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Parallel session 5: Driving Innovation Diffusion and Digitalisation Trends

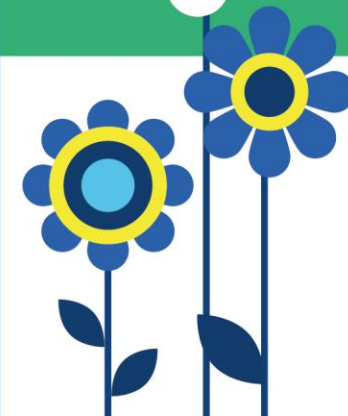
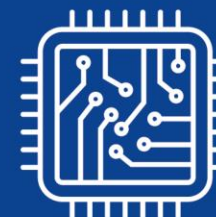


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Parallel session 5: Driving Innovation Diffusion and Digitalisation Trends

- **Thomas Wobben**, Director of Legislative Works for the COTER, ECON and SEDEC Commissions, Committee of the Regions
- **Vincenzina Cristofaro**, Project Manager, Direzione Generale Università, Ricerca, Innovazione, Lombardy, Italy
- **Daniel Všetečka**, Director, Department of digital economy and smart specialisation Ministry of industry and trade, Czechia
- **Kerstin Koren**, Head of Department of Economy, Tourism and Technology at the Office of the Lower Austrian Government, Austria

Moderator : Susana Elena Perez, S3 CoP Secretariat

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Driving Innovation Diffusion and
Digitalisation Trends

Thomas Wobben

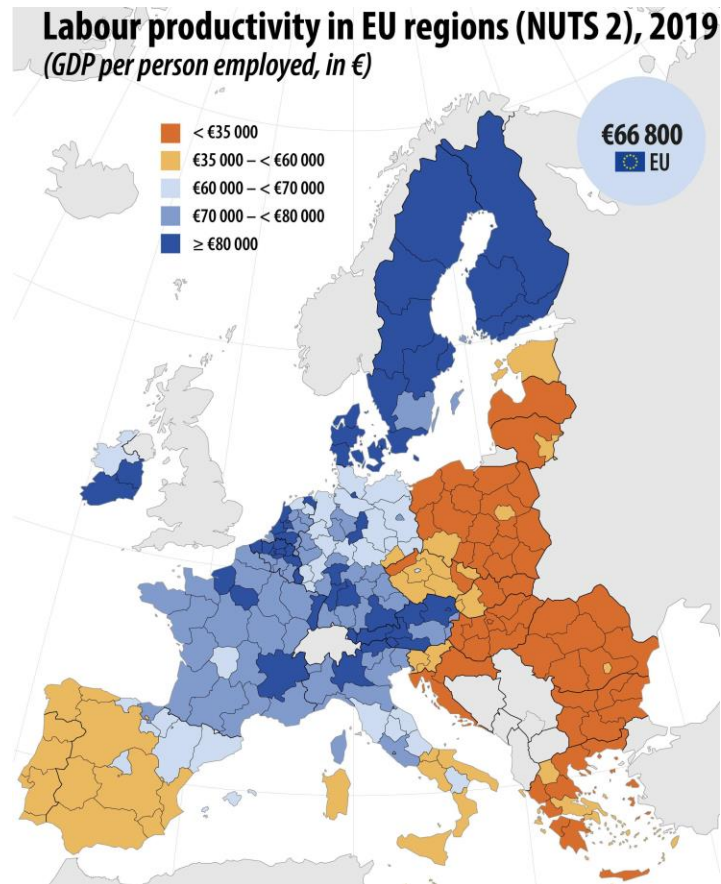
European Committee of the Regions



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Innovation Diffusion



- **Innovation diffusion** is a key driver for (total factor) productivity
- Despite the rise of digital technologies growth of productivity remains sluggish
- "**Productivity Paradox**": the rise of a number of breakthrough innovations coupled with a limited uptake of innovations across a broader range of companies, sectors or regions,
- innovation diffusion mechanisms are faltering
- Lagging territories face difficulties to develop **home-grown innovation** and to maintain their skilled labour force.

Digital Readiness

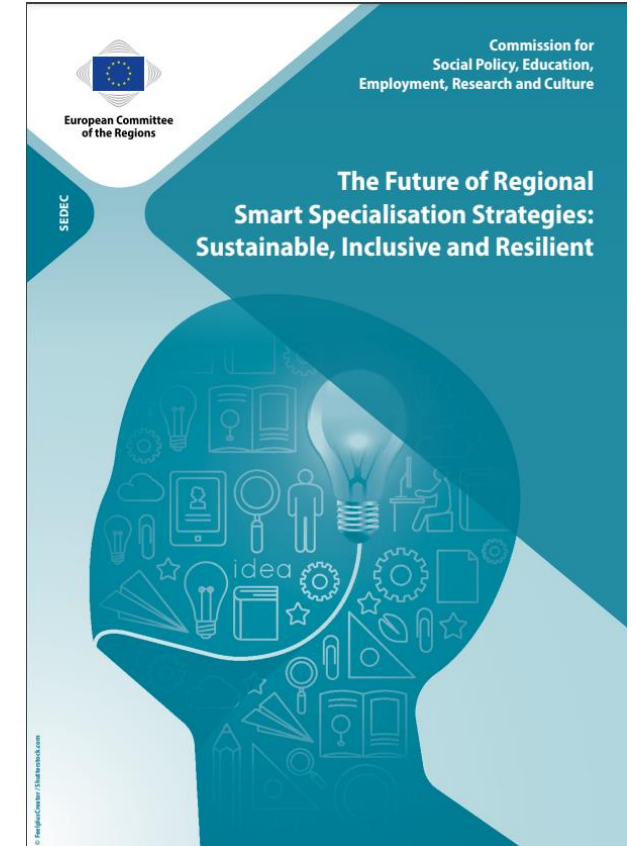


- Digital transition is likely to **consolidate regional disparities across Europe** as the better prepared regions are once again those with the highest level of economic development.
- **Regions with an already high growth potential** exhibit higher levels of digital readiness and are bound to benefit from the digital transition.
- These regions are mainly highly urbanised areas (**capital cities and other metropolitan areas**) and highly industrialised and high-tech intensive regions

CoR S3 Acceleration Index

For assessing the current implementation of the new dimensions of the S3, it is crucial to develop dedicated indicators.

- D1 – **Human Capital**: Growth in number of people employed in ICT (2017-2021).
- D2 – **Value Added**: Growth in Gross Value Added at basic prices in ICT (2016-2019).
- D3 – **Education**: Growth in number of employed people with tertiary education in Science and Technology (2016-2019).
- D4 – **Research**: Share of H2020 European projects in the Digital sector.
- G1 – **Waste**: Growth in Waste facilities (2016-2020).
- G2 – **Air**: Decrease in Air Pollution (2016-2020).
- G3 – **SDG**: S3 2021-2027 alignment with Green SDGs.
- G4 – **Research**: Share of H2020 European projects in the Environmental sector.



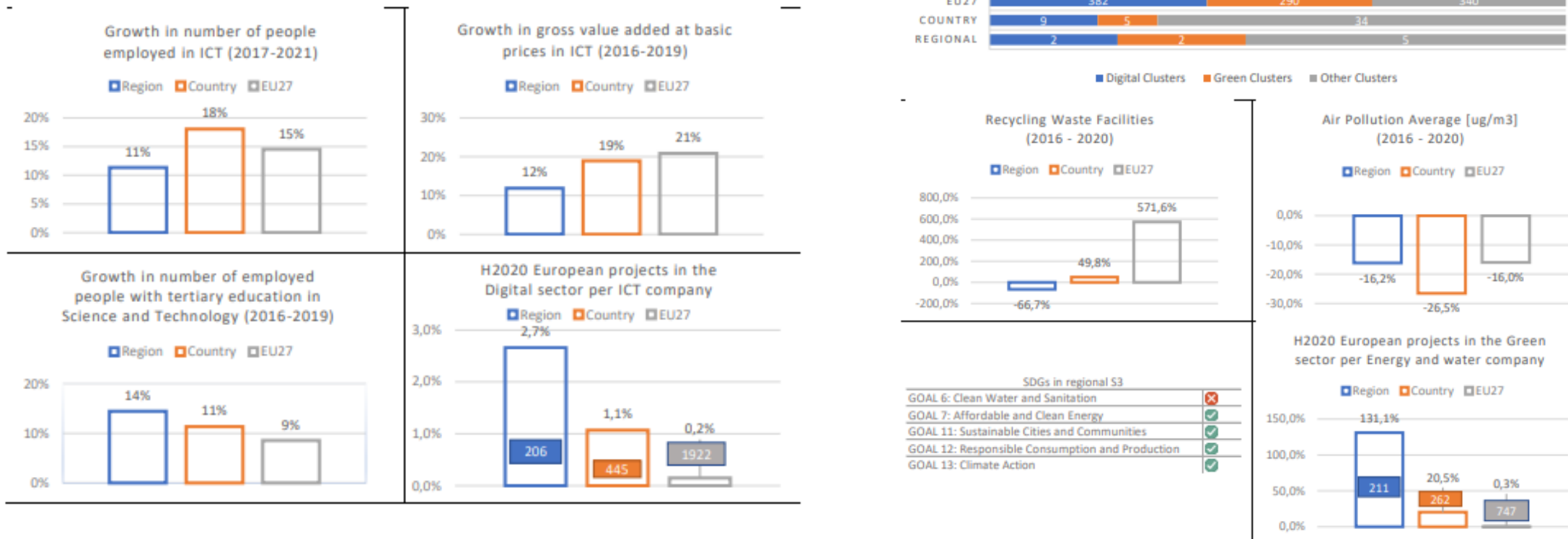
Focus on Clusters

The **strength of the Entrepreneurial Ecosystem** is calculated through the European Cluster Collaboration Platform, which maps and ranks clusters in Europe, including thematic specialisation and type of membership:

- [E1] share of total clusters,
- [E2] the share of Digital clusters
- [E3] share of Green clusters

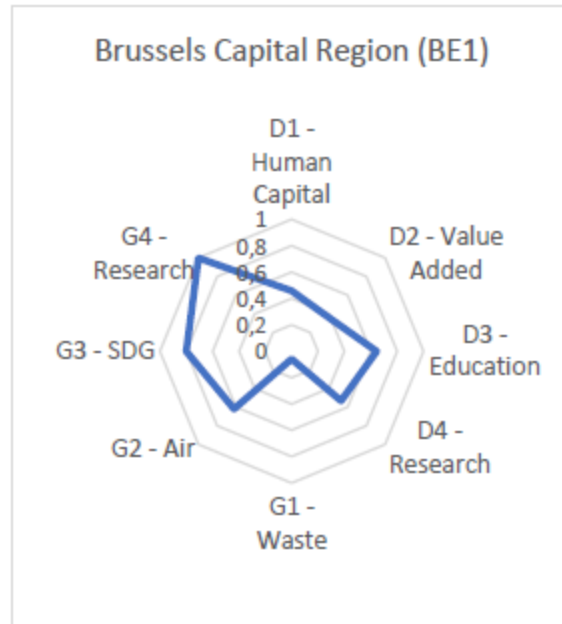
Getting a specific profile of the regions

Figure 1. Example of indicators to measure the new dimensions of the S3



Spyder Web and Case Studies

Figure 2 - S3 acceleration index



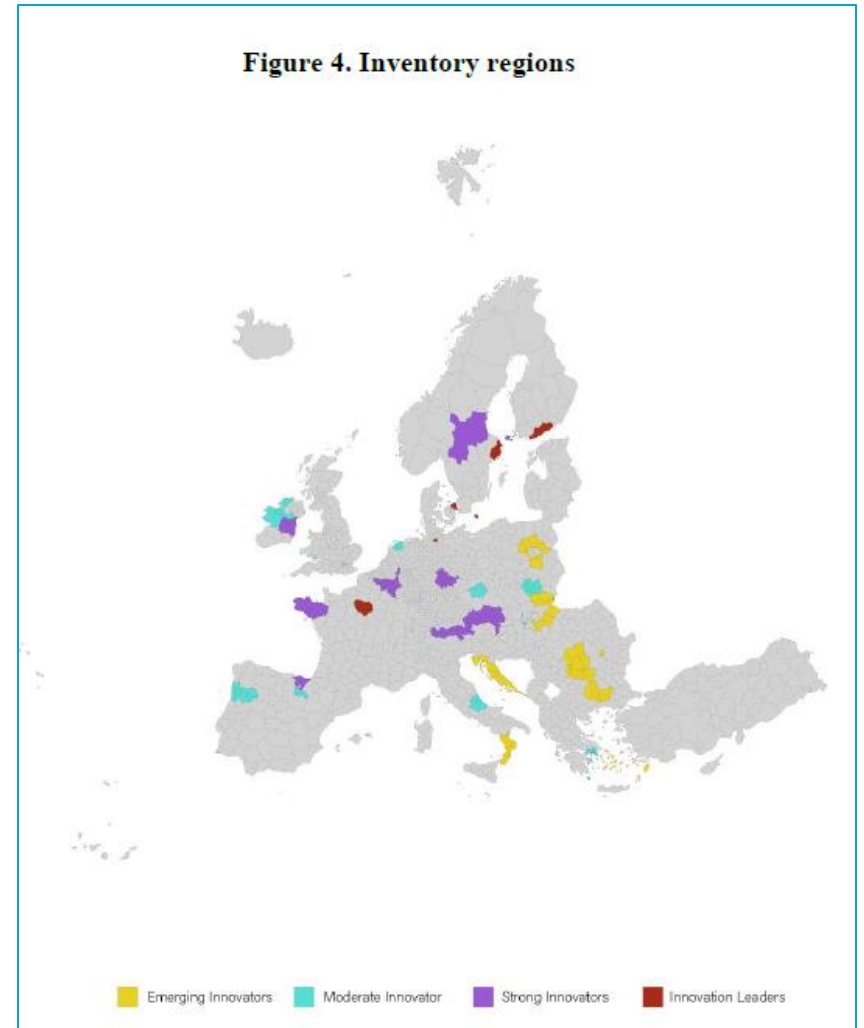
EIS/Summary
Innovation Index



4 categories of regions:

- Emerging innovators
- Moderate innovators
- Strong innovators
- Innovation Leaders

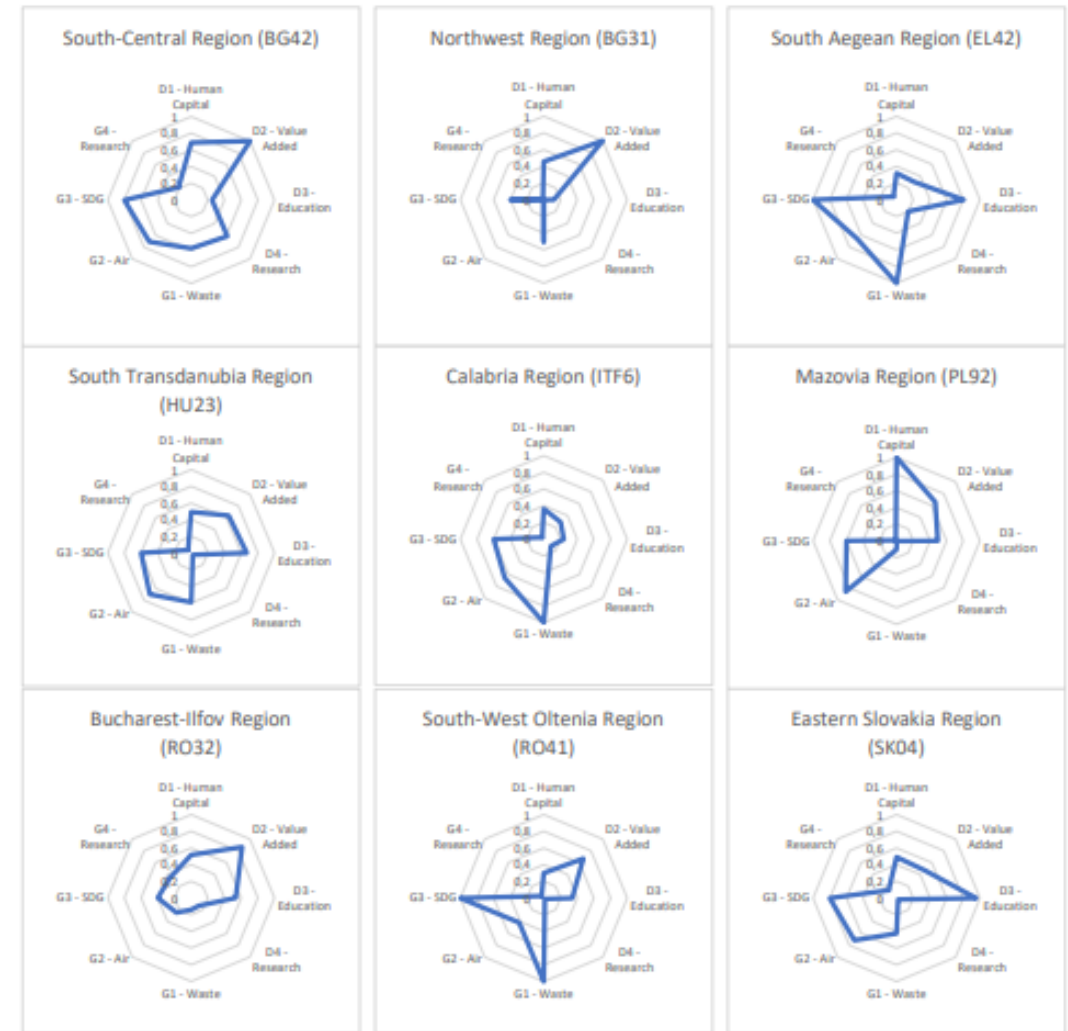
Figure 4. Inventory regions



Emerging Innovators

- South-Central Region (BG42),
- Northwest Region (BG31),
- South Aegean Region (EL42),
- South Transdanubia Region (HU23),
- Calabria Region (ITF6),
- Mazovia Region (PL92),
- Azores Region (PT2),
- Bucharest-Ilfov Region (RO32),
- South-West Oltenia Region (RO41),
- Eastern Slovakia Region (SK04), and
- Jadranska Hrvatska (HR)

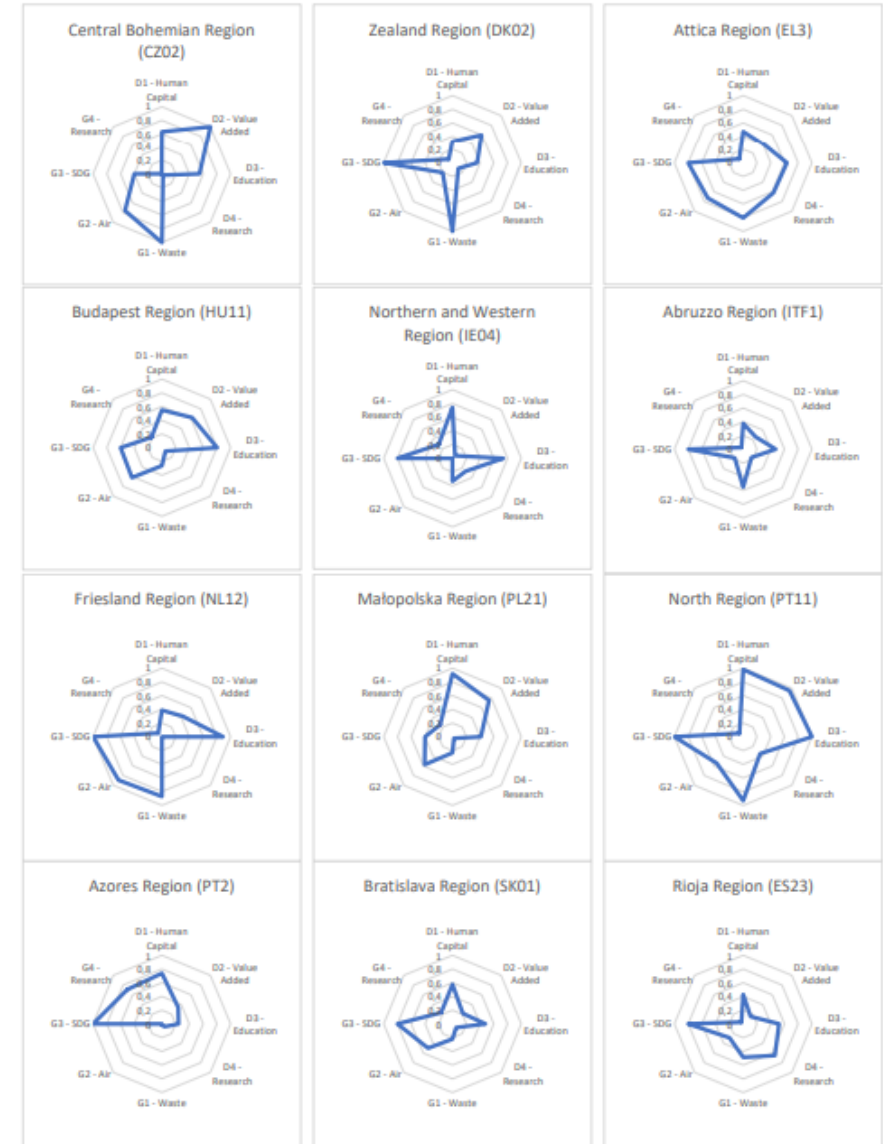
Figure 6. S3 acceleration index – Emerging Innovators group



Moderate Innovators

- Central Bohemian Region (CZ02),
- Zealand Region (DK02),
- Attica Region (EL3),
- Budapest Region (HU11),
- Northern and Western Region (IE04),
- Abruzzo Region (ITF1),
- Friesland Region (NL12),
- Małopolska Region (PL21),
- North Region (PT11),
- Bratislava Region (SK01), and
- Rioja Region (ES23)

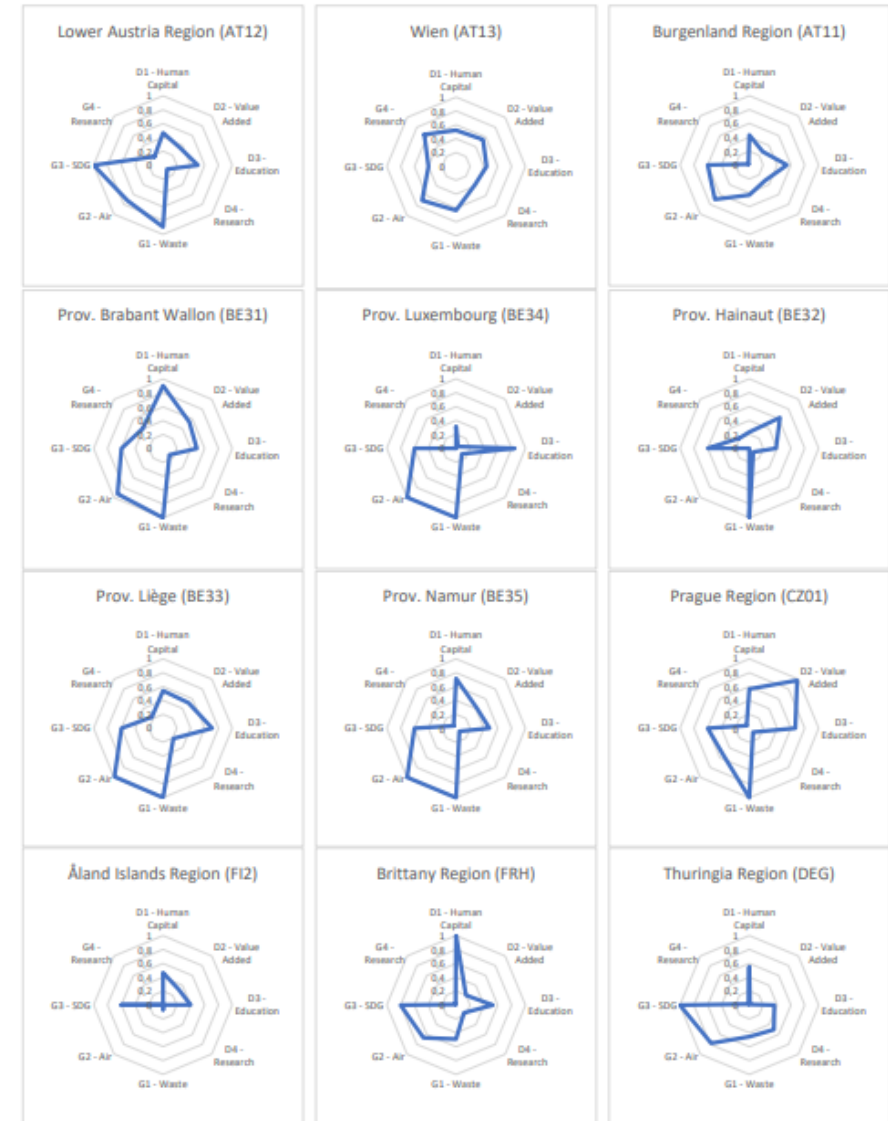
Figure 8. S3 acceleration index - Moderate Innovators group



Strong Innovator Group

- Eastern Austria Region (AT1),
- Western Austria Region (AT3),
- Walloon Region (BE3),
- Prague Region (CZ01),
- Åland Islands Region (FI2),
- Brittany Region (FRH),
- Thuringia Region (DEG),
- Eastern and Midland Region (IE06),
- Limburg Region (NL42),
- Basque Country (ES21) and
- North Middle Sweden Region (SE31).

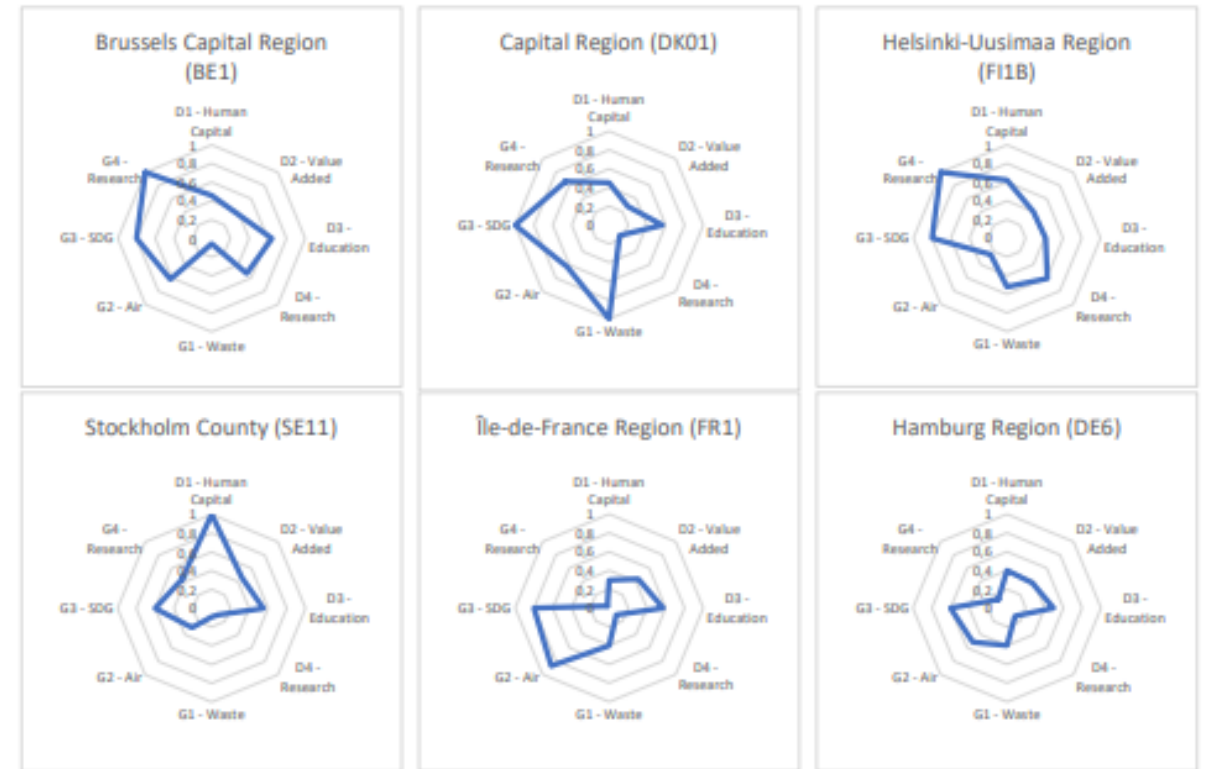
Figure 10. S3 acceleration index- Strong Innovators group



Innovation Leaders

- Brussels Capital Region (BE1),
- Capital Region (DK01),
- Helsinki-Uusimaa Region (FI1B),
- Île-de-France Region (FR1),
- Hamburg Region (DE6), and
- Stockholm County (SE11)

Figure 12. S3 acceleration index - Innovation Leaders group



Conclusions

- No one-size-fits-all solution
- Tap in what works in other regions
- New concepts needed (i.e. **Industry 5.0**) to strengthen European resilience through regional redevelopment plans that localise transformation strategies
- Territorial (innovation) divide remains high on the agenda
- Investment in skills remains essential
- Territorial foresight needed
- Strong focus on supporting place-based innovation needed
- Stronger directionality of smart specialisation to address the digital and green transition
- More policy coherence at all levels of government

Sources

- CoR Study: The Future of Regional Smart Specialisation Strategies - Sustainable, Inclusive and Resilient, 2023
- Workforce skills and innovation diffusion: trends and policy implications, R&I PAPER SERIES, WORKING PAPER 2020/01, European Commission
- The Future of EU Cohesion Effects of the Twin Transition on Disparities across European Regions, Bertelsmann Stiftung
- Updating Smart Specialisation: navigating from growth to the twin transition, A Friends of Smart Specialisation Side Event Workshop, European Week of Regions and Cities (EWRC)
- Industry 5.0, A Transformative Vision for Europe, ESIR Policy Brief No.3



Thank you for your attention!

thomas.wobben@cor.europa.eu

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Digitalisation within the
innovation diffusion process in
Lombardy



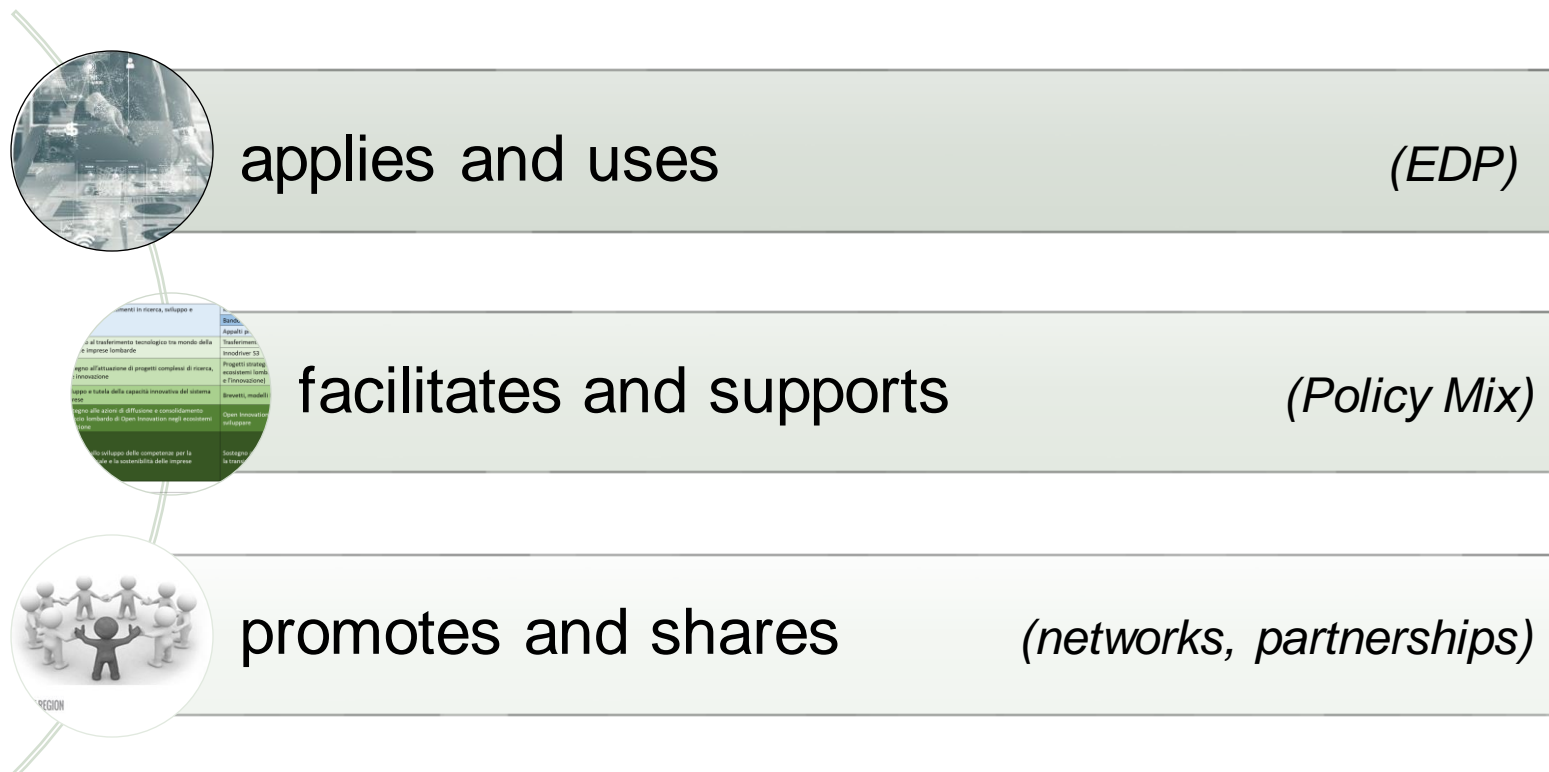
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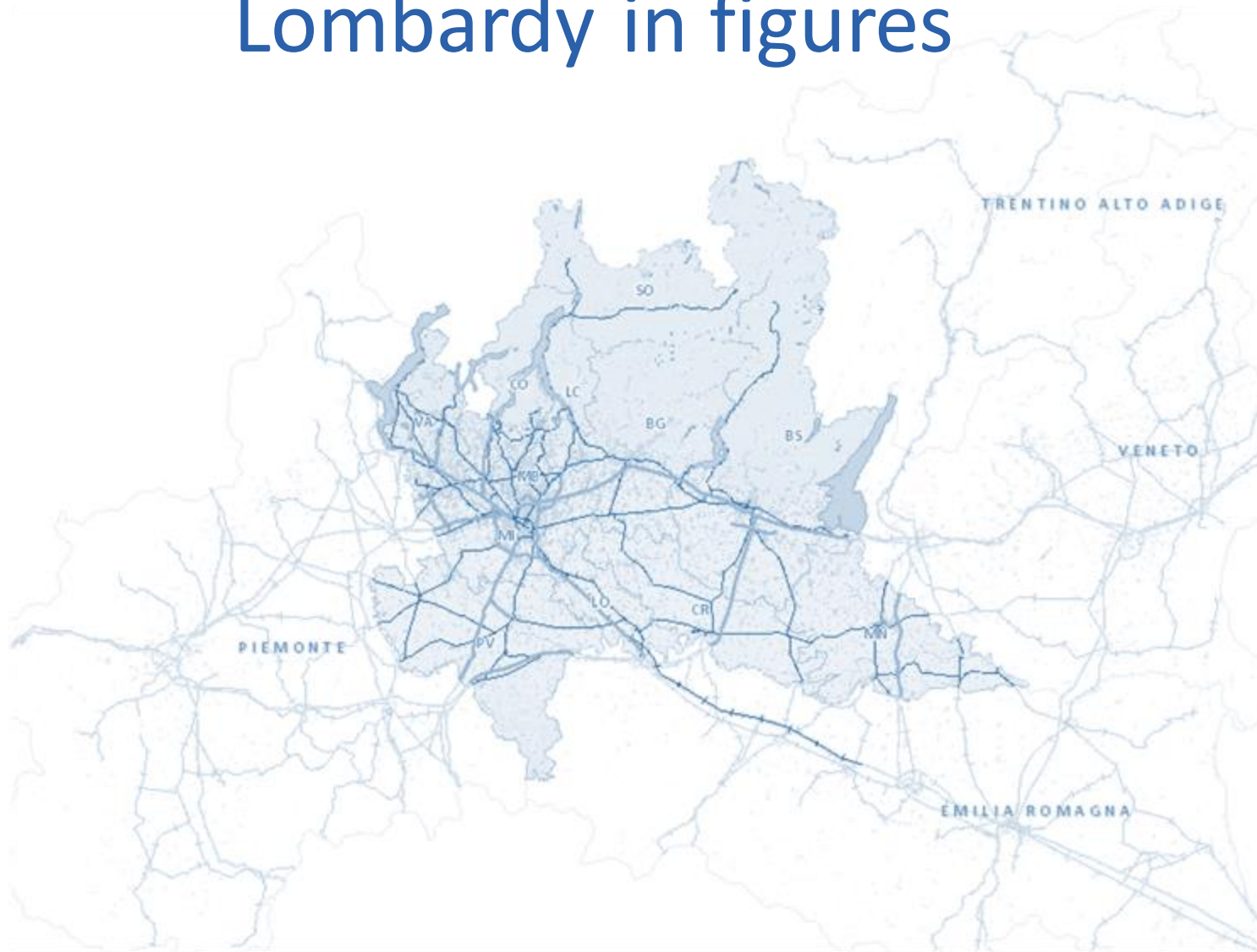
Digitalisation within the innovation diffusion process in Lombardy



Framework

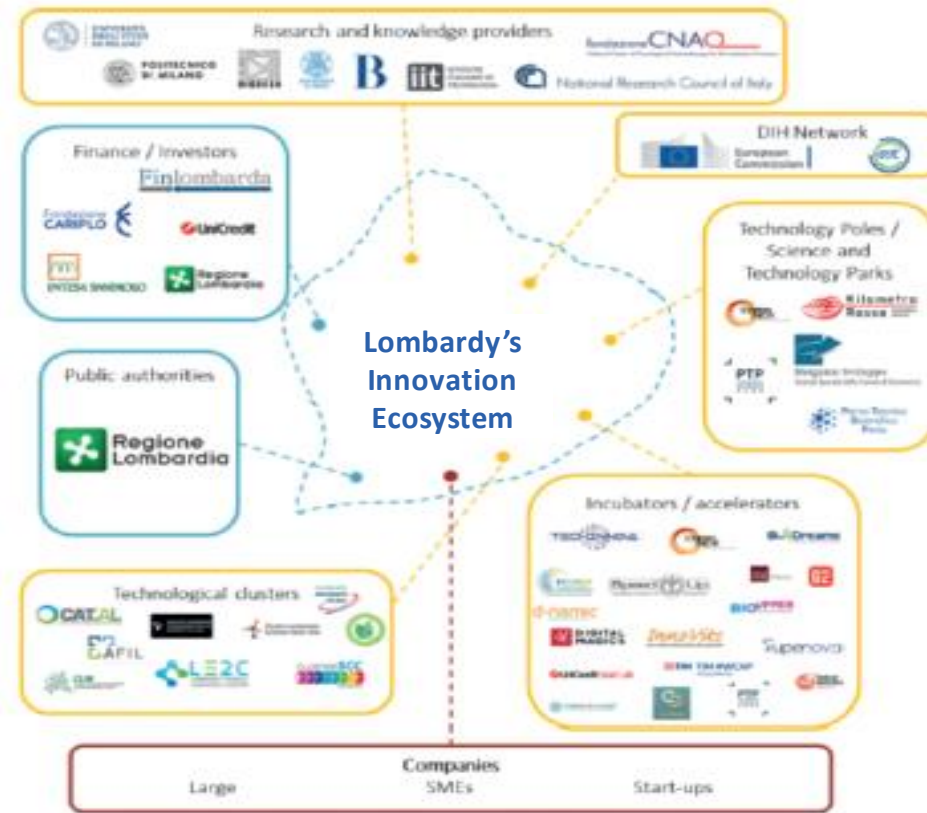
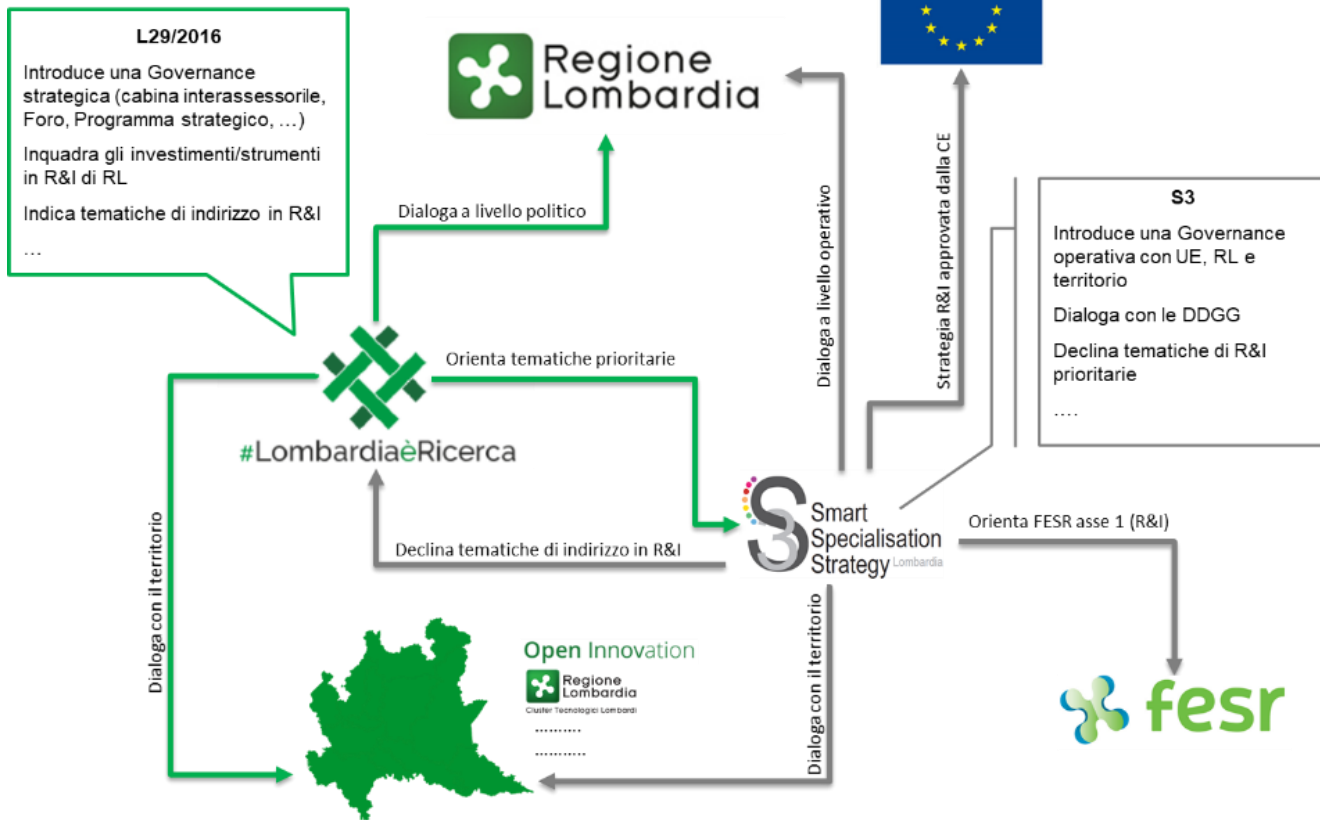


Lombardy in figures



- 10 million inhabitants
- € 385 BLN GDP
- 815 K n. of companies (2021)
- 75 K R&D workers
- 1,547 (EPO) patent applications (2021)
- 15 Universities,
- 19 Scientific Hospitalization and Care Institutes – IRCCS
- 12 NRC Institutes
- 5 Scientific and Technology Parks
- 9 Technological Clusters
- 1300 Research and Technology Transfer Centers

Lombardy's RIS3 and the innovation diffusion process



The process to build a shared vision

PROCESS MILESTONES and PARTICIPATORY PATH

Analysis of 656 surveys received as a response to the consultation S3 and enriched the work with stakeholders, Executive Board and SiReg

PHASE 1 SWOT ANALYSIS

Start activities with AdC
End July

Discussion AdC
End September

Sharing Foro Reg R&I
½ October

Update context data AdC
End September

PUBLIC CONSULTATION S3 on openinnovation.regione.lombardia.it/ - July - September

PHASE 2 ENTREPRENEURIAL DISCOVERY PROCESS

6th April 2020
Kick-off of the definition process of the S3 2021-2027

Discussion with GdL DDGG RL about priorities
End July

Collection priorities CTL
Early Sept

Collection AdC priorities
September

Sharing Foro Reg R&I
October

Communication of the Vicepresident of Regional Council about the outcome of public consultation S3
17 November

Involvement of thematic experts

Enterprises visits with AdC
September

PHASE 2 ENTREPRENEURIAL DISCOVERY PROCESS

NOTES

AdC – professional associations
Foro reg. R&I – regional forum for research and innovation
CTL – technological Lombard clusters

Discussion CTL about priorities
End September

Meeting CTL about tools
End October

Sharing Foro Reg R&I
Early November

Approval of the proposal for S3 2021-2027 by the Regional Council
December

Discussion with GdL DDGG RL about SAL S3
End September

Discussion with GdL DDGG RL
End October

Sharing Development Pact and rectors desk
Early November

Discussion with AdC about tools
End September

In-depth analysis tools AdC
End October

April

May

July

August

September

October

November

December



Lombardy's RIS3 2021-2027



Decembre 2020

RIS3 2021/2027
DGR XI/4155/2020

Decembre 2021

RIS3 2021/2027 / first update
Work Programme for R&I
2022-2023
DGR XI/5688/2021

Novembre 2023

RIS3 2021/2027 / second update
Work Programme for R&I
2024-2025

development of an “adaptive” S3
document updated continuously to always be current

Lombardy's RIS3 2021-2027 identifies two main challenges to address:

1

Supporting industrial transformation towards **digital transition and sustainable development** so to understand the evolving citizens needs as quickly and effectively as possible

2

Increasing the resilience and adaptability of the regional system to the rapid changes of the socio-economic and-productive system in order to ensure citizens safety and well-being

Lombardy's RIS3 2021-2027

STRENGTHS

- ▶ sectorial diversification
- ▶ a high rate of industrialisation
- ▶ strong activities in R&D
- ▶ interregional networks
- ▶ active universities and research centres

WEAKNESSES

- ▶ low number of patents
- ▶ difficulties in adopting sustainable business models
- ▶ high costs to introduce innovations

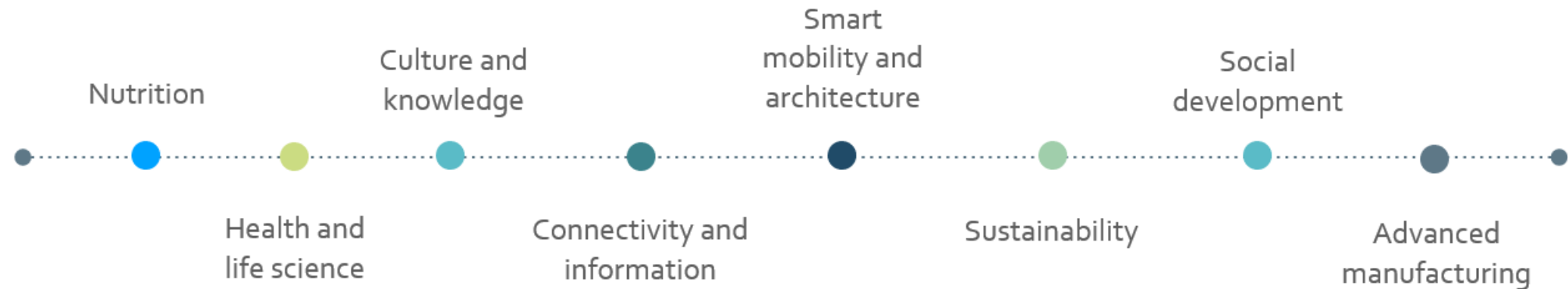
OPPORTUNITIES

- ▶ improvement of sectorial laws
- ▶ models of e-commerce
- ▶ development of enterprises' open innovation
- ▶ knowledge about regional and European tenders
- ▶ digitalisation of enterprises

THREATS

- ▶ low levels of digital skills
- ▶ lack of competences
- ▶ difficulties of investment for PMI
- ▶ lack of information

8 Innovation Ecosystems



The concept of “innovation ecosystems” represents a different tool for the comprehension and interpretation of the territorial dynamics and regional developments by taking into account the different *set of specificities, competencies and actors*, which contribute to **satisfy the needs of the citizen and concur in the generation of innovative capacity**. Nonetheless, this approach allows to better grasp the cross-cutting and cross-sectorial elements which characterize territorial development and its potential.

For each ecosystem, the Strategy illustrates the general needs, involved actors, regional priorities, and relevance in terms of R&I potential.

Entrepreneurial Discovery Process in Lombardy

EDP → significant role in the definition of the RIS3 for Lombardy by encouraging the co-creation of policies and actions through active interactions among private actors, public institutions, academic and research centers, as well as civil society.

Lombardy Region conceives the EDP → as a continuous process carried out in a systematic and dynamic way to ensure that all relevant actors are committed in the identification and *update of strategic priority domains, technological assets and opportunities to pursue*, also with reference to the international context.

During the programming period 2021-2027, the **development of an “adaptive” S3** will be ensured through the implementation of a **constant EDP** with the adoption of new policies for stakeholder engagement and the use of innovative methodologies for the collection of priorities and needs, for example big data analysis, artificial intelligence solutions and technological roadmaps.

The **EDP is particularly needed to build up the RIS3 Work Programmes for Research and Innovation** which are the **operational part of the Lombardy’s Strategy**. WPs include the **technological priorities, the expected impacts and the way of Lombard R&I system to compete to the attainment of the Agenda 2030 SDGs.**

Two-year Work Programmes allow to *respond to new technological developments and societal challenges, ensure an ongoing stakeholder engagement and provide a link between the strategic level and implementation.*

Entrepreneurial Discovery Process in Lombardy



Work Programme for Research and Innovation 2024/2025

27 macrothematics
93 technological priorities

		ECOSISTEMI							
COD	Macrotematica	CONNETTIVITÀ E INFORMAZIONE	CULTURA E CONOSCENZA	MANIFATTURA AVANZATA	NUTRIZIONE	SALUTE E LIFE SCIENCE	SMART MOBILITY & ARCHITECTURE	SOSTENIBILITÀ	SVILUPPO SOCIALE
MT01	Rimanere in buona salute in una società in rapido cambiamento				R	R			
MT02	Affrontare le malattie e ridurre il carico delle malattie					R			
MT03	Garantire l'accesso a un'assistenza sanitaria innovativa, sostenibile e di alta qualità	R				R			
MT04	Liberare il pieno potenziale di nuovi strumenti, tecnologie e soluzioni digitali per una società sana	T			T	T			
MT05	Mantenere un'industria della Salute innovativa, sostenibile e competitiva a livello globale					T			
MT06	Ricerca innovativa sul patrimonio culturale e sulle industrie culturali e creative		R						
MT07	Ricerca innovativa sulle trasformazioni sociali ed economiche		R						R
MT08	Proteggere meglio le comunità e i suoi cittadini dalla criminalità e dal terrorismo					R			R
MT09	Proteggere le infrastrutture	R							
MT10	Incrementare la sicurezza cibernetica			R	R	R			
MT11	Produzione climaticamente neutra, circolare e digitalizzata			T	T		T	T	
MT12	Incrementare l'autonomia nelle principali catene del valore strategiche per un'industria resiliente	R		R					

MT13	Incrementare lo sviluppo delle tecnologie basate sui dati e delle computing technology	T		T					
MT14	Tecnologie digitali ed emergenti per la competitività e rispondenti al Green Deal	T	T	T	T		T	T	
MT15	Sviluppo, implementazione e utilizzo di infrastrutture, servizi, applicazioni e dati globali basati sullo spazio	R							
MT16	Sviluppo etico e incentrato sull'uomo delle tecnologie digitali e industriali	T		R					R
MT17	Sviluppo di soluzioni intersettoriali per la transizione climatica			T	T			T	
MT18	Approvvigionamento energetico sostenibile, sicuro e competitivo							R	
MT19	Uso dell'energia efficiente, sostenibile e inclusivo							R	
MT20	Soluzioni pulite e competitive per il trasporto						T		
MT21	Trasporti sicuri e resilienti e servizi di mobilità intelligente per passeggeri e merci						R		
MT22	Biodiversità e servizi ecosistemici				T			R	
MT23	Sistemi alimentari equi, sani e rispettosi dell'ambiente dalla produzione primaria al consumo				T				
MT24	Economia circolare e settori della bioeconomia							T	
MT25	Ambiente pulito e zero inquinamento							R	
MT26	Comunità rurali, costiere e urbane resilienti, inclusive, sane e verdi						R		R
MT27	Governance innovativa, osservazioni ambientali e soluzioni digitali a sostegno del Green Deal				T			T	

Implementation lines / tools

Lombardy's RIS3 2021-2027 – action plan

1

enabling actions to reinforce the regional system of research and innovation through the paradigms of RRI and Open Innovation

2

actions supporting the technological transfer as well as the industrial research and innovation in the “innovation ecosystems”

3

actions supporting investments to foster digital transition and the adoption of sustainable development models

4

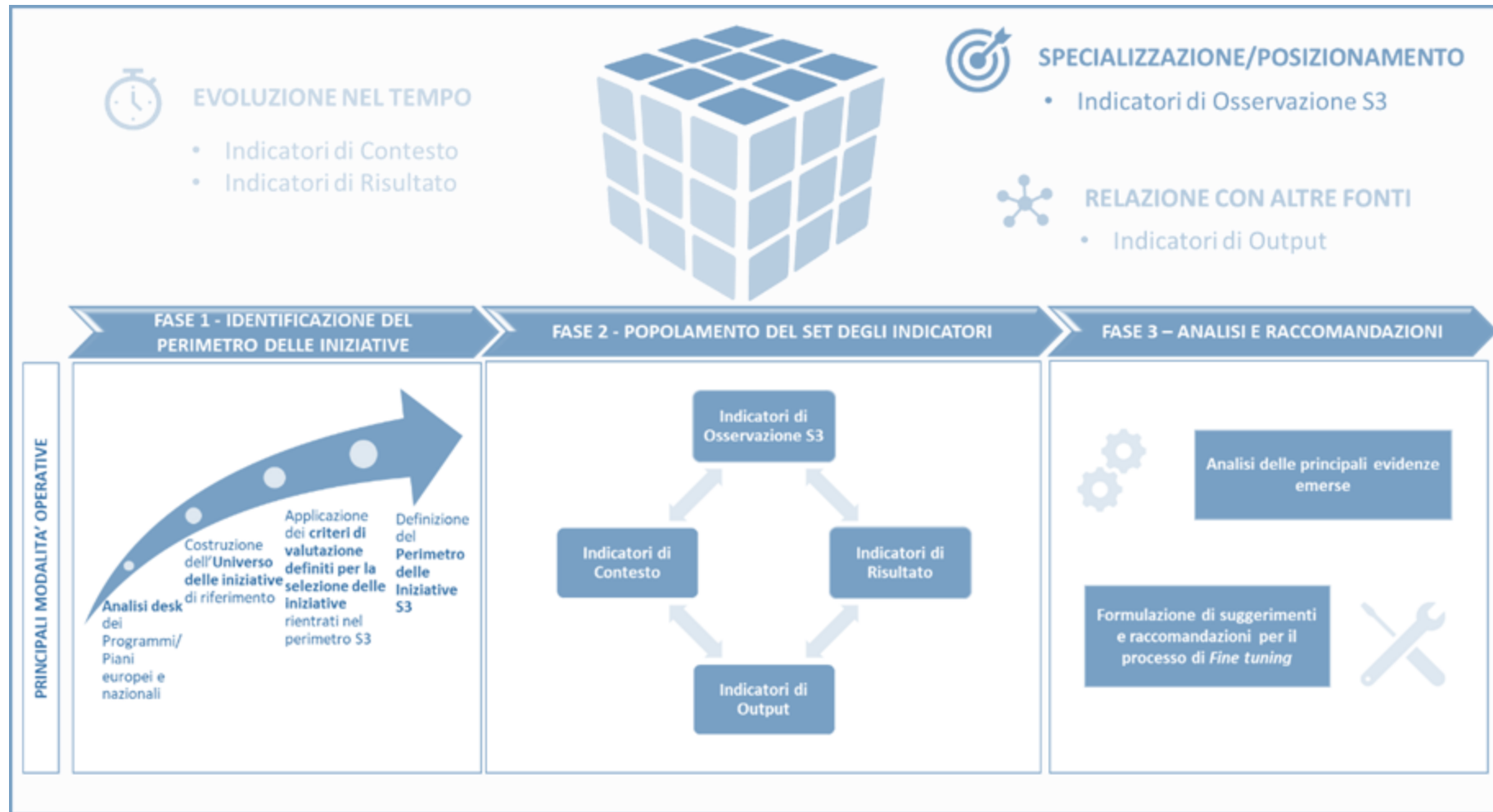
actions supporting the internationalization and the attractiveness of the regional system



OS,	Misure		Risorse
OS 1.1 Sviluppare e rafforzare le capacità di ricerca e di innovazione e l'introduzione di tecnologie avanzate	1.1.1. Sostegno agli investimenti in ricerca, sviluppo e innovazione	Ricerca & Innova	105.000.000,00
		Bando Filiere	4.000.000,00
		Appalti pre commerciali	10.000.000,00
	1.1.2. Sostegno al trasferimento tecnologico tra mondo della ricerca e delle imprese lombarde	Trasferimento tecnologico	27.000.000,00
		Innodriver S3	12.000.000,00
	1.1.3. Sostegno all'attuazione di progetti complessi di ricerca, sviluppo e innovazione	Progetti strategici per potenziamento ecosistemi lombardi (call Hub per la ricerca e l'innovazione)	307.500.000,00
	1.1.4. Sviluppo e tutela della capacità innovativa del sistema delle imprese	Brevetti, modelli EU e Internazionali	7.000.000,00
1.1.5. Sostegno alle azioni di diffusione e consolidamento dell'approccio lombardo di Open Innovation negli ecosistemi dell'innovazione	Open Innovation e altre iniziative da sviluppare	7.000.000,00	
OS 1.4 Sviluppare le competenze per la specializzazione intelligente, la transizione industriale e l'imprenditorialità	1.4.1. Sostegno allo sviluppo delle competenze per la transizione industriale e la sostenibilità delle imprese	Sostegno allo sviluppo delle competenze per la transizione e la sostenibilità delle imprese	22.000.000,00
			501.500.000,00

Monitoring and evaluation system

Lombardy's RIS3 – monitoring and evaluation system





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Driving Innovation Diffusion
and Digitalisation Trends

Daniel Všetečka



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Outline

S3 Highlights in the Czech Republic

Innovation diffusion in practice

Linking S3 with the national digital agenda

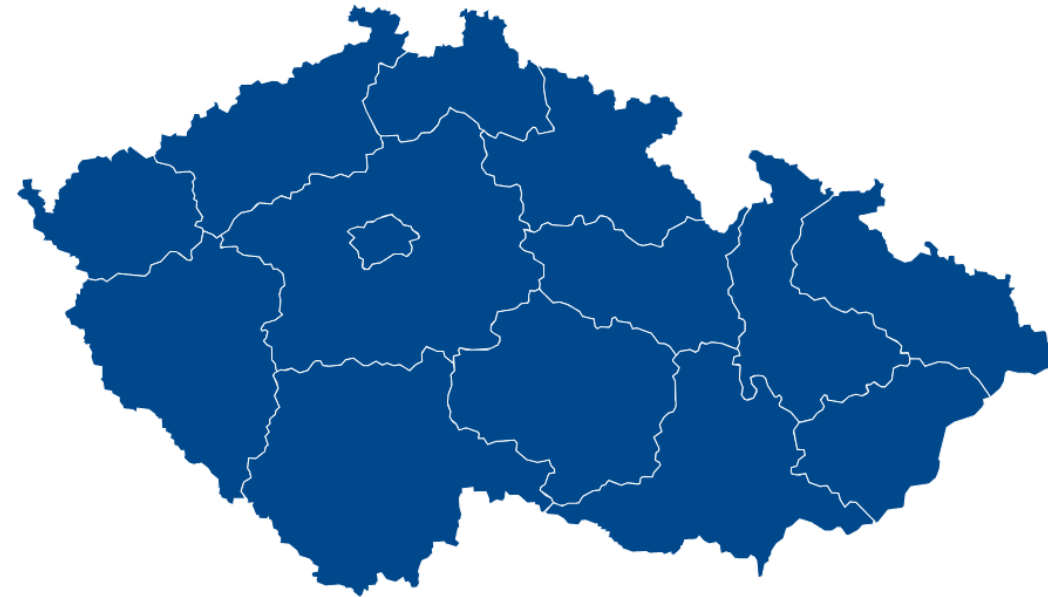
S3 Highlights in the Czech Republic

- Ministry of industry and trade in charge of CZ RIS3
- Czech regions are updating their S3 strategies based on national S3
- National S3 missions – a new approach to support research and innovation policy “via addressing societal challenges”
- Focus on sustainability - pilot project with JRC
[„Aligning smart specialization with transformative innovation policy”](#) (2023)
- Introduction of [RIS3 portal](#) mainly for EDP and data sharing
- S3 implementation is in full swing (also S3 missions)
- Key input from the regions (EDP – evaluation, monitoring)



Innovation diffusion in practice

- Czech Rep. participated in OECD project [„A self-assessment toolkit for regional innovation diffusion“](#) to identify barriers to regional innovation diffusion (2021)
- The [Final report](#) revealed strengths and weaknesses of innovation diffusion channels in Czech regions that helped policy makers to set more efficient innovation ecosystem
- S3 adopted by regional governments have contributed significantly to intensifying innovation diffusion



How do we ensure diffusion?

- We implement EDP at the national level as well as at the regional level
- Information diffusion among academia, business and public administration (triple helix principle)
- Regular meetings of the national RIS3 team with support providers (experience exchange and knowledge sharing)
- [RIS3 portal](#) – efficient communication tool
- Utilizing S3 outputs and processes in national digital agenda activities

Digital agenda reflected in S3

- Horizontal priorities
 - Digital agenda (insufficient communication infrastructure, low level of eGovernment, inability of companies to use the potential of digitalization)
- Vertical priorities (domains of specialisation)
 - R&D&I themes in key and emerging technologies (KETs) (R&D)
 - Artificial Intelligence
 - Digital security and connectivity
 - Digital themes in application industries (innovation/applications)
 - Use of artificial intelligence
 - Application of HPC
 - Applications of quantum computing and technology
 - Data-driven economy
 - Topics in the social sciences and humanities
- Societal challenges - National RIS3 missions
 - Strengthening Societal Resilience to Security Threats
 - Improving the material, energy and emission intensity of the economy

S3 linked to → National digital agenda

- **Policy level**

- Digital Czechia (Digital economy and society strategy)
- National AI strategy (ongoing update process)

- **New ecosystem tools**

- Technology incubation start-up programme (CzechInvest agency)
- European Digital Innovation Hubs network (4xAI, 1x HPC, 1x Cybersecurity)
- AI Testing and experimentation facility in manufacturing (AI-Matters Network)
- Digital sandbox under preparation

- **Finance**

- Enterprise digital transformation grant programme (RRF)
- Digital Europe programme / Horizon Europe / Cohesion funds ...
- Venture capital (funds in cooperation with EIF)

- **Regulation**

- Digital Decade Policy Programme
- Platform 2 business regulation (P2B), Data Governance Act (DGA), Digital Services Act (DSA), Artificial Intelligence Act (AIA), Data Act ...



Thank you for your attention!

vsetecka@mpo.cz

www.ris3.cz

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Experiences and lessons learned from
the implementation of the Lower
Austrian Digitalisation Strategy as part
of the Lower Austrian S3



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Lower Austria – facts & figures



19,177 km², Largest Austrian region



Surrounding the federal capital Vienna



1.72 million inhabitants,
“bacon-belt” vs. sparsely populated rural areas



R&D centres, competence centres well-developed
high-tech infrastructure – **critical mass through specialization in technological niches**



Heterogeneous economic landscape



113,841 companies in Lower Austria;
63.4% SPE, 27.7% very small, 6.9% SME >10, 0.2% large enterprises



Keys for successful implementation

Find someone who cares!



Keys for successful implementation

- Interaction of regional strategies

economic strategy



- High-tech & regional centers
- Smart products, materials & production
- Digital Transformation
- Green Transformation

RTI strategy



- Health & Nutrition
- Environment, Climate, Resources
- Digital Transformation, smart production & materials
- Society & Culture

digitalization strategy



- Digital fitness: awareness, training, R&D
- Digital infrastructure: connectivity, infrastructure
- Digital solutions: platforms, data, e-government

Deutsch: [NÖ Strategien, Konzepte, Berichte](#)
English: [Economic Strategy](#), [Digitalisation Strategy](#)

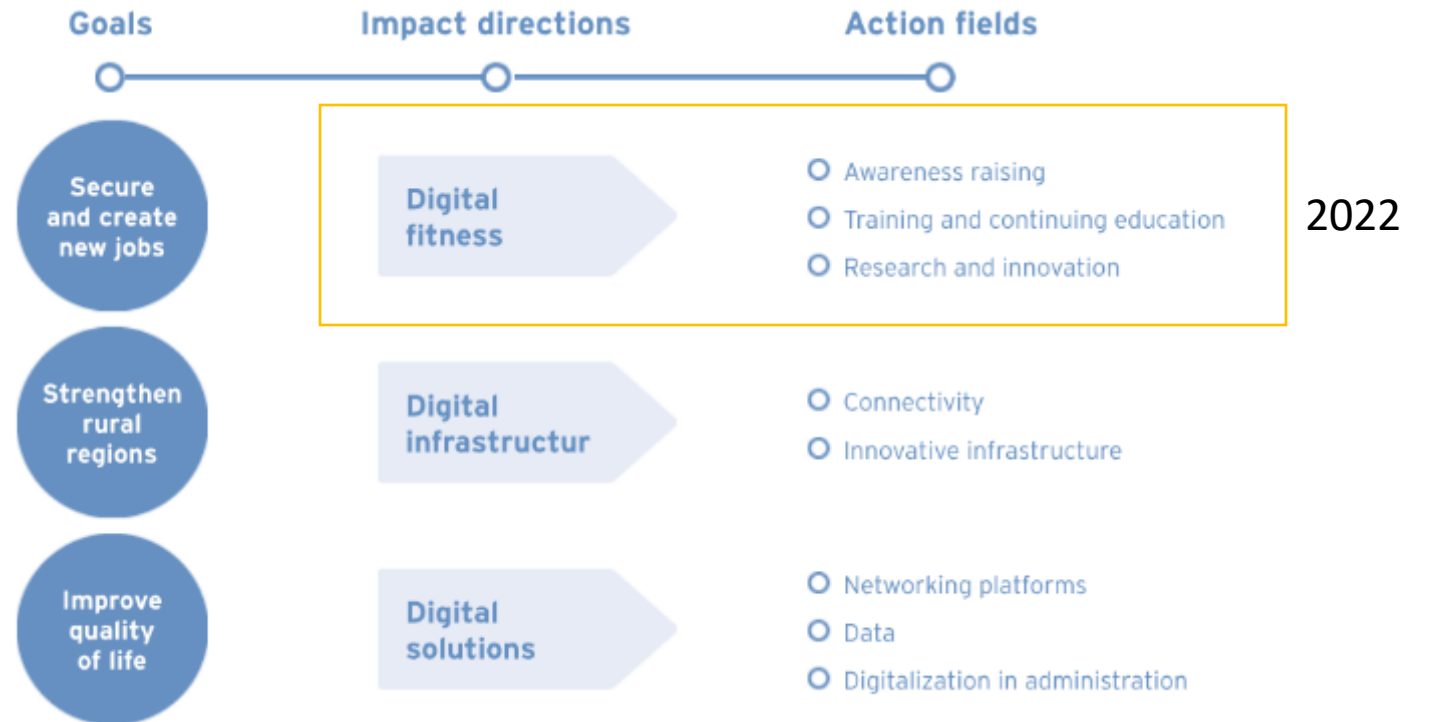
Keys for successful implementation

- Interaction of regional strategies
- **Bring all stakeholder on board**



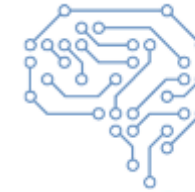
Keys for successful implementation

- Interaction of regional strategies
- Bring all stakeholder on board
- **Define goals & yearly programm**



Keys for successful implementation

- Interaction of regional strategies
- Bring all stakeholder on board
- Define goals & yearly programm
- **Implement monitoring and steering (BSC)**



Action field: "Training and continuing education"

The "Training and continuing education" action field teaches digital skills. It starts at kindergarten age and includes all sectors of the population.

Key indicators and results in 2022



Keys for successful implementation

- Interaction of regional strategies
- Bring all stakeholder on board
- Define goals, yearly programm
- **Implement monitoring and steering (BSC)**

Balanced Score Card (BSC)



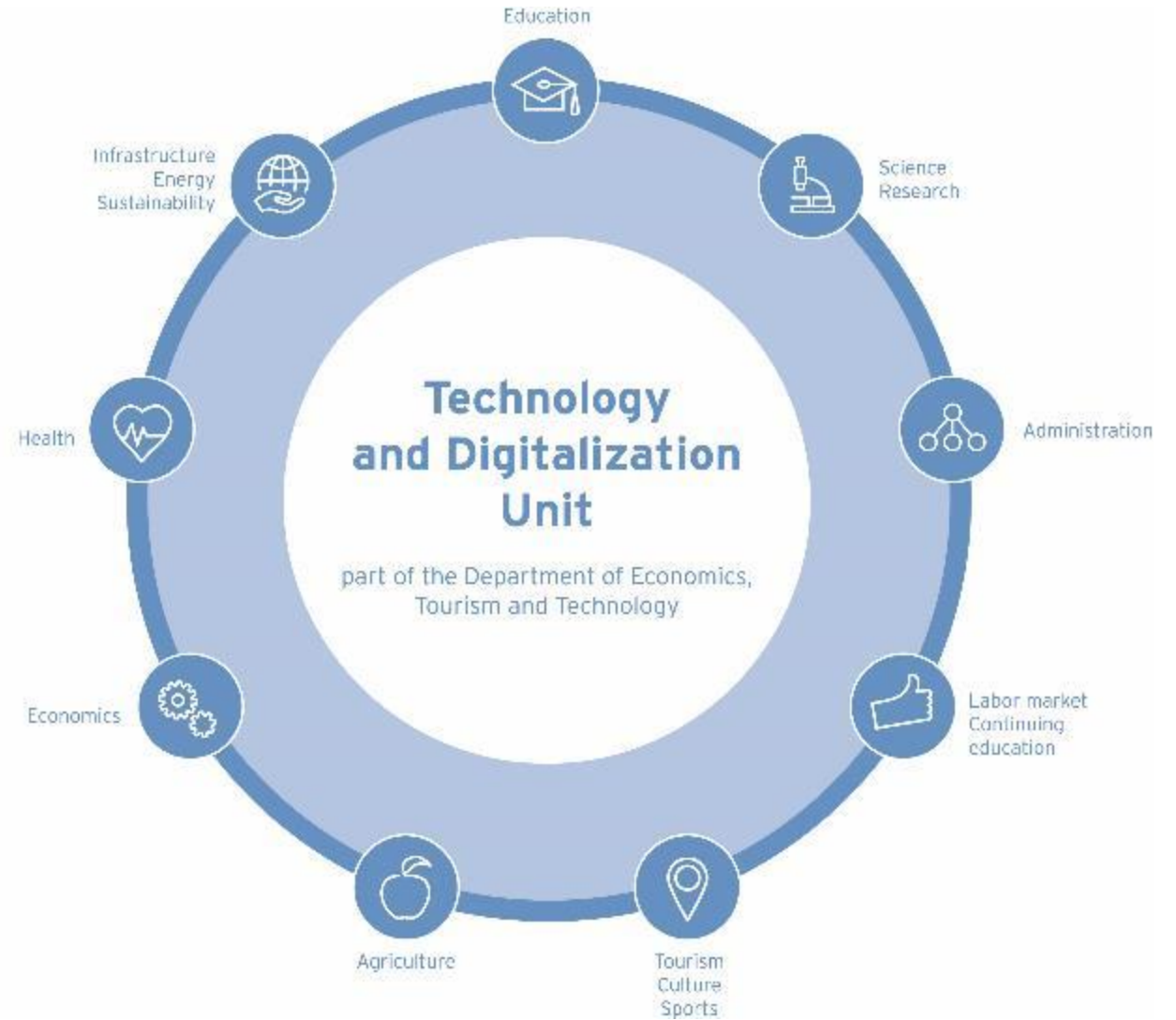
Keys for successful implementation

- Interaction of regional strategies
- Bring all stakeholder on board
- Define goals, yearly programm
- Implement monitoring and steering (BSC)

Preparation phase

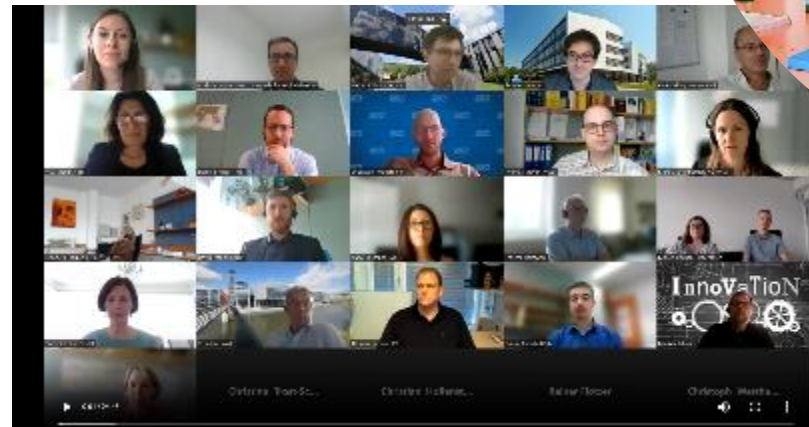
Keys for successful implementation

- **Initiate new rules**



Keys for successful implementation

- Initiate new rules
- **Work in different settings**



Keys for successful implementation

- Initiate new rules
- Work in different settings
- **Encourage new ideas**

Digi contest 2.0

Target:

Finding innovation ideas for the further digitalization of the lower Austrian provincial administration.

The only condition:

All submitted ideas must be within the jurisdiction of the lower Austrian State Service and can also be implemented there.

Target group:

All employees of the lower Austrian State administration and lower Austrian road service, State Health Agency (LGA), Kindergarten

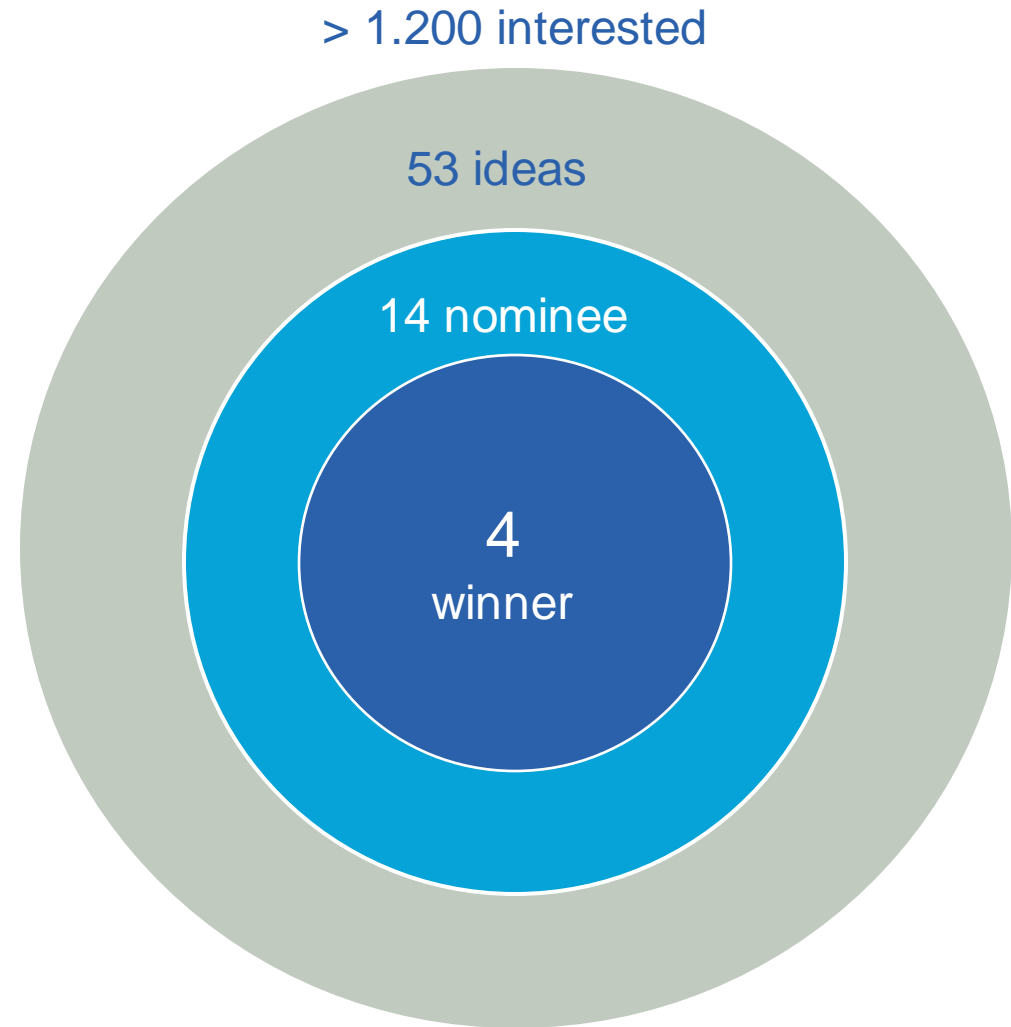
Goal:

The best ideas are identified by a jury, awarded and implemented as a priority.



Keys for successful implementation

- Initiate new rules
- Work in different settings
- **Encourage new ideas**



Keys for successful implementation

- Initiate new rules
- Work in different settings
- Encourage new ideas
- **Leading by example**



Keys for successful implementation

- Initiate new rules
- Work in different settings
- Encourage new ideas
- Leading by example
- **Encourage new ways**



Sandpit Method

Why?

Bringing together most diverse parts of society and forming interdisciplinary teams for development of innovative solutions

- New constellations of cooperation emerge
- Intensive discussion, thinking is encouraged
- Innovative, compact, problem-solving-oriented work

How?

- Bringing together different perspectives and generations
- Create new ideas
- Mock ups
- Deciding which ideas to implement

LENIE – Living in Lower Austria

LENIE emerged from four ideas that were developed in the Sandpit process

"Digital Solutions for Successful Village and Community Life"

an innovative citizen participation process throughout Lower Austria.

LENIE- Life in Lower Austria

is a **digital pilot platform** that aims to strengthen and actively develop village and community life



Further Information under [LENIE.AT](https://www.lenie.at)



Keys for successful implementation

And while you are at work:

Don't forget

the monitoring and steering!



Thank you !

kerstin.koren@noel.gv.at



Thank you for your attention!

If there are any questions, feel free to ask!

#S3Cop



European
Commission



Generalitat
de Catalunya



Thank you !

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