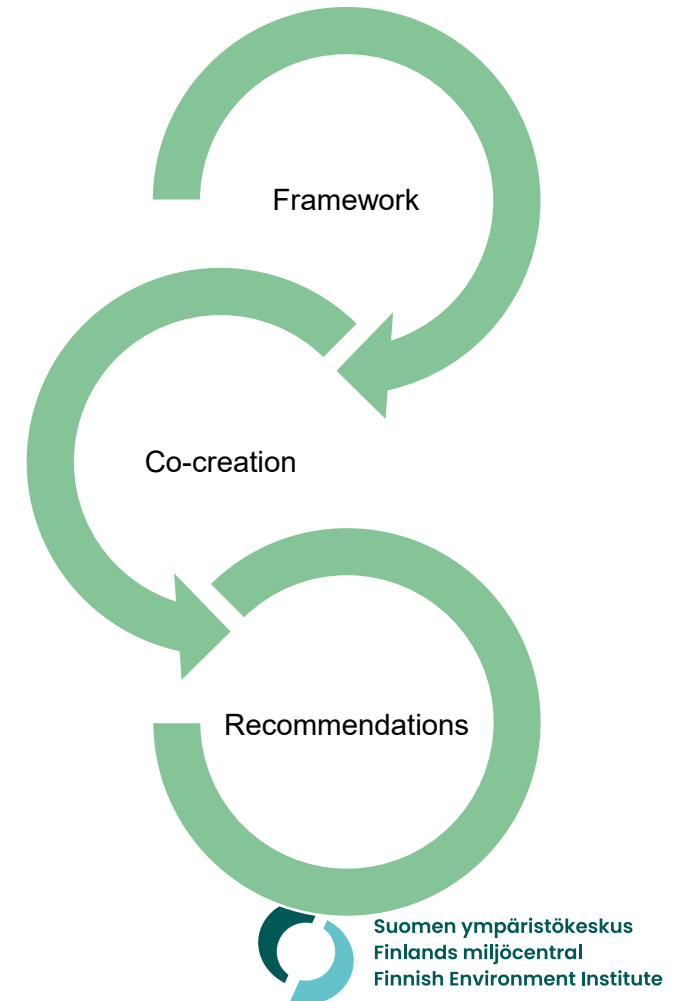


**Disruptive geopolitical and
géoconomic developments**

**Policies for strategic autonomy,
technology sovereignty, energy
security & foreign direct
investment**

Challenge-led Innovation Policy, Geopolitical Uncertainty and Security project

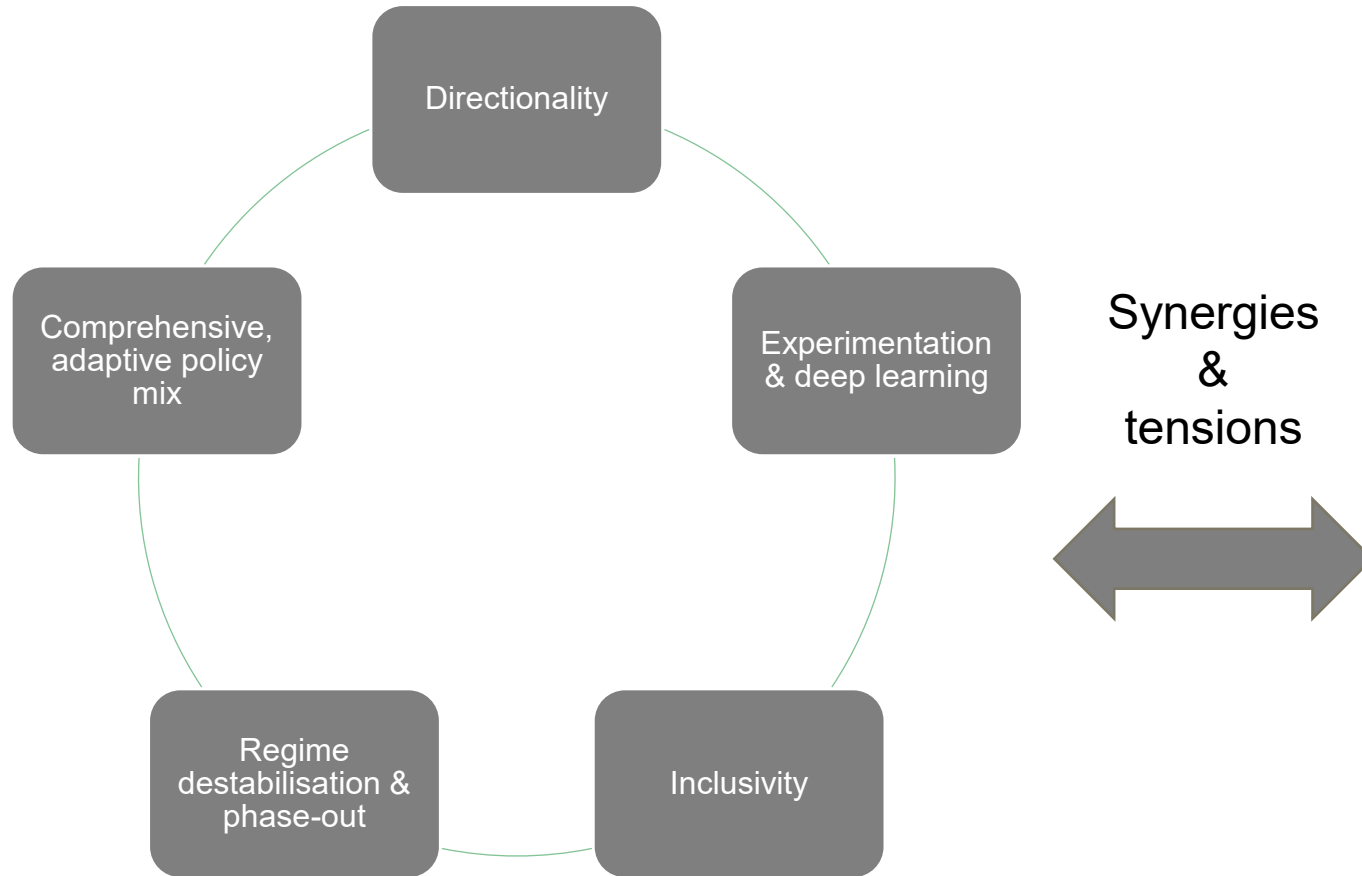
1. How changing geopolitics influence the Finnish innovation environment and rationales, and implementation possibilities for new challenge-led innovation policy?
2. How innovation policies in the EU and Finland/Netherlands respond to changing geopolitics?
3. How selected three regions in Finland perceive geopolitical changes and may respond to them?



Security and geopolitics in the context of innovation policy

- Innovation systems face many security risks:
 - Resource flow disruptions, trade conflicts, military interventions/wars and data colonialism
 - System failures, societal tensions and frictions, violence, terrorism, collapsing state administrations
 - Infrastructure damage, environmental disasters, health epidemics, economic or financial crashes, cyber-attacks, and spread of disinformation
- Two perspectives
 - Negative, hard security: states, military security → environmental and human security
 - Positive, soft security: people, ‘freedom from insecurity’, emancipation, empowering people and communities
- Securitisation
 - Political act, speech act
 - Moving issue(s) from “normal” politics to the realm of security politics; a reduction of democracy
 - Extraordinary measures which break normal political practices

Challenge-led innovation policy – five imperatives



Security

Broadly understood

- Defence
- Comprehensive security
- Strategic autonomy
- Technology sovereignty
- Positive security
- Societal resilience

Public sector capabilities to address the changing innovation policy context

Challenge-led feature	Synergies	Tensions
Directionality	Innovating in resource/energy efficiency or other solutions that reduce dependence on foreign suppliers.	Keeping track of security risks and vulnerabilities of smart technologies.
	Identification of critical sectors in terms of security and competitiveness that also have sustainability benefits.	Overruling innovation trajectories that are not simultaneously applicable to both sustainability and security goals (possibly based on limited information).
	Development of dual-use solutions with applications in both sustainability and security domains.	Dual use complicating the design of innovation policy , e.g., conflicts to involve both state and non-state actors in security-sensitive processes.
	Long-term directional processes to address global environmental/social change and peace-building.	Short-term urgency and orientation to security and defence may override the severity and urgency of addressing sustainability challenges.
	Orientation to security and defence that is framed in terms of openness, collaboration and wellbeing/justice is more likely to reap synergies via challenge-led innovation policy.	Techno-nationalist and path-dependent interpretations of security likely to miss out on future synergies , water down the commitment to international commitments (Paris) and suffer from lack of capabilities.



European Commission policies orienting towards competitiveness & security



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Changing directionality of EU innovation policy

Paradigm shift that highlights security and competitiveness

Reducing importance of sustainability challenges

3 pillars:

- **promoting** domestic technology development and scientific capabilities
- **protecting** the outflow of research in critical technology areas
- **partnering** but more selectively than before

“almost a U-turn in the way in which we were approaching research and innovation policy”



EU policy developments

POLICY STRATEGIES / FRAMEWORKS

Competitiveness Compass

Clean Industrial Deal

*Technology Sovereignty
Package*

EU Preparedness
Union Strategy

European Climate
Resilience and Risk
Management Integrated
Framework

Economic
Security Strategy

White Paper on
Dual Use
Research

RESourceEU
Action Plan

2019 **2020** **2021** **2022**

2023

2024

2025

2026

Circular

Economy Act

*Cloud and AI
Development Act*

Cyber Security Act

*Revision of FDI
regulation*

EU framework
(regulation) for
screening
foreign direct
investments
(FDI)

EU's export
control regime
for dual-use
items

Chips Act

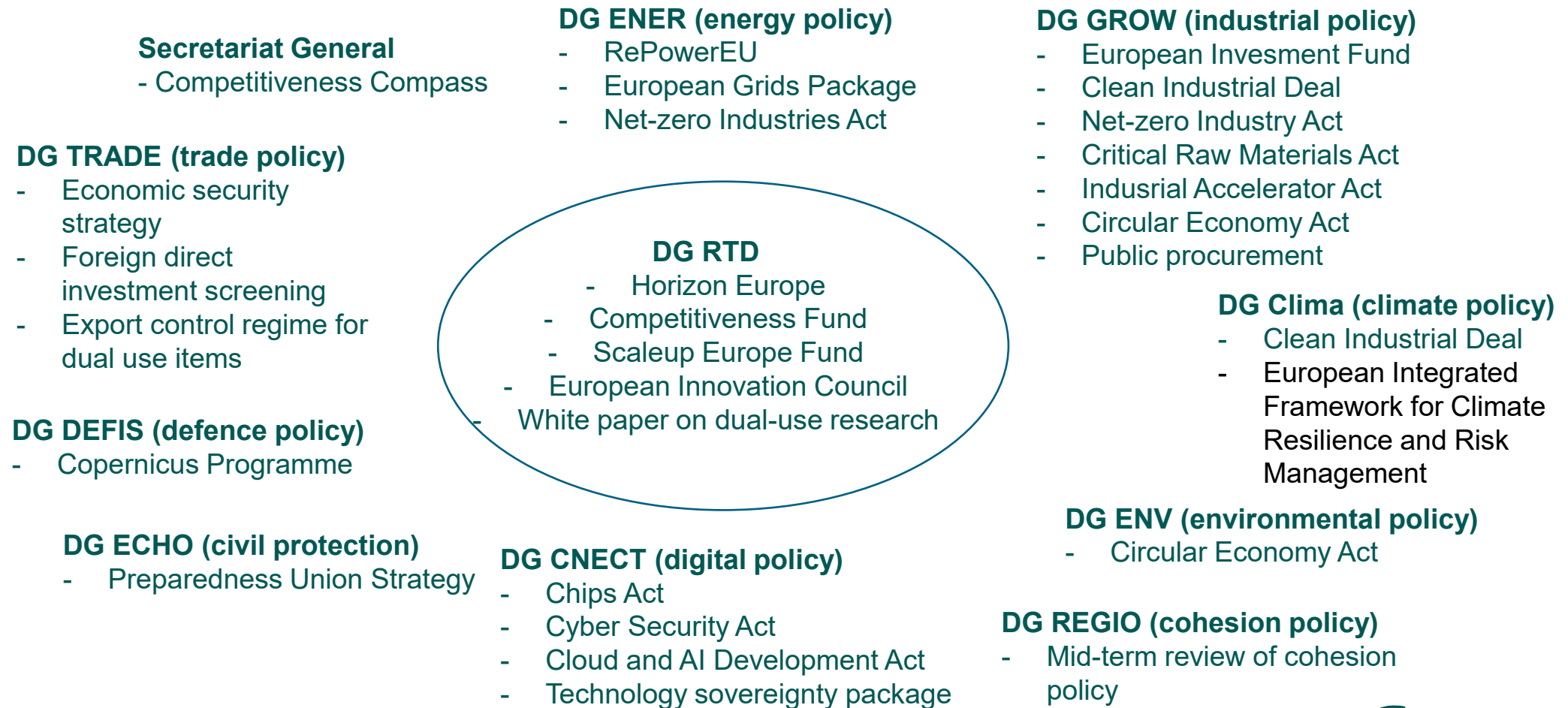
Net-Zero
Industry Act
Critical Raw
Materials Act

EU Grids Package
composed of hard
and soft law

Industrial
Accelerator
Act

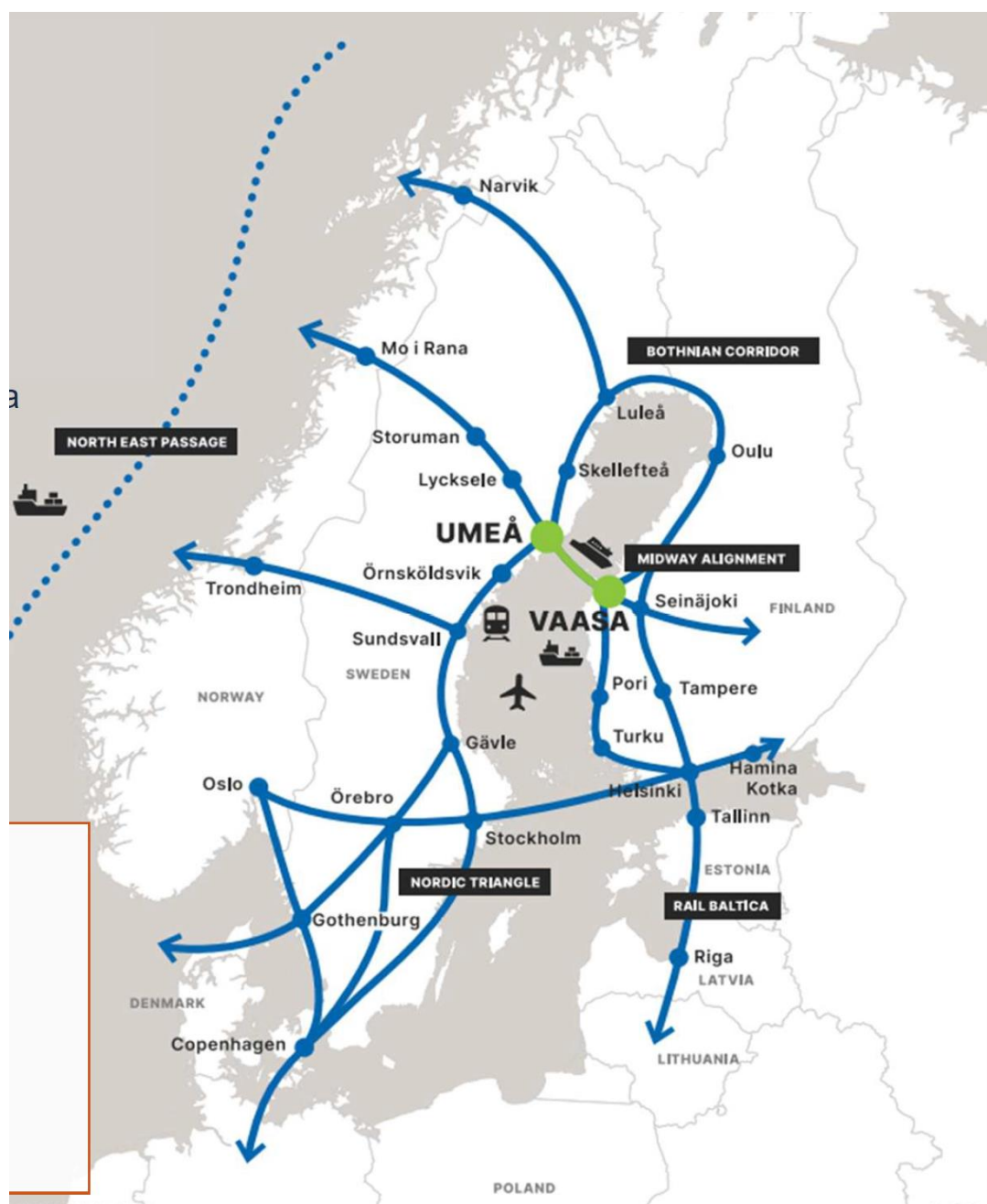
LEGISLATION

Innovation policy mix extending to industrial, trade and digital policy domains (mentions of policies in interviews)



Renewal of Finnish innovation policy

- Recent developments
 - Renewal of the research and innovation council
 - R&D funding target of 4% of GDP by 2030
 - R&D funding law in 2022,
 - Strategic choices in 2025
- Strategic choices to boost sustainable growth, promote renewal and strengthen comprehensive security



Environment and nature should be seen as a critical part of comprehensive security

Psychological resilience

- Nature provides mental resources during peace and crises

Functional capacity of the population and services

- Knowledge base and research on the state of the environment and risks

Economy, infrastructure and security of supply

- Availability and efficient use of natural resources
- Disruptions caused by environmental and climate crises

Internal security

- Sustainability transformations may create:
 - Resistance to environmental measures
 - Active citizenship and empowerment



Leadership

- Environmental administration as part of comprehensive security management and coordination

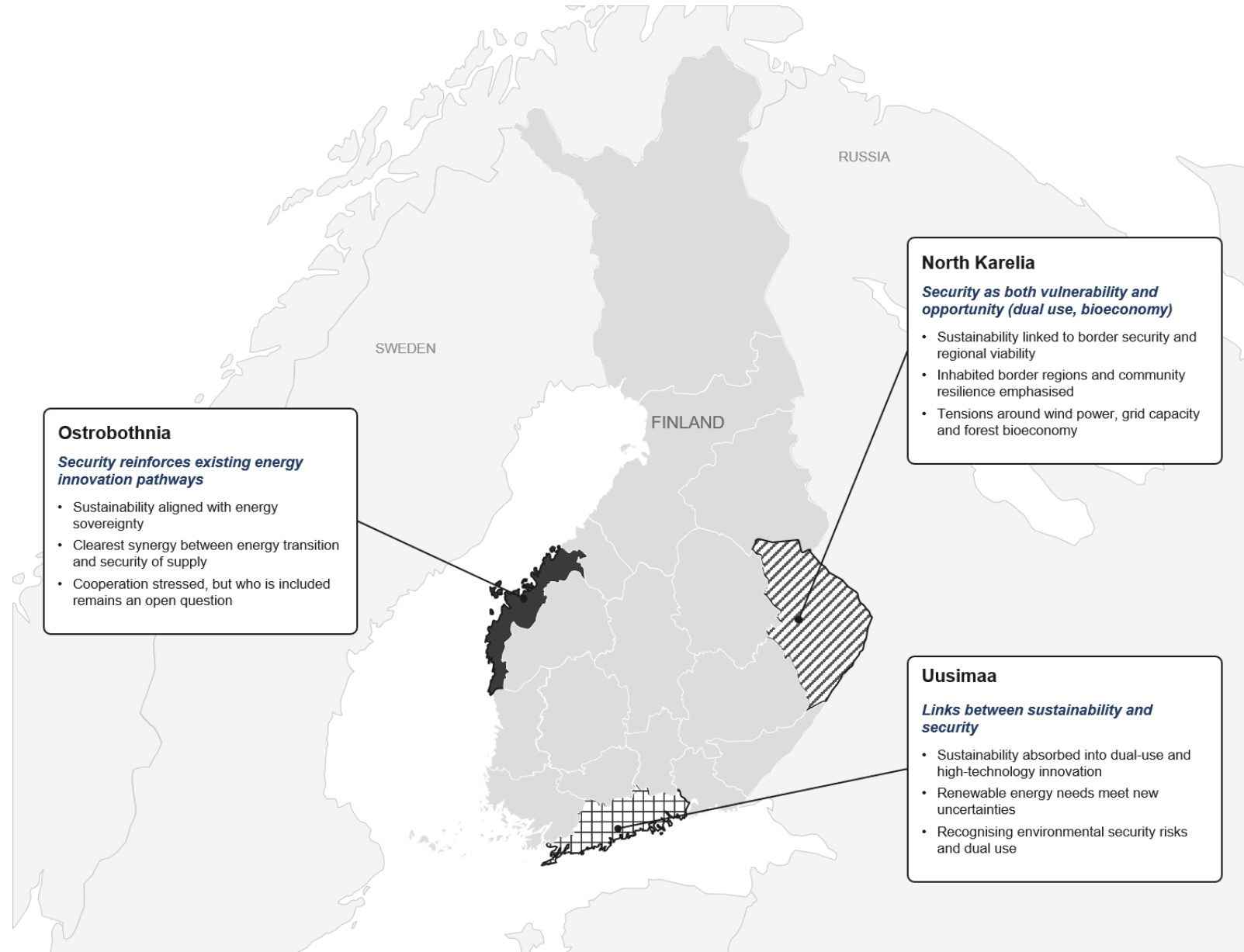
International and EU activities

- Cooperation for the benefit of the environment
- Sustainable solutions for managing global interdependencies

Defence capability

- Impacts of the changing climate and environment on defence operations

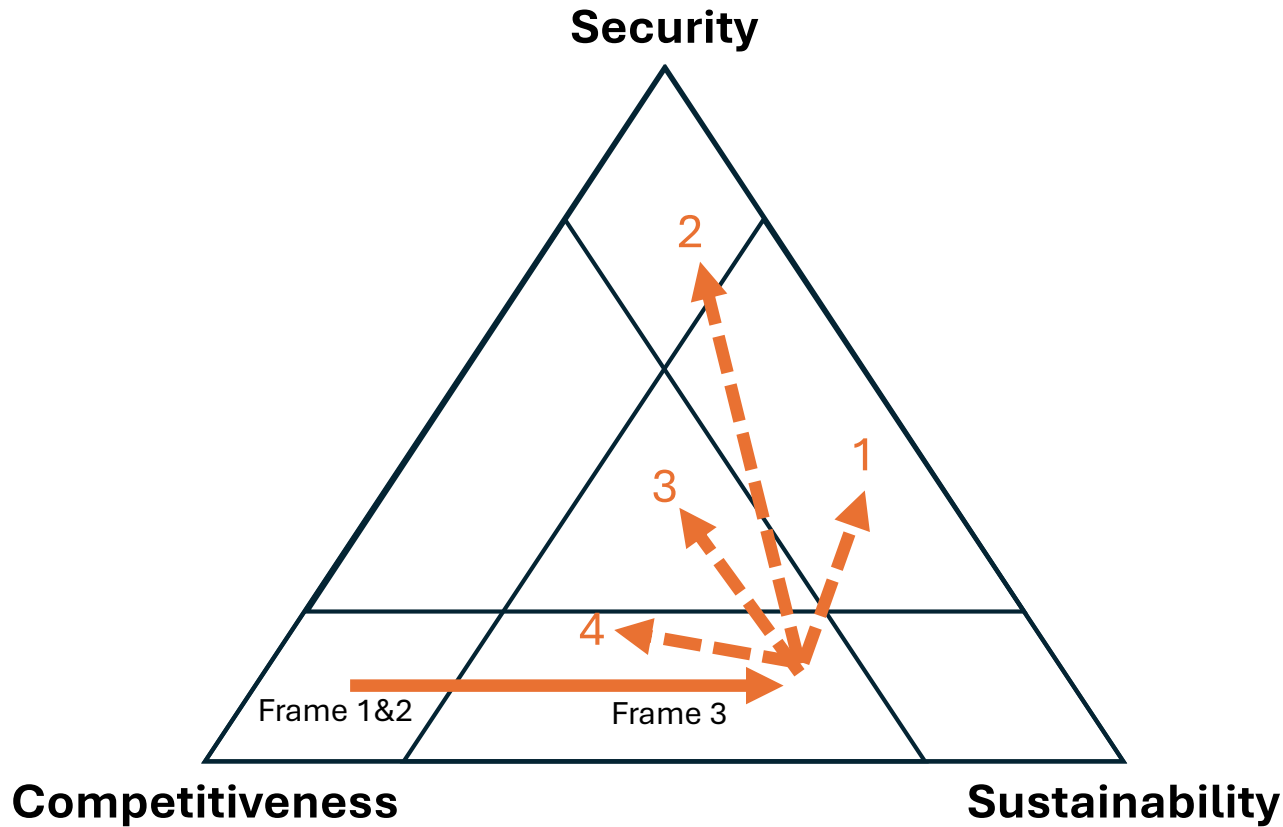
Interpretation & application of security differs regionally in Finland



Across all three regions: sustainability remains present, but security, defence and resilience increasingly shape how innovation priorities are framed, just as dual-use funding and critical infrastructure is uneven and often project-based.

Boundaries: Natural Earth (public domain). Region shading distinguishes the three cases; other Finnish regions in light grey.

Four possible scenarios for further evolution of the innovation policy field



1. Security-sustainability synergies could reinforce challenge-led innovation policy
2. Security might bend the challenge-led debate, away from sustainability challenges
3. Security (and sustainability) issues become an integral part of innovation policy
4. Security concerns mark a return to competitiveness-oriented innovation policy

Conclusions (1)

- Several synergies exist, supporting a positive connection between security and innovation-policy-driven sustainability
 - Yet, rising security concerns put pressure on the promise of challenge-led innovation policy.
 - Tensions need to be understood and addressed to better align policy objectives
- Defining security as part of innovation policy needs to be broad and open, rather than closed and narrow.
 - Security is a place-based phenomena, influenced by technologies, resources, institutions, cultural settings and capabilities in different regions/states.
 - Yet, changes in the global context affect innovation practices across borders.

Conclusions (2)

- Regions are not passive recipients of security-related changes on innovation
- National “blanket” or “regionally-blind” innovation policies are less likely to reap the best synergies between sustainability and security
- Regional diversity and capabilities can benefit resilience and should be considered in policy design