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TeRRitoria

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**Report and sustainability plan of the Transformative Experiment
in Emilia-Romagna**

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Introduction

This deliverable describes the experimental approach of the TeRRItoria project and will serve to record the extent to which Territorial RRI can generate institutional change(s) by applying an RRI approach to territorial based strategies. Indeed, the objective of this deliverable is to describe the founding conditions of the experiments in each territory, the activities carried out during the experiment, the institutional changes and lessons learned by territorial partners and the sustainability and exploitation plan foreseen. Based on previous activities undertaken in other Work Packages, Work Package 5 aims at implementing and reporting on the five Transformative Experiments:

1. Developing a Gender Equality Plan in regional R&I system in Central Macedonia;
2. Introducing RRI in the governance of regional R&I system of Emilia Romagna;
3. Connecting sparsely populated territories' actors with urban R&I facilities in Trøndelag;
4. Establishing knowledge brokering platform for sustaining mountain communities economic and social development in North-East Romania;
5. Transformative Experiments in the Municipality of Gabrovo

The experiments are based on the adoption of Territorial RRI measures in order to open the R&I ecosystems and to trigger institutional change(s) within the regional organizations involved, which may be sustainable also beyond the end of the project.

The five experiments have been shaped by common principles. They are:

- participatory in nature and aimed at involving the regional organizations together with other societal stakeholders of the territory, starting from those mapped in WP2;
- based on the development of Territorial RRI approaches and tools as provided by WP3 analysis. In particular the work done to identify Bottom-up Innovation Governance Practices and RRI Governance Innovation Practices, and the Matrix elaborated in deliverable 3.3¹ are really relevant to the scope of this deliverable.
- based on a co-design phase during which stakeholders have been asked to shape the experiments boundaries and potential outputs/outcomes (WP4)
- involved in evaluation activities developed in WP6, taking care of designing proper output and outcome indicators with inspiration from e.g., MORRI or SDG indicators. For a full analysis of outcome and impact and the evaluation process of the implementation phase, please refer to Deliverable 6.2 and 6.3²;
- related to Mutual learning and policy advice activities developed in WP7: references to the final policy recommendations and mutual learning process analysis could be found in Deliverable 7.2 and 7.3³;
- supported through a technical assistance by a specific research partner for each territory.

The sustainability plan will be based both on exploitation of project activities after its end and real introduction of institutional change(s) within the regional R&I strategies.

This document is the deliverable D5.2 of Work Package 5

¹ Cfr D3.1, D3.2 and D3.3 available here: <https://zenodo.org/communities/territoria/?page=1&size=20>

² Available here: <https://zenodo.org/communities/territoria/?page=1&size=20>

³ Available here: <https://zenodo.org/communities/territoria/?page=1&size=20>

Technical assistance to Territorial Partners

During the implementation phase, Technical Assistance Meetings (TAMs) have been organized on a regular basis to help them identify challenges and opportunities in implementing the experiment.

TAMs were organized by ART-ER (WP5 leader) jointly with SEERC (WP7 leader) and Aarhus University (WP6 leader). Eurada (WP8 leader) joined the meeting in order to get some useful information for communication purposes and to define a communication plan really linked with the ongoing process of experiments implementation.

The Emilia Romagna TA meeting was conducted by ART-ER expert and included the participation of Territorial Experiment partners and Territorial Research Partners, in order to fully discuss about experiment implementation challenges.

Meetings were organized two weeks after the deadline proposed to submit Research Diaries (tools used in the framework of WP7 to help territories in keeping trace of the experiment activities, outputs and expected outcomes). They were not a deliverable, but a useful way to share feedbacks and information on experiments, and the technical assistance meeting started from an analysis of those diaries to discuss about experiment implementation in each territory. Research Diaries and Technical Assistance Meetings have been a tool to guide the conversation on process evaluation provided in Work Package 6.

Defining the experiment: why Territorial RRI

The first section is dedicated to briefly define the experiment rationale. In this deliverable, a summary of what was foreseen at the beginning of the project will guide the reader in an overview of the experiment as it was conceived. For a full reference to experiments contents, preliminary co-design phase and process evaluation please refer to deliverable 2.3, 4.2 and 6.2⁴.

The experiment to be implemented in Emilia-Romagna was related to:

- inserting the framework of Responsible Research and Innovation (RRI) into the development and implementation of the Regional Smart Specialisation Strategy 2021-2077 (RIS3/S3). The overall purpose and motivation of the Transformative Experiment (TE) is to find new methodologies to involve civil society organisations (CSO) and citizens in actively co-design and co-create the next research and innovation policy framework for the Emilia-Romagna Region. The idea is to have CSO more and more included in R&I projects funded through regional ERDF. The experiment focuses on two particular RRI keys, public engagement and science education, in addition to an overall governance perspective.

The regional experiment was intended to deepen some aspects of the following RRI dimensions and keys⁵:

- In terms of **public engagement**, this key was prioritized in the first part of the experiment by focusing on establishing a dynamic and continuous engagement procedure for involving a large number of relevant stakeholders, including civil society representatives and citizens in all the various phases of S3.
- The **science education** perspective focused on interconnecting research with training policies, identifying and understanding more carefully the evolving regional training needs and appertaining professional profiles.
- The **governance** key was intended to be a transversal one: the idea is to set up new and innovative governance framework to involve territories in the definition of R&I priorities through the lenses of collective intelligence and response-ability.

Institutional change(s) expected from the experiment were twofold:

- on one side a change is needed in including civil society in R&I projects; on the other side, there is a need to enable the innovation ecosystem to be more responsible in terms of territorial impact of their projects. Critical factors regard the way in which R&I has been funded in the last 20 years, without really directly involving territories in setting priorities, but only R&I leaders and some enterprises. Last, there is a need to implement RRI in the practice of ART-ER as an organization dealing with the overall coordination of the Regional Innovation Ecosystem.

The development of Territorial RRI, then, is interpreted as a strategic framework for:

- widening the number and types of territorial actors included in R&I ecosystems;

4 Available here: <https://zenodo.org/communities/territoria/?page=1&size=20>

⁵ Please refer to the 4 dimensions and 6 keys of the Institutional RRI approach as defined in D3.3, pag. 13

- enhancing the capacity of territorial R&I systems to anticipate the ongoing transformations;
- activating reflexive processes in R&I governance at the local level;
- increasing thus the capacity of R&I systems to respond to the above-mentioned challenges and needs set by the interplay between science and society.

SWOT Analysis⁶: challenges before implementing Territorial RRI approach:

	Helpful	Harmful
	Strengths	Weaknesses
Internal capacities	<ul style="list-style-type: none"> ● An industrial system strongly integrated around a few areas of specialization, highly articulated around local infrastructures and competences, public and private labs ● High specialization and attention to product and process innovation by companies ● Growing collaborative relationships between innovative companies and research facilities ● A widespread research system, quite integrated with the production system ● An attention to responsibility in funding R&I through the acceptance of the CSR charter ● ART-ER as coordinator of innovation ecosystem implementing regional strategies 	<ul style="list-style-type: none"> ● Institutional rigidity of research organizations ● R&I grants and policies more dedicated to product innovation and establishment of physical infrastructure; need to fund more open and challenge-based innovation ● Scarce connection between education, training and universities and low level of dissemination of public and private research; ● Need to foster capacities and skills of researchers in engaging citizens ● Poor competitiveness and weak role of services dedicated to open innovation ● Low presence of civil society actors and low level of involvement of “other” territorial actors in defining R&I priorities.
	Opportunities	Threats
External environment	<ul style="list-style-type: none"> ● Great technological opportunities take to an unprecedented use of Data and AI for solving social issues ● Cohesion policies stressing the role of territories and civil actors ● High demand of innovation to respond to human-centered, community-centered and 	<ul style="list-style-type: none"> ● Challenges evolving too rapidly and in an unpredictable way ● Competition based on profits and not on shared value ● Science depicted as a distant thing from society, something “bad” ● Rules on expenditure in the use of European Funds not always “open” to creative innovation and social

⁶ Information about SWOT analysis in policies available here:

https://www.humanitarianlibrary.org/sites/default/files/2014/02/odi_2009_research_and_policy_in_development_swot_analysis.pdf

An application case study on S3 implementation here:

https://www.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/CLUSTERS3_Policy%20Learning%20Documents_Policy%20Brief%20FINAL%20May2017.pdf

	<p>collective needs;</p> <ul style="list-style-type: none">• Social innovation as a process that can direct investment in innovation for social challenges	<p>innovation</p> <ul style="list-style-type: none">• RRI not really included as a specific priority and MORRI indicators not useful for policy design and implementation at local/regional level
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Executing the experiment: the implementation phase

This second part of the D 5.2 explores challenges and activities implemented for the TE. Stakeholders are even listed with a reference to their particular contribution in each phase of the experiment after the co-design phase. The experiment started after the co-design phase trying to shape an intervention model to include the “responsible” and “anticipatory” dimension of the RRI framework within the new 2021-2027 S3 strategy.

5 main areas of activities have been executed in order to implement what foreseen by the co-design phase, but generally we have encountered many new challenges each time a new stakeholder took its own vies in the process.

Activities

DESIGNING A CHALLENGE-BASED INNOVATION APPROACH (October 2020 – March 2021)

ART-ER worked at the very beginning of the implementation phase, to define a challenge-based and mission-oriented approach (as defined by Mazzucato) within the S3 strategy. This process, led by an external consultancy (paid with ART-ER own resources and not using TeRRitoria budget), involved different stakeholders at regional level which have been asked to take part to interviews.

Regional officers working on the 2021- 2027 programming period have been asked to answer some questions related to RRI and social innovation within the 2021-2027 Regional S3.

In particular people from the Regional ERDF and ESF Managing Authority, from the Health Regional Agency and from Social Inclusion Department have been interviewed.

The final version of the challenge-based and mission-oriented approach to innovation within the strategy has been discussed on March 2021, during the final workshop to share results with regional stakeholders interviewed. The idea emerged from the workshop was to explore the opportunity to design (or co-design) specific policy measure using the challenge-based approach within the next ERDF and ESF Regional Programme.

INSERTING RRI INTO THE REGIONAL S3 (October 2020 – March 2021)

The implementation phase of this part of the experiment started on October 2020, and it was dedicated to integrate RRI dimensions and priorities into the Regional Smart Specialization Strategy. In particular, as the implementation phase started, ART-ER had just finished elaborating the first version of the 2021-2027 Regional S3 strategy, containing a specific section on Responsible Research and Innovation as a priority for R&I investments. This first version was edited by ART-ER with contribution by the regional innovation ecosystem, meaning Clust-ERs, Technopoles, Research and Innovation Centers and the actors joining the regional Pact for Work and Climate (the main strategic document designing 2020-2025 regional policies⁷). ART-ER was then asked by the regional government to develop a participative advisory process to engage other regional innovation actors and stakeholders to comment on the first draft of the Strategy, in particular focussing on the 15 Thematic Priorities, divided in 4 groups:

7 Cfr. Annex 1

- Sustainable Transition
- Digital Transformation
- Health, Wellbeing and Nutrition
- Cities, Territories and Communities (including social innovation)

The consultation process was completely held on-line through the use of the brand new regional open innovation platform: EROI (Emilia-Romagna Open Innovation⁸). The platform was set up in 2018-2019 through a co-design process and it's intended to be the virtual space, community and marketplace for the innovation that happens throughout the Emilia-Romagna Region. The consultation involved many participants through different tools:

- the survey received more than 250 answers half of which underlying the importance of RRI in designing the Regional S3;
- 400 comments to posts (on the platform dedicated blog, and divided in a general and 4 specific Groups of Thematic Priorities of the strategy) were given by almost 300 single persons. Comments were well balanced among enterprises, research labs, innovation centres, public administrations, Universities and private consultants.

The analysis of survey and comments allowed ART-ER to identify specific trajectories and needs to integrate the Strategy, which has been finalized and sent to the European Commission on March, 2021. Then, on March, 22nd, the regional government approved the general scheme of governance of the strategy.

ANNEX 1: PACT FOR WORK AND CLIMATE

ANNEX 2: PRESENTATION OF THE S3 STRATEGY

GUIDELINES and FOCUS GROUP (March-September 2021)

ART-ER started in March 2021 to draft guidelines on RRI deployment within the next 2021-2027 S3 Regional Strategy, with particular attention to the implementation of the S3 strategy through policy co-design methodologies and possible interventions to be funded through dedicated experimental grant schemes.

The first version of the guidelines was realized thanks to Ms. Giulia Bubbolini, from CISE (one of the Innovation Centers of the Regional High Technology Network), which is one of the TeRRitoria Advisory Board members. Her experience within the two Interreg project ROSIE and MARIE focused on the adoption and integration of RRI by enterprises in the framework of the S3 Strategy have been very useful.

Guidelines have been then shared and discussed with the Territorial Research Partner (K&I) in order to discuss particular issues regarding the structure and aim of the document.

Finally, ART-ER organized a participatory process to share guidelines draft and get feedback by regional stakeholders through focus group with:

- Regional Technopoles network;
- stakeholders from civil society: Third Sector organizations, social enterprises and network of citizens
- citizen science and science education organizations
- Regional universities.

8 <https://emiliaromagnaopeninnovation.aster.it/>

We shared with stakeholders the main findings regarding the research and co-design phase of the territorial experiment, and in particular the Territorial RRI approach.

We then asked to share their experiences and insights regarding projects, activities and methods they use to engage citizens and then their level of engagement in regionally funded R&I projects. The main result of the focus groups was to test the potential of the Territorial RRI approach as an opportunity for the next programming period to overcome de-territorialisation effects in S3 strategy.

Focus groups have been used as a tool to dialogue with different stakeholders, and each report has been shared with them through a collaborative shared document.

The main change in this part of the activity regards the fact that guidelines have not yet been “validated” by the regional authority in charge of designing the future grant scheme related to the S3 policy. This is mainly due to a lack of time and to main political changes occurred in 2020 with the election of the new Regional Assembly. It seems that generally speaking the new Ministers, and in particular those in charge of “Just Transition” and Economic activities and innovation are open to new approaches; but still there is the need to fully understand how to adapt these approaches to general ERDF rules for implementing the S3, and how much these rules allow managing authorities to use for example co-design schemes or two-steps grants.

This is something that will be further discussed as an outcome of the TeRRitoria project.

ANNEX 3: Guidelines (only available in Italian)

POLICY CO-DESIGN AND FUTURE FORESIGHT (October 2021 – January 2022)

Through the analysis of documents related to Transformative Policies and RRI (Transformative Innovation Policy Consortium⁹ approach, adopted by Region Catalunya¹⁰, OECD Anticipatory Innovation Governance¹¹ approach, SISCODE Policy co-design Methodology¹², Interreg MARIE Policy Improvement and Good Practices¹³) ART-ER has been able to define a policy co-design process to be implemented as a second step of the experiment.

We realized that for the policy co-design process we needed external capacities and so we dedicated a lot of time to the selection procedure (June to October 2021). We finalized the procedure mid of October and we had the first meeting with external consultants on October 19th. On November 10th we had the first meeting to define research question and to start contacting people for co-design workshops.

9 <https://www.tipconsortium.net/>

10 <https://s3platform-legacy.jrc.ec.europa.eu/documents/20182/458870/Transformative+S3/b0c43003-6fa4-4cb6-bb9b-7a3bba0a2777>

11 <https://oecd-opsi.org/projects/anticipatory/>

12 <https://siscodeproject.eu/>

13 <https://www.interregeurope.eu/marie/>

We've organized 2 workshops with regional stakeholders on the basis of a challenge identified on the Health and Wellbeing S3 Thematic Priority. Then the participatory policy co-design process continued through the involvement of regional officers working on Regional Programmes (ESF+, ERDF).

The methodology for this workshop was a mix of Service Design and Future&Foresight for policy design. The outputs of this part of the process are:

- an operational guide to policy co-design based on SISCODE approach adapted to our experiment;
- 2 workshops using Future&Foresight to co-design policies in Health and Wellbeing. This workshop involved 11 regional stakeholders in shaping possible future scenarios in Health and Wellbeing and then discussing potential policy options to obtain the desirable scenario.

A capacity building programme will be organized by ART-ER after the end of the project to formulate policy co-design options to set up an experimental grant related to Territorial RRI implementation through S3 Strategy.

The main change in this part of the activity was the shorter time to dedicate to policy co-design process which was concentrated in two months instead of four. This didn't allow us to test the tools with the regional officers in charge of designing R&I grant schemes. We'll try to implement the methodology in 2022 capitalizing all the TeRRitoria results.

MEASURING AND MONITORING SOCIAL IMPACT

This is the activity with the most important changes, since it was not possible to engage people defining the monitoring of the S3 Strategy in discussing the opportunity to add new indicators and measuring/monitoring systems. What we've been able to do it's to start a capacity building programme dedicated to regional officers dealing with policy tools and instruments.

This has been done through another external consultant (SOCIAL VALUE ITALIA) not as a part of the TeRRitoria project with ART-ER own resources.

Results of this capacity building process will be then matched with TeRRitoria outcomes in order to try to implement some changes in the monitoring system to include RRI dimensions in project and strategy evaluation.

Stakeholders involved

Type of organizations or citizens involved in the experiment	How have they been involved in the experiment?	What contributions or influence did they have to the implementation phase?
Technopoles	Focus group	Definition of territorial needs in connecting research and innovation actors and enterprises
Universities	Focus Group	Sharing projects, activities and methodologies they are using to engage students in solving local challenges
Social Enterprises	Focus Group	Promoting their role in being innovation

		provider for human-centered and community-based innovations
Science Education Experts	Focus Group	Sharing activities and projects to engage citizens, and in particular students in exploring research and innovation opportunities
Civil Society Organizations	Focus Group	Promoting their role in involving citizens
Innovation Centers	Policy co-design	Stressing the role of the ecosystem as an opportunity only if it has a defined identity and role in solving challenges
Clust-ER Health	Policy co-design	Stressing the importance of working on patient-based innovation
Social Enterprises	Policy co-design	Highlighted the importance of having RRI projects involving more and more social cooperatives and enterprises to test innovations
Start-ups	Policy co-design	They highlighted the importance of a human-centred technology in Responsible-driven innovation
Civil Society Organizations	Policy co-design	Stressed the role and importance of involving citizens in R&I projects and in policy co-design
Regional Officers	Policy co-design	Involved in a capacity building programme for the development of a co-designed policy instrument to make RRI real in future grants within ERDF
People from regional Health and Social Services	Policy co-design	Involved in future and foresight final focus group to understand the connection between the proposed future and the possible futures

SWOT Analysis: challenges after implementing Territorial RRI approach

	Helpful	Harmful
	Strengths	Weaknesses
Internal capacities	<ul style="list-style-type: none"> • Presence of a high number of people and organization working on “Responsible Innovation” • Active Civil society and Third Sector organization willing to be involved in R&I projects • Presence of Tech4Good oriented enterprises and • Presence of grant schemes similar to what could fit to an experimental R&I grant scheme adopting Territorial RRI • Insertion of RRI and social innovation in the Regional S3 Strategy and in regional programmatic documents 	<ul style="list-style-type: none"> • Low level of integration between regional offices in co-designing policies for research and innovation • Low commitment on potential institutional change related to the implementation of transformative innovation frameworks • Need to further clarify how to integrate National Resilience and Recovery Plan with Regional Funding Schemes • ART-ER was really committed on the project but a lack of internal capacities and competences on Territorial RRI didn’t allow the organization to shape organizational changes needed to really include RRI as a new way to support innovation ecosystem in territories.
	Opportunities	Threats
External environment	<ul style="list-style-type: none"> • New funding opportunities from Horizon Europe to implement the follow-up of the project in a more operative way • Opening of the Axis 5 of the Cohesion Policy (Europe for Citizens) to experimentation • A stronger integration among different funding schemes • A higher attention to ethics, citizen engagement, public engagement and social innovation in 2021-2027 European programmes 	<ul style="list-style-type: none"> • Need to fulfil rules and regulations which can narrow the experimental opportunities given by funding schemes • Pandemic crisis changing once again investment priorities • Social Innovation as a liquid concept not easy to understand for a well-established R&I ecosystem

Institutional changes: what the experiment taught us

In this section, we analyse outputs, outcomes, and expected impacts of the experiment, and we try to give some information on what has happened during the implementation phase and which are the main results from the activities.

Results achieved

We have reached many of the results we expected at the beginning of the experiment:

- Definition of a Territorial RRI oriented policy co-design methodology and producing guidelines on this approach;
- Partially testing the methodology with regional stakeholders with different backgrounds;
- Defining an operational guide on how to implement policy co-design and stress the importance of involving Quadruple Helix actors in such a process;
- Stress the importance of changing the way in which R&I is funded including the “responsibility” dimension both in grant scheme and in the monitoring system.

The main challenge is to satisfy the “winds of change” which week by week have been blowing through the general definition of the strategy; this is due to different factors, mainly related to political issues at regional level and to the COVID related effects. At the moment, we consider the online consultation held for the definition of the S3 Strategy a good compromise for what regards public engagement in defining the strategy even if it’s not surely a perfect participatory approach.

We’ve not fully reached the objectives we discussed at the beginning of the experiment, since we had no time to take the experiment express its potential in terms of an experimental grant.

The pandemic crisis and the change of political priorities, together with a difficulty in discussing project results with regional officers which were concentrated on other priorities, are two of the main challenges we faced during the experiment implementation.

We’re on the way to design new and more inclusive governance of the R&I ecosystems but still depend on choices to be done by the Regional Government. So we’ll try to organize the capacity building as an opportunity to test the approaches developed during the TeRRItoria project, in order to make regional officers capable of understanding the opportunities of using such approaches to include more and more citizens in R&I projects.

Internal organizational changes

We had no particular internal organization changes: at the moment we’re sharing project outputs and outcomes with ART-ER management in order to get more resources to invest in this approach. Then, we have to mention the fact that ART-ER, as an in-house agency, strongly depend on regional government choices in order to decide about methodologies to develop and invest in and that’s why we’re trying to involve regional officers sustaining this “transformative” approach in the next programming period.

There is no a concrete policy innovation competence centre in ART-ER and within the Regional Government. We hope that this participatory process and a direct involvement of managing authority and the General Director on charge of the S3 implementation will in the future allow us to design this competence centre together with regional stakeholders involved in the project. It's not easy to adopt new approaches after many years of using same methodologies and schemes, but we're fully convinced of the value of the "Territorial RRI" and "Transformative social innovation" as potential methods for ART-ER as an organization dealing with territorial development.

Ecosystem changes (regional R&I system and actors)

Through the involvement of local stakeholder in focus groups and in the policy co-design process, we can say we've seen many seeds of transformative innovation happening in different territories. Still, all stakeholders reported us a real difficulty in using regional funds to start real ecosystem innovation projects for territories and not only for the competitiveness of enterprises. The new wave of regional funds has to face this issue through the use of experimental grant schemes and we're trying to support regional government working on that.

We've been involved in a two day workshop organized by the OECD with Region Emilia-Romagna on citizen engagement for preparing territorial development strategies. This workshop was really useful to define the opportunities to integrate public engagement, RRI, citizen engagement and Community-led local development as integrated approaches within the next 2021-2027 programming period.

A barrier is the difficulty of the research ecosystem in adopting new approaches and including RRI processes and principles in their activities, also due to lack of awareness about possible benefits and advantages in doing it.

We will try to propose the approach of "Local RRI clubs" as a tool that could extend RRI approach effects to main regional R&I stakeholders. We will try to take advantage of the existing CSR territorial programmes that Emilia-Romagna Region funded within the past programming period with a view to integrate Agenda 2030 principles. We will even take advantage of the results and contacts of the "Responsible Innovators" prize which is part of the same action.

Those are changes not directly affected by the transformative experiment but that can contribute in the long run to design a more inclusive and effective regional innovation ecosystem ready to deal with societal challenges in a more collaborative way.

Institutional change(s) beyond TeRRitoria

The inclusion of RRI as a part of the new 2021-2027 Strategy (it was foreseen before the experiment was designed) has been useful to involve stakeholders in understanding how to "define" this approach in practical terms.

What we've seen in terms of ecosystem institutional changes is a readiness of territorial actors in collaborating with each other besides the schemes and the actual governance of the ecosystems.

Serendipity seems to be a used approach by territorial innovation ecosystem to start projects dealing with societal challenges, and this raises the level of difficulty in trying to catch and gather results of collaborative projects.

The main obstacles are the uncertainties at European and national level regarding strategy definition, funding allocation and particular constraints related to enabling conditions and specific allocation criteria.

The sustainability plan of Emilia-Romagna

In this final section, we turn to the sustainability and the exploitation of the activities initiated under the TeRRitoria project. An experiment takes time to make impacts get a real change in people and organization life. So, we expect changes to occur in the next months due to what we've done during this last year of the TeRRitoria project.

At this moment we can share some main findings in applying Territorial RRI to our regional context:

- A direct political commitment allows to get more and direct results in terms of institutional changes and it's really necessary to get new frameworks being implemented in the long run;
- Policy co-design is not that easy to implement: you need prepared persons, sound and tested methodologies, organization openness to changes, availability of people willing to take the lead of co-design process, real involvement of motivated stakeholders. We've found out seeds of these conditions in our territories but still there is a lot of work to do to enable the innovation ecosystem to implement Territorial RRI and Transformative approaches;
- Monitoring systems really need to be adapted to such a framework and it's not that easy to measure co-design and co-creation effects in the schemes of the ERDF rules. Surely projects such as MORRI and SuperMORRI are useful to have a view on what can be done, but there's the need of mutual learning between regions and knowledge transfer by research centres in order to understand how to implement these schemes in the real life.

Regarding the sustainability plan of the experiment, at the moment we're trying to work with the regional government in order to plan an experimental grant scheme within the next ERDF regional programme.

We're setting up a capacity building programme involving regional officers in order to make them understand the opportunities of co-designing R&I policies within a RRI framework.

From an internal point of view ART-ER has to define its role in the ecosystem regarding the Territorial RRI approach, and we'll have to discuss this with different departments in particular with regards to an opportunity coming from the next National Resilience and Recovery Plan, namely a call on Innovation Ecosystems; this call foreseen a part dedicated to Public Engagement to be developed by territorial Universities on a Research and Innovation specific thematic priority. It seems Regional Government is going to submit a proposal on Ecological Transition, and ART-ER is editing the draft of potential activities, with the opportunity to further implement Territorial RRI approach with a budget of 2 millions of euro in 2023-2026.

If the Territorial RRI model will be implemented, we think it could be really useful to monitor the S3 Strategy and to find new and inclusive ecosystem governance model.

Yet, the definition of territorial mission board which can be involved in defining R&I priorities can be a medium-term result to work on but not so easy to reach due to the actual R&I governance system in Emilia-Romagna.

Some policy recommendations we can outline after the implementation of the experiment and of the Territorial RRI approach can be briefly summarised as follows:

1. Governance of the regional innovation ecosystem is an issue to deal with when applying RRI dimension and principles. It's not easy to get everyone on board when it comes to co-design and implement new policies, and participation takes time to be effective. Surely the pandemic crisis has not eased this process, but beside this a necessary capacity from regional government and officers is to be developed in order to establish this new form of inclusive governance;
2. Getting Quadruple Helix actors on board of RRI depends on the capacity of the ecosystem in establishing a collaborative environment: Emilia-Romagna has worked hard in recent years to establish a well-connected innovation ecosystem, based on the distinction and connection between demand (enterprises) and offer (research labs and connected facilities) of R&I. At this moment, in which "transformative" policies need the direct involvement of all the actors in shaping new way to solve societal challenges (such as the pandemic crisis and the just transformation), there is a need to open R&I ecosystem to new actors and to new competences. Emilia-Romagna through the new Regional Open Innovation Platform has made an advancement in adopting a challenge-based approach but still there are many things to do in terms of policy instruments.
3. Involvement of regional officers (Managing Authorities and Intermediate Bodies) dealing with grant schemes is necessary to change the rules of the game; they are the ones on charge of designing the schemes that will support the implementation of R&I projects through different policy instruments. As much as they are aware of things happening in other regions in terms of funding instruments, new supporting schemes can be elaborated and then tested in an experimental environment. This obviously depends on EU-based rules and regulations, but "sand-boxes" are possible.
4. Civil Society have to be informed and engaged in the R&I ecosystem to solve regional societal challenges. This is the most important part of the process. This is the actor of the Quadruple Helix less aware of R&I policies and of the opportunity to be engaged in a R&I projects. Yet, many times this is the actor which has the best competencies in order to make need analysis and testing products and services directly with a broad audience of users.



Smart Specialization Strategy 2021-2027

Emilia-Romagna Region

PATTO
PER IL
LAVORO
E PER IL
CLIMA



The new S3 2021-2027

The **S3 2014-2020** has been updated, taking into consideration

- ↪ the **results** of the previous seven years
- ↪ the **evolution** of technology, production systems, the regional research ecosystem
- ↪ the **new global challenges**
 - EU Cohesion Policy 2021-2027 - Agenda 2030*
- ↪ the objectives of **regional policies and programs**
 - Pact for Labour and Climate*
 - Regional Strategic Document 2021-2027*

Main OBJECTIVES and CONTENTS

The **S3 2021-2027** of Emilia-Romagna Region

- ↪ defines the **PRIORITIES** according to the **KEY CHALLENGES**:
sustainability, digitalization, social inclusion, well-being and quality of life, safety, transformation of the public administration
through the identification of **cross-sectoral priority thematic areas**
- ↪ confirms the **7 REGIONAL SPECIALIZATION PRODUCTION SYSTEMS** identified in the previous S3 2014-2020 as priorities:
Agri-food, Building and Construction, Mechatronics and Motor Engineering, Health and Wellness Industries, Cultural and Creative Industries, Energy and Sustainable Development, Innovation in Services
- ↪ recognises the **Tourism Industry** as an independent sector (previously included in Cultural and Creative Industries)

Main OBJECTIVES and CONTENTS

The **S3 2021-2027** of Emilia-Romagna Region

- ↪ identifies additional **PRODUCTIVE AREAS WITH HIGH DEVELOPMENT POTENTIAL:**
specifically **Aerospace** and **Complex and Critical Infrastructures**
- ↪ recognises new **CROSS-CUTTING CHALLENGES:**
development of Big Data and Artificial Intelligence and **Green transformation**
- ↪ focuses on the role of **INNOVATOR** of the **PUBLIC ADMINISTRATION**

Participation and ENTREPRENEURIAL DISCOVERY PROCESS

↳ **PRIORITY SETTING** process

a **participatory process** for selecting priorities

a **proactive involvement** of the actors of the **regional innovation ecosystem**

a "**Quadruple Helix**" innovation model

The regional RESEARCH and INNOVATION ECOSYSTEM



Università di Bologna

Università di Modena e Reggio Emilia

Università di Ferrara

Università di Parma

Università di Cattolica

Politecnico di Milano (Piacenza)

Università John Hopkins

Il sistema universitario regionale

- 400 corsi (Lauree triennali e magistrali)
- 153 master
- 126 scuole di specializzazione
- 160 k studenti

Il sistema regionale dell'Alta Formazione

- Bologna Business School (Master/MBA)
- PhD and International Data Science Phd
- Scuola di studi avanzati in Food Safety
- MUNER (Motor vehicle in E-R)
- 7 Fondazioni ITS con 27 corsi
- Academy aziendali

Enti di ricerca nazionali ed internazionali

CINECA; CNR - Consiglio Nazionale delle Ricerche; INFN – Istituto Nazionale di Fisica Nucleare; INAF – Istituto Nazionale di Astrofisica; ENEA – Agenzia Nazionale per le Nuove Tecnologie, l'Energia e lo Sviluppo Sostenibile; CMCC - Centro Euro-Mediterraneo sui Cambiamenti Climatici, INGV - Istituto Nazionale di Geofisica e Vulcanologia

Autorità e Agenzie Internazionali

EFSA - European Food Safety Authority; ECMWF - European Centre for Medium-Range Weather Forecasts

Infrastrutture di ricerca (47)

sui domini ESFRI:

- E-Infrastructures
- Energy
- Environmental sciences
- Health and food
- Material and analytical facilities
- Physical Sciences and engineering
- Social science and humanities

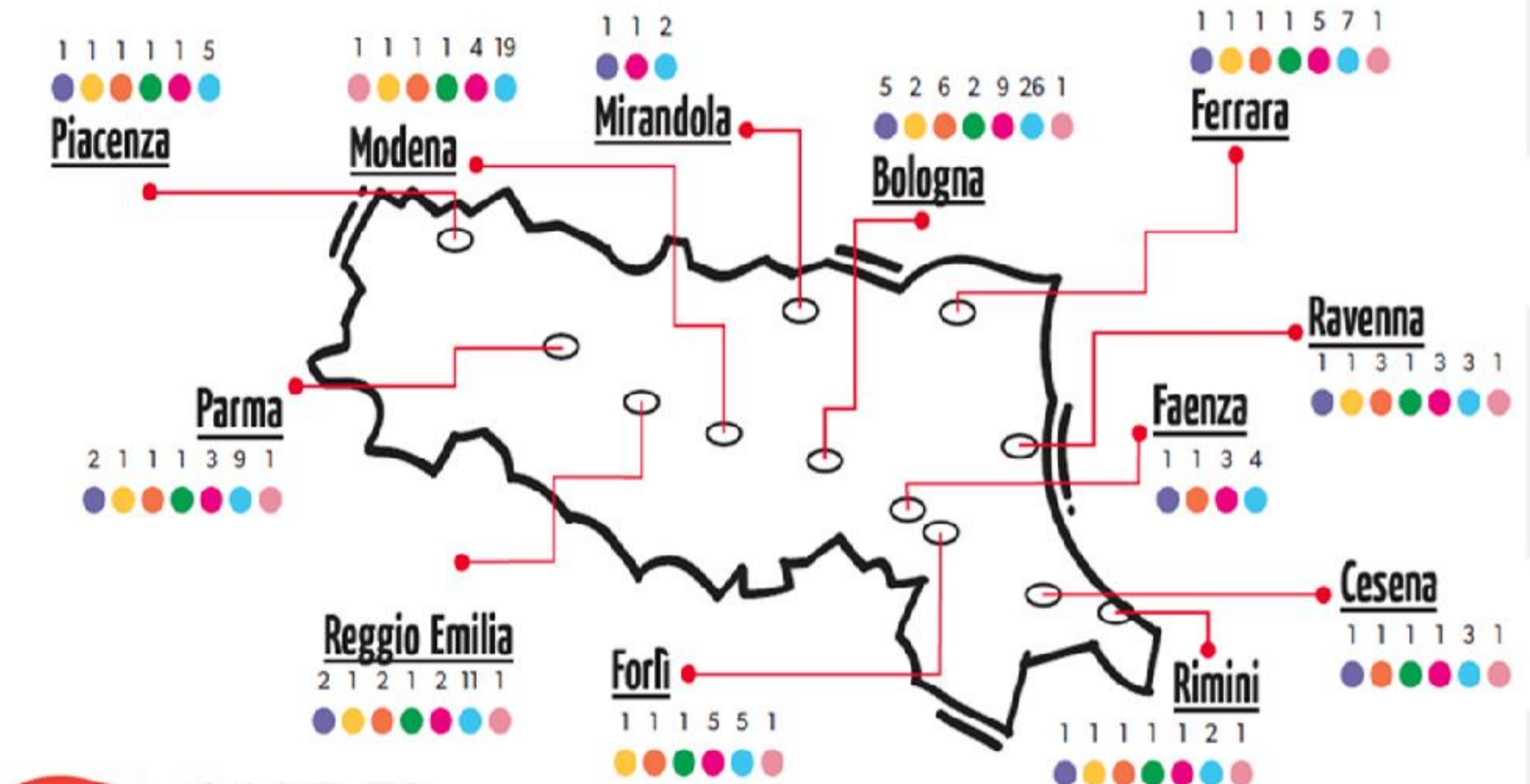
Industria 4.0

- Fondazione Big Data e Intelligenza Artificiale
- BI-REX
- Digital Innovation Hub
- PID (Camere di Commercio)



The regional RESEARCH and INNOVATION ECOSYSTEM

- **RETE DEI CLUST-ER**
7 Clust-ER S3, Ass Big Data e Muner
- **RETE DEI TECNOPOLI**
10 Infrastrutture
20 Sedi
- **RETE ALTA TECNOLOGIA**
74 Laboratori di ricerca industriale
14 Centri per l'innovazione
- **RETE DEGLI INCUBATORI**
75 strutture pubbliche e private a supporto della creazione e dello sviluppo di impresa
- **RETE MAK-ER**
22 laboratori di fabbricazione digitale e manifattura avanzata
- **LABORATORI APERTI**
10 Spazi attrezzati con soluzione tecnologiche
- **RETE «SPAZI AREA S3»**
10 Spazi ospitati dai Tecnopoli
- **ITS NETWORK**
7 Scuole di Alta Tecnologia e 29 percorsi biennali post-diploma



● Infrastrutture di ricerca a valenza territoriale

15 CROSS-SECTORAL THEMATIC AREAS

A smarter Europe	A greener Europe	A more connected Europe	A more social and inclusive Europe	A Europe closer to citizens
------------------	------------------	-------------------------	------------------------------------	-----------------------------

Industrial Specialization systems	Agri-food
	Building and Construction
	Mechatronics and Motor Engineering
	Health and Wellness Industries
	Cultural and Creative Industries
	Energy and Sustainable Development
	Innovation in Services

1. Clean, affordable and secure energy
2. Circular economy
3. Climate and natural resources (air, water and land)
4. Blue growth
5. Innovation in materials
6. Digitalisation, Artificial Intelligence, Big Data (firms and PA)
7. Manufacturing 4.0 and future evolutions
8. Connectivity of ground and space systems
9. Sustainable and innovative mobility and motor industry
10. Cities and communities of the future
11. Heritage and identity of the region: cultural assets and contents, creative activities, tourism and Made in E-R products
12. Wellbeing, nutrition e lifestyle
13. Health
14. Social innovation and social participation
15. Inclusion and social cohesion, education, jobs, territories

Implementation tools and the POLICY MIX

The **POLICY TOOLS** for implementing the S3 focus on **6 main pillars**:

1. Technopoles, spaces and research infrastructures
2. Strategic innovation, research and innovation, system actions projects
3. Skills development and higher education
4. Development and consolidation of innovative startups
5. Implementation of the Emilia-Romagna Digital Agenda: Data Valley
6. Networks, partnerships, cooperation and synergies with EU programs

Cross-cutting PRINCIPLES

The implementation tools of the S3 will focus on main **cross-cutting PRINCIPLES**:

↪ OPEN INNOVATION

↪ RESPONSIBLE RESEARCH AND INNOVATION

participatory, interactive and transparent processes, by involving research organizations, firms, civil society, citizens

↪ GLOBAL VALUE CHAIN

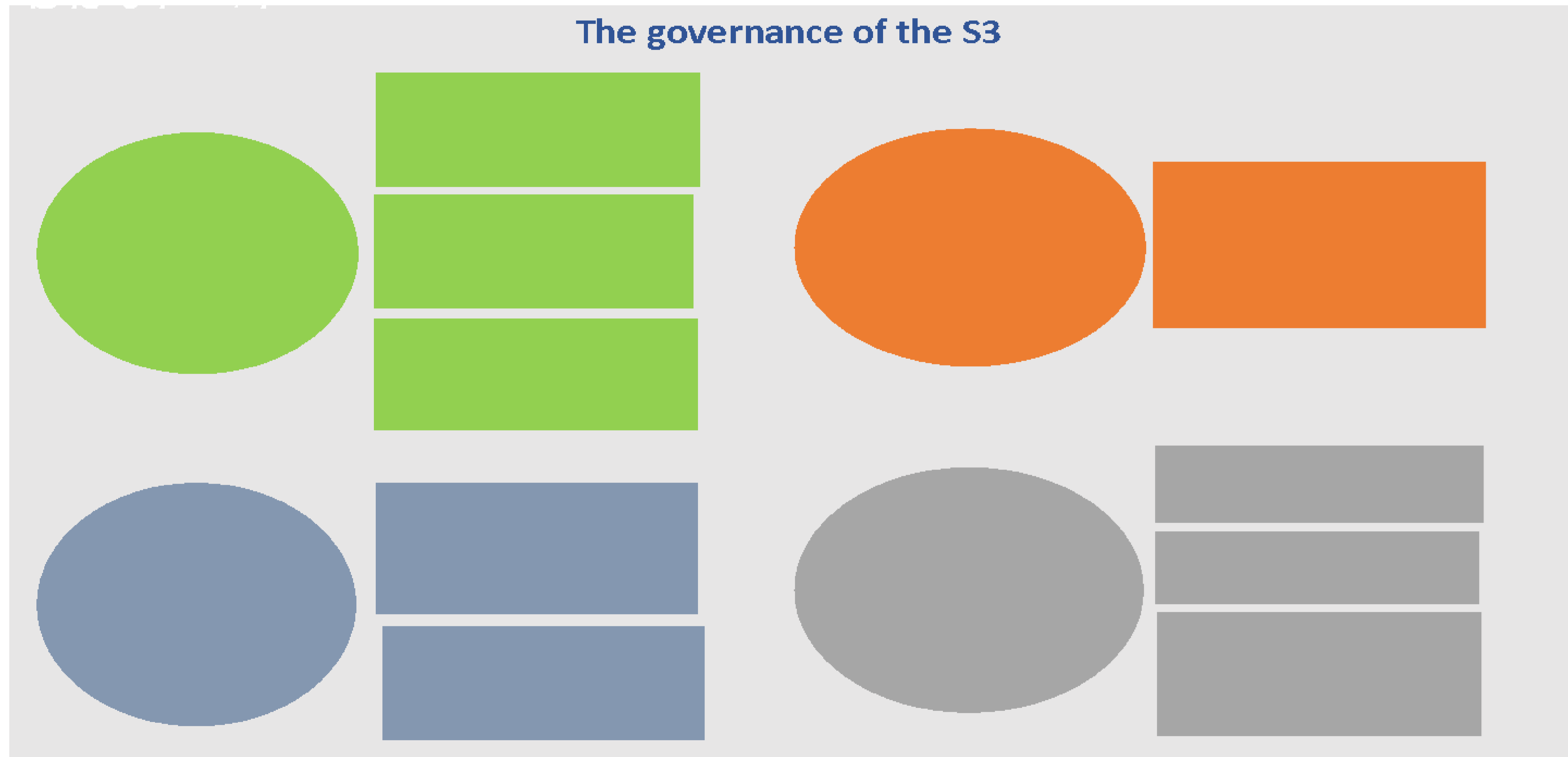
international and intersectoral dimension

↪ CREATIVITY and DESIGN

enabling factors for the innovation also in the field of manufacturing and services

The GOVERNANCE

An **inclusive** and **participatory** governance model



MONITORING and EVALUATION

The **S3 MONITORING SYSTEM** aims to provide useful data for measuring the **implementation of the strategy** and the **results achieved**, also in order to take any corrective actions.

It will be performed through **2 types of indicators**:

- **output indicators**, for measuring the level of implementation of the policies and related actions put in place, that is the output of regional policies in terms of actions carried out
- **specialization indicators**, for measuring the changes taking place in the production systems compared to the objectives of the S3, in order to identify the thematic focus of the productive and technological system

THANK YOU!

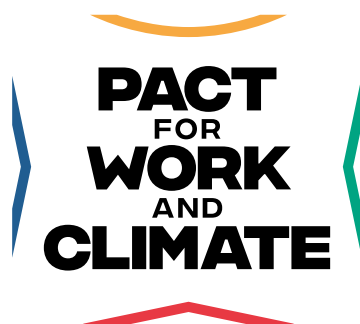
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**In Emilia-Romagna we build
the future together.**



Signatories

Emilia-Romagna Region

AGCI

General Association of Italian Cooperatives E-R

ANCI

National Association of Italian Municipalities E-R

ANCE

National Association of Builders E-R

Metropolitan City of Bologna

Coldiretti Emilia-Romagna

CUPER

Unitary Committee of the Intellectual Professions of the Professional Orders and Boards E-R

Regional Commission ABI E-R

Bologna city council

Cesena town council

Ferrara town council

Forli town council

Modena town council

Parma town council

Piacenza town council

Ravenna town council

Reggio Emilia town council

Rimini town council

Confagricoltura E-R

Confapi Emilia

Confapindustria E-R

Confartigianato E-R

Confcommercio E-R

Confcooperative E-R

CGIL

Italian General Confederation of Labour E-R

CIA

Italian Confederation of Farmers E-R

CISL

Italian Workers' Union Confederation E-R

CNA

National Confederation of artisans and small and medium enterprises E-R

COPAGRI

Confederation of Agricultural Producers E-R

Confesercenti E-R

Confimi Romagna

Confindustria E-R

Confprofessioni E-R

Confservizi E-R

National Research Council (CNR)

Italian Federation Environment and Bicycle (FIAB)

Third-Sector Forum E-R

Legacoop E-R

Legambiente E-R

Polytechnic University of Milan

Province of Ferrara

Province of Forli-Cesena

Province of Modena

Province of Parma

Province of Piacenza

Province of Ravenna

Province of Reggio Emilia

Province of Rimini

Zero Waste Municipalities Network E-R

Regional School Office E-R

Unioncamere E-R

UPI

Union of the Provinces of Italy E-R

UGL

General Union of Labour E-R

UIL

Italian Union of Labour E-R

UNCEM

National Union of Mountain Municipalities and Communities E-R

Catholic University of the Sacred Heart

University of Bologna

University of Ferrara

University of Modena and Reggio

University of Parma

Bologna, 14 December 2020





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1. A project for Emilia-Romagna

In setting out this Pact the Emilia-Romagna Region, the General Association of Italian Cooperatives (AGCI), the National Association of Italian Municipalities (ANCI), the National Association of Builders (ANCI), the Metropolitan City of Bologna, Coldiretti, the United Committee of Intellectual Professions of Professional Orders and Colleges (CUPER), Regional Commission ABI, Bologna city council, Cesena town council, Ferrara town council, Forlì town council, Modena town council, Parma town council, Piacenza town council, Ravenna town council, Reggio Emilia town council, Municipality of Rimini, Confagricoltura, Confapi Emilia, Confapindustria, Confartigianato, Confcommercio, Confcooperative, Confederazione Generale Italiana del Lavoro – Italian General Labour Confederation (CGIL), Confederazione Italiana Agricoltori – Italian Confederation of Farmers (CIA), Confederazione Italiana Sindacati Lavoratori – Italian Workers’ Union Confederation (CISL), Confederazione nazionale dell’artigianato e della piccola e media impresa – National Confederation of artisans and small and medium enterprises (CNA), Confederazione Produttori Agricoli – Farmers’ Confederation (COPAGRI), Confesercenti, Confimi Romagna, Confindustria, Confprofessioni, Confservizi, Forum Terzo Settore – Third Sector Forum, Legacoop, Legambiente, Province of Ferrara, Province of Forlì-Cesena, Province of Modena, Province of Parma, Province of Piacenza, Province of Ravenna, Province of Reggio Emilia, Province of Rimini, Rete dei Comuni – Network of Communities, Rifiuti Zero, Ufficio Scolastico Regionale – Regional School Department, Unioncamere, Unione delle Province Italiane – Union of Italian Provinces (UPI), Unione Generale del Lavoro – General Workers’ Union (UGL), Unione Italiana del Lavoro (UIL), Unione Nazionale Comuni Comunità Enti Montani – National Union of Mountain Municipalities and Communities (UNCEM), University of Bologna, University of Ferrara, University of Modena and Reggio, University of Parma jointly commit to **relaunching and developing** Emilia-Romagna sustainably.

It is a Pact whose primary aims are **generating quality jobs, combating inequality and taking** Emilia-Romagna through environmental transition, thereby helping to achieve the objectives of the **2030 Sustainable Development Agenda**.

After five years of uninterrupted growth, safeguarding health and employment and combating inequality are once again our top-priority goals. The climate emergency is this generation’s testing ground, the challenge of our times.

Our objective is therefore to share a single strategy capable of tackling current difficulties by supporting the economy and society to the full to overcome these and generating new sustainable development and new jobs, taking

Emilia-Romagna through environmental transition and reducing the economic, social, environmental and territorial divisions which are a further feature of our region. First of all, we agree that the work we mean is **quality work**, for both employees and the self-employed; stable, adequately paid and secure work **and sustainable development** is to be split up into its three inseparable components, i.e. **environmental, social** and **economic**.

In common with all great revolutions, the complexity of this phase means it can only be addressed via a participatory and joint response by all sections of society. Hence, the new **Pact for Work and Climate** sets out shared commitments and responsibilities in a common path designed to improve living standards and the planet and overcome the **development-environment** juxtaposition, taking advantage of all the potential and room for manoeuvre which change of this kind offers the region and future generations.

The **Pact for Work and Climate** is part of a Italian and European Union strategy whose objective is to achieve climate neutrality by 2050 and transition towards a new, more environmentally and socially sustainable economy.

2. A democratic method

The **Pact for Work and Climate** is based on quality relationships between institutions and economic and social stakeholders, mutual recognition of the role each of these play in society, sharing strategic objectives and the consequent accountability. It is made up of diverse demands, visions and sensibilities resulting from a democratic participation and shared planning process.

This document and the process via which it was drafted serve to confirm and 'relaunch' the method adopted in 2015 with the signing of the Employment Pact which, in the space of five years, has enabled Emilia-Romagna to make up the ground lost during the long crisis beginning in 2008, making it one of Italy's and Europe's best performing regions in terms of per capita GDP, added value, unemployment rate and exports.

Discussion and sharing strengthen democracy and generate cohesion, a heritage which this region has succeeded in cultivating even at its most critical junctures. Today we have chosen to further enhance these as a way of tackling the complexity of the new scenarios facing us and undertaking the changes needed to ensure future well-being for our region and, in particular, for **future generations**. To make Emilia-Romagna a better place to grow up, live and work in.

The **European Union** is a strategic point of reference as regards the choices we make, not only because of its functions, but, above all, because of the cohesion and democracy values it embodies. A new European idea, founded to a greater extent on social and solidarity values, is emerging, one designed to tackle the climate challenge and more strongly committed to combating territorial and gender inequalities.

We have adopted the UN 2030 Sustainable Development Agenda as a decisive landmark. The innovations introduced with it include definitively establishing the need for an integrated vision of sustainability in its various economic, social and environmental dimensions as new development model guarantee. The objectives and targets of the 2030 Agenda are a compass bearing for national, regional and local governments. The latter play a key role in combating climate change, including via the implementation of the new **Covenant of Mayors for Energy and Climate** launched by the European Union. The Emilia-Romagna Region wants to do its part and will adopt a regional strategy for the implementation of the 2030 Agenda which will contribute to the achievement of the objectives shared in this covenant, in line with the National Strategy for Sustainable Development.

The signatories to this pact hereby outline the strategic framework and guide-

lines for the various **operational agreements and implementation strategies** needed to achieve its shared objectives, based on common participation, discussion and sharing methods.

The **Pact for Work and Climate** cites **2030** as its horizon, adopting a medium and long term view which is indispensable if the complexity of current challenges is to be tackled, new foundations for regional growth created and Emilia-Romagna's path aligned with those set out in the 2030 Agenda, the Paris Agreement and the European Union for the reduction of greenhouse gas emissions by at least 55% by 2030, by the 2021-2027 European funding programme and by the National Recovery and Resilience Plan.

3. Rebuilding new development

3.1. Either development is sustainable or it is not development

In common with (and more than) other regions, Emilia-Romagna is currently facing some decisive challenges and not only at a regional level. The first is **demographic** with an ageing population, a low birth rate and immigration as its three main components.

Ours is one of the regions of the world where people live longest, with a life expectancy at birth of 83.6 years, higher for women, but with an increase in the number of non-self-sufficient and vulnerable individuals. At the same time, fewer children are being born here, with a fertility rate of 1.34 children per woman (1.29 for Italy, 1.56 for Europe). It is therefore not surprising that Italy is now the second oldest country in the world, with Japan in first place. A further long-term feature of the demographic transformation underway is also a growth in immigration which has enabled Emilia-Romagna to counterbalance its negative natural trend. In early 2020, 12.6% of the total population of Emilia-Romagna were foreign nationals (this percentage was under 10% until late 2009), a much higher share than the national average (8.8%). About a quarter of those born in Emilia-Romagna in 2019 were foreign nationals (15% in Italy).

Meeting the demographic challenge is essential if we want to avoid a radical impact over time on the sustainability of our economic system, our capacity for innovation and creativity, the resilience of our welfare and pension systems and living standards. The falling birth rate, an ageing population and incomplete social integration are undermining our social and economic balance and potential for fair and sustainable development. We appreciate the need to design structural policies that meet the needs of the elderly, contribute to raising the birth rate, combat gender inequality, generate a better work-life balance – thereby lightening the burden currently borne almost exclusively by women – promote the region's attractions to young people and wanting to remain here from the starting point of the availability of jobs and services promoting full social inclusion, of the most vulnerable members of society in particular.

The second challenge is the **climate emergency** which makes **environmental transition** a major issue that can no longer be postponed.

Climate scenarios highlight major critical situations and our region has already seen significant changes in the intensity and frequency of atmospheric phenomena, which are set to increase even further. The 2021-2050 period will be marked by a probable rise in minimum and maximum temperatures of about

1.5°C in winter, spring and autumn, and about 2.5°C in summer, an increase in heat waves and tropical night-time temperatures, a decrease in rainfall especially in spring (about 10%) and summer and an increase in total rainfall and extreme weather events in autumn (about 20%) with an increase in the number of consecutive entirely dry days during the summer months (20%). These climate scenarios, together with available regional data, both in terms of CO₂-eq emissions (-12%, in 2017 over 1990) and renewables (13% coverage of final consumption from renewable sources in 2017 compared to total final consumption), and the EU infringement procedures also affecting Emilia-Romagna, confirm that our commitment towards improving air quality and using clean energy must be strengthened.

The intensity of climate change and the increase in its incidence, as well as the prevalence of environmental issues in public opinion, especially among the young, require a shared vision and governance of the transition involving unprecedented public and private investment in institutions, communities and businesses. The effects of this complex transformation may be mixed: a slowdown in development processes, with an even more evident increase in inequality, or a positive acceleration, designed to achieve a growth rate capable of combining work quality and respect for the environment, productivity and added value, economic efficiency and social justice. The aim of this Pact is to ensure Emilia-Romagna falls fully into the latter category.

The third challenge is **digital transformation**. Digital technology is changing the world around us and the way we interpret it profoundly. The term revolution is used precisely because of the impact and extraordinary transformation this generates in social and economic relations and even in democratic participation.

Our region is already investing more in the future than any other in Italy and with few parallels in Europe. The **Emilia-Romagna 'Data Valley'** project is promoting research institutions and skills designed to generate tomorrow's jobs, businesses and society. The policies implemented since 2015 have, in terms of infrastructure and computing capacity, made Emilia-Romagna a major European innovation incubator whose goal is to tackle some of the major challenges of the new century. However, it is also true that, in digital transformation terms, the gap between the region and the most advanced areas of the world is wide. We are well positioned nationally (as the Digital Economy and Society Index confirms), but we lag significantly behind other European regions, particularly in terms of Internet use in everyday life and ICT skills. Democratic and inclusive digital development which does not leave workers behind is now more essential than ever, a prerequisite for a competitive globalised economic production system, environmental and social sustainability, access to rights and simplified red tape and the civil service efficiency improvements which this pact has set itself.

The fourth challenge concerns mounting **inequalities**. The well-being and living standards of Emilia-Romagna's people places us at the top of the national league table and within the cluster of the most highly developed European regions. Both 'classic' development level indicators, such as per capita GDP (36.7 thousand euros at current prices, 120% of average European per capita GDP) and the unemployment rate (5.5%, compared to the EU27 average of 6.7%), as well as the more specifically well-being indicators, show that Emilia-Romagna has successfully addressed many of the challenges triggered by the 2008 financial crisis, differentiating itself, in terms of performance, from many other regions and not only in Italy. However, a decade of recession followed by another of slow recovery has hit our social fabric hard. For example, higher female unemployment, a marked gender pay gap and worrying youth unemployment, accompanied by high job insecurity and low incomes, stagnating disposable income and wages, a failure to return to pre-2008 crisis per capita levels in real terms, and an increase in the number of people at risk of poverty or social exclusion (a percentage that rose to 17.8% in 2013 and is now down to 14.2%) are all emerging factors.

Our aim is to focus on quality work and policies hinging, on one hand, on the system's ability to generate value, and on the other, on action and services capable of redistributing it fairly and inclusively, including through a new tax policy - based on progressivity, social justice and eliminating tax evasion - and ongoing improvement in collective bargaining between social partners.

The labour and business system itself is experiencing unprecedented **polarisation**, especially between highly-skilled and highly-paid work and low-skilled, insecure and poorly paid jobs, both employed and self-employed, which stop employed people crossing the poverty line. Otherwise, looking at the morphology of our economic-manufacturing system, on one hand we have innovative, digitalised, high value-added companies strongly oriented towards international markets and investing in qualified human capital and sustainability, and on the other, companies that are more vulnerable to the effects of the major transformations mentioned above. An inclusive development project aims to raise overall system standards, investing in training and production chains, combating poor and **precarious** employment and vulnerability at every level, whether in the workplace or as regards business enterprise.

In addition to social and economic inequalities, there are also **gender** and **generational** inequalities, the result of a number of social, cultural and economic factors, starting with the increasingly tangible inequality in Emilia-Romagna's labour market. In spite of the progress made in recent years, there is still a significant employment gender gap (in the 15-64 age bracket women's pay is almost 12 percentage points below men's) and in pay (according to INPS data, female employees in the region are paid average annual salaries amounting to

67% that of their male colleagues), for example. The same is true of young people. Once again, taking pay as an example, employees of both genders under the age of 30 in our region are paid wages on average less than half those of older workers. All too often associated with contractual insecurity and abuse of unprotected forms of work, this has resulted in the younger generations emigrating in search of new work and life experiences.

Equally decisive is overcoming **area** inequalities, especially in mountain and peripheral areas, which also threaten regional cohesion. All over the world, we are witnessing a widening gap between urban and rural, inland and mountainous areas, city centres and suburbs. We want to counteract this trend by providing opportunities and local services everywhere, integrating suburbs into more open and widespread cities, enhancing the identity and potential of individual areas in order to trigger new development processes.

There are four major challenges facing us then. We know the transitional phase is always the most complex in any change process. It must be governed by **collective action** involving regional society as a whole. The pact set itself this goal from the outset.

3.2. What we are learning from the pandemic

Awareness and willingness to face these challenges in order to embark on a new process of sustainable development has been sped up and strengthened by the COVID pandemic, which has upset plans and forecasts in the space of a few months. The latest estimates refer to a 9.9% contraction in real GDP in 2020, as a result of a collapse in both domestic and foreign demand. The effects on unemployment and business activity rates have been significant, albeit dependent on the type of national social safety net measures in place.

The virus has confirmed the instability and unpredictability of globalisation processes, highlighted Emilia Romagna's pre-existing contradictions and social fragilities and also pinpointed elements of strength and resilience as well as new opportunities in the regional system. During the emergency, we have learnt a great deal from the sacrifices and commitment made by people and businesses, associations and institutions – most specifically by the **Emilia-Romagna health system**.

In the space of just a few months, the inestimable and unquestionable value of a **good public healthcare service for everyone, rooted in the local district has become clear to all. Doctors, healthcare professionals, social-healthcare workers, social services staff and technical and administrative staff, as well as**

volunteers and the tertiary sector, have shown themselves to be a crucial local services bulwark to be recognised, qualified and valued.

It is precisely healthcare that has highlighted the crucial importance of **knowledge** and **skills**. The urgent need for digital transformation and widespread networking has become clear, but so too has the marked propensity of people, businesses and institutions to make the best use of technology, with **schools, vocational training institutes and universities in the forefront**. And, as in the case of healthcare, it is now clear that without education the country will grind to a halt. We now know that technologies can and must interact with teaching, but we are also conscious of the digital divide and the risk that distance learning widens social inequalities and, therefore, how essential interaction in classrooms and laboratories between children and teachers is.

Awareness of the need to adopt healthy **lifestyles** and **sustainable consumption** habits and the importance of being able to count on a structured and competitive **agricultural, agro-industrial and distribution chain** capable of ensuring reliable supplies, **process sustainability and food quality** has also increased.

We have also witnessed the **strategic nature of a number of supply chains**, especially biomedical and pharmaceutical chains, and their ability to dialogue with the research system, just as we have admired the ability of numerous **small, medium and large firms** to reconvert production processes and services in favour of the community, and the potential of a new digital reorganisation of work, when properly regulated and governed.

We have also been able to rely on a system of service provision firms capable of ensuring the provision of essential public community services - energy, waste collection and management of the integrated water service.

Finally, what we already knew about the greater fragility of employment conditions for **women and young people has been confirmed**, and we have, all too often, had to rely on the commitment of **numerous workers with little or no security** who have played an essential role in our lockdown society all the same. This also applies to many **neighbourhood businesses** which in normal times struggle to survive.

4. A historic opportunity

During the pandemic decisions have been taken which had been put off for many years. The European Union reacted with exceptional, unprecedented measures, in both nature and scope, as did the Italian government. In order to help repair the economic and social damage caused by the COVID pandemic, reduce inequality, protect and boost employment, speed up environmental and digital transition and strengthen social cohesion, the European Commission has launched **Next Generation EU**, a far-reaching and unprecedented plan to strengthen the multiannual financial framework (**MFF**) for the 2021-2027 period via a specific commitment to recovery and cohesion. Both of these, including via previously identified major strategies, in particular the **Green Deal**, will contribute to transforming the European Union and fostering the emergence of a more modern and inclusive, resilient and sustainable Europe.

With 750 billion euro in resources, Next Generation EU is divided up into various programmes, including the Recovery and Resilience Facility. Italy will receive around €209 billion and is currently engaged in defining its **National Recovery and Resilience Plan** (PNRR).

We believe that investing well and promptly requires great synergy, avoiding tendencies towards institutional centralism. Emilia-Romagna intends to play a leading role both as regards planning and the management of the extraordinary resources to be put at the country's disposal.

This Pact and subsequent agreements are tools with which to define the strategic objectives towards which all available resources will be directed and work together on the urgent and structural measures needed to get our economy and society moving again.

The signatories to it agree that resource use will apply and comply with the national and territorial collective labour and business agreements signed by the most representative national trade unions and employers' organisations, ensuring employment standards are managed in the context of just industrial relations, respecting worker health and safety standards and focusing on strengthening occupational quality and worker skills.

5. Work and climate: the identity of the new pact

Emilia-Romagna is a strong region. Its strength is based on an enviable social and cultural heritage because it is packed with top-quality supply chains, businesses and production facilities; because its community is made up of resourceful and 'industrious' workers, because it has always been famous for its hospitality. It is strong because it is resilient and therefore capable of getting back on its feet in the face of traumatic events. But it is also strong because it is capable of changing for the better whenever good opportunities present themselves, without losing sight of its identity and values.

In outlining a new project for our region, our first priority is **unprecedented investment in people**, first and foremost in their health, but also in their skills and abilities. Starting from individual rights and duties, to **young people and women in particular**, and promoting diversity, this also means extending experiments with new forms of **democratic participation** at all levels. The signatories to this Pact agree that this is also an opportunity to promote a genuine new deal for women, to ensure women will play a leading roles in all sectors of a modernising society.

The second priority is to speed up **environmental transition**, with the goal of achieving **decarbonisation before 2050** and switching to **100% renewable energy by 2035**, with our sights set on **protecting and enhancing natural resources**, reducing carbon emissions and increasing energy efficiency, preventing hydro-geological instability and promoting urban regeneration, sustainable mobility, the circular economy and waste reduction. Environmental transition must cut across all regional policies, taking an organic approach to all future standardisation, planning and programming. Achieving these goals requires taking action vis-à-vis the government to support and promote the necessary regulatory and planning innovations at the national level.

It must be a **just transition** accompanied by effective planning aimed at generating new businesses, jobs and skills, and updating workers' professional skills in order to protect and safeguard their jobs.

The third step is to put **work** and the **value of enterprise**, both **small** and large, back centre stage and, along with it, widespread business pluralism, with **co-operation** and **social work** not only an identifying factor but also a promoter of development, efficiency and quality in Emilia Romagna. In view of the fragility of the current international production model, based on excessive global fragmentation, the presence in Emilia-Romagna of complete **supply chains** could well attract the return of **producers**.

The fourth step is channelling the digital revolution towards a new humanism, so that future technology evolutions are determinable rather than determined and therefore everyone's right, an asset which serves people's needs and district cohesion and competitiveness and a sustainable development and digital and green requalification of employment driver. But it should also be emphasised that, in addition to technological innovation, social innovation is also an essential development and democracy tool.

The fifth step is a fresh focus on **welfare** as a tool for social equity and combating inequality and new vulnerabilities, putting people and communities back centre stage. An **integrated** public governance system in which a strong role is played by increasingly **inclusive and participatory** service planning, regulation and management capable of bringing all human, professional and economic resources in districts together in a networking and subsidiarity, proximity and home care logic.

The sixth step is recognising the vocation of **cities**, and with them of **universities**, for experimentation and innovation, and thus the decisive role these play in opening up new avenues. The challenges we are facing and the achievement of the objectives outlined above requires stronger links and major roles for districts. This also means enhancing diversity and investing in Emilia-Romagna's district vocations, starting with a recognition of the, in many ways nationally unique top-quality products our city and region produces with a specific focus on the needs and potential of **inland and mountain areas**.

The cornerstone of the entire project is a shared commitment to relaunching **public and private investments**, seizing all the opportunities offered by European Union policies and programmes and favouring measures ensuring the best multiplier effect on direct and indirect employment.

Considering the fundamental importance of extending the use of green technologies, increasing the sustainability of the various business processes and encouraging behaviour which enhances the value of human resources, investment promotion will also encompass projects capable of concretely contributing to achieving the objectives of the 2030 Agenda, in line with the provisions of the regional rules on **corporate social responsibility**.

A shared commitment to relaunching investment will be supported by a process of **simplification** aimed at cutting red tape and civil service innovation. This does not mean deregulation, but rather raising the level of legality, rights and social justice, including in view of the growing risks of criminal and mafia infiltration.

Finally, a decisive contribution to this development project must come from Emilia-Romagna's unique **regional autonomy** proposals. without casting doubt on national unity, the principles of loyal cooperation between institutions, sol-

identity between different areas and equality between all citizens – all essential constitutional values - this proposal contributes to the definition of a new national framework which, on the one hand, finally ensures essential service levels and equalisation mechanisms while, on the other, it confirms and strengthens the national, public and universal nature of essential services, starting with education, university, research and healthcare systems (without therefore altering staff recruitment methods and the nature of the national collective bargaining system, and without calling into question the unity of the curricula and staffing systems). An autonomy project aimed at increasing the capacity to determine needs and plan action trajectories, to integrate and simplify procedures, and to increase the effectiveness and efficiency of management, providing a more suitable framework for organising joint working between the various institutional levels in meeting community needs.

The Pact has four **strategic objectives** and **four cross-sectoral processes** based on decisive dynamics for regional society as a whole. The **action trajectories** set out the measures signatories consider to be priorities and which they undertake to carry out in their respective institutional capacities.

Strategic objectives

- Emilia-Romagna, a region of **knowledge** and **know-how**
- Emilia-Romagna, a region of **environmental transition**
- Emilia-Romagna, a region of **rights** and **duties**
- Emilia-Romagna, a region of **work, enterprise** and **opportunity**

Cross-sectoral processes

- **Digital transformation**
- **A Simplification Pact**
- **Legality**
- **Participation**

6. Strategic objectives

6.1. Emilia-Romagna, a region of knowledge and know-how *Investing in education, training, research and culture in order to foster rather than acquiesce in change, generate quality jobs and combat job insecurity and inequality, innovate in manufacturing and services and speed up environmental and digital transition.*

In Emilia-Romagna, we have always considered **education** and **training** to be essential to social improvement. When communities are facing new challenges and enacting change, it is even more essential, starting with the younger members of society.

The universal and inclusive right to education is the basis of our development model.

Quality education from early childhood onwards is crucial to children's cognitive and interpersonal development, fostering future learning and psycho-physical and social wellbeing, with collective benefits in terms of reducing inequality and poverty and increasing social mobility. For these reasons, we want to ensure that **educational services and nursery schools** are accessible to everyone and available throughout the region, removing any obstacles presented by initial social inequalities while, at the same time, responding to children's subjective rights and the needs of families for a good work-life balance, boosting the number of jobs for women and the birth rate.

One of the preconditions for combating inequality and generating a new development model is inevitably a substantial reduction in early school leaving, which has started to increase once again (latest available data 11% in 2018).

Great social changes bring both opportunities and challenges. Avoiding the latter and seizing the former requires a solid cultural foundation and increasingly specialised skills. The very same skills that companies need if they are to be more competitive and international. We believe in the importance of investing in **guidance** services giving young people and their families the tools with which to make informed choices, and in an **educational and training infrastructure** capable of combating early school leaving and providing everyone, **without exception**, with a chance to improve their knowledge and skills both before they join the labour market and throughout their working lives, in order to promote professional growth, support employment quality in terms of stability and intensity and ease transition. This commitment must focus on providing the skills required for a **greener, more inclusive and digital economy**, strengthening **vocational secondary and tertiary education** and making full use of **technical** and **vocational training** and **culture**. In line with the European Education Area

project and the new European Plan for Digital Education, we must break down the stereotypes that limit young people's, and especially women's, choices and impoverish the region's productive assets.

Effective vocational training and employment services capable of networking with all sector players are a decisive element in post-pandemic reconstruction programmes and a fundamental tool facilitating the transition towards an increasingly digital and sustainable economy, with the aim of maintaining and increasing people's employability throughout their lives.

For all these reasons, we intend to adhere to the **Pact for skills**, one of the 12 European Skills Agenda actions, whereby the European Commission invites public and private organisations to join forces and take concrete action to maximise the impact of investment on skill development and retraining.

The Emilia-Romagna sustainable development project presupposes a faith in **research** and **science** in a social bond based on transparency, integrity and coherence. Free research in no way conflicts with the sharing of strategic missions on which to concentrate efforts. Greater use must be made of public investment in research, both basic and industrial, to encourage the participation of the many players working in this field, in order to achieve democratically determined strategic objectives, and promote access to the fruits of innovation for small businesses as well.

In Emilia-Romagna we currently invest 2% of our GDP in research, and we aim to increase this to 3% together with a renewed commitment to certain areas of crucial importance for environmental transition.

More generally, **culture** is an identity and individual and collective social growth factor. It drives innovation, economic development, new jobs and active citizenship. It can also foster social inclusion and combat inequality. Emilia-Romagna – already a leading region in terms of the culture of its people – needs to grow further in cultural and creative industry capital terms, becoming an ever evolving polycentric creativity and art metropolis on the strength of technology, capable of appealing to an ever wider audience, regenerating the historical heritage and the suburbs and attracting young people, as a rival to the major European players.

Emilia-Romagna, a region of knowledge and know-how, is committed to mobilising and supporting the aspirations of the younger generations. Young people who do not study or work constitute a serious weak link which must be remedied, reducing the percentage of NEETs to less than 10%.

Lines of action

- To strengthen the network of **educational services** and **nursery schools** (0-6), and make sure these are accessible to all girls and boys throughout the region, progressively eliminating waiting lists and costs borne by families, raising the quality of the services offered by the integrated system as a whole.
- To upgrade the **language skills** of the entire community, starting with the youngest children, by extending English-language literacy experiences in nurseries and infants' schools and strengthening the teaching of English in **vocational and lifelong training**.
- To consolidate the network of **careers guidance** services and combat gender stereotypes in training and career choices, promoting and improving **vocational and technical training courses**, including through the dissemination in schools of structural and permanent measures to facilitate access by girls and boys to technical-scientific subjects.
- To promote new synergies between **districts** and an increasingly open, inclusive and innovative **educational system**.
- To combat educational poverty and **early school leaving**, promoting educational success.
- To support families financially in order to ensure the **right to schooling** for all and improve services, with specific attention to students with disabilities.
- To promote **Paths for Transversal Skills for Guidance** (PTCO, formerly school-job alternation), which provide real added value to educational programmes.
- To safeguard schools in **peripheral and mountainous areas**.
- To provide **safer, more sustainable and modern school buildings** via a ten-year regional plan prioritising new European resources, linked to the Renovation Wave initiative, for energy requalification work on new zero-emission buildings.
- To strengthen cooperation between vocational schools, vocational training bodies and the region's manufacturing infrastructure, to increase the ability of the integrated **education and vocational training system** to provide pathways to qualification geared to foster entry into the labour market, enhance and network excellence and combat school drop-out.
- To strengthen and qualify the training system, including through a joint review of **accreditation** and **simplified** management rules.

- To build an **integrated professional and technical training chain** - favouring the transition from leFP (Professional Training) to IFTS (higher Technical Education and Training) and ITS (Higher Technical Education) and from these to university - enabling young people to continue their education and providing districts with the technical, scientific and humanities skills essential to recovery and innovation, contributing to increasing the number of young people with professional qualifications or diplomas, tertiary education qualifications and university degrees.
- To promote the **internationalisation of education** for students who, despite their merits, are lacking the necessary financial resources.
- To provide **university scholarships** and adequate services **to all those** entitled to them on the basis of merit and income, working closely with institutions, universities and higher education institutes for art, music and dance.
- To implement initiatives to **attract students and encourage them to stay** on after completing their training courses and foster the **return of talented individuals**, including by attracting prestigious **international research and university institutions** to the region and designing a new network of services, including international schools.
- To promote the use of the various types of **apprenticeship** contracts as a privileged channel for access to the world of work, with a particular focus on those enabling young people to obtain qualifications and upgrading the training component of professional apprenticeships.
- To initiate new synergies between regional planning and inter-professional funds to strengthen and promote the **training of entrepreneurs, managers, employees and professionals**, supporting the development of innovation, digital transformation, internationalisation and sustainable development processes at all levels.
- To strengthen and increase **lifelong learning** opportunities to make individual pathways to education and skills accessible to all and strengthen lifelong employability.
- To further enhance integrated and synergistic participation in **national and international research funding opportunities** to attract new projects, infrastructure, resources and talent.
- To strengthen the regional **research and innovation** ecosystem, investing particularly in healthcare, digital transition and the environment.

- To enhance the value of **Data Valley** investments so that businesses and, more generally, the whole of regional society can benefit.
- To make the Emilia-Romagna region a major centre for **cultural and creative industries** by investing in advanced specialised training, consolidating the theatre network, strengthening the cinema, music and publishing sectors and supporting widespread cultural production.

6.2. Emilia-Romagna, a region of environmental transition

Speeding up environmental transition to achieve carbon neutrality by 2050 and switching to clean and renewable energies by 2035, combining productivity, equity and sustainability, generating new quality jobs.

We believe that Emilia-Romagna must emerge from this crisis with new development goals based on respect for the planet, the preservation of natural resources and the protection of people's well-being. The second objective on which restarting and strategic positioning of the region is to be based is, therefore, **environmental transition**. We are taking on board the 17 **United Nations Agenda** goals with a view to overcoming the fragility factors our ability to create and redistribute wealth and preserve and renew the resources we use are based on.

"There is no Planet B" is the clear message with which millions of young people all over the world are calling for swift action. The scientific evidence on the extent of global warming, as well as the awareness that it is caused by climate-changing gas emissions resulting from the use of fossil fuels and the unsustainable use of land and natural resources, are a great responsibility for us, as a region and as a nation, to speed up the transition towards carbon neutrality and fully sustainable development.

This Pact sets a zero climate-changing emissions goal whose aim is to achieve **carbon neutrality by 2050**, in line with European strategies, and switching to **100% renewable energies by 2035**.

This is a just transition that, on one hand, requires significant support for business investment, starting with the current production system and its main sectors, and, on the other, investment in the creation of new companies and jobs. This will be accompanied by vocational training and retraining projects and a return to employment for workers at risk of unemployment in the new changing industrial sectors, starting with the green and circular economy, renewable energies and environmental protection services.

This is a project which is as demanding as it is necessary for the Po Valley, the

area with the highest concentration of production and manufacturing facilities in Italy, but also the most environmentally exposed, starting, of course, with air quality. We need to speed up our efforts to **mitigate** and **adapt** to the impacts of climate change.

This requires our region to take the lead in transition, via a pragmatic, progressive, effective and measurable path that does not jeopardise productive and natural capital, employment and social wellbeing, but is rather a **driver of a new and different development model**. This is the most pressing challenge we face.

The struggles to combat climate change and inequality are inseparable, as it is the most fragile groups who pay the highest global warming costs. But these are also the most at risk of paying for the effects of the transition unless this is carried out in an economically and socially viable way. On the other hand, it is not only possible but essential to create new quality jobs contributing to and resulting from transition. We are not starting from scratch. In Emilia-Romagna, many of these processes are already underway and now need to be stepped up with extraordinary public and private initiatives, on one hand, and social safety nets and support measures, on the other.

The Pact's shared objectives will be the basis for the **Regional pathway to carbon neutrality by 2050** which the signatories themselves will contribute to outlining and will include integrated action strategies in the various sectors aimed at absorbing, mitigating and reducing greenhouse gas emissions, defining medium term targets and tools to collect uniform data and monitor the achievement of objectives. This work will form the basis of the **Climate Law** which the Region intends to adopt.

If we are to achieve our transition objectives, it is fundamentally important to get companies involved, starting with local authorities' basic services providers - in which public participation and control are strategic - and develop all possible synergies between public-private investment cycles, supporting a management style which ensures services of universal value, through constant investment in networks and plants.

Our ally is the European Union, which aims to be the first continent with a zero climate impact and has paved the way for ambitious 2030 targets. The major investment plan which will support regional society's move to full sustainability will be backed by the European **Green Deal**, in both target and resource terms, as well as by the **National Recovery and Resilience Plan** and **Next Generation EU** resources. Making the best use of these resources, with wide-ranging policies for a vast area, in conjunction with the other Po Valley regions, is a qualifying objective of the Pact and a priority future planning goal.

Lines of action

- To accompany the **environmental transition** of **businesses** of all sizes by directing and incentivising their investments towards **renewable energies** and processes and products with a lower environmental impact, putting them in a position to seize the opportunities offered by green transition through targeted support, regulatory simplification and measures supporting the change towards sustainable production and consumption models.
- To develop **new green supply chains** focusing on both the climate/energy chain and industrial material recovery chains.
- To invest in **research and innovation** in fields with high strategic potential such as hydrogen, electricity and green chemistry.
- To build a research and study team to support and define **sustainable finance** and **social impact** projects consistent with the Pact's objectives.
- To increase the production and use of **renewable energies** and storage, including in a widespread form, through a **regional law on energy communities**.
- To speed up **energy transition** in the public sector, supporting the development of **municipal energy and climate plans** and carbon neutrality programmes at the regional level, giving new impetus to the upgrading and **energy efficiency** of all public assets.
- To promote the sustainability, innovation and attraction of historic city centres through the **development of regeneration processes** bringing together building and urban planning measures, accessibility and mobility choices, the strengthening of services and infrastructure, climate change adaptation and measures to regenerate the economic and social fabric.
- To continue to strengthen the **zero land consumption** and **urban regeneration** strategy with a town and city regeneration and resilience plan capable not only of tapping into European resources but also of maximising the building requalification, efficiency and safety incentives on a large scale.
- To facilitate regional system synergies and coordination to make the most of the **110% Ecobonus** for energy efficiency, including through the enhancement and implementation of a Regional Register of Thermal Installations.
- To invest, including on the strength of Next Generation EU resources, in a strategic plan for the maintenance, protection and adaptation of existing towns and infrastructures, **prevent hydrogeological instability and protect the coastline** through a multi-year joint action plan with local authorities and

all stakeholders; a strategy based on strengthening knowledge of risks and vulnerability, identifying priorities, planning prevention measures to be implemented in the short and medium to long term, ensuring reliable and continuous funding, simplifying procedures, setting up large construction sites for quick activation and getting a wide range of businesses of various sizes involved, to create good local jobs.

- To support the **circular economy**, including by launching research laboratories involving the High Technology Network, ARPAE, the Environmental Energy Cluster-ER, town councils, environmental service managers and the production system as a whole, investing in technologies capable of reducing waste and facilitating industrial symbiosis, increasing product durability and the use of low-emission materials, promoting waste recycling, recovery and reuse via the creation of new dedicated circuits and plants, including with a view to increasing regional self-sufficiency.
- To speed up the elimination of single-use plastics, in line with European legislation, and the transition to a more sustainable use of **plastics**, by setting up a regional steering committee to assess the timing, impact and implementation of each measure.
- To boost demand for increasingly innovative and sustainable products, services and public works through **green procurement** and pre-commercial procurement (forms of partnership between industry and the public administration).
- To reduce waste production, starting with household waste, and sending it to landfills or waste-to-energy plants, with a view to reducing non-recycled waste to 110 kg per capita or lower by 2030, increasing the quantity and quality of **pre-sorted waste collection** (door-to-door as a priority) with the goal of 80% by 2025, consolidating spot pricing in all town councils, introducing new and different bonus mechanisms and ensuring regional self-sufficiency in all waste management.
- To increase **protection** and **improved use** of water resources, improving ecosystems, encouraging sustainable use by reducing consumption and waste in the residential, industrial and agricultural sectors (Water Footprint), improving quality and availability, with a view to halving network losses, increasing, innovating and improving storage capacity, reusing wastewater and rainwater, taking advantage of the opportunity to submit projects under the National Research Programme.

- To promote the environmental sustainability of our food systems, starting with **agricultural and livestock production**, recognising the role these play in safeguarding the land and creating jobs; supporting businesses in the investments needed to continue to improve animal welfare and biosecurity on farms, to optimise the use of nutrients, reduce water consumption, reduce chemical inputs, minimise dispersion and emissions, encourage research into varieties and increase biodiversity on farmland, in line with the European 'From Farm to Fork' strategy.
- To encourage **short supply chains, organic farming** and **integrated production** with the aim of converting more than 45% of the UAA to low-input practices by 2030, of which more than 25% is to be organic.
- To enhance the contribution made by agricultural and processing to renewable energy production goals, including with a view to achieving energy self-sufficiency and replacing petroleum chemicals with **biodegradable materials** in the context of the bio-economy and the circular economy.
- To invest in **new sustainable mobility**, including by integrating the current investment programme with a **new package of green projects for the National Reform Programme public transport** networks to be promoted and strengthened, with particular reference to mountainous and inland areas; enhancing the region's production capacity by replacing LPT with more environmentally friendly vehicles; providing further forms of subsidised pricing; promoting the use of **bicycles** by building 1,000 km of new cycle paths; incentivising investment in the development of electric mobility; speeding up integration between rail and road and with sustainable mobility methods; enhancing bike and car sharing with a view to reducing private motorised traffic by at least 20% by 2025; supporting the spread of private mobility towards '**zero emissions**', including through the installation of 2500 recharging points by 2025; supporting the transition from thermal vehicles towards electric vehicles; reducing the need to travel by strengthening digital technology (smart city); strengthening and qualifying **rail transport**, both for people and goods, including by completing the **electrification of the regional network**; focusing on the development of **intermodal** transport, starting with investments in freight villages and intermodal and logistics centres to promote the transfer of freight transport from road to rail. Promoting the development of the Port of Ravenna area and activating the special logistics zone linked with it will be of especial importance.
- In the context of policies to strengthen the LPT and in agreement with the local authorities, to continue to update governance and the aggregation and

integration of the regional public-private system, with a view to standardising and simplifying management, synergies and economies of scale, and investments.

- To plant **4.5 million trees in 5 years**, thereby extending and protecting new woodland areas, safeguarding existing ones and increasing **green spaces in towns and cities**; contributing to cleaning the air and protecting biodiversity by creating woodland, including river woodland, and timber plantations, identifying the most suitable areas jointly with local authorities, citizens and farmers; protecting existing strategically essential environmental corridors and improving their connectivity.
- To protect, upgrade and promote mountain and inland areas, starting with natural resources and **parks, protected areas and UNESCO Mabs**, as irreplaceable reservoirs of biodiversity and basins of opportunity for sustainable development of the land and local populations.
- To invest in **new sustainable**, inclusive, slow **tourism**, starting with cycle tracks and footpaths, building intermodal and integrated networks encompassing local cultural, archaeological and scenic excellence, promoting investment in renewable energy and electric mobility and encouraging zero impact eco-sustainable tourist facilities.
- The above-mentioned objectives can be adequately met within the **Po Valley Basin** air quality framework agreement, capable of activating extraordinary air quality improvement investments, drastically reducing particulate, nitrogen oxides and ammonia emissions and, consequently, contributing to improving ground and surface water conditions, with all-round integrated action based on reliable and comparable data on all sources of pollution, via projects financed with national and European Union resources jointly with the other three regions involved. In view of its national importance and EU infringement procedures, the Po Valley Basin's air quality should be a priority with specific measures to be taken by the government within the National Recovery and Resilience Plan framework.

6.3. Emilia-Romagna, a region of rights and duties

Tackling territorial, economic, social and gender inequalities that weaken cohesion and prevent equitable and sustainable development.

We believe that increasing inequalities are an obstacle to development. Social, economic, territorial, gender and generational disparities conflict with our idea

of democracy and social justice and penalise the entire community, preventing balanced and sustainable growth.

The effects of the COVID pandemic risk widening these gaps even further and require us once again to mend the social fabric and bridge the divides by re-viewing priorities and adapting policies. To do this, we have taken the United Nations 2030 Sustainable Development Agenda as our paradigm, recognising its innovative combination of full **environmental, economic and social sustainability**.

A community is truly a community if everyone enjoys the same rights and has the same duties.

The first of our priorities for generating **development and cohesion** is strengthening our healthcare system, sustaining the role of governance and public management as the cornerstone to the **right to healthcare** for all regardless of economic and social condition, but also as a public health protection service to the community as a whole. The pandemic has taught us that the economic and social stability of the system depends directly on these conditions. The fact that the Emilia-Romagna healthcare system is holding up to the emergency is primarily due to these characteristics. We must now implement and upgrade the network of hospital facilities, strengthen local healthcare centres, starting with the Case della Salute (Health Homes), invest in telemedicine and home care, key elements in the social innovation chain, especially in the inland and mountainous areas of the region, pursuing the integration of health and social policies, with an extraordinary investment plan that, in addition to structures and technologies, aims to train and recruit all the healthcare and social workers we need. Equally important is the creation of social and welfare services which respond adequately to social and demographic change, aimed in particular at the elderly and people with disabilities, as well as those looking after them, with the aim of monitoring and interpreting their needs at an early stage.

Welfare policies will tend to play an increasingly important economic and employment role: we intend to meet the new challenges with innovative tools and build a **widespread network of proximity services**, designed to anticipate needs, focus on prevention and combat loneliness, including through new technologies. Confirming the **central role of the public sector** in regulating, planning, controlling and ensuring accessibility, and developing an **increasingly inclusive and participatory integrated system** capable of making the best possible use of both public and accredited management. It is on the basis of this system and the valuable contribution of social cooperation that we can generate **social innovation**, create new jobs and develop further synergies with the tertiary sector, qualifying **social work** and enhancing its planning capability. To this end, we

envisage setting up a social work round table involving signatories of the pact and sector representatives.

The **right to housing**, a requisite of citizenship and social security, is once again central to regional policies. We need to launch a new season of public and social house building, starting with the redevelopment of existing buildings, with particular attention to full accessibility, including via the removal of architectural barriers, promoting urban and social regeneration programmes, and increasing the availability of rented accommodation, including by seizing the opportunities linked to the European Renovation Wave, as well as through measures aimed at placing a substantial portion of the currently unused housing stock on the market at subsidized rents.

A special commitment to **workers' health and safety rights** has never been more urgent than it is today. Our aim is to prevent COVID infections and drastically reduce accidents and injuries, which often affect the most vulnerable and least secure workers. Our aim is to combat forms of occupation and enterprise that violate the rights of male and female workers, starting with illegal and undeclared jobs, with a special focus on exploitation and forced labour. To this end, we are committed to building on the great attention paid to this issue and the joint decisions made during the pandemic, making prevention and safety a true social expertise.

We are also committed to investing in research and innovation to develop and adopt smart technology and digital and electronic devices for the safety of **workers and work environments**.

We are strongly committed to **safeguarding jobs**, promoting shared action which, with particular attention to the entire period of the emergency, ensures the use of social safety nets and the protection of employment levels in small businesses too, strengthening policies and joint working in the management of business crisis situations.

We commit to striving to **safeguard jobs** by pursuing joint strategies, including in the event of the implementation of layoff procedures, for reemployment, professional retraining for employability and the management of social criteria but with the exclusion, however, of unilateral procedures for collective dismissal, including through the preventive use of all available social safety nets.

We also undertake to promote the application of national, regional and corporate **collective labour agreements** signed by the most nationally representative trade unions and employers' organisations and, without prejudice to the autonomy of the above, to identify useful solutions to ensure the continuity of employment in the event of contractual changes.

We intend to explore the potential of **smart working** for the business/work system and society, with the aim of identifying and adopting good practices and

building innovative welfare and training policies, while reaffirming respect for the rights and protection of workers on the basis of collective labour agreements signed by the most representative trade unions and employers' organisations.

We believe that work is the most effective way to **ensure autonomy, inclusion and social cohesion**: our commitment is designed to strengthen the **Regional Employment Agency** and the integrated public-private system, in relation to the needs of companies and workers, qualifying services and **active policies** for **young people**, those who have lost their jobs or are at risk of losing them, including via training programmes, starting with **women** and workers excluded from production cycles due to restructuring processes.

The available statistical data on the impact of COVID paints a picture of increasing **gender inequality**: a persistent and deep-rooted cross-sectoral gap is widening. Meeting this challenge requires a combination of public policies and social responsibility.

Specific attention should be paid to supporting the social inclusion of **foreign nationals**, especially the vulnerable and minors.

Lastly, our aim is to strengthen the universal services system, upgrading it and making it available to the population as a whole, with a special commitment to mountainous, inland and the most peripheral areas. In order to reduce regional inequalities and bridge the gap between town centres and outlying areas, we intend to invest in **accessibility** and **proximity**.

Lines of action

- To strengthen the regional healthcare, social healthcare and social infrastructure, by adapting and modernising the **hospital** network, on one hand, and strengthening the network of regional services, starting with healthcare centres, on the other; investing in the most modern **technologies** and **digital** systems to create a **telemedicine** and tele-assistance network and increase accessibility to heighten proximity, a more extensive regional service and **home assistance**; strengthening the integration of healthcare, social healthcare and social services, based on the most avant-garde European experiences.
- To launch a new season of **recruitment and development of healthcare and social-healthcare workers** at all levels, in conjunction with the medical faculties with a view to planning needs, bridging the gap which has opened up over the last decade and introducing a new generation of doctors, nurses, assistants and technicians into the Regional Healthcare Service, facilitating recruitment in inland and mountainous areas.

- To continue to strengthen **investment in research and development** through the network of universities and research centres, maximising the potential of the big data infrastructures available and under construction, and building a more synergic and cooperative relationship with local companies, starting with the biomedical district.
- In the light of the pandemic experience, to strengthen the safety and quality of social and healthcare services, reviewing accreditation criteria and ensuring the sustainability of public management and the overall balance of the integrated system.
- To continue to enhance professional skills and improve the working conditions of people employed in social services and in public services under contract and accreditation, also with a view to improving the quality of the services themselves, with specific attention to services for children and for the frail and disabled.
- To increase the current endowment of resources of the FRNA (Regional Fund for those who are not self-sufficient) and implement a new programme of services for the vulnerable, in terms of residency, **home-based care** and **territorial proximity**, encouraging innovative solutions including on the strength of co-design with the tertiary sector, starting from the experiences of co-housing, social housing and senior housing, including by investing PNRR (national recovery and resilience plan) resources. Measures in support of caregivers, independent living projects and the "Dopo di Noi" (After Us) project should also be intensified, enhancing valuable co-working with associations.
- To set up a widespread **community and proximity welfare** system capable of bringing together all human, professional and economic resources, including those in local areas. To experiment with innovative **supplementary corporate and territorial welfare** bargaining to strengthen universal welfare, whilst fully respecting the autonomy of the bargaining parties.
- To create new services and implement integrated measures to boost the **birth rate** and **parenthood**, also strengthening regional measures to facilitate access to services for **large families**.
- To relaunch policies to support **young people** and joint working within the education network, including by means of co-planning, responding to signs of distress in the school and community context, paying attention to new phenomena such as social withdrawal.

- To develop a new Housing Plan to make the regional Fund for Rent structural, to strengthen Social and Public Residential Housing (**ERS and ERP**), with a view to integrating housing policies with urban, environmental and social regeneration processes, by activating regulatory and financial levers that favour the integration of ERP and ERS in the housing “chain”, enhancing public-private partnerships, encouraging forms of aggregation of citizens and organised demand for housing and housing services, and putting a significant part of the currently unused housing stock back on the subsidised rental market.
- To put **workers’ health and safety** centre stage in institutional and social priorities, first and foremost by approving the new Regional Prevention Plan, strengthening the Public Health Departments and the SPSALs (Workplace Safety & Prevention Services) in each local healthcare unit, confirming the joint efforts made with the other bodies and enhancing good practice, starting with the ‘steering committee for the asbestos plan’.
- To strengthen the **Regional Employment Agency** and the integrated public-private system to improve services and active policies for young people, women and those who have lost their jobs or are at risk of losing them.
- To strengthen the integration of the network of public, private and tertiary sector players, services and active **employment policy measures** aimed at fragile and vulnerable people by qualifying procedures, tools and management.
- To identify the synergies best suited to make the most of the **New Skills Fund** and enable companies to reach specific agreements to **reschedule working hours** and thus meet the changing organisational and production needs of companies, on the basis of which some working hours will be set aside for training courses.
- To encourage collective bargaining designed to initiate experiments to safeguard and boost employment, including by reducing working hours.
- In the context of collective bargaining, to encourage flexibility and reconciliation tools - such as **parental leave** - that make it possible to meet the needs of both companies and workers.
- In conjunction with the **Permanent regional round table for gender policies** and the many associations working on civil, social and gender rights issues, to design innovative policies promoting the quality and stability of women’s work, the elimination of gender pay gaps, career paths, training in all disciplines, women’s entrepreneurship, the work-life balance, including by strengthening

the network of services, a better distribution of the burden of care, city timetable improvements, combating all forms of discrimination and gender and homophobia-transphobia violence.

- To strengthen **foreign nationals'** pathways to inclusion in three different ways: enhancing their skills, qualifying universal welfare services in an intercultural sense and promoting community work and mutual knowledge and interaction.
- To give continuity to the **Inner Areas Strategy** and approve a new **Regional law for mountain areas** as an updated framework of reference recognising their specific nature and building an integrated support and promotion plan which encompasses providing for adequate territorial maintenance and the prevention of hydrogeological instability; the completion of communication infrastructures, incentives for connectivity and the purchase of information technology, especially in market failure areas; expanding essential services and strengthening LPT; measures to attract and support work and enterprise on one hand, and young people remaining in the area, on the other; recovering and enhancing the cultural, building and environmental heritage.

6.4. Emilia-Romagna, a region of work, enterprise and opportunity

Designing a young and open European region which invests in quality, professionalism and innovation, beauty and sustainability to attract business and talent, support territorial vocations and add new value to manufacturing, services and professions.

Our aim is to embark on a path of growth, designing a **new economy for recovery** that combines development and environmental requirements, assigning a fundamental and indispensable role to economic and professional enterprise. Recovery will only take place if it is capable of ensuring the protection of the productive and social fabric with new strategies and tools to **safeguard** employed and self-employed workers, prevent the loss of productive and entrepreneurial skills, and generate new opportunities.

Our aim is to invest more in **entrepreneurial culture**, because we view the creation of **new businesses** and organised professional activities, especially by **young people**, as a precious sign of Emilia-Romagna's resilience, as well as a distinctive feature of its history and social identity.

We aim to invest in extending and qualifying female employment, see more women in decision-making posts and extend **female entrepreneurship** in sectors still dominated by men.

We have one of the most advanced **manufacturing industries** in the world, the linchpin of our production system. In its company-sector-regional dimension, including **digital**, manufacturing means jobs and the ability to add new value and sustainability to **production** and **services** thanks to research and skills. With a joint **Smart Specialisation Strategy for Research and Innovation** for the period 2021-2027 developed with signatories, defining priorities responding to the greatest challenges facing us, we intend to invest in our **regional vocations and areas of specialisation** – fashion, packaging, food, wellness, automotive, mechatronics, biomedical and ceramics – to ensure that these continue to export our top-quality products globally, combining craftsmanship, manual skills and the innovation frontiers, promoting international openness, digital transformation and the sustainable development of **essential supply chains**, both **emerging** and the **more traditional**, some of which (e.g. construction) are facing structural challenges with tailor-made measures focusing on **micro and small scale firms**.

In order to support the growth process of smaller businesses and of the tertiary market, in particular, we will focus our attention on the innovation chain as a whole by investing in cross-sectoral technology applications.

Policies and new targeted regional synergies are now indispensable, especially for **tourism** and **trade** – some of the sectors worst affected by the pandemic – and must be supported by investments in improvements to public and private structures designed to safeguard and promote employment in these sectors and the region's potential.

In particular, we agree on the need for sustainable development and a sustainable project for relaunching the entire tourist industry, based on the quality of the region's tourism product, services and employment, innovation in business structures, seasonal fluctuations in supply and a stronger promotional capacity.

Agri-food is a key sector, not only in terms of GDP and regional exports, but as a distinctive feature of our region, its quality and its excellence, with which we present ourselves to the world. It is essential, therefore, to continue with appropriate incentives in the strategy for growth and continuous technological and managerial adaptation to further strengthen production quality and sustainability, reduce the environmental impact and increase resilience to climate change. We must pay particular attention to the enormous challenges we face in an international scenario marked by the raising of tariffs and barriers and in the face of calamitous weather events whose greatest impact is on agricultural production.

In order to sharpen our competitive edge, we must pay new and specific attention to **professional workers** and the **self-employed** and, more generally, to a **tertiary sector** that is increasingly strategic to supporting investments and

innovation processes in production chains, the civil service and our towns and cities.

To support competitiveness, we must strengthen our **High-Tech Network**. Technopoles, laboratories, clusters, the current network of incubators and the investments designed to make Emilia-Romagna Europe's **Data Valley** and open up innovative opportunities ranging from artificial intelligence to combating climate change. We are committed to ensuring full accessibility to these opportunities for all companies and citizens via a democratic government that determines inclusive outcomes in economic and social terms.

In order to consolidate our international position, we must strive for the **integrated promotion of top-quality** Italian-made products, and disseminate their **appeal**, seizing all the opportunities arising from the fragility of fragmented production models on a global scale, including in order to encourage the **return of production and businesses**.

Our competitiveness, appeal and sustainability also depend on our ability to endow our region with the **mobility and connectivity infrastructures** which improve public and business living standards throughout Emilia-Romagna and real and efficient access to the world. Efforts made in recent years to unblock projects and provide communities with the essential equipment for both physical and digital connectivity now need full, essential and urgent completion in order to reduce area differences, decongest and modernise towns and cities, meet the growing needs of an economic and social system as advanced and complex as ours, but also restore our balance with the environment we live in. It is precisely for this reason that the Next Generation EU and new programme resources constitute a not-to-be-missed opportunity to speed up the development of new-generation infrastructures to implement environmental transition and strengthen the sustainability and efficiency of our towns and cities and the region as a whole. Here, too, priorities should be identified on the basis of a regional hierarchy (priority should be given to the most peripheral areas to be linked up and to the large urban centres to be freed from vehicle traffic), a functional hierarchy (priority should be given to collective mobility, rail and soft mobility) and a strategic hierarchy (links to major European corridors). Moreover, building innovative infrastructures is an indispensable condition for generating added value and reducing Italy's systemic productivity gap, as well as an important opportunity to create jobs in the current difficult economic climate.

Lines of action

- To help businesses to access **credit** by strengthening the tools via which interest rates can be reduced, in order to fund the investments firms' need for a safe return to work.

- To support microcredit initiatives for the development of self-employment, freelance work and micro-firms.
- To strengthen investment support tools providing subsidised loans and contributions, in conjunction with the Cassa Depositi e Prestiti (Deposit and Loan Bank) and with the help of the regional guarantee consortia.
- To support **financial tools and services** and activate new ones with a view to supporting the development plans of businesses and institutions more directly.
- To encourage supply chain integration, aggregation and merger processes increasing business size, including with a view to protecting and promoting skill development.
- To support both **innovation** and **network projects**, in particular for supply chains, professional organisations and small enterprises, including by taking advantage of the opportunities linked to the European Union's Interregional Innovation Investments.
- To find new ways of **attracting** investments associated with high innovation, environmental sustainability and good employment, with policies focusing on mountain, inland and peripheral areas, through supply chain pacts, area agreements, measures aimed at extending the value chain, strengthening private and public services, simplifying installation and development processes.
- To design new integrated policies designed to increase the region's **attractiveness to young people** trained in the region and **encourage them to return**, including by enhancing business transfer value, facilitating transfer and residence via services, providing top quality international tertiary education, adequate salaries and the job opportunities and social integration required by an increasingly globalised generation.
- To redesign, boost and internationalise the region's **research** and **innovation** ecosystem and **High-Tech Network**, promoting high technology clusters, the development of private and public laboratories and joint research, while continuing to implement measures aimed at attracting national and European-level research infrastructures to the region and making the most of supercomputing infrastructures to develop new advanced areas of research and specialisation.
- To safeguard and strengthen **business** and professional **internationalisation** in close conjunction with ICE (Italian Foreign Trade Institute), Maeci (Ministry of Foreign Affairs and International Cooperation) and Mise (Ministry of Economic Development), in order to strengthen international networks and

increase business presence, especially of small scale firms, on foreign markets by means of export consortia; to promote and invest in the international vocation of our regional trade-fair system to strengthen it and increase its integration; consolidating relations with the world's most innovative regions; fully exploiting the opportunities arising from major international events, especially **Expo Dubai**.

- To promote **logistics designed to foster efficiency and competitiveness sustainably** and therefore achieve efficiency **through technological and process innovation**, as well as by **professionalising** and **constantly updating** sector skills.
- To speed up new-generation infrastructures to implement environmental transition and strengthen the sustainability and resilience of our towns and cities and the region as a whole.
- To support the **sustainable building** and **construction** sector **supply chain** and the structural strengthening of its companies – their design skills, techniques and technologies – and research (starting with materials), including through synergies and regional coordination, with a view to making the most of the energy and seismic upgrading superbonus, supporting infrastructure processes and investments, urban regeneration and the redevelopment of existing buildings, as well as innovation in new-generation construction.
- To relaunch and stimulate our **tourism** districts to generate good businesses and jobs, including in conjunction with neighbouring regions, recouping important international tourism, strengthening relations with international markets, investing in strategic assets and cross-sectoral theme products – the Riviera and Apennines, the art cities and the castle networks, the Po river and its delta, nature and theme parks, spas and wellness, hiking and cycling routes, the Food Valley, the Motor Valley, the Wellness Valley – and in the conference, convention and events sector.
- To strengthen promotional and marketing activities and support private investment in **accommodation** upgrading and innovation, while continuing to enhance the value of public assets and the urban and environmental regeneration of the region.
- To develop Emilia-Romagna's growing 'Sports Valley' profile, capable of attracting and organising events and competitions of national and international importance, including in order to promote our regional system.

- To apply for the 2032 Olympics as an extraordinary opportunity for growth, promotion and sustainable innovation, making it the first carbon neutral event.
- To encourage redevelopment and innovation in **shops and shopping malls**, including by systematically revising regional regulations and via specific policies and resources, with a view to making them a valid and more competitive alternative, including in the light of online commerce, by setting up **retail districts**, encouraging the creation of **business networks**, supporting **guarantee schemes**, redefining the role of **technical assistance centres**, enhancing local commerce as a community asset, the specific features of neighbourhoods, historic town centres and Apennine areas, and designing new promotion and marketing policies and tools.
- To support the income, competitiveness and productive efficiency of **agricultural**, agri-food, fishing and aquaculture **enterprises** by improving their market position via investment in research, innovation and digitalisation; to encourage greater supply aggregation and vertical and horizontal supply chain integration to ensure fairer value distribution and prices; to support the commercial penetration of foreign markets; to favour the development of organic and precision farming, as well as the circular economy re-use of waste; to facilitate access to credit and risk management tools; to support multi-functionality; to protect regional and designated origin products via promotional measures, in close conjunction with the protection consortia and producers' representatives.
- To strengthen **cultural and creative industry** businesses and supply chains, in close conjunction with cultural heritage promotion and measures to support the performing arts, cinema and audio-visual sectors and publishing.
- To invest in the **professions and self-employment**, repositories of value and skills indispensable to society and the regional economy, providing them with access to credit on a par with small businesses as well as to digitalisation, innovation, network development and skills upgrading contract tenders.
- To create and promote **new businesses** and professional activities, especially for **young people** and **women**, with a special focus on **innovative start-ups**, defining a **regional hub** tasked with researching, supporting and codifying innovative entrepreneurship projects and also making use of the regional observatory.
- To make the best use of tools such as **workers' buyouts** and cooperative entrepreneurship, with a special focus on inland and mountain areas, promoting

credit-access tools, experimenting with new forms of support and consultancy, fostering connections with the research system and the national and international production context.

- To promote and support **community cooperatives** as a tool for local development and economic and social innovation, particularly in inland and mountainous areas, to counter depopulation, impoverishment and social breakdown.

7. Cross-sectoral processes

7.1. Digital transformation

To make major investments in the digital transformation of the economy and society, starting with its three essential components: infrastructure, access rights and people's skills.

We share a commitment to **speeding up the digital transformation of regional society as a whole**, by continuing to invest in our Data Valley, a global research and innovation hub, on one hand, and in the dissemination of digital skills, on the other, to ensure equal opportunities and business competitiveness throughout the region, with innovation which bridges gaps rather than widening them.

The technological revolution has already changed production processes profoundly: our aim is to manage this change in such a way as to avoid it causing job loss, redesigning a working world 'augmented' by digital technology in which automation generates new employment options and opportunities.

This means building a **Data Valley** as a '**Common Asset**' nurturing participation and democracy, investing in **excellence** and **inclusiveness** through five elements.

The first is **connectivity** – in order to make Emilia-Romagna a hyperlinked region that gives everyone – individuals, organisations and businesses, including those living or working in rural and 'market failure' areas or in conditions of economic fragility – access to the broadband network. We need to speed things up, including if necessary by anticipating national measures for the implementation of a 'single network'.

The second concerns the dissemination of **digital culture, awareness and skills**. We agree on the need for an extraordinary plan supporting full "digital citizenship" for people of all ages, with specific action to encourage younger people, especially girls, to undertake quality technical and scientific training, facilitate entry to the world of work, improve the skills of those already in work and encourage re-employment.

The third is the **transformation of the production fabric** and therefore a **transversal digital transformation of products and processes**, individual firms – especially micro and small scale firms – and our production chains and thus a commitment to supporting the development of **4.0 companies and supply chains**. We also aim to foster digital businesses going beyond the current contradictions of the gig economy, combining service innovation with quality performance and work. To this end, we will enhance the various current digital innovation hubs and set up a new one, in official dialogue with the European Commission.

The fourth relates to **digital governance** and the **data economy**. In order to contribute to achieving the objectives of **simplifying and upgrading the quality of the public administration**, Emilia-Romagna must lead the way in online services for its citizens and businesses via the creation and promotion of digital first public services. We also consider it to be strategically important to promote new use of data as an information asset for authorities, the public and enterprises, by drawing up common interoperability, data protection and security protocols that together constitute a true **regional 'data strategy'**.

The fifth is the widespread application of digital technologies to the **arts and cultural production, performing arts venues, museums** and the **library and historical archive network**, strengthening their educational and information provision functions.

Lastly, with a view to strengthening local social and healthcare services and promoting proximity and home care, we share a commitment to responding to the need for greater investment in the digital transformation of **healthcare** and **social** services, aimed in particular at enhancing telemedicine and, more generally, at defining new organisational and technological models designed to improve care processes.

Our shared commitment to this strategy is to respond first and foremost to the most peripheral situations, starting with inland and mountainous areas, in order to achieve a truly 100% digital community.

7.2. A simplification Pact

Strengthening and upgrading local government and reducing red tape to increase competitiveness and protect the environment and jobs within a legal framework.

Access to extraordinary resources and the need to invest these quickly to get the economy and society moving again calls for a change of pace in the relationship between local government, the public and business. On one hand, increasingly sophisticated skills and services are required of the public sector, and on the other, the need to simplify the bureaucracy involved in public and business access to services and reduce the time and costs involved is more urgent than ever.

Our aim is to implement procedural streamlining measures, both legislative and administrative, but also to go beyond this to a more far-sighted strategy involving overhauling the system in the direction of quality and powerful innovation and joint public and private sector working.

A number of principles must be shared in this process. First of all, simplifi-

cation calls for stricter compliance with rules and, of course, always working within a legal framework. Secondly, simplification does not forego striking a balance between the most efficient administrative solutions and the essential environmental, jobs and rights safeguards. Thirdly, simplification is designed to improve quality. We intend to carry out a detailed study of the best way to reduce the paperwork and the timeframes and costs bound up with it.

Since the most complex procedures generally involve a plurality of bodies and also entail significant interaction with the private sector (members of the public and companies, professionals and associations), setting up a **permanent discussion forum is essential**, to be made up of Pact for work and climate signatory representatives with the aim of drawing up and preliminarily signing a **Simplification Pact** that puts the principles outlined above into practice, adopts specific and measurable objectives, shares precise proposals, defines timeframes and methods, and monitors concrete and timely implementation.

The type of simplification we want is one which impacts on the entire system, both by involving further institutions, agencies and bodies, and by developing proposals to be submitted to the national inter-institutional round table - which the Emilia-Romagna Region sits on - to contribute to drawing up a **National Agenda for Simplification 2020-2023** which the government and the autonomous authorities are preparing to work on.

A decisive contribution to the achievement of this objective must come from digital innovation. The interaction between the various institutional levels, and between these and the private sector, and the interoperability of the civil service databases requires a qualitative leap forward.

To achieve these objectives, **strategic investment** in people and professionals working inside and outside civil service is essential.

After decades of contract and hiring freezes, the time has come to quantitatively and qualitatively realign the workforce, speeding up the selection and recruiting of a new civil service generation and directing their work strategically. It is equally important to invest in skills, to recognise and reward these, if the need is for higher quality. The same applies, of course, to **private professional work**, which is an essential element in service innovation and upgrading.

Good services do not come cheap, just as quality cannot be built outside the rules.

Full, officially recognised involvement of professionals and associations in processes is crucial to simplification, efficiency and legality.

One of the sectors most in need of significant investment in both the public and private sectors is certainly **public work**, from the use of digital techniques to the ability to reduce the timeframes required for authorisation and tendering

and the skills needed to manage contracts and construction sites. It is a question of taking action both to upgrade the construction and civil works supply chain and to strengthen the civil service in its role in promoting investment and its commitment to managing contracts and work.

Finally, a step forward in regional system innovation can also come from a more complete process of institutional reorganisation. The **regional autonomy** project, on one hand, and regional reorganisation, on the other, must contribute positively to the simplification of the institutional framework, as an Emilia-Romagna strength.

7.3. Legality

Promoting legality, one of our society's identity values and a guarantee of social and environmental quality.

We recognise legality as the inalienable and founding **value** of this Pact and the **precondition** for achieving its objectives.

If mafia and organised crime – as well as related phenomena such as illicit lending and illegal employment – are the most tangible and extreme forms of crimes against the community, other phenomena, which are more widespread but less feared socially – such as squatting or environmental crimes, bogus cooperatives and illegal work, the violation of workers' health and safety regulations, tax and social security dodging – also threaten the economic and social fabric of the region inasmuch as they affect workers' human and employment **rights**, **pollute** our environment and generate **unfair competition** to the detriment of virtuous businesses, thereby weakening our society as a whole.

The **Regional legality act** is a virtuous model and an alternative to the slackening of rules. It must be fully implemented by reaffirming the commitment to innovate and reinforce **the struggle** against mafia infiltration and organised crime and disseminate the culture and practice of legality in society and the economy, drawing up **integrated and coordinated** measures and policies capable of countering such phenomena, enhancing **cooperation** and intensifying this with those sectors of the civil service specifically appointed to combat crime, labour market irregularities and all other forms of economic and social corruption.

We must reassert and strengthen the role of the **Regional council for legality and responsible citizenship** and its major issues (seized or confiscated assets and companies; logistics and road transport sector; illegal labour contracts; organised and mafia crime), and consolidate and direct our **preventative** action through a more effective sharing of databases, knowledge and information on

crime, and towards the highest risk areas and sectors, as “sentinel” indicators make these more visible; by disseminating a culture of legality, particularly among young people; by supporting local monitoring and analysis observatories; by promoting ‘centres for legality and responsible citizenship’; by effectively reusing confiscated property, significantly reducing the time needed for its assignment; by encouraging worker buyouts; by promoting the dissemination of **good practices and formalised memoranda of understanding** for the management of **confiscated property** with prefectures, courts, local authorities, Chambers of Commerce, business associations and trade unions, the Italian Banking Association, social promotion and voluntary associations, etc.

We therefore confirm our commitment to **new programme agreements** and, where necessary, innovative legislative measures in order to implement these objectives, raising legality standards, recognising rights and social justice, taking new measures to strengthen the prevention of illegal money lending and providing assistance and help to victims of crime.

Social vulnerability is heightened at times of crisis. The effects of the pandemic have led to greater fragility in our region, too. The measures that need to be taken immediately to overcome this situation include designing new tools to combat the proliferation of companies, such as bogus cooperatives, which circumvent legal forms of labour and contracting, and the finalisation and implementation of the Government-Region Memorandum of Understanding to combat illegal labour contracts. Moreover, in concessions and public procurement we need to: relaunch the functions of central purchasing bodies and overcome the practice of maximum price reductions in public contracts in favour of the most economically advantageous offer; ensure the application of the national collective contracts relating to the subject of the contract and of the concessions and the related territorial and second-level bargaining signed by the most nationally representative trade unions and employers’ organisations (including for subcontractors); apply the social clause in contract changes; strengthen monitoring systems in the executive phases of contracts; ensure compliance with health and safety rules, with particular regard to anti-COVID protocols.

With the support of the professional world and the active cooperation of business associations and trade unions, the use of certifications and verifications will also be promoted to certify the regularity of employment contracts and the obligations of virtuous companies, simplify and speed up relations with the local government, and ensure transparency and fair competition in the regional economic and production system.

While agreeing on the full implementation of the Regional Consolidation Act on Legality, we believe that the white list system should be consolidated in view of the investments deriving from the new programming of structural funds, from

national and regional investments and from the Next Generation EU.

Furthermore, preventive labour inspection services must be upgraded, with the assistance of the police, in order to strengthen the struggle against illegal labour and labour exploitation.

Finally, we share a commitment to promoting the establishment of legality round tables in all provinces and in the city, as a participatory space in which to combat organised crime and promote a culture of legality.

7.4. Participation

A more central role for communities and towns, drivers of innovation and development, in the concrete management of Pact strategies.

It is only via participation that democracy can be made stronger.

Implementing the Pact is a shared responsibility and is only possible via the active participation of the **signatories** to it, especially its towns and districts: no Emilia-Romagna vision and strategic positioning project will ever be possible without a leading role from these. The achievement of our sustainable development and environmental transition goals is very much dependent on the local districts where economic innovation takes root and social cohesion is achieved, the environment is a concrete matter and culture is everyday practice.

The ability of trade unions and employers' and professional associations, including through their area branches, to work jointly for the document's strategic trajectories, objectives and commitments with workers, businesses and professionals is equally indispensable, including with a view to experimenting with new models of local participation.

The dialogue set in motion in recent years with local authorities at all levels has encouraged **new models of participation** and the signing of **numerous protocols on local governance**. This is an important commitment which we intend to pursue in the coming years, including through verification and monitoring, in order to achieve local and regional policy integration and coordination.

The involvement of the tertiary sector is also crucial, as is its ability to plan its response to needs, network with the public sector and develop proximity initiatives through the involvement of shareholders, volunteers and members of the public, as well as environmental associations and movements engaged in combating climate change. These contribute skills, needs, sensitivities and commitments which match the priorities of this Pact, now more than ever.

For Emilia-Romagna good industrial relations plays a strategic role in change, economic growth and social cohesion processes. We believe that within this

framework, the preconditions exist to enhance innovative forms of participation in the regional economic and production system, including in relation to the transition towards digitalisation, technological innovation and sustainable production processes.

Participation methods are increasingly effective and incisive, particularly in the most dynamic and innovative production sectors and this is especially true of organisational aspects. These methods need to be analysed, discussed in detail and assessed as opportunities for company and production system growth and development.

We believe that these processes should be supported by industrial relations which encourage those processes of cultural change most capable of increasing organisational participation and strategic development tools and forms in companies – especially through the extension of second-tier bargaining – thus enhancing, formal and informal participation in companies and supply chains and thereby strengthening their competitive edge and the value of work, whilst respecting the autonomy of the various stakeholders.

Without prejudice to the role and content of collective agreements and collective bargaining, the stakeholders undertake to further extend the industrial relations system in the spirit of national interconfederal agreements and this Pact.

The challenges we have outlined require **active participation** on the part of members of the public. Communicating and sharing with an informed and aware civil society is a democracy's primary **"common asset"**. Together, we are committed to accompanying this process by means of **information and communication** measures capable of facilitating the responsibility of regional society as a whole with regard to the objectives of the project and coherently channel individual and collective behaviour in the direction of economic and social change. Our aim is to become a byword in Europe for coherence between people's lifestyles and sustainable economic, social and environmental models. This is why we are committed to investing in awareness-raising and co-responsibility, with particular focus on the climate emergency and its effects, but first and foremost on the contributions individuals can make to environmental transition.

Finally, in order to promote the widest possible regional participation in the formation and implementation of **European Union** policies and law, we are committed to enhancing the **European Regional Network** and moving forward with the initiatives relevant to the public and local authorities in order to raise awareness and strengthen their capacity for action in the context of the European Union and access the resources that will be made available through the numerous programmes supporting regional development policies.

8. Governance and monitoring

The **Pact for Work and Climate** outlines the strategic framework and guidelines of a positioning project whose horizon is **2030** and which, over the next five years, will be structured into **operational agreements and the implementation strategies** required to achieve its shared objectives, based once again on participation, dialogue and joint working. The subject of these subsequent agreements will, in particular, be the way extraordinary and ordinary European resources are to be invested, the Agenda 2030 Regional Strategy and the simplification strategy, and the regional pathway to carbon neutrality by 2050. The Pact also provides for the involvement of the signatories, by means of the round tables already set up at the Presidency and regional departments, in a **prior discussion** on the contents of the main plans and measures to be undertaken, together with the respective financial allocations, to implement them in accordance with what has been agreed.

The meetings of the signatories to the Pact shall, as a rule, be held every six months and their objectives will be as follows:

- to **monitor** progress in the measures taken and assess their impact, starting from a common and uniform database for the entire region which is crucial in the environmental field;
- to **assess** possible additions or amendments, starting from new scenarios, critical issues and opportunities;
- to **promote** the implementation of the strategies identified in regional scale pacts and programmes.

In conjunction with the drawing up of policy tools, a number of clear, uniform, transparent and numerically limited indicators will be identified, capable of measuring the capacity of the Pact to achieve results in the strategic areas identified and of assessing – in advance of, during and at the end of implementation – the economic, social and environmental impact of the resulting choices. These indicators will be consistent with those measuring the implementation and effectiveness of the **Agenda 2030** Regional Strategy.

In order to ensure the necessary cross-sectoral nature and implementation of the regional pathway to carbon neutrality by 2050, a **regional technical coordination for climate transition** will be put in place to steer, and monitor the effectiveness of, regional sectoral policies on the subject. This **coordination**, including through the support of agencies, universities, research centres and the Chamber of Commerce system, will be a reference point for the definition

of common and uniform methods and measurement systems supporting the design, implementation and monitoring of decarbonisation and climate neutrality initiatives.

The most effective forms of information, involvement and reporting to the general public will also be identified, in order to strengthen transparency, accountability and shared responsibility for the changes we intend to pursue together.



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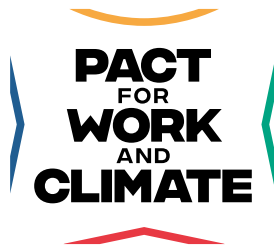
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Linee guida per l’inserimento di processi, modelli e pratiche di Ricerca e Innovazione Responsabile (RRI) Territoriale negli strumenti di attuazione della Strategia di Specializzazione Intelligente della Regione Emilia-Romagna.

“La nuova era tecnologica, se modellata in modo reattivo e responsabile, potrebbe catalizzare un nuovo rinascimento culturale che ci consentirà di sentirci parte di qualcosa di molto più grande di noi stessi: una vera civiltà globale. La quarta rivoluzione industriale ha il potenziale per robotizzare l’umanità e quindi compromettere le nostre tradizionali fonti di significato: lavoro, comunità, famiglia, identità. Oppure possiamo usare la quarta rivoluzione industriale per elevare l’umanità in una nuova coscienza collettiva e morale basata su un senso condiviso del futuro. Spetta a tutti noi fare in modo che tutto ciò si possa avverare”¹

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¹ Klaus Schwab, in *“Shaping the Fourth Industrial Revolution”*, 2018

Questo lavoro è frutto delle considerazioni emerse nel corso della realizzazione dell'esperimento territoriale del progetto TeRRitoria (<http://territoriaproject.eu/>), un progetto Horizon 2020 che ha permesso ad ART-ER di confrontarsi con altre regioni europee sul concetto della Ricerca e Innovazione Responsabile (RRI). L'esperimento ha come obiettivo quello di integrare le dimensioni della RRI all'interno della Strategia di Specializzazione Intelligente (RIS3) della Regione Emilia-Romagna.

Il percorso di definizione dell'esperimento ha previsto la realizzazione di momenti di co-design dello stesso, in cui sono stati coinvolti attori della società civile e innovatori sociali, funzionari regionali e soci dei Clust-ER. Parte delle considerazioni che hanno portato alla realizzazione dell'esperimento sono frutto anche di quanto emerso dalla consultazione sulla S3 regionale, attuata attraverso la piattaforma EROI. Queste linee guida sono uno degli elementi di questo esperimento.

L'esperimento prevede due obiettivi:

- analizzare l'ecosistema regionale dell'innovazione rispetto alle dimensioni e principi della Ricerca e Innovazione Responsabile;
- definire un modello di intervento che tenga insieme queste dimensioni e principi con le teorie dell'innovazione trasformativa e della co-creazione,

Gli output attesi dall'esperimento sono:

- la realizzazione di linee guida su come inserire questi elementi all'interno della S3 regionale in fase di attuazione
- la strutturazione di una misura sperimentale attraverso un percorso di co-design con stakeholder della Quadrupla Elica.

Le presenti linee guida sono un primo output dell'esperimento, e sono state prodotte anche grazie al contributo di alcuni stakeholder del territorio che hanno partecipato ad alcuni focus group specifici (un totale di 5 focus group per circa 50 partecipanti, con stakeholder della società civile e del Terzo Settore, delle università regionali, di organizzazioni appartenenti al mondo dell'educazione alla scienza, di soggetti gestori dei Tecnopoli). Questi focus group hanno consentito di mettere in luce alcuni temi e problemi ricorrenti per l'attuazione della Strategia di Specializzazione Intelligente, e di formulare suggerimenti e indicazioni.

TEMI E SUGGERIMENTI EMERSI DAI FOCUS GROUPS

Tra i temi e i problemi sono stati citati, tra gli altri:

- Esistenza di diverse attività di "ricerca responsabile" già praticate di fatto dalle università e dai centri di ricerca, anche se non sono etichettate così
- Difficoltà dei territori – soprattutto quelli più fragili – ad accedere ai bandi regionali
- Tendenza dei vari territori ad applicare in modo diverso le normative regionali (ad esempio per quanto riguarda il rapporto con il terzo settore), con il risultato di rendere più difficile il rapporto con i cittadini
- Mancanza di competenze per favorire la collaborazione tra settore pubblico e terzo settore
- Scollegamento tra le scuole e gli altri attori del territorio

- Difficoltà di collaborazione tra università e organizzazioni della società civile (per via di tempi e linguaggi diversi, e problemi operativi vari)
- Difficoltà di coinvolgimento di alcuni tipi di attori e stakeholders (.....)
- Difficoltà nell'uso di indicatori per la valutazione, dal punto di vista di chi deve definirli, applicarli e leggerne i risultati

Tra i suggerimenti e le indicazioni si possono ricordare, tra l'altro:

- Utilizzare un approccio di open governance e multi-stakeholders, per includere chi di solito è escluso (attraverso partenariati e co-progettazione – cfr. art. 55 Codice del terzo settore)
- Identificare le categorie di stakeholder e di attori più in grado di altri a rispondere alle sfide dei rispettivi territori
- Tenere conto della scala di implementazione nella definizione delle azioni
- Partire dai bisogni dei territori per individuare insieme e co-costruire le possibili soluzioni
- Nel promuovere il citizen engagement, tenere conto delle diversità esistenti tra le discipline (ad esempio tra scienze fisiche e scienze sociali)
- Prevedere nella durata dei progetti anche il tempo per la valutazione degli impatti futuri, della comunicazione e disseminazione dei risultati
- Tenere conto della diversità di opinioni, visioni, punti di vista, circa i bisogni e i problemi tra cittadini e ricercatori
- Necessità di innovare i linguaggi e gli approcci con i quali si fa comunicazione della scienza al pubblico e contrastare l'analfabetismo scientifico
- Promuovere l'apertura della scuola al territorio e la costituzione di reti territoriali (costruire comunità educanti; scuola come educatrice al territorio e alla cittadinanza)
- Colmare il gap tra la Rete di alta formazione (Clust-ER, tecnopoli, ecc.) e le scuole superiori
- Rivedere i curricula scolastici per fornire competenze sulla base delle esigenze territoriali
- Ridurre il gap di genere nella scienza
- Contrastare gli stereotipi che riguardano gli istituti tecnici
- Promuovere l'integrazione dei saperi all'interno della formazione scolastica
- Favorire un sistema interconnesso di comunicazione della scienza al livello territoriale, funzionale non solo al collegamento con l'impresa ma anche a garantire la cittadinanza scientifica
- Utilizzare e valorizzare le esperienze informali di comunicazione della scienza ai cittadini
- Garantire l'inclusione di tutti gli studenti all'educazione alla scienza, attraverso la scelta di linguaggi e strumenti che tengono conto delle diversità, delle capacità e delle abilità di tutti (lotta al *divide* tra chi ha le risorse e chi non le ha)
- Coinvolgere gli studenti per avvicinare le famiglie e la scuola al territorio e alla scienza
- Promuovere strumenti di peer-education nelle scuole
- Mappare le esperienze presenti sul territorio
- Coinvolgere gli stakeholder che hanno partecipato alla fase iniziale di programmazione, anche a quella finale della valutazione
- Sostenere gli uffici di piano nel promuovere l'individuazione dei bisogni sui quali intervenire e una progettazione integrata e partecipata delle attività
- Adottare una procedura di presentazione dei dati (relativi agli impatti, ma non solo) sia in forma aggregata che dettagliati al livello locale

- Potenziare il modello dei tavoli di governance territoriale, dove attori diversi lavorano sui bisogni del territorio (promuovendo il senso di appartenenza, il mutual learning, il monitoraggio e la valutazione, considerando anche i risultati negativi)
- Ripensare il ruolo dei tecnopoli rispetto al loro rapporto con le aziende e con i territori, in modo che sappiano coniugare la dimensione locale con quella globale
- Promuovere attività di mediazione , con l'intervento di facilitatori e innovatori

Le linee guida potranno servire come strumento per il policy maker per strutturare misure e strumenti innovativi per politiche di ricerca e innovazione che tengano conto dei bisogni del territorio, di sfide sociali e ambientali generate in maniera collaborativa, di processi di co-creazione nella definizione di progetti orientati ad una dimensione responsabile.

Ricerca e Innovazione Responsabile (Responsible Research and Innovation – RRI)

La RRI, ovvero Responsible Research and Innovation (Ricerca e Innovazione Responsabile) è: “un processo trasparente e interattivo attraverso il quale i vari attori della società e gli innovatori interagiscono per far sì che il progresso scientifico e tecnologico possa dar luogo a processi e prodotti che siano sicuri per l’uomo e l’ambiente, eticamente accettabili e rispondenti alle esigenze e ai bisogni degli individui e della società”.²

Nel contesto dei profondi processi di cambiamento che stanno attraversando sia la scienza che la società propri della post-modernità, la RRI è stata promossa e implementata dall’Unione Europea come politica e approccio per favorire una governance dei rapporti tra scienza e società più aperta, inclusiva e responsabile.

La “Rome Declaration on Responsible Research Innovation” (novembre 2014) ha ribadito l’importanza e la necessità di allineare la Ricerca e l’Innovazione ai valori, ai bisogni e alle aspettative della società. Ciò implica che le relative decisioni in tema di R&I siano frutto di un confronto tra tutti gli stakeholders, che diventano automaticamente responsabili, gli uni verso gli altri, delle ricadute delle attività di Ricerca ed Innovazione sugli individui, sulla società, sul territorio, nelle comunità³. Il dialogo su come integrare i principi e le pratiche di RRI ha avviato un ampio dibattito a livello europeo (in particolare nel contesto dei progetti Horizon 2020⁴), e nazionale, ripreso anche da AIRI e CNR nei loro report del 2015 e 2019⁵.

La principale necessità nell’utilizzo della RRI all’interno delle strategie regionali è quella di definire modelli di governance che siano capaci di coinvolgere in maniera equa diversi stakeholder del territorio: la RRI è insieme processo e modello di intervento, ed ha il fine di realizzare una governance dei sistemi di R&I capace di precorrere le esigenze future. Questo modello di “Anticipatory Innovation Governance”⁶ può costituire uno stimolo a generare innovazioni più orientate al mercato, tenendo in considerazione diversi fattori e implicazioni di ordine economico, sociale e ambientale e allineate ai bisogni e alle aspettative della società. In tal modo è possibile considerare i fattori di impatto e di rischio delle innovazioni non solo in una logica di mercato, ma anche dal punto di vista della desiderabilità sociale, abilitando quindi modelli partecipativi di adozione dell’innovazione. Le politiche si realizzano attraverso scelte di regolamentazione e flussi di risorse, che se destinate all’innovazione responsabile e social e attivate mediante modelli partecipativi, contribuiscono ad aumentare la qualità della democrazia, la diffusione della conoscenza e quindi una maggiore fruizione dei prodotti della scienza e dell’innovazione

² Von Schomberg, Rene (2012) ‘Prospects for Technology Assessment in a framework of responsible research and innovation’ in: *Technikfolgen abschätzen lehren: Bildungspotenziale transdisziplinärer Methode*, P.39-61, Wiesbaden: Springer VS

³ AIRI, 2015, Report sulla Ricerca e Innovazione Responsabile.

⁴ <https://ec.europa.eu/programmes/horizon2020/en/h2020-section/science-and-society>

⁵ Report AIRI-CNR 2015 <https://www.airi.it/download/report-sulla-ricerca-e-innovazione-responsabile/>;

Report AIRI-CNR 2019 <https://www.airi.it/report-sulla-ricerca-ed-innovazione-responsabile-in-italia-il-quadro-aggiornato/>

⁶ OCSE, 2019: <https://oecd-opsi.org/projects/anticipatory/>

Dimensioni fondanti o metodologiche per l'attivazione di processi RRI

Gli elementi chiave nel favorire la transizione verso politiche di ricerca e innovazione che siano più responsabili e orientate alla risoluzione di sfide della società, derivano dalle quattro dimensioni metodologiche o fondanti della RRI più una che si è aggiunta nel tempo e riguarda l'apertura dei sistemi RRI:

- **Anticipazione:** considerare l'impatto, le implicazioni e le conseguenze economiche, sociali e ambientali ad ampio spettro di un progetto di ricerca e innovazione. Ciò vuol dire guardare oltre la propria filiera di riferimento e analizzare possibili impatti di lungo periodo, non intenzionali, e non attesi. Questa dimensione implica anche una condivisione delle responsabilità nelle scelte di politica a supporto della ricerca e innovazione per una **corretta incorporazione** dei progressi scientifici e tecnologici nella nostra società.
- **Diversità e Inclusione:** Tenere conto e riflettere nel processo di ricerca e innovazione (dalla formulazione delle domande di ricerca fino alla progettazione delle soluzioni) la diversità dei punti di vista della società. Ciò si persegue assicurando la necessaria rappresentanza di caratteristiche socio-demografiche differenti tra gli attori coinvolti (genere, sesso, etnia, età, livello di istruzione, minoranze etc.) e diversificando le fonti di conoscenza o la presenza di expertise e discipline differenti. Questi principi sono strettamente collegati alle pratiche di partecipazione. La necessità di costruire **processi partecipativi, interattivi e trasparenti** nel definire politiche mirate alla Ricerca e Innovazione di livello regionale, richiede che tutti gli stakeholders siano coinvolti nel condividere le scelte di ricerca e innovazione e adottino processi di mutua responsabilità nel definire processi e potenziali benefici (impatti di lungo termine) della R&I. Questo vuol dire anche lavorare ad **agende di ricerca collaborative**, utilizzare principi di science education, citizen science e citizen e public engagement nei progetti di ricerca finanziati con risorse pubbliche e private, tenere conto della dimensione di genere nei processi di R&I. I benefici della RRI sono da ricercare anche nella possibilità di anticipare potenziali cambiamenti nella società, condividendo modelli di intervento e riflettendo sulle sfide sociali: questo permette di aprire alla co-progettazione (nell'ottica del co-design) di programmi di ricerca collaborativa o partecipata, alla co-produzione di conoscenza e a nuovi orizzonti di ricerca, contaminando l'approccio tecnologico con elementi di scienza sociale. Inoltre, questo tipo di approccio genera fiducia nei cittadini, che si vedono come attori necessari dei processi e dei progetti di ricerca, limitando quindi effetti di polarizzazione della conoscenza su alcuni poli specifici e aumentando la condivisione delle scelte anche a livello di politiche di R&I. Questa dimensione far riferimento anche alla necessità di considerare le dimensioni dell'accettabilità etica, della sostenibilità e della **desiderabilità sociale** del processo di innovazione e dei suoi prodotti commerciali.
- **Riflessività:** prendere consapevolezza, sia a livello individuale che istituzionale, del contesto nel quale si opera in termini di pratiche, valori di base, assunti scientifici o culturali consolidati e dati per scontati. Attuare un approccio riflessivo e critico a scienza, tecnologia, ricerca e innovazione – dal livello delle politiche a quello operativo – vuol dire guardare alle proprie scelte con la consapevolezza che gli orientamenti e i metodi impressi a scienza e tecnologia sono in parte conseguenze di un determinato periodo storico e sistema sociale e valoriale, e quindi relativi; vuol dire porsi domande come: quali fattori e criteri orientano percorsi e scelte, ogni volta che ci troviamo a un bivio decisionale? Quali assunti ci guidano? Perché perseguiamo quello scenario di futuro e non un altro? Quando e quanto è la desiderabilità di uno scenario futuro a trainare lo

sviluppo tecnologico, e quando invece, viceversa, ci facciamo trainare dal mero criterio di possibilità e fattibilità tecnologica?

- **Adattabilità e reattività:** essere ricettivi al cambiamento e capaci di cambiare direzione, sulla base dell'emersione di nuova conoscenza, dell'evoluzione delle norme, oppure di riscontri e feedback provenienti dalla società o da problemi e conseguenze inattese della ricerca e dell'innovazione. Il cambiamento riguarda la capacità di rimettere in discussione assunti, modelli di comportamento e pensiero, modelli organizzativi e di responsabilità. Essere in grado di modificare modi di pensare e comportamenti che guidano le strutture organizzative (anche quelle proprie delle imprese di piccole e medie dimensioni), in risposta ai cambiamenti delle circostanze, conoscenze e prospettive di sviluppo. In tal senso è utile confrontarsi sempre più spesso nel produrre ricerca e innovazione con i principi di dignità umana, libertà, democrazia, uguaglianza, equità e rispetto dei diritti fondamentali delle persone. Altresì è utile introdurre contesti di educazione non formale nella promozione di progetti di educazione alla scienza e nel contesto della istruzione e formazione terziaria.
- **Apertura e Trasparenza:** assicurare una comunicazione e condivisione chiara e utile dell'informazione e della conoscenza (dati) in un'ottica di responsabilità, creazione di fiducia, e accountability, sia a livello dei processi (prese di decisione, governance e aspetti finanziari) che dei contenuti di ricerca e innovazione (dati e risultati). Ciò si persegue non solo mettendo l'informazione a disposizione di tutti, ma curandone la forma, in modo che sia comprensibile e adatta ai vari target. Nel concetto di apertura rientrano la dimensione della collaborazione, della condivisione, e della partecipazione. La necessità è quindi sia quella di rendere disponibili, accessibili in forma aperta e interoperabili i prodotti della conoscenza e di strutturare modelli di valutazione e monitoraggio dei progetti di ricerca e innovazione che tengano conto delle diverse **dimensioni di impatto** che possono generare: **economico, sociale, ambientale**. Inoltre è necessario strutturare nuovi modelli di comunicazione e diffusione della scienza e della conoscenza, che tenga in considerazione anche elementi di semplicità e chiarezza dell'oggetto della comunicazione. Infine è necessario dotarsi di strumenti di decision support system basati su open data che siano fruibili e utilizzabili da tutta la comunità per verificare investimenti e impatti generati.

Dimensioni operative (chiavi di lettura o pilastri) per l'attivazione dei processi RRI

Le dimensioni o principi fondanti della RRI vengono attuate attraverso la strutturazione di metodi e processi che devono tenere in considerazione 6 dimensioni operative, anche dette pilastri o chiavi della RRI; queste possono essere utili nel disegnare strumenti adeguati ad attivare i processi di cambiamento definiti dalle dimensioni fondanti a seconda delle diverse necessità. Si forniscono di seguito alcuni esempi di strumenti attuabili per ogni pilastro.

Governance (pilastro trasversale agli altri e fondamentale per la strutturazione di processi e pratiche di RRI territoriale):

Il concetto di Governance della ricerca e dell'innovazione costituisce uno dei sei pilastri che formano il quadro RRI proposto dalla Commissione europea. La governance è un livello trasversale e abilitante rispetto agli altri pilastri. Esso comprende da un lato la configurazione strutturale di un dato sistema organizzativo o sociale, ovvero il suo sistema valoriale, normativo e organizzativo; e dall'altro il livello della distribuzione delle responsabilità e del potere decisionale tra gli attori portatori di interesse. **Quando si parla di**

responsabilità, bisogna comprendere che in questo contesto non si fa più riferimento al solo concetto di prendersi in carico “una parte del problema” attraverso un progetto o una attività o l’esclusività su un processo o una infrastruttura; nell’attivazione di modelli di governance orientati alla RRI Territoriale, si tratta piuttosto di rispondere in maniera aperta, collaborativa e condivisa a diversi modelli di soluzione o di innovazione che possano essere in grado di contribuire alle sfide territoriali individuate .

La governance è dunque il livello d’azione in cui i valori dell’RRI (anticipazione, inclusione, riflessività, reattività, adattabilità, apertura, trasparenza) vengono tradotti in regole, procedure, processi, obblighi, responsabilità, incentivi, strumenti finanziari, criteri di valutazione, priorità di ricerca, infrastrutture, etc.

- collaborazione tra diversi attori della società a partire dal processo di scoperta imprenditoriale;
- misure attuative dei fondi di ricerca e innovazione basate su sfide territoriali (challenge-based innovation);
- agende di ricerca partecipative e framework per le politiche trasformative;
- forum territoriali per la ricerca e l’innovazione;
- tavoli di coordinamento territoriali che coinvolgono la società civile e il terzo settore

Public engagement:

- ingaggio diretto dei cittadini nei processi di R&I (nelle fasi di scoperta dei bisogni e delle sfide e in quelle di valutazione delle possibili soluzioni e dei prototipi);
- co-creation e co-design dei prototipi di ricerca (anche coinvolgendo il terzo settore come agente di cambiamento territoriale);
- valutazione “pubblica” dei risultati di ricerca collaborativa;
- science shops e science caffè;
- living labs e laboratori aperti diffusi

Science education:

- nuovi corsi, nuovi metodi di insegnamento, introduzione di metodi di educazione non formale;
- percorsi di apertura dei laboratori alle scuole e viceversa;
- percorsi di contaminazione tra studenti, ricercatori e innovatori responsabili;
- sfide di ricerca a cui possono rispondere i ragazzi delle scuole secondarie e delle università

Open Access:

- condividere obiettivi e risultati dei progetti di ricerca in maniera chiara e comprensibile;
- rendere disponibili dati in formato aperto dai progetti di ricerca;
- rendere intelligibili i dati e i prodotti della ricerca, in modo tale da essere compresi anche da un pubblico di non addetti ai lavori;
- assicurare scoperta, accesso, interoperabilità e riuso da parte di altri ricercatori o operatori economici, secondo i principi riassunti nell’acronimo *FAIR: Findable, Accessible, Interoperable, and Reusable*

Gender equality:

- attenzione alle discriminazioni di genere nei progetti di ricerca e innovazione, in particolare quelli legati alle STEM;
- Gender Audit e Gender Equality Plans come strumenti per migliorare la questione di genere nelle organizzazioni di ricerca;
- percorsi di carriera che tengano conto della diversità di genere e della conciliazione vita-lavoro

- inserire il tema di genere nei contenuti della ricerca e dell'innovazione (es. in medicina, nelle scienze biologiche, ecc.)

Ethics:

- allineamento tra output dei processi di R&I e bisogni, valori, aspettative della società (considerando anche il tema della gestione dei dati e della privacy);
- pensare alle implicazioni etiche dei progetti di ricerca e innovazione (da una parte, evitare di produrre danni o esporre a rischi, dall'altra massimizzare i benefici, sia per i partecipanti che per la comunità nel suo insieme) già in fase di elaborazione del progetto, anche avviando azioni di consultazione dal basso;
- utilizzare codici di condotta, review etiche, strumenti di valutazione degli impatti della R&I sulla società.

La dimensione territoriale della RRI

Quando si parla di Ricerca e Innovazione solitamente si fa riferimento ad organizzazioni e progetti che risiedono all'interno di grandi strutture finanziate pubblicamente (in particolare per l'attività di ricerca di base e in qualche caso di ricerca applicata), o di strutture interne ad organizzazioni private (in particolare per le attività di ricerca industriale e di innovazione).

Nel momento in cui le infrastrutture di ricerca si trovano a contatto con processi di innovazione sempre più fluidi che devono rispondere a grandi sfide sociali, diviene necessario ri-orientare il concetto di ricerca e innovazione al fine di produrre risultati che abbiano un effettivo impatto anche sul contesto locale, e quindi poterli misurare in termini di cambiamenti attesi (ex ante) e generati (ex post).

Parlare di ri-territorializzazione della R&I implica mettere a sistema una serie di esperienze sviluppate nel corso degli ultimi venti anni in settori molto differenti (energia, mobilità, gestione dei rischi naturali, sviluppo rurale e urbano, etc...); queste esperienze sono tutte basate su nuove forme di coordinamento tra diversi attori sociali (inclusi gli enti di ricerca) in grado di generare cambiamenti strutturali nei territori in cui avvengono. La scienza, la ricerca e le tecnologie giocano un ruolo centrale nei processi di ri-territorializzazione: permettono infatti di aiutare ad anticipare i cambiamenti che il territorio potrà o dovrà affrontare in relazione alle sfide globali e ai nuovi orizzonti della società post-moderna. Le innovazioni tecnologiche unite a quelle di natura organizzativa e sociale, se inserite in percorsi di costruzione di comunità resilienti, aperte e inclusive permetteranno ai territori di tornare ad avere un ruolo centrale nel definire le traiettorie di sviluppo e coesione sociale a livello locale.

La necessità di ripensare il ruolo che i territori - con le loro città, le loro comunità e i loro patrimoni tangibili e intangibili - svolgono nei processi di adozione e diffusione delle innovazioni è alla base di un discorso più ampio sulle politiche di ricerca e innovazione per la coesione sociale. Queste politiche devono essere finalizzate anche allo sviluppo di un'economia locale coesiva in cui le dimensioni relazionale, comunitaria e identitaria costituiscono la principale risorsa per la produzione di valore; il valore prodotto deve essere condiviso con comunità resilienti e in grado di adottare le innovazioni, e misurabile anche in relazione agli impatti di lungo periodo.

In tal senso, l'adozione di un approccio di Ricerca e Innovazione Responsabile che guardi ai territori come luoghi di sperimentazione dell'innovazione, può permettere di strutturare modelli partecipativi di definizione delle sfide, approcci human-centered e di co-design dell'innovazione, meccanismi di governance inclusiva e approcci Quadrupla Elica per la collaborazione sui progetti di sistema.

La dimensione "territoriale" della Ricerca e Innovazione Responsabile può intendersi quindi come un elemento aggiuntivo alle dimensioni fondanti e alle priorità operative. Questa dimensione in particolare, dovrà tenere conto di alcuni elementi fondamentali nei processi di "territory-making"⁷ che derivano dalla teoria delle "alleanze o coalizioni territoriali":

⁷ Con il termine territory-making, ci si riferisce a quelle azioni che attivano, sostengono e stabilizzano un processo di re-territorializzazione, inteso come il rafforzamento dei legami tra una comunità e il luogo dove essa vive. In questo senso, il territory-making può anche essere considerato come una risposta alla de-territorializzazione. Per maggiori informazioni, si veda il Deliverable D3.3 "Map of approaches, policies and tools for territorial RRI" messo a punto da K&I nel contesto del Progetto TeRRitoria. Il termine territory-making è stato scelto perché indica chiaramente l'orientamento e la capacità di re-inventare o di ridare forma al territorio nell'azione viene realizzata.

- **visione condivisa:** obiettivi comuni sono condivisi dalla comunità territoriale superando gli interessi personali e le contrapposizioni tra i rappresentanti degli attori coinvolti;
- **ampia attivazione di attori del territorio:** diversi attori, nessuno dei quali in grado di controllare la complessità sociale da solo, iniziano a cooperare per raggiungere obiettivi di sviluppo sociale ed economico;
- **un cambiamento nei ruoli e nelle configurazioni tra attori e organizzazioni:** passare dall'utilizzo "tattico" della collaborazione tra diversi attori, al loro utilizzo strategico nei processi decisionali che influiscono sulla vita di una comunità o di un territorio.

Orientare, o "direzionare" i processi di R&I ai bisogni e alle necessità di un territorio implica quindi:

- **ri-conoscere il territorio:** comprendere cosa intendiamo per territorio, e quindi definirlo sia in termini dimensionali che identitari, attraverso simboli, luoghi e visioni condivise che permettano di identificare sfide comuni su cui lavorare, e di comunicarle attraverso parole, oggetti e messaggi chiari e comprensibili;
- **mobilitare il territorio:** identificare gli attori e le risorse presenti, il loro livello di coinvolgimento e di mobilitazione, e attivare quelle coalizioni territoriali in grado di lavorare sui fabbisogni di innovazione specifici del territorio, attivando processi partecipati da diversi stakeholder, e quindi di disegnare e implementare progetti complessi di intervento sulle sfide individuate;
- **governare il territorio:** attivare processi e strumenti di coinvolgimento continuo degli attori, riconfigurando in maniera chiara le relazioni tra questi, ingaggiandoli costantemente sulla soluzione delle sfide territoriali col fine di attuare cambiamenti nei rapporti istituzionali.

Se questi sono elementi imprescindibili nella strutturazione di processi R&I che tengano in conto delle istanze di un territorio, è necessario dotarsi di policy, strumenti e pratiche che permettano di farlo. In particolare può essere utile orientare le scelte di policy nel fornire un supporto adeguato ai territori per comprendere come orientare la R&I a beneficio degli stessi.

Nel contesto del progetto europeo TeRRitoria (Horizon 2020), si è provato a dare una lettura sinottica dei processi di innovazione territoriale in relazione a potenziali modelli di governance, andando a definire alcune combinazioni che possano favorire questo tipo di processi, identificando anche pratiche e modelli a supporto⁸. Nella tabella che segue si definiscono:

- Orientamenti territoriali: quale obiettivo si intende raggiungere (cosa fare) e quale cambiamento è necessario nel territorio (cosa cambiare);
- Modelli di governance: quali modelli di intervento strutturati possono aiutare i processi di ri-territorializzazione e territory-making, identificando nuovi modelli di collaborazione, nuovi strumenti regolatori, o ri-configurando le relazioni esistenti tra gli attori locali.

In relazione al contesto della Regione Emilia-Romagna si è provato a dare una visione di come alcuni strumenti di attuazione delle politiche regionali (non solo di Ricerca e Innovazione) possano essere inseriti in questa matrice al fine di comprenderne meglio l'utilizzo e la funzionalità.

⁸ La tabella è contenuta nel Deliverable 3.3 del progetto Horizon 2020 TeRRitoria (http://territoriaproject.eu/wp-content/uploads/2021/04/TeRRitoria_D3-3_Map_of_approaches__policies_and_tools_for_Territorial_RRI.pdf).

Gli esempi non sono esaustivi degli strumenti a disposizione dei policy-maker regionali, ma aiutano a comprendere le potenzialità dell'approccio RRI Territoriale rispetto alla proposta di strumenti di attuazione della politica regionale orientati a risolvere sfide locali.

Modelli di governance	Definizione di agende partecipative	Infrastrutture comunitarie per lo sviluppo	Sistemi di scambio territoriali	Progetti partecipativi gestiti dalle comunità (CLLD)	Piattaforme di co-creazione della conoscenza	Modelli di collaborazione tra istituzioni e società civile
Orientamenti territoriali						
Rigenerare o riattivare attività sociali ed economiche				GAL	Hub Usi Temporanei	
Ridisegnare le infrastrutture territoriali		Laboratori Aperti				
Stabilire nuovi framework regolatori						Co-programmazione
Emancipare gli attori territoriali	Community Lab				EROI	
Rafforzare i processi decisionali	SNAI - Community Lab			SNAI	IoPartecipo+	
Gestire i rischi territoriali	Piano Energetico Regionale					

Policy making per una RRI territoriale

Nel definire alcuni elementi chiave per il disegno e l'implementazione di azioni, attività, progetti legati al concetto di RRI territoriale, non bisogna dimenticare un aspetto chiave: **la responsabilità del soggetto promotore e dei partner non deve essere sul singolo progetto o intervento, ma sull'impatto che questo può e deve generare nella collettività**. Questo implica che i sistemi di valutazione e monitoraggio delle azioni devono necessariamente essere adeguati a non valutare più e solo l'intervento in quanto tale, ma ad anticipare i potenziali impatti che può generare, e quindi utilizzare strumenti di attivazione del territorio per far sì che questo possa accadere.

La RRI presuppone l'esistenza di un sistema solido di relazioni vive e attivabili su specifici processi, tenendo conto di:

- **dimensioni valoriali** (le priorità regionali, derivanti sia dal mandato degli elettori che da elementi di natura più ampia, come ad esempio l'Agenda 2030). Queste dimensioni devono trovare riscontro in elementi di condizionalità nell'utilizzo dei finanziamenti pubblici: ogni euro di denaro pubblico deve restituire valore per la comunità;

- **dimensioni strutturali** (infrastrutture, competenze, processi di engagement, scoperta imprenditoriale, etc...) che trovano sintesi nelle politiche regionali, e in particolare modo nelle Strategie di Specializzazione Intelligente, e supporto nelle misure previste dai POR e da altri strumenti regionali.

Alcuni suggerimenti utili in fase di programmazione e implementazione delle politiche per una RRI Territoriale, devono sempre tenere in conto la necessità di attivare sistemi complessi di collaborazione e co-creazione di soluzioni alle sfide del territorio. Questi suggerimenti possono essere suddivisi in due macro-categorie:

- **Aspetti cognitivi**
 - Identificare una visione condivisa sulle priorità a livello locale, e quindi definire le sfide anche attraverso la partecipazione dei cittadini e di stakeholder locali;
 - Far leva sul patrimonio culturale: storia, tradizioni, sistemi produttivi e di conoscenza, sistemi di protezione sociale che caratterizzano un determinato territorio;
 - Far leva sul capitale umano territoriale, valorizzando il contributo che può dare alla soluzione di sfide grazie alla profonda conoscenza del territorio;
 - Utilizzare la dimensione di genere come strumento guida dei processi di disegno, implementazione, disseminazione e valutazione delle politiche;
 - Adottare strategie sperimentali di sviluppo territoriale, evitando di applicare modelli importati a scatola chiusa, adottando innovazioni incrementali e un approccio graduale e “esplorativo”;
 - Far leva sulle competenze di ricerca per facilitare i processi o guidare alcuni momenti chiave in cui servono competenze specifiche;
 - Accompagnare lo sviluppo delle azioni con percorsi di ricerca sociale, ricerca-azione, design dei servizi locali, valutazione dell’impatto;
 - Orientare le azioni attraverso attività di costruzione di scenari, anticipazione del futuro, consultazione e partecipazione degli stakeholder;
 - Tenere traccia della conoscenza prodotta durante il processo;
 - Condividere storie di successo.
- **Aspetti operativi:**
 - Promuovere e adottare un approccio partecipativo e trasparente alle decisioni
 - Fare leva su sistemi di leadership formali e informali
 - Fare affidamento sull’impegno degli attori coinvolti
 - Tenere in considerazione la conciliazione vita-lavoro con la volontà di partecipazione dei cittadini
 - Strutturare e utilizzare strumenti di monitoraggio e valutazione dei cambiamenti in atto
 - Generare connessioni con pratiche nazionali e internazionali

Disegnare un percorso di transizione a politiche di Ricerca e Innovazione che tengano in conto la dimensione di responsabilità territoriale e che siano “anticipatorie” rispetto alla potenziale generazione di impatto significa quindi ragionare principalmente in tre direzioni:

1. portare l’ecosistema dell’innovazione a realizzare percorsi di RRI: dimostrare il concetto di materialità facendo scelte mission-oriented; attivare reali percorsi di EDP nella definizione delle politiche; monitorare e misurare l’impatto delle scelte politiche (attraverso sistemi di indicatori molto raffinati sensibili a piccoli progressi);
 - progettare **sistemi aperti, flessibili e adattabili** di governance della ricerca e innovazione;

- integrare la **RRI nei processi di decision making** e nel policy management lifecycle, tenendo in considerazione le condizioni abilitanti della RRI;
 - utilizzare **principi di public engagement** nella progettazione di misure attuative;
 - rivedere i modelli e meccanismi di valutazione dei progetti finanziati con risorse pubbliche, includendo elementi di **valutazione della responsabilità e dell’impatto sociale**, anche introducendo condizionalità specifiche, orientando quindi la ricerca e l’innovazione a costruire una dimensione di relazione con il territorio;
2. supportare le organizzazioni attraverso misure che favoriscano le imprese e i soggetti della ricerca responsabili, strutturando strumenti e metodi di lavoro coerenti con la RRI:
- lavorare su **nuovi sistemi di accreditamento** e costruzione delle reti regionali di ricerca e innovazione, che tengano conto delle dimensioni e condizioni della RRI;
 - utilizzare gli appalti pre-competitivi e il public procurement per l’innovazione adottando **criteri di responsabilità sociale e ambientale nella definizione dei contenuti di gara**;
 - strutturare **modelli sperimentali** di supporto al testing di prodotti e servizi innovativi utilizzando modalità di pre-totipazione e prototipazione collaborativa;
 - supportare la creazione e gestione di contenitori di co-creazione messi a disposizione delle imprese e dei centri di ricerca, anche individuando metodi di citizen engagement nei bandi a supporto della ricerca.
3. formare le organizzazioni ad utilizzare pratiche modelli e strumenti di RRI, e quindi inserire all’interno dei sistemi di formazione regionali per le Alte Competenze moduli su innovazione trasformativa e responsabile. Questo anche al fine di far comprendere a ricercatori, dottorandi, assegnisti e studenti l’importanza di attivare processi di citizen engagement e citizen science contribuendo alla diffusione della scienza e della conoscenza. Questo sempre tenendo a mente che la conoscenza può e deve sempre più essere intesa come “bene comune”, evitando quindi problemi di polarizzazione della stessa solo verso soggetti capaci di interpretarla:
- adeguare le competenze di tipo tecnico dell’ecosistema, con **competenze legate alle scienze sociali e umane**, e costruire una base di competenze per applicare la RRI nei progetti di ricerca e innovazione (human-centered design e innovazione sociale in particolare);
 - creare network di condivisione e **comunità di pratiche** a livello regionale sui temi della RRI;
 - mettere a disposizione figure ibride di **community manager** dell’innovazione, capaci di indagare fabbisogni e necessità a livello territoriale;
 - migliorare la capacità di comunicare e disseminare la conoscenza prodotta anche tramite modelli innovativi di **citizen science** e un **accesso aperto alla conoscenza**.

RRI e competitività delle imprese

Sempre più sia le imprese che gli investitori sono consapevoli della necessità di considerare gli impatti prodotti dalla loro ricerca/produzione e innovazione/investimenti nel loro modello di business e nelle loro scelte; d’altra parte, le regioni hanno più obiettivi da conseguire per mezzo delle risorse disponibili nei loro bilanci. Se da un lato è importante sostenere la competitività delle imprese, dall’altro lo è anche sostenere la coesione sociale dei territori e quindi ragionare in termini di competitività territoriale che integra i concetti di sostenibilità ed inclusività.

Le imprese devono quindi imparare a ragionare in termini di bene comune, di ricadute sociali e ambientali e quindi di impatto anche al fine di contribuire alle politiche regionali. L'attenzione all'impatto come strategia aziendale si è dimostrata essere una chiave vincente nell'affrontare l'instabilità dei mercati e il continuo susseguirsi di crisi.

La RRI e il public engagement possono rappresentare un beneficio ulteriore per le imprese di ricerca e innovazione, perché aumentano la loro reputazione, anticipano eventuali problemi nei risultati della loro attività, consentono di modificare se necessario le loro attività di ricerca e innovazione e aumentano la social acceptance.

La figura sotto rappresenta una definizione di alcuni strumenti da utilizzare in relazione alle dimensioni fondanti in contesti aziendali⁹

RRI Dimension	Possible Tools
Anticipation	Scenario building Scenario workshops Foresight studies Technology assessment Life cycle assessment
Inclusiveness	Stakeholder mapping Stakeholder engagement strategies Stakeholder dialogues Public dialogues User-centered design
Reflexivity	Codes of conduct Core values Embedded ethicists
Responsiveness to values and needs	Value sensitive design Stage-gate approaches Sustainable design
Responsiveness to new developments	Monitoring Gradual scaling-up Adaptive risk management Living labs and social experimentation Flexible and adaptive design

Il ruolo degli ecosistemi di innovazione

Al fine di far sì che anche quelle che vengono definite Research Performing Organizations (RPO - identificate come Università, Dipartimenti, Laboratori e Centri per l'innovazione) siano in grado di generare percorsi di cambiamento organizzativo per integrare queste competenze, e necessario lavorare anche sul capacity building di questi soggetti per cogliere i benefici di questo tipo di transizione in termini di efficacia ed efficienza dei progetti finanziati nel generare impatto sociale. In particolare è necessario:

⁹ *Company Strategies for Responsible Research and Innovation (RRI): A Conceptual Model*, Ibo van de Poel, Lotte Asveld, Steven Flipse, Pim Klaassen, Victor Scholten and Emad Yaghmaei, *Sustainability* 2017, 9, 2045; doi:10.3390/su9112045

- pianificare e approntare modelli di cambiamento organizzativo interno per individuare figure in grado di lavorare sulla RRI e incorporare criteri RRI nei processi di selezione del personale; assicurare trasparenza, inclusività e visibilità del processo per portare la RRI nella propria organizzazione;
- identificare le persone già RRI-oriented presenti nella propria organizzazione e disporre momenti di confronto e approfondimento su queste tematiche anche al fine di stare al passo con il dibattito internazionale sulle implicazioni sociali della ricerca e dell'innovazione;
- rivedere pratiche e processi di implementazione dei progetti finanziati, e strutturare strumenti di monitoraggio e valutare le azioni messe in campo;
- creare momenti e spazi di contaminazione e ingaggio con i cittadini e la società civile, con il più alto obiettivo di condividere la conoscenza e il metodo di produzione della stessa;
- lavorare sui curricula universitari e sulla formazione al fine di garantire l'acquisizione di elementi di RRI da parte degli studenti e dei dottorandi.

Il ruolo dei fondi regionali a sostegno della competitività delle imprese

L'impatto come direzione delle politiche di sviluppo territoriale (anche dal punto di vista industriale) può quindi contribuire alla sopravvivenza di innovazioni più attente ai bisogni dei territori, e permettere quindi di sostenere investimenti più sicuri per il pubblico e per il privato e che possano contribuire alla resilienza e alla coesione dei territori.

Quando si parla di risorse pubbliche destinate tramite bando al sostegno della competitività o dell'innovazione, la questione è sicuramente delicata perché l'impatto è quella cosa che si realizza solitamente dopo i termini per la chiusura, il rendiconto e la liquidazione del progetto. Bisognerebbe ripensare i termini del contratto con l'ente finanziatore, identificando anche potenziali aree di impatto del progetto, e potenziali scenari di fallimento. Le condizioni di contesto economico, tecnologico, sociale possono cambiare e se c'era stata una analisi di scenario solida altrettanto solida sarà la possibilità di spiegare cosa non è andato e cosa è stato adattato a questi cambiamenti generando comunque percorsi di innovazione.

Strumenti e pratiche

Queste linee guida vogliono essere utili al policy maker per strutturare strumenti di attuazione orientati alla dimensione di responsabilità territoriale dei finanziamenti in Ricerca e Innovazione. A tal fine, si vogliono fornire in questo paragrafo alcuni strumenti e metodologie utili per supportare la costruzione di misure adeguate all'implementazione di politiche di RRI Territoriale.

Questi strumenti possono essere suddivisi in due modalità differenti, ovvero tenendo conto delle dimensioni fondanti, che possono dare una visione complessiva nell'orientare i sistemi di governance territoriale verso modelli più inclusivi, o delle dimensioni operative della RRI (le cinque chiavi), che possono fornire un supporto nella scelta dell'orientamento territoriale verso cui puntare. Nel paragrafo, andremo ad approfondire alcuni strumenti e metodologie fornendo casi concreti di applicazione.

Dimensioni fondanti

Se alcune delle metodologie e strumenti utilizzati dalle imprese (e analizzate nel paragrafo precedente) possono trovare applicazione anche nel contesto di un territorio, non sempre le finalità dell'analisi possono essere le stesse. Si ritiene perciò utile definire meglio alcune degli strumenti proposti adattandoli al contesto della RRI Territoriale e proponendo alcuni altri strumenti più mirati.

Anticipazione

- **Studi di futuro:** forecasting, foresight e anticipation sono approcci permettono di utilizzare i dati, le analisi territoriali e le capacità di ricerca per costruire futuri possibili. Se intendiamo i primi due come modelli, la prima tipologia porta ad utilizzare i dati per fare previsioni, la seconda utilizza gli scenari come strumenti di indirizzo; la terza tipologia indica invece quella parte di processi che possano portare ad anticipare in maniera proattiva il futuro, mettendo in atto cambiamenti possibili per far sì che accadano. In sostanza l'approccio anticipatorio permette di tradurre in azione quello che viene modellizzato tramite gli altri due approcci.
- **Scenario building:** si tratta di un processo di pianificazione strategica e di supporto alle decisioni che presuppone la costruzione di scenari futuri realmente possibili attraverso una attività di esplorazione dell'esistente. Questa attività è orientata ad allargare la visione delle persone coinvolte, al fine di identificare interpretare e anticipare potenziali elementi critici o di sviluppo in relazione all'oggetto di indagine. La metodologia di ricerca alla base di questo strumento ha alcuni step definiti:
 - a. definizione di domande di ricerca sulla base dei dati disponibili e delle condizioni di partenza. Sulla base di queste, individuazione di potenziali scenari (può essere utilizzato il metodo Delphi anche per la prioritizzazione degli scenari) che siano:
 - Plausibili
 - Differenti tra loro
 - Consistenti
 - Orientati alle decisioni
 - Sfidanti
 - b. identificazione e analisi dei driver di cambiamento potenziali;
 - c. costruzione e definizione degli scenari possibili;

- d. classificazione degli scenari sulla base dei potenziali impatti e delle incertezze e definizione di quelli più usabili nel contesto di riferimento (definizione di una politica, decisione su un piano aziendale, etc...)
- Vision co-creation: è un processo per definire agende di ricerca e innovazione rilevanti e che guardino al futuro delle tecnologie, attraverso il coinvolgimento di diversi attori.
 - Anticipatory innovation governance: metodo in fase di validazione, elaborato da OCSE all'interno del suo modello "Public Sector Innovation Facets"¹⁰. Il metodo presuppone che i governi passino da un modello "reattivo" rispetto a shock endogeni ed esogeni, ad un modello anticipatorio, che permetta di utilizzare strumenti e schemi di governance dell'innovazione in grado di costruire futuri diversi e più sostenibili. Rispetto al modello più ampio, questo metodo si propone per essere utilizzato in quei contesti caratterizzati da forte incertezza in particolare in relazione allo sviluppo di politiche pubbliche. L'idea alla base del modello è quella di passare dagli strumenti di analisi del futuro e di scenario alla realizzazione degli stessi, attraverso metodi di ingaggio diretto dei cittadini nelle scelte e nelle decisioni politiche.
 - Teoria del cambiamento: è un modello process based (un framework logico) che permette di mettere in luce nessi logico causali («la teoria») esistenti che conducono un'organizzazione a perseguire un dato cambiamento. In particolare:
 - offre una descrizione specifica, articolata e misurabile della sequenza di attività programmate per realizzare un cambiamento sociale;
 - identifica con chiarezza i risultati che s'intende conseguire e come; mette in evidenza perché sia importante raggiungere outcome intermedi;
 - fornisce gli elementi di base e la struttura per identificare le evidenze che possono essere misurate.

Far ricorso alla teoria del cambiamento permette quindi di utilizzare i risultati delle misurazioni per modificare il modo di operare e di organizzare le attività svolte dall'organizzazione, nell'ottica di produrre un impatto di lungo periodo grazie al suo intervento. Questo modello fornisce una roadmap che contribuisce a:

- a. guidare l'operato dell'organizzazione, determinando in maniera condivisa, chiara e testabile la logica e le modalità con cui si andranno ad implementare progetti e iniziative;
- b. posizionare il progetto/iniziativa in modo immediato a stakeholder interni (es. staff) ed esterni (es. beneficiari, partner, donatori) favorendo l'accountability, la nascita di nuove collaborazioni, e riducendo il rischio di autoreferenzialità;
- c. porre le basi per la valutazione dell'impatto, definendo un punto di riferimento indispensabile (i.e. il concetto di "successo" e le modalità per raggiungerlo) e predisponendo fin dall'inizio la raccolta di dati solidi e adeguati – evitando complesse ricerche ex-post che comportano generalmente una lievitazione dei costi e la diminuzione del grado di affidabilità dello studio.

Diversità e inclusione

- Stakeholder engagement: così come per un'azienda sostenibile e responsabile il confronto con il territorio di riferimento è un aspetto centrale e strategico, lo stesso può valere per enti e organizzazioni che si occupano di ricerca e innovazione. Lo stakeholder engagement, strumento di ascolto, dialogo e coinvolgimento con il quale un'organizzazione si confronta con i propri

¹⁰ <https://oecd-opsi.org/projects/innovation-facets/>

interlocutori in una logica di rispettiva collaborazione e responsabilità, assume quindi una fondamentale importanza. Oggi le aziende hanno maturato la consapevolezza che il coinvolgimento degli stakeholder può contribuire all'apprendimento e all'innovazione di servizi e di processi, e migliorare la sostenibilità delle decisioni strategiche dentro e fuori l'impresa, permettendo alle aziende di allineare le performance produttive sociali, ambientali ed economiche alla strategia. Questo ragionamento può valere anche per quelle organizzazioni impegnate in percorsi di ricerca applicata, ricerca industriale, ricerca collaborativa su prodotti e servizi innovativi non solo per le aziende, ma anche per il territorio di riferimento.

- Human-centered design: è un approccio allo sviluppo di sistemi, prodotti e servizi, interattivi, mirato alla risoluzione dei problemi, comunemente utilizzato nei quadri di progettazione e gestione di progetti complessi. Il framework HCD sviluppa soluzioni ai problemi coinvolgendo la prospettiva umana in tutte le fasi del processo di problem-solving. È un approccio che si basa sulla ricerca di azione partecipativa andando oltre il coinvolgimento dei partecipanti e producendo soluzioni ai problemi piuttosto che documentarli unicamente. Le fasi iniziali di solito ruotano attorno all'immersione, all'osservazione e all'inquadramento contestuale in cui gli innovatori si immergono nel problema e nella comunità. Il coinvolgimento umano avviene tipicamente nell'osservazione del problema all'interno del contesto, nel brainstorming, nella concettualizzazione, nella prototipazione e sviluppo e nell'implementazione della soluzione. È un approccio che può aiutare a migliorare l'efficacia e l'efficienza nelle fasi di implementazione, il benessere umano, la soddisfazione degli utenti, l'accessibilità e la sostenibilità.
- Agenda setting partecipativo: è un metodo di coinvolgimento di cittadini e organizzazioni nella definizione di priorità di intervento in un luogo e tempo ben definiti. Quanto più il tema da trattare è rilevante, tanto più è necessario che ci sia una ampia e diversificata partecipazione al processo di definizione dell'agenda di interventi.

Riflessività

- Monitoraggio e valutazione: le attività di monitoraggio e valutazione di progetti sono un elemento chiave del percorso di riflessione sugli impatti che questi possono raggiungere. Questi momenti non devono essere considerati solo come strumenti di rendicontazione, ma come momenti di discussione allargata per definire cosa sta andando o meno e quindi applicare eventuali correttivi. Attività di peer reviewing, di valutazione partecipata, di monitoraggio civico possono aiutare i progetti a migliorare le performance e gli impatti. Inoltre, questo tipo di attività permette di andare oltre la valutazione degli outcome di progetto e di generare processi di apprendimento e cambiamento istituzionale.
- Mutual learning: le attività di apprendimento reciproco all'interno di un progetto di Ricerca e Innovazione possono generare processi di trasferimento di conoscenza all'interno degli ecosistemi di innovazione. Il mutual learning è un metodo interattivo che massimizza la capacità di apprendimento e genera una condivisione di obiettivi, scelte e risultati anche al fine di individuare soluzioni in maniera collaborativa.

Adattabilità e reattività

- Crowd wise: è un metodo di partecipazione della comunità alla definizione di scelte quali rispondere a consultazioni su temi importanti per la comunità stessa, definire priorità di intervento, allocare budget sulla base di queste priorità. Prevede anche l'utilizzo di modelli di feedback

iterativo da parte degli utenti coinvolti al fine di monitorare l'implementazione delle decisioni prese.

- **Sperimentazioni sociali:** si tratta di una metodologia che prende spunto dagli esperimenti in ambiente controllato, per portarli nel contesto della società, dove le variabili non sono sempre facilmente controllabili e prestabilite, ma i cambiamenti generati possono essere strutturati in pattern di cambiamento. Un esperimento riguarda uno o più programmi (trattamenti) che intervengono sui normali processi sociali, e vengono attuati su una popolazione scelta a caso; a questa si affianca un gruppo di controllo non soggetto al medesimo programma o trattamento, e si vanno a misurare ed analizzare le differenze di comportamento tra i due gruppi per capire l'intensità, l'efficacia e l'efficienza del programma sperimentato.
- **Living lab:** sono ecosistemi di innovazione aperta e centrati sugli utenti, che utilizzano sistematicamente un approccio di co-creazione di prodotti e servizi, integrando la ricerca e l'innovazione nella vita delle comunità. Non sono necessariamente spazi attrezzati, ma possono anche essere organizzazioni che facilitano e promuovono l'innovazione collaborativa; luoghi di vita reale dove l'innovazione può essere analizzata, sperimentata e prodotta sul campo direttamente con gli utenti, al fine di sviluppare soluzioni più vicine ai loro reali bisogni. Lavorano come intermediari tra cittadini, organizzazioni di ricerca, imprese, città e regioni per generare valore pubblico condiviso ma anche come sistemi di prototipazione rapida o validazione di prodotti e servizi per la generazione di valore economico nelle imprese coinvolte. Normalmente sono attivati grazie a strumenti di finanza pubblica e necessitano di un supporto pubblico per il funzionamento e mantenimento, mentre per la gestione e organizzazione delle attività possono essere lasciate a privati o alla società civile attraverso diverse forme di accordi di gestione. I privati possono essere interessati a co-finanziare parte delle attività per utilizzarli come luoghi di test di prodotti e servizi.

Dimensioni operative

In relazione al progetto TeRRItoria, sono due le dimensioni operative approfondite, ritenute più rilevanti per quanto riguarda il contesto dell'esperimento territoriale. Per ognuna di queste si riportano metodologie e strumenti che possono aiutare ad attuarle.

Public engagement

Questa dimensione richiama l'attenzione sulla partecipazione di cittadini e stakeholder, o, in riferimento al modello Quadrupla Elica¹¹, della società civile, ai processi di ri-territorializzazione attraverso l'attivazione di percorsi di intelligenza collettiva e di co-creazione per la soluzione di sfide territoriali. La maggioranza di questi strumenti prevedono come primo passaggio la mappatura degli stakeholder e degli attori del territorio. Gli strumenti analizzati riportano sempre alla possibilità di far sì che i cittadini siano protagonisti del processo di scoperta scientifica e di innovazione attraverso diversi modelli di partecipazione.

- **Participatory design (co-design):** si tratta di un processo che passa attraverso diverse fasi per stabilire priorità e linee di azione. Attraverso un primo momento di consultazione di stakeholder e cittadini si definiscono alcune priorità di lavoro; successivamente su queste si passa ad un vero e proprio processo di co-design di attività, iniziative, proposte di legge, dispositivi, o quanto sia necessario rispetto alle priorità individuate. Il percorso di co-design è normalmente guidato da

¹¹ Fare nota su cosa è la quadrupla elica

facilitatori esperti che siano in grado di stabilire la metodologia e gli strumenti più utili a raggiungere l'obiettivo dato in un tempo stabilito. Con co-design ci si riferisce in particolare alla pratica di progettare assieme alle persone (versus per le persone) secondo i principi e le metodologie derivate dal design thinking, che a sua volta affonda le sue radici nel design centrato sull'utente. Il co-design prevede quindi che il processo di progettazione di una soluzione avvenga tra tutti gli attori che hanno un interesse nello sviluppo della soluzione stessa, dagli end-users ai fornitori di tecnologia. Tutti i partecipanti al processo innovativo sono considerati membri del team di progettazione, e più in particolare gli end-users dell'innovazione sono considerati gli esperti del problema che deve essere risolto. Questo modello si è dimostrato particolarmente efficace nelle fasi iniziali del processo di sviluppo di un'innovazione, ovvero quelle relative alla definizione del problema, all'ideazione creativa della soluzione, e alla verifica iterativa della soluzione secondo l'approccio proprio del design thinking, per cui le soluzioni sviluppate devono essere testate nei contesti reali in cui i problemi si verificano. Strumenti di visualizzazione e di supporto al processo di sviluppo dell'innovazione sono stati progettati da diverse organizzazioni per rendere più facile il lavoro di gruppo; ultimamente molti di questi strumenti sono stati resi disponibili anche attraverso piattaforme digitali.

- **Co-creation:** normalmente è un processo che parte a seguito di un momento di co-design, o quando è già chiaro il contesto e gli obiettivi in cui si vuole progettare insieme a cittadini e stakeholder. Il termine co-creazione è un termine ombrello che nasce nel contesto dell'innovazione aperta e denota una vasta varietà di processi aperti e partecipativi, in cui gli attori cooperano per affrontare un problema e realizzarne assieme una soluzione. “la co-creazione è un processo non lineare che coinvolge vari attori e portatori di interesse nell'ideazione, implementazione e valutazioni di prodotti, servizi, politiche e sistemi, con l'obiettivo di migliorare la loro efficienza ed efficacia, e la soddisfazione di chi prende parte al processo”¹². Sia la co-creazione che il co-design presuppongono che gli attori debbano essere coinvolti in maniera approfondita e attraverso tutto il processo, postulando il superamento di quelle forme più tradizionali di ingaggio che hanno invece carattere solo consultivo. Queste ultime, infatti, non esplorano assunti, problemi e soluzioni assieme agli attori fin dall'inizio, non presuppongono spazi di iterazione, e non prevedono una rimessa in discussione degli assunti di base. Tuttavia co-creazione è un termine più generico e onnicomprensivo. Esso si riferisce all'intero processo che va dall'ideazione all'implementazione di una soluzione. Rispetto al co-design, che si concentra più sulle fasi di ideazione e di progettazione, esso sposta quindi l'accento sulle fasi realizzative, implementative e “creative” della soluzione; inoltre, la co-creazione non si realizza necessariamente tramite la metodologia del design thinking, seppure ne riprenda alcuni principi¹³.
- **Science Shops:** sono dispositivi di connessione tra scienza e territorio, in particolare normalmente individuati come veri e propri “negozi” o “luoghi di condivisione” in cui i cittadini possono trovare risposte validate dalla scienza o soluzioni a loro problemi anche su richiesta. Possono servire anche come strumenti per l'individuazione di sfide sociali del territorio attraverso l'ascolto dei bisogni dei cittadini e degli stakeholder.
- **Social Labs:** consistono in un gruppo di persone, processi strutturati e facilitati e spazi (anche virtuali) dove confrontarsi per la sperimentazione di innovazioni sociali. Il team è composto di attori diversi (ricercatori, cittadini, policy-maker, produttori di tecnologie, imprese sociali, etc...) invitati a lavorare insieme sulla base di obiettivi pre-stabiliti e condivisi da chi attiva il laboratorio, per

¹² Secondo la definizione di co-creazione sviluppata dal progetto SISCODE (<https://siscodproject.eu>)

¹³ Questi primi due termini sono stati tratti e adattati dal Glossario prodotto da APRE nel 2021

lavorare su sfide sociali complesse in cui la soluzione tecnologica non è necessaria ma può aiutare. Richiedono un approccio trasformativo rispetto a quanto già esiste nel territorio, e adottano un approccio di concertazione tra i diversi attori presenti nel definire le soluzioni più promettenti.

- **Citizen Science:** si attua attraverso differenti livelli di coinvolgimento: da modelli di informazione più accurata verso i cittadini su opportunità e successi della scienza, ad una loro diretta partecipazione nel processo di scoperta scientifica, in qualità di osservatori, di produttori di evidenze o di *early-adopters* di innovazioni. La *Citizen Science* è un termine ampio, e copre quella parte della *Open Science* che vede nei cittadini dei possibili attivatori di processi di ricerca, di sostenitori della stessa, di produttori di contenuti e dati; questa loro partecipazione attiva permette una “democratizzazione delle scienze” e apre le porte ad una maggiore capacità di produrre impatto sociale e ambientale, di generare innovazioni adottabili in breve tempo e di aumentare la partecipazione e il coinvolgimento di pubblici sempre più ampi a definire un progresso scientifico sostenibile ed eticamente accettabile. L’azione europea per la promozione della Citizen Science è un processo che vuole portare:
 - ad un utilizzo più efficiente e trasparente delle risorse pubbliche e private;
 - ad un maggiore coinvolgimento dei cittadini nei processi, nella governance e nel rendere conto dei progressi ottenuti;
 - ad una condivisione di strategie e politiche basate su dati ed evidenze scientifiche comprensibili dai cittadini e quindi già “validate”.

Questo approccio “aperto” alla produzione scientifica e di innovazione, permette una crescita economica più sostenibile e aperta ad innovazioni condivise da imprese e cittadini generando processi virtuosi di co-creazione di innovazione aperta.

L’utilizzo di piattaforme tecnologiche e strumenti digitali permette di aprire questa conoscenza a sempre più ricercatori e produttori di innovazione; se da un lato questo processo permette di costruire sulla conoscenza di altri, dall’altro è necessario che sia reso davvero accessibile, intellegibile e interoperabile tutto il capitale di conoscenze e dati che su queste piattaforme transitano, per evitare problemi di polarizzazione della conoscenza in pochi poli di “potere”.

Science education

L’educazione alla scienza richiama diversi elementi che possono essere comuni a sistemi di educazione formale (scuole e università) e contesti e approcci di educazione non formale e di tipo più esperienziale. Questa dimensione della RRI Territoriale richiama la necessità di costruire una cultura scientifica comune attraverso diversi mezzi e strumenti che possano portare a focalizzare le persone coinvolte nel processo di scoperta scientifica verso le sfide individuate insieme. Il fine ultimo dei processi di educazione alla scienza è quello di aumentare un approccio scientifico alla soluzione di problemi territoriali. Non si riportano qui i modelli di science education più classici (come esibizioni, mostre e festival anche itineranti), ma alcune pratiche ulteriori su cui riflettere e confrontarsi.

- **Science Cafè:** sono momenti di informazione, condivisione e discussione su temi scientifici che possono avere un impatto sulla società. Non sono convegni o conferenze, ma momenti più informali, che possano incoraggiare il confronto tra chi si occupa di produzione scientifica e i cittadini interessati a capire meglio le implicazioni per la società. E’ un modello di democratizzazione della scienza che ingaggia direttamente i cittadini a interpretare e fare scienza applicata.

- Dimostratori: sono momenti di condivisione di prototipi o processi scientifici, normalmente organizzati in scuole, università o laboratori, momenti pubblici (il più noto a livello europeo è la Notte dei Ricercatori) che permettono di far capire a studenti e cittadini come funzionano dispositivi e tecnologie, o come vengono applicate le teorie alla base del processo di scoperta scientifica. Nel contesto della RRI territoriale, questi possono essere utilizzati per dimostrare gli effetti di determinati comportamenti in relazione al territorio in cui si vive, e come le tecnologie, i prodotti e i servizi possano aiutare a cambiare in meglio questi comportamenti per generare un miglioramento del territorio o delle condizioni di vita della popolazione.
- Science bus: sono veri e propri autobus che portano la scienza in giro per un territorio. Organizzati come laboratori mobili, permettono ai cittadini di scoprire la scienza in modo facile e divertente e di applicarla al loro contesto quotidiano.
- Città della scienza: sono luoghi aperti al pubblico, normalmente gestiti da organizzazioni private, che permettono di sperimentare i fenomeni scientifici attraverso modalità di gioco, interazione, esperienza diretta, spettacoli, installazioni video e audio, adatta anche a bambini piccoli. Queste strutture sono organizzate come musei interattivi in cui sperimentare le invenzioni, le scoperte e le teorie scientifiche alla base di alcuni fenomeni naturali, i metodi di produzione delle imprese, e altro.

Misurare il cambiamento (un percorso)

Se la teoria del cambiamento può essere intesa come un framework metodologico all'interno del quale costruire il percorso di generazione del cambiamento seguendo la catena del valore dell'impatto, la misurazione di tali cambiamenti necessita di una serie di strumenti e modelli ad hoc per essere efficace ed efficiente.

La valutazione di processi e percorsi di cambiamento deve essere utilizzata non solo come strumento di rendicontazione, ma anche di programmazione e progettazione degli interventi; è necessario:

- imparare dai risultati precedenti;
- tenere in considerazione indicatori e modelli esterni (vedi Agenda 2030 e Innovazione Responsabile);
- considerare i fallimenti come momenti di ri-progettazione.

La valutazione identifica 3 momenti distinti, che sono riscontrabili in questa tabella:

Fase dell'intervento pubblico	Domande di valutazione	Funzione della valutazione	Strumenti/metodi di valutazione
EX ANTE	EX ANTE	EX ANTE	EX ANTE
Pianificazione (Disegno e definizione) degli interventi in relazione ai bisogni sociali	Cosa bisogna fare per soddisfare questi bisogni? Quali interventi per produrre i cambiamenti sperati?	Propedeutica alla definizione dell'intervento Finalizzata all'identificazione dei fabbisogni, obiettivi, risultati e interventi (metafora della terapia)	Previsione ex ante del metodo per la valutazione di impatto Definizione ex ante degli indicatori
IN ITINERE	IN ITINERE	IN ITINERE	IN ITINERE
Implementazione del Programma Operatività dell'intervento pubblico	Il programma sta operando nel modo previsto?	Monitoraggio dell'intervento pubblico per incrementare/garantire efficienza	Analisi della performance rispetto ad obiettivi target (indicatori)
EX POST	EX POST	EX POST	EX POST
Analisi dei risultati al termine dell'intervento pubblico	Il programma ha avuto gli effetti sperati?	Verifica che gli obiettivi stabiliti siano stati conseguiti Misura l'impatto rispetto dell'intervento Rendere conto delle risorse impiegate	Analisi della performance (misurazione dei risultati con indicatori) Analisi controfattuale (con indicatori) Rendicontazione (es. Bilancio Sociale)

In particolare i tre momenti sono relativi a tre elementi dei processi di valutazione:

- ex-ante: definizione degli obiettivi della valutazione e costruzione del potenziale set di indicatori;
- in itinere: definizione del sistema di monitoraggio continuo degli interventi per raggiungere gli obiettivi e quindi soddisfare i criteri previsti dagli indicatori;
- ex-post: rendicontazione delle attività, valutazione della performance e dell'impatto realizzato dalle misure messe in atto. In particolare nel definire la valutazione dell'impatto, bisogna tenere in considerazione la catena del valore dell'impatto e il legame causale tra impatto atteso e impatto generato.

L'impatto è un effetto, un cambiamento o un beneficio per l'economia, la società, la cultura, le politiche pubbliche o i servizi, la salute, l'ambiente o la qualità della vita, oltre il mondo accademico (REF2014¹⁴):

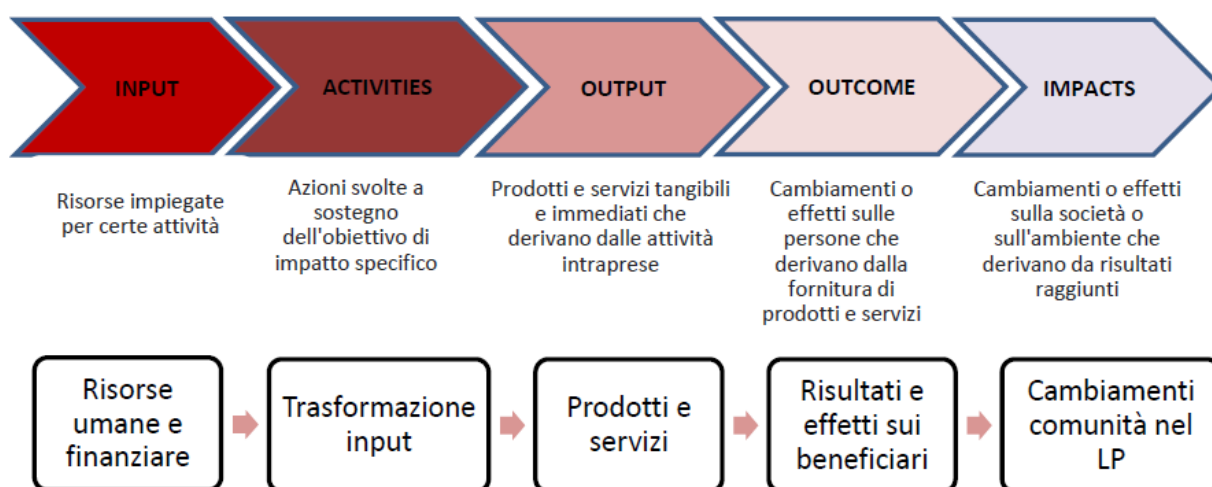
1. Impatto scientifico : correlato al sostegno alla creazione e diffusione di nuove conoscenze, abilità, tecnologie e soluzioni di alta qualità alle sfide globali.
2. Impatto economico : correlato alla promozione di tutte le forme di innovazione, compresa l'innovazione rivoluzionaria, e al rafforzamento della diffusione sul mercato di soluzioni innovative.
3. Impatto sulla società : correlato al rafforzamento dell'impatto della ricerca e dell'innovazione nello sviluppo, nel sostegno e nell'attuazione delle politiche dell'UE e nel sostegno all'adozione di soluzioni innovative nell'industria e nella società per affrontare le sfide globali.

L'impatto sociale in questo senso determina una ulteriore dimensione di analisi, ovvero l'identificazione di misure di cambiamento non economiche e non solo quantitative, che diano valore a benefici reali, tangibili e intangibili generati a beneficio della comunità.

Al fine di strutturare percorsi di valutazione dell'impatto sociale della ricerca e dell'innovazione, è quindi necessario considerare una serie di aspetti correlati tra loro in un'ottica multidimensionale; in particolare è necessario dotarsi di strumenti che permettano di seguire queste fasi:

- 1) Analisi del Contesto : overview sulle politiche della ricerca e dell'innovazione messe in campo dalla regione E R, identificazione e selezione delle policy da valutare;
- 2) Analisi degli stakeholder e del processo di cambiamento: dall'analisi del contesto e delle politiche si identificano i beneficiari delle policy e i principali elementi del cambiamento (c.d. dimensioni di valore);
- 3) Definizione degli indicatori (raccolta dati): alle dimensioni di valore verranno associati gli indicatori sulla base di framework di riferimento esistenti in letteratura o essere sviluppati ad hoc coerentemente con le peculiarità degli interventi da valutare al fine di misurare il cambiamento generato dell'intervento in oggetto;
- 4) Valutazione di impatto sociale.

La catena del valore dell'impatto (impact value chain) permette di individuare graficamente i diversi passaggi in cui un'organizzazione raggiunge un determinato impatto



¹⁴ Van der Baeselaar et al., 2018

Bisogna inoltre cercare di analizzare le potenziali aree di impatto sociale dei progetti di R&I, capire quali sono i fattori che abilitano la generazione di impatto e quali gli elementi distorsivi.

"L'innovazione non ha solo un tasso di progressione, ma anche una direzione. (...) La nostra sfida è quella di impostare la nuova rotta da seguire"¹⁵

¹⁵ Non sprechiamo questa crisi, Mariana Mazzucato, Editori Laterza e La Repubblica, 2020