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European Training Foundation

ADDRESSING KEY SUSTAINABILITY CHALLENGES BY SMART SPECIALISATION

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THE EU AGENCY SUPPORTING COUNTRIES TO DEVELOP THROUGH LEARNING

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What is Smart Specialisation?

Design

ANALYSIS: Discover the socio-economic and innovation engines of regional growth, competitive advantages & weaknesses

GOVERNANCE: Develop process in an inclusive and interactive process centred on entrepreneurial discovery

SHARED VISION: Define jointly what innovation is and what it is supposed to achieve

PRIORITISE: Identify a limited set of priorities to concentrate investments

POLICY MIX: Choose right set of instruments to achieve objectives

MONITORING AND EVALUATION: Feed information back into the policy cycle to allow strategy revision

Implementation

EDP: Manage stakeholder relations & keep them alive

GOOD GOVERNANCE: Structures & arrangements

P2P: Translate priorities into project portfolios (selection criteria & selection mechanism)

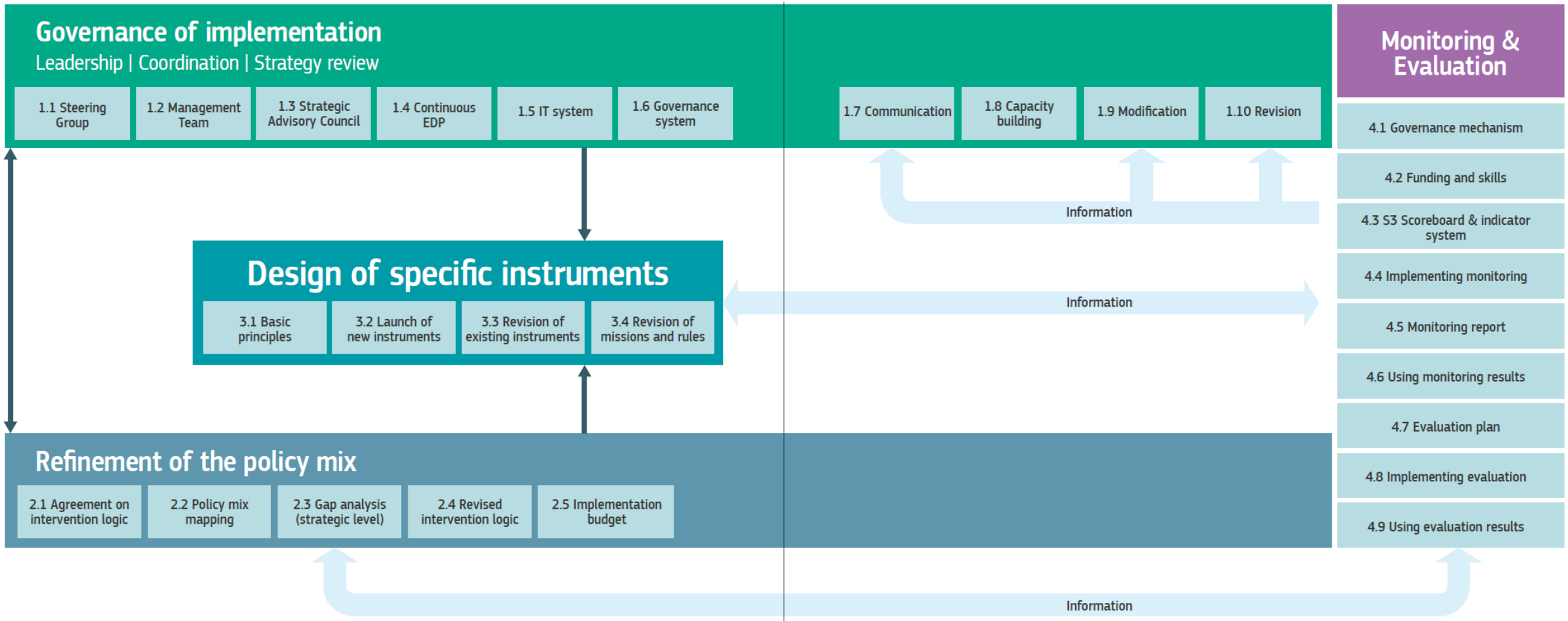
TRANSNATIONAL VALUE CHAINS

MONITOR

Smart Specialisation design framework for the EU E&N region

- INSTITUTIONAL CAPACITY BUILDING
- MAPPING EXERCISE
- ENTREPRENEURIAL DISCOVERY PROCESS
- INSTITUTIONAL CAPACITY FOR IMPLEMENTATION
- FINAL S3 STRATEGY

Smart Specialisation implementation framework for the EU E&N region



Why this study?

- The Western Balkans are at a critical juncture, facing significant sustainability challenges while progressing towards EU integration, such as environmental degradation, energy transition, sustainable agrifood transformation, twin transition
- Smart Specialisation strategies have been adopted as key policy frameworks to drive innovation and economic development in the region
- They are increasingly used for addressing main challenges related to sustainable development across the European continent
- The region is aligning with the EU Green Deal and the SDGs

S3 addressing sustainability challenges in the EU

Priorities related to multi-sectoral transformations	Priorities related to multi-sectoral societal challenges
	Health, demographic change & wellbeing ("city of people"; "wellbeing")
Greening ("carbon neutrality"; "sustainability and circular economy")	**Inclusive and reflective societies** ("social and solidarity economy")
Digitalisation ("digitalisation"; "digital society")	**Secure societies** ("security and dual use")
Smart Manufacturing ("Smart manufacturing"; "Industry 4.0")	**Smart, green and integrated mobility** ("efficient inclusive urban flows")
	Food security, sustainable use of natural resources, bioeconomy ("blue economy"; "bioeconomy")
272	278
26%	26%
138	135
81%	79%

Strategies aligned

Strategies with at least 1 such priority

Region	Priority name	Priorities as described in the document	Classification
Galicia (ES)	Sustainability	This priority aims to advance the decarbonisation of the economy and the sustainable management of natural resources. It includes several economic sectors and technologies such as: • Renewable energy • Biotechnologies • Circular economy and materials • Sustainable textile industry • Low-carbon emissions transport industries • Sustainable tourism	Priorities related to multi-sectoral transformations (Green transition)

Castilla la Mancha S3 prioritisation approach

adding

Source: Prognos and CSIL, 2025

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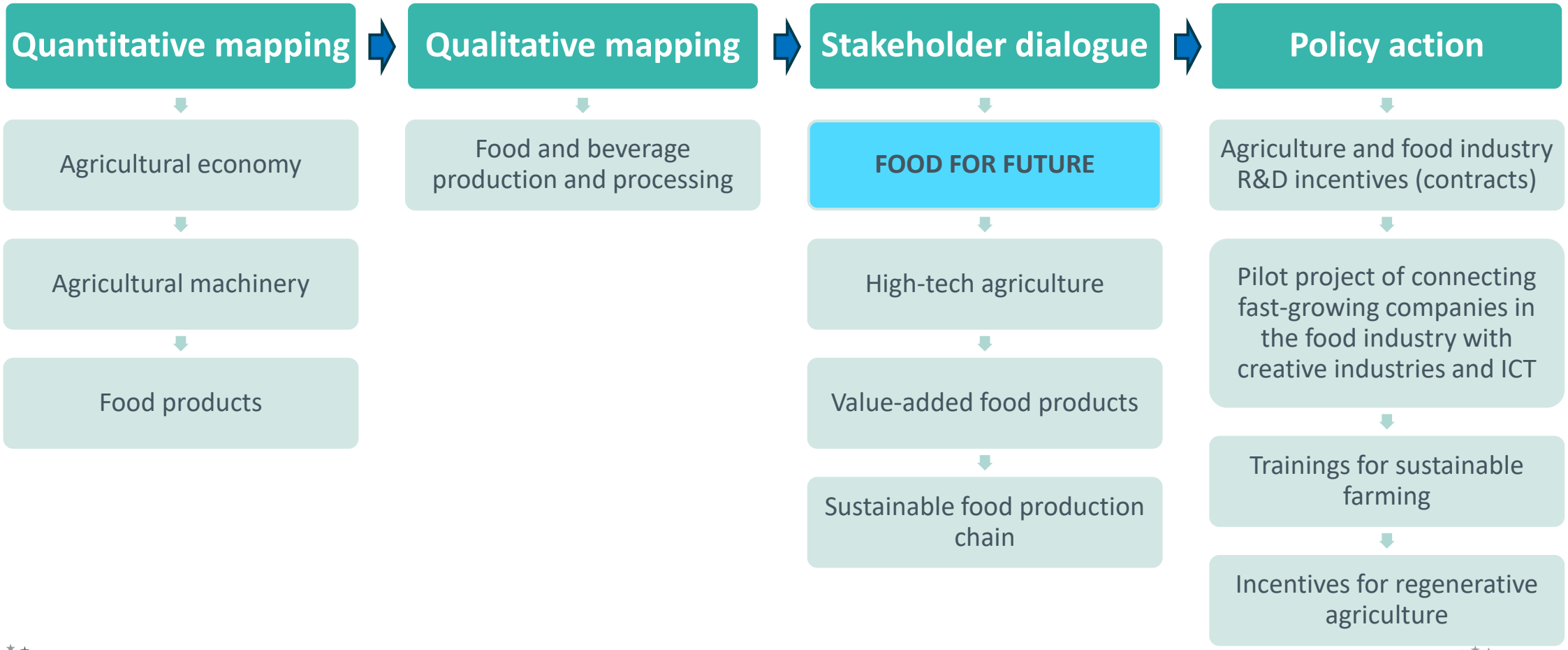
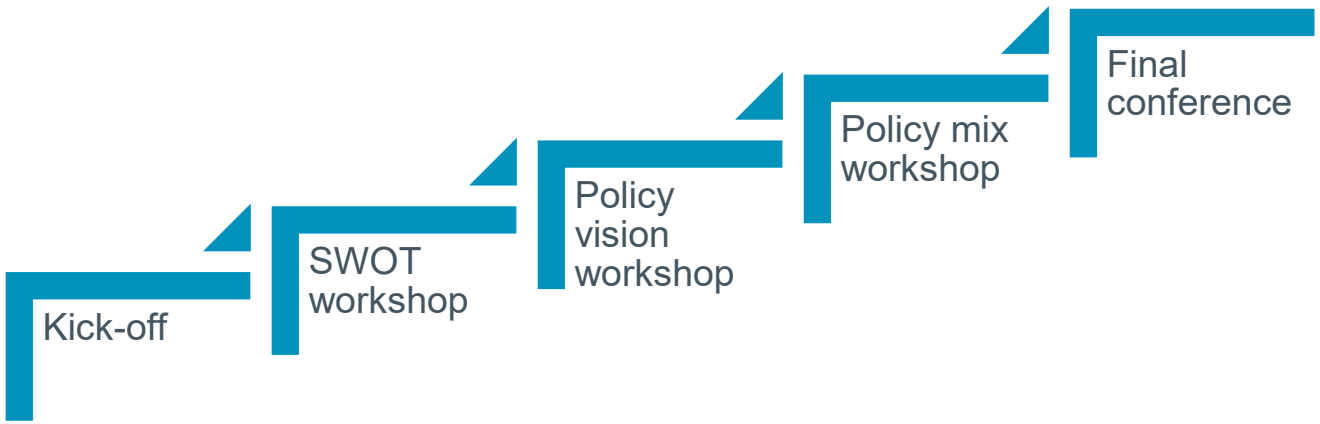
S3 priority roadmap – example from Serbia



EDP as the crucial step of S3

- Standard topics (SWOT, policy vision, policy mix)
- Priority and sub-priority based, cross-priority potential
- References to societal and sustainability challenges (green, digital transition, just transition)



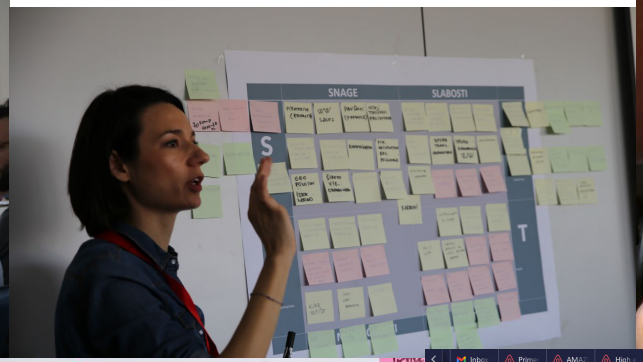
Main prerequisites:

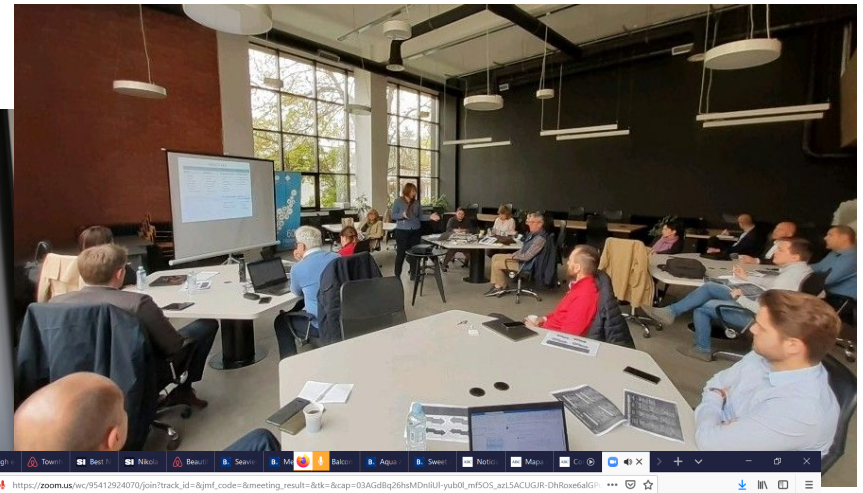
- Defined working groups per priorities
- Attributed workshop coordination responsibilities
- Defined plan of workshops, agendas and scenarios
- Preparation and distribution of materials to stakeholders
- Technical requirements met

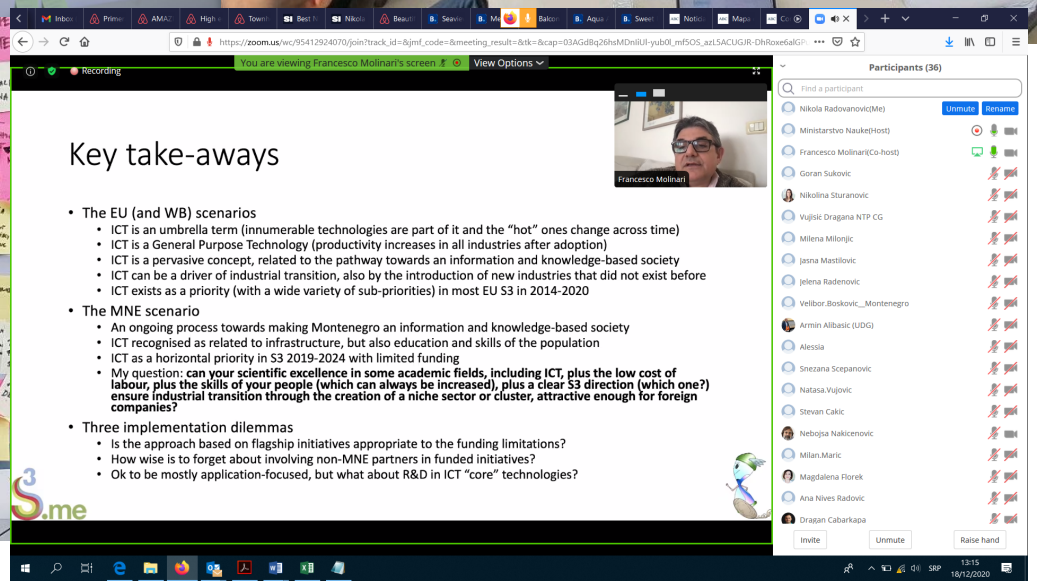
Workshop type:

- Face-2-face vs. online vs. hybrid
- Regional vs. national perspective

EDP in reality







Smart Specialisation in the Western Balkans

GAWB priorities	Smart Specialisation priorities					
Main areas	ME	RS	MK	AL	XK*	BA
Sustainable food systems and rural areas	Sustainable agriculture and food value chain	Food for future	Agriculture and food processing with high added value	Agriculture, forestry and fishing	Agroprocessing industry	Production and processing of food and beverage
Circular economy	Sustainable and health tourism	Future machines and manufacturing systems	Electrical equipment and mechanical parts	Manufacturing	Creative industry	Production and processing of plastics
Decarbonisation (climate, energy, mobility)	Energy and sustainable environment	Creative industry	Smart/sustainable buildings and materials	Energy	Green energy	Wood industry
Dual (green and digital) transition	ICT	ICT	ICT	ICT	ICT	ICT
Biodiversity (protection and restoration of ecosystems)				Accommodation and support service activities	Wood processing industry	Metal and electrical industry
Depollution (air, water and soil)						Tourism

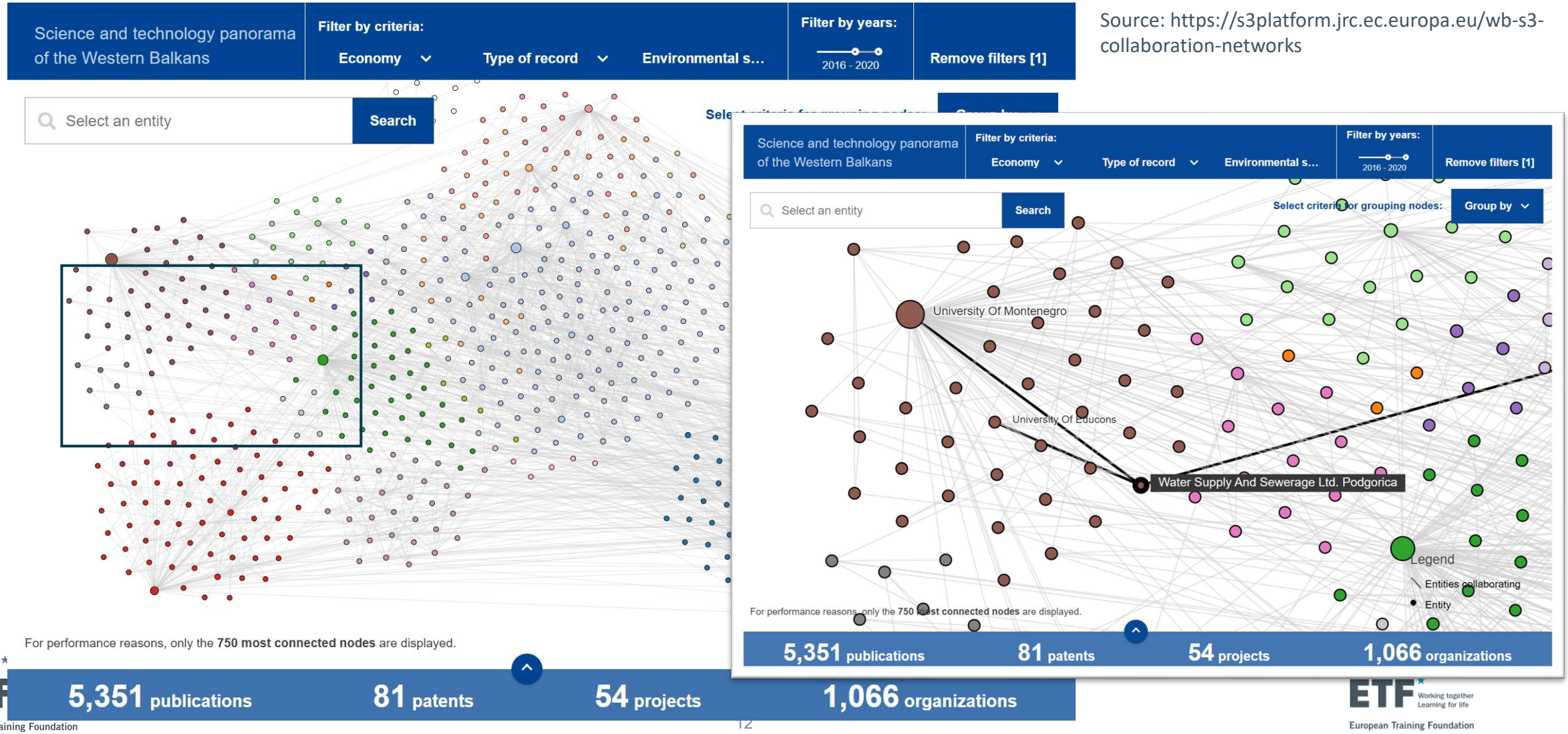
** This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.*

S3 policy measures related to sustainability

	Agri-food			
Montenegro	Support for introducing innovations in the agriculture	Genetic Resources Conservation Programme	Support for a grant scheme for innovative activities in organic agriculture	Financing projects in agriculture and the food value chain
Serbia	Incentives for R&D in agriculture and the food industry	Support of agricultural holdings (investments in physical assets and diversification)	Research infrastructure for biomedicine, biotechnology, bioinformatics, and biodiversity	Development of interdisciplinary master's programs for bioinformatics studies and for AI application in BIO4 areas
North Macedonia	Support SMEs to adopt digital operation (e.g. digitalisation vouchers, regulatory improvements)	Support development of specific ICT solutions aimed at digitalization of industry	Increase the digital skillset of the population	Digitalisation of the public sector

	ICT			
Montenegro	Improvement of human resources for the digital economy	Support for digitalization of MSMEs	Improvement of open data ecosystem and promotion of data reuse at www.data.gov.me	Financing ICT projects
Serbia	Support program for R&D projects in artificial intelligence	Support program for innovation and digital transformation in Serbia	Construction of optical broadband network in rural areas of Serbia	Support program for innovative entrepreneurship in AI-based technologies
North Macedonia	Mitigating and adapting to the adverse effects of climate change	Improving digital literacy of farmers and other actors in the chain	Digitalisation and automation, better farm and processing companies' management and development of digital e-services for all actors in the chain	Stimulating local development and improving the quality of life in rural areas by ICT technologies

Green stakeholder network in the Western Balkans



Source: https://s3platform.jrc.ec.europa.eu/wb-s3-collaboration-networks

Common S3 initiatives for the Western Balkan region

High-level events

- Regional high-level conferences (Sofia 2018, Bucharest 2019, Podgorica 2019, Belgrade 2019, Skopje 2022, Brussels 2025, Seville 2026)
- Participation at EWRC 2019 and 2023
- Online peer-learning events since 2020

Thematic workshops

- Regional thematic workshop on the agrifood priority domain in 2021
- Regional thematic workshops on the ICT priority domain in 2022

Publications

- Studies and technical reports addressing common challenges in the S3 process
- Methodologies and guidelines concerning S3
- Case studies in S3 design and impleentation

Key findings from the study

Impact on clean energy

- Smart Specialisation strategies have impacted clean energy initiatives

Low impact on waste management and sustainable transport

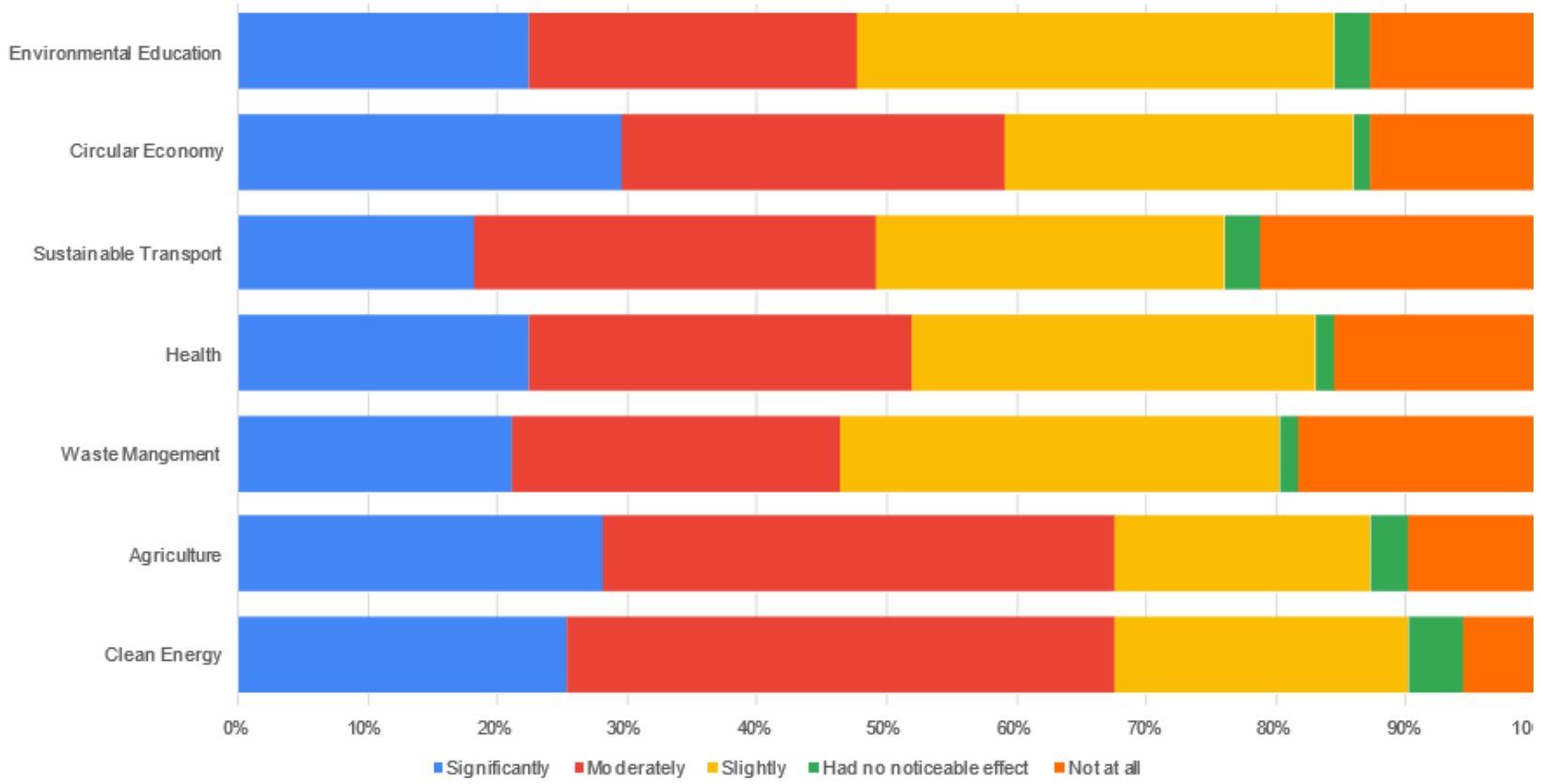
- Identified low impact of Smart Specialisation on waste management, indicating the need for more targeted interventions
- Sustainable transport showed limited progress in this regard, with gaps in infrastructure and policy support needing bigger attention

Impact on sustainable agriculture and circular economy

- Significant progress was reported in sustainable agriculture and circular economy practices based on Smart Specialisation, promoting resource efficiency

Key findings from the study

Perceived impact of Smart Specialisation on major sustainability areas in the region



Note: Closer the edges of the blue background to a certain area, stronger the effect on that area

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Key findings from the study

Barriers to digitalisation

- Ongoing barriers to digitalisation, especially in rural areas, remain a significant challenge, highlighting the need for improved infrastructure and access

Enhanced regional cooperation

- There seems to be a greater regional cooperation in environmental sustainability and innovation, driven by Smart Specialisation

Trust between the stakeholder could be improved

- Engagement of stakeholders is seen as high, but issues with trust and collaboration among them can limit effectiveness

Funding gaps exist

- Identified gaps in funding allocation, particularly in underfunded areas like digital infrastructure and green technology development

Innovation in green technologies

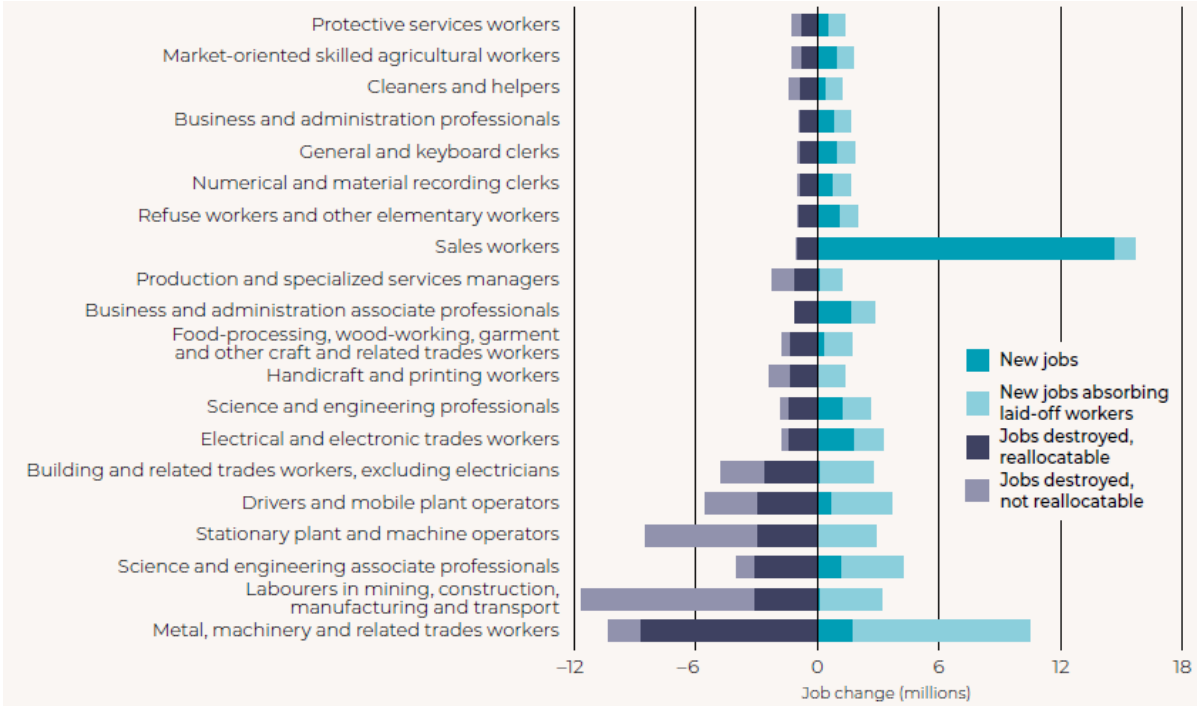
- Mixed results in green technology innovations, indicating a need for more support to scale and integrate these technologies into broader strategies

Skills responses to green transition

SKILL LEVEL	NATURE OF CHANGE	TYPICAL SKILLS RESPONSE	EXAMPLE OCCUPATIONS
Low-skilled occupations	Occupations change in a generic way, e.g. requiring increased environmental awareness or simple adaptations to work procedures	On-the-job learning or short reskilling and upskilling programmes	Refuse/waste collectors, dumpers
Medium-skilled occupations	Some new green occupations Significant changes to some existing occupations in terms of technical skills and knowledge	Short to longer upskilling and reskilling programmes; TVET courses	*New occupations:* wind turbine operators; solar panel installers *Changing occupations:* roofers; technicians in heating, ventilation and air conditioning; plumbers
High-skilled occupations	Locus of most new green occupations Significant changes to some existing occupations in terms of technical skills and knowledge	University degree; longer upskilling programmes	*New occupations:* agricultural meteorologists, climate change scientists; energy auditors, energy consultants; carbon trading analysts *Changing occupations:* building facilities managers; architects; engineers

Source: "Skills for green jobs" country reports, ILO, 2018.

Occupations most susceptible to job destruction and reallocation across industries in a global circular economy scenario, 2030



Note: The figure shows difference in employment between the scenario of a sustained 5 per cent annual increase in recycling rates for plastics, glass, pulp, metals and minerals across countries and related services, and a business-as-usual scenario (the 6°C scenario) (ILO, 2018a). For detailed information on the methodology see ILO, 2018a, pp. 39, 162–170.

Source: ILO calculations based on EXIOBASE v3 and national labour force surveys.

S3 and skills shortages in the Western Balkans – ETF agrifood study from 2025

- VET systems adapt slowly to evolving agri-tech labour market needs
- Shortages persist in digital, green and sector-specific practical skills
- Work-based learning and business–education cooperation remain limited
- Adult learning and agri-tech upskilling opportunities are insufficient
- Agri-tech businesses report gaps in graduates' practical competences
- Agriculture careers are losing attractiveness, especially among youth
- Skills shortages reduce incentives for businesses to invest in innovation
- Priorities include microcredentials, skills intelligence, upskilling and stronger ecosystem collaboration aligned with S3

Suggestions for future actions

- Smart Specialisation without sustainability is a missed opportunity for true transformation
- Smart Specialisation can drive transformative change in the Western Balkans but requires a stronger focus on integrating environmental sustainability with economic strategies
- Enhance regional cooperation, prioritise investments in digital infrastructure and green technologies, and implement robust monitoring and evaluation systems

- Explore regional collaborations in Smart Specialisation to look for synergetic effect and address shared sustainability challenges more effectively
- Investigate alternative funding strategies for underfunded areas like waste management and sustainable transport
- Longitudinal studies could be used to help in measuring the long-term impact of Smart Specialisation on sustainability in the Western Balkans

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Thank you

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