



BANDO PUBBLICO PER LA SELEZIONE DI PROPOSTE PROGETTUALI DA FINANZIARE NELL'AMBITO DELLE TEMATICHE DELLO SPOKE 5 "INNOVAZIONI: ECOSISTEMI PER LE ECONOMIE CIRCOLARI" PROGETTO PE 0000018 CUP D13C22002160001 GRINS - GROWING RESILIENT, INCLUSIVE AND SUSTAINABLE A VALERE SULLE RISORSE DEL PIANO NAZIONALE RIPRESA E RESILIENZA (PNRR) MISSIONE 4, "ISTRUZIONE E RICERCA" - COMPONENTE 2, "DALLA RICERCA ALL'IMPRESA" - INVESTIMENTO 1.3 - NEXT GENERATION EU

ALLEGATO 1

DESCRIZIONE SPOKE 5 "INNOVAZIONI: ECOSISTEMI PER LE ECONOMIE CIRCOLARI" E TEMATICHE BANDO



Descrizione Spoke 5

The GRINS (Growing Resilient, INclusive and Sustainable) Extended Partnership main objective is to develop AMELIA (dAta platforM for the transfER of knowLedge and statistIcal Analysis), an Online Data Platform giving access to high quality data and instruments for data analysis for a wide range of applications. It will offer tools to support fundamental and applied research for firms and households and for policy analysis and evaluation of the actions of public administrations.

Within this objective, GRINS aims to develop an integrated set of geo-referenced heterogeneous databases, in order to analyse the Italian socioeconomic, environmental, health and financial trends for the State, households and companies both at the local and national level. In order to reach these objectives, the GRINS project is articulated in 8 thematic “Spokes”, each addressing an important dimension of economic and financial sustainability, and a pivotal Spoke “0” fully dedicated to the construction, operation and maintenance of AMELIA, and to dissemination and exploitation activities.

The Spoke 5 “Innovation - ecosystems for the circular economy” contribute to the GRINS thematic area concerning the “Enabling Strategies”, as it embraces the subnational, national and supranational strategies concerning green transition, by aiming to provide databases on which efficient and effective solutions can be built in the circular economy domain.

In particular, Spoke 5 focuses on the elaboration of indicators and the development of models for the analysis of determinants and effects of innovation dynamics designed to enable and boost the transition to the Circular Economy (CE) paradigm. The focus is on local systemic interactions among firms, universities and institutions; global dynamics, global value chains and international spillovers; employment, skills reconfiguration and wage differentials; regional and smart specialization policies for CE innovation.

Spoke n. 5	Spoke title: Innovation - ecosystems for the circular economy	SL: Francesco Quatraro (UNITO)
<p>WP 1 - Circular innovation ecosystems.</p> <p><i>WP objectives:</i> This WP analyses the determinants and impact of innovations and technologies conceived to enable the transition to the CE paradigm. The activity will exploit technology landscaping methodologies to develop indicators to assess CE-related innovations and map their geographical, sectoral and technological topologies and spillovers. Adopting an ecosystem approach, the role of different institutional actors in the generation and diffusion of CE-related technologies will be modelled. Specific attention will be given to interactions among firms, universities, financial institutions, research centres, innovative start-ups, incubators and accelerators.</p> <p><i>List of activities:</i> i) elaboration of indicators to characterize innovations enabling the CE transition; ii) development of models and scenarios to simulate trends and evolutionary patterns of technological trajectories and local patterns of interactions among institutional actors, when changes in normative, geographical, sectoral and technological topologies occur; iii) implementation of the Circular Innovation Monitor.</p> <p><i>List of deliverables:</i> D1.1 Indicators and models (M18), D1.2 Manual of CE innovation (M24); D1.3 Circular Innovation Monitor (M36)</p>		



WP 2 - Innovation, labour market dynamics and inequalities.

WP objectives: This WP will develop indicators and models for the analysis of the socio-economic impact of the innovation-based CE transition, with a particular focus on labour market dynamics. The activity will aim at ascertaining how CE innovations may induce skills mismatch in firms and territories, as well as at mapping the set of skills that better contribute to the CE transition in different sectors and technological domains. Further analysis will focus on the impact of CE innovation on wage differentials across occupations, sectors and territories.

List of activities: (i) design and calculation of indicators to map skills associated to CE-related occupations and innovations; (ii) develop models and transition scenarios to evaluate the rate and direction of skills mismatch in territories driven by innovation-based CE-transition, and the role of national and local policies; (iii) elaboration of models to assess and simulate evolutionary patterns of wage differentials within and across territories.

List of deliverables: D2.1 Indicators and models on CE skills and wage differentials (M24); D2.2 Observatory on CE innovation and local labour markets (M36)

WP 3 - Structural change and global dynamics

WP objectives: This WP will focus on data collection and the development of indicators and models to investigate how leveraging innovation for the CE transition in firms and territories is affected by international exposure. This latter will include consideration of import-export dynamics, foreign direct investments, migration flows and related policies. Further focus will be on the change in the structure of intersectoral flows of goods and services across territories, and the consequent reconfiguration of global value chains (GVCs) engendered by the diffusion of CE practices.

List of activities: (i) elaboration of measures and indicators to map the exposure of firms and territories to trade, FDIs and migration flows, focusing on their scale and sectoral distribution; (ii) development of models for the simulation of the impact of changes in the size and composition effects of such flows on the capacity of firms and territories to activate innovation dynamics for the transition to the CE paradigm; (iii) development of indicators and simulation models to evaluate the impact of the CE transition on inter-industry trade flows and reconfiguration of GVCs.

List of deliverables: D3.1 Indicators of trade, FDI, GVCs and migration flows in firms and territories (M18)

D3.2 Simulation models for scenarios analysis (M24), D3.3 Observatory on International Exchanges (M36)

WP 4 - Policies for innovation-driven CE transition and smart specialization strategies.

WP objectives: Define a map of risks and opportunities at the regional level for strategies for the promotion of a circular economy. Define a dashboard of indicators for stakeholders and policymakers for making informed decisions for their smart specialization strategies toward the circular transition. Provide practical and problemsolving lessons, based on best practices of equal innovation-driven CE-transitions, for stakeholders and policymakers.

List of activities: building and analysing the map of related and unrelated specialization and diversification of regional economic structures

List of deliverables: D4.1 – Regional indicators of risks and opportunities of structural change towards circular innovations (M12); D4.2– Policy briefs on best practices of Smart Specialization Strategies along with the circular transition (M20); D4.3– Definition of simulation models for measuring the impact of circular innovations on regional economic performance (M32)

Milestones and targets



	Milestones	Targets
WP1	Complete description of the indicators to be implemented (M12), Concepts and structure of the Manual for CE innovation (M20), Concept and architecture of the Circular Innovation Monitor (M28)	10 variables and measures elaborated for characterizing CE technologies (M12), At least 2 alternative models for the simulation of scenarios and evolutionary patterns (M20), At least 2 alternative configurations of the Circular Innovation Monitor (M28)
WP2	Complete set of indicators (M18) Architecture of the simulation models (M18) Concept and architecture of the CE Labour Market Observatory (M30)	At least 6 indicators for the identification of CE skills and occupations (M18), At least 2 alternative models for the simulation of the impact of innovation-based CE transition on labour market dynamics (M18) At least 2 alternative architectures of the CE Labour Market Observatory (M30)
WP3	Complete description of the indicators to map trade, FDI, migration flows and GVCs (M12) Concept and architecture of simulation models (M20) Concept and architecture of the Observatory on International Exchanges (M30)	At least 10 indicators to measure the exposure to trade, FDI and migration flows (M12) At least 4 indicators to map the structure of interindustry networks (M12) At least 2 alternative simulation models (M20) At least 2 alternative architectures for the Observatory (M30)
WP4	Mapping of regional specializations and potential opportunities for structural changes towards CE (M12) Whatworks analysis applied to Smart Specialisation Strategies for CE (M24), Scenario analysis (M36)	1 Practice oriented research observatory (M18) 3 Policy briefs (M20, M26, M32) At least 2 Simulation models for regional what-if scenarios (M30)

TRL of results

WP1 will develop indicators and models to simulate trends and evolutionary patterns of technological trajectories and local patterns of interactions among institutional actors. This will provide the basis for the Circular Innovation Monitor (D1.3, from TRL2 to TRL4), which will help to address the R&D gap, i.e. the gap between the discovery phase and the translation of inventions into valuable innovations enabling the CE transition. Knowledge transfer will be supported also through the organization of training sessions (See Section C.1), which will be aiming at providing the necessary skills to frame the valorisation of research outcomes from the viewpoint of the strategic management of innovation. WP2 will focus on the appreciation of the skill-bias of CE-related innovations and the development of indicators and models to implement the CE Labor Market Observatory (D.2.2, from TRL2 to TRL4), which aims at addressing the occupational gap that can emerge from the mismatch between skills demand and supply, above all when innovations are induced by government measures, as is often the case when eco-innovation is at stake. WP3 will frame the analysis of firm and region level innovation capacity in the CE domain from the viewpoint of the exposure to international trade, FDIs and migration flows. The Observatory on International Exchanges (D3.3, from TRL2 to TRL4) will be based on indicators and simulation models that will provide policymakers and stakeholders



with the tools to obtain an ex-ante assessment of the impact of changes in the structure and composition of these flows on the capacity to innovate and promote the CE transition in firms and value chains. WP4 will focus on policies and regional innovation and smart specialization strategies and will develop a dashboard and simulation tools to evaluate the impact of regional CE innovation policies and activities on regions' economic and environmental performances.



Dettaglio Tematiche Bando a Cascata

Tematica T1	Start-up innovative per l'economia circolare: dati, indicatori e effetti di policy (WP1)
Objective	Innovative startups are crucial agents of innovation ecosystems. The topic aims to investigate the potential contribution of innovative startups, and of the connected policy incentives, to the CE transition.
Scope	Proposals are expected to provide data pertaining to the creation of innovative startups related to the CE domain in Italian regions. Detailed micro-level information is required, accounting for the entry and exit of startups from the innovative startup register. The data should be elaborated to assign startups to the CE domain reliably, and to develop taxonomies within this domain. Final data should be provided in Excel format or other formats compatible with statistical software such as STATA, R Studio or Python.
Importo dotazione finanziaria	150.000,00 €
Costo minimo progettuale	100.000,00 €
Costo massimo progettuale	150.000,00 €
Ambito territoriale	Italia

Tematica T2	Flussi migratori e dinamiche di innovazione circolare: dati e indicatori per il cambiamento strutturale (WP3)
Objective	Migration flows are an important aspect of population and labor market dynamics, which have significant impacts on innovation and entrepreneurship. The topic aims to investigate the spatial dynamics of migration flows in Italy, with a specific focus on migration and innovation in the CE technological domains.
Scope	Proposals are expected to provide data pertaining to migration flows in Italian provinces at least over the period 2012-2019. Detailed micro-level information is required, accounting for individuals' country of origin, gender, employment status, sector, educational attainment and possibly for the contribution of inventors to patenting. Final data should be provided in Excel format or other formats compatible with statistical software such as STATA, R Studio or Python.
Importo dotazione finanziaria	300.000,00 €



Costo minimo progettuale	150.000,00 €
Costo massimo progettuale	300.000,00 €
Ambito territoriale	Italia

Tematica T3	Infrastrutture digitali e transizione circolare (WP1)
Objective	The digital transformation is more and more a key enabler of the circular economy transition. The topic aims to investigate the spatial diffusion of digital infrastructure, with a specific focus to those technologies that are more likely to boost the CE transition.
Scope	Proposals are expected to provide data pertaining to the diffusion of digital infrastructure in Italian regions. Data on the diffusion of advanced digital infrastructure (e.g. high-speed broadband networks) should be at municipality-level and then aggregated at province level at least over the period 2012-2019. For each municipality, data will have to cover at least the % of households with access to UBB connections, as well as the % of households with access to traditional ADSL connections. Data should cover all networks deployed in Italy. Final data should be provided in Excel format or other formats compatible with statistical software such as STATA, R Studio or Python.
Importo dotazione finanziaria	150.000,00 €
Costo minimo progettuale	100.000,00 €
Costo massimo progettuale	150.000,00 €
Ambito territoriale	Italia

Tematica T4	Transizione circolare, disuguaglianze territoriali e malcontento (WP2, WP4)
Objective	The green transition raises important issues concerning possible adverse social effects, whether they are real or perceived. These can engender increasing discontent and a switch in voting behaviour as a reaction. The topic aims to investigate the spatial dimension of discontent in Italy and its association with the spread of the green transition and local vulnerability.



Scope	Proposals are expected to provide data on the diffusion of discontent, voting behaviour, and vulnerability to the CE transition in Italy at the province level, at least over the period 2012-2019. Final data should be provided in Excel or other formats compatible with statistical software such as STATA, R Studio or Python.
Importo dotazione finanziaria	300.000,00 €
Costo minimo progettuale	150.000,00 €
Costo massimo progettuale	300.000,00 €
Ambito territoriale	Regioni del Mezzogiorno

Tematica T5	Digital transformation, economia circolare e dinamiche territoriali di innovazione (WP2)
Objective	Digital transformation is shaping the evolutionary patterns of specialisations and diversification of firms and regions, particularly the technological trajectories in the green domain. The topic aims to investigate the spatial dimension of the twin transition, with a particular focus on the interplay between the CE paradigm and the digital transformation.
Scope	Proposals are expected to provide data on the co-evolution of CE and digital technological trajectories in Italian provinces, at least over the period 2012-2019. Final data should be provided in Excel or other formats compatible with statistical software such as STATA, R Studio or Python.
Importo dotazione finanziaria	250.000,00 €
Costo minimo progettuale	125.000,00 €
Costo massimo progettuale	250.000,00 €
Ambito territoriale	Regioni del Mezzogiorno

Tematica T6	Green trademarks e transizione circolare: dati di impresa e indicatori territoriali (WP1)
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Objective	Trademark research has produced stylised facts, methodological lessons and policy insights underlining the importance of softer intangible assets for regional resilience and growth. Research on green trademarks is still underdeveloped and provides opportunities to shed a different light on the geography of green innovation/entrepreneurship and regional specialisation/diversification. The topic aims to investigate the spatial dimension of the green trademarks in Italy, with a particular focus on CE-related trademarks.
Scope	Proposals are expected to provide micro-level data on Italian trademarks at least over the period 2012-2019. Data should be geolocalised and classified as green and CE-related. Final data should be provided in Excel or other formats compatible with statistical software such as STATA, R Studio or Python.
Importo dotazione finanziaria	150.000,00 €
Costo minimo progettuale	75.000,00 €
Costo massimo progettuale	150.000,00 €
Ambito territoriale	Regioni del Mezzogiorno

Tematica T7	Incentivi fiscali alla Ricerca e Sviluppo in Italia: dati e indicatori per una valutazione di impatto (WP1, WP4)
Objective	Policy incentives are an essential driver of innovation, even more important of green innovation. This topic aims to investigate Italian firms' access to policy incentives for innovation (tax credits, patent box, etc.), to evaluate their impact on the innovation-based CE transition.
Scope	Proposals are expected to provide data on firms' access to diverse policy incentives for innovation. Detailed micro-level information is required, accounting for the conditions to access the incentives, the incentive amount, the innovative outcome (R&D investments, patents, etc.), and the key economic and financial variables. The data should be elaborated to connect the innovation activity to the CE domain reliably and to develop taxonomies within this domain. Final data should be provided in Excel format or other formats compatible with statistical software such as STATA, R Studio or Python.
Importo dotazione finanziaria	150.000,00 €
Costo minimo progettuale	100.000,00 €
Costo massimo progettuale	150.000,00 €
Ambito territoriale	Italia



Tematica T8	Transizione circolare, misure di policy e strategie (WP4)
Objective	Analysis of government intervention and individuals' commitment to the environment by using regional data to characterise social, economic and territorial differences. Analysis of municipal transition to the circular economy using municipal data to characterize the economic sectors, sustainable practices and biodiversity conservation policies also considering the digital transition and the role of online platforms in reducing waste.
Scope	The aim of the research is to unveil the mechanisms characterizing the behaviour of individuals and institutions in environmental engagement through the analysis of regional, national, and international data. The dataset will include a list of policy interventions related to the environment, data on individual engagement in pro-environmental behaviour. This will be achieved by creating a set of pertinent indicators, at an individual, municipality and regional level. After studying the emerging business models, this project aims to collect data to assess the effectiveness of waste reduction and its impact on the local/national market.
Importo dotazione finanziaria	250.000,00 €
Costo minimo progettuale	125.000,00 €
Costo massimo progettuale	250.000,00 €
Ambito territoriale	Regioni del Mezzogiorno

Tematica T9	Ecosistemi innovativi per la transizione circolare: dati, metodi e indicatori innovativi per una mappatura regionale (WP4)
Objective	The measurement of CE-related economic dynamics represents a major issue in the academic debate. This topic invites proposals focusing on developing and applying innovative statistical methodologies, data analysis techniques, and indicators relevant to mapping regional ecosystems within the circular transition paradigm. Proposals should emphasize the innovative use of statistical tools to analyze, model, and interpret complex datasets, with the aim of facilitating the transition to circular economy practices.



Scope	<p>Proposals should address the issue of improving the quality of statistical data from heterogeneous sources (statistical data editing), in terms of describing robust methodological approaches aimed at:</p> <ul style="list-style-type: none"> a) identifying and correcting errors and inconsistencies in the data, ensuring they accurately reflect the realities of regional ecosystems; b) managing missing data, through the evaluation and implementation of imputation methods aimed at preserving the coherence and validity of statistical analyses; c) integrating datasets from different sources to obtain homogeneous and usable databases for advanced statistical analyses. <p>The statistical dimensions of interest include, but are not limited to: advanced multivariate analysis, predictive modeling, analysis of geo-referenced data, statistical analysis of network structures, and time series forecasting. Proposals should demonstrate how these statistical methods can be employed to identify patterns, trends, and correlations within regional ecosystems, thereby providing insights for the transition to circular economy models. Proposals should also outline clear and measurable indicators to assess the effectiveness and impact of the proposed methodologies in promoting circular economy practices at the regional level. Additionally, approaches based on the development of interactive visualization tools, such as web apps, will be favored to facilitate access, interpretation, and sharing of results. These tools should enable users to explore data and analyses intuitively, enhancing understanding and practical use of information. Proposals should illustrate how such tools will be developed, customized, and integrated within the project, ensuring they are both accessible and technically advanced. Interdisciplinary approaches will be favored, integrating statistical analysis with other scientific disciplines such as environmental science, economics, and social sciences to ensure a comprehensive understanding of regional ecosystems. Successful proposals will be selected based on their methodological rigor, innovation in statistical application, potential regional impact, and alignment with the goals of circular transition.</p>
Importo dotazione finanziaria	250.000,00 €
Costo minimo progettuale	125.000,00 €
Costo massimo progettuale	250.000,00 €
Ambito territoriale	Regioni del Mezzogiorno

Tematica T10	Transizione ecologica nelle catene del valore: indicatori ed evidenza dai settori e regioni italiane (WP3)
Objective	Increasing research shows that the green transition is transforming Global Value Chains (GVCs) and, in turn, is shaped by international trade dynamics. This topic aims at developing data and indicators on the interplay between GVC dynamics and the CE transition in Italy.





Scope	Proposals are expected to collect data and develop indicators and models to study how the international context influences innovation processes for the CE transition in firms and territories with particular reference to the dynamics of internationalisation. The activity must adopt a multilevel approach, highlighting the differentials at the company, industry, and territorial level and temporal dynamics. The main objective is to exploit the potential of national and subnational statistics made available by national and international research institutes (i.e., ISTAT, EUROSTAT, OECD) and governments (for example, ICE - Italian Foreign Trade Agency) to develop sectoral and sub-regional indicators. These sources can be integrated with company-level databases, whose richness allows for identifying antecedents and decision-making strategies regarding the opportunities for the transition toward the circular economy paradigm. In detail, data and indicators are expected to cover: i) the competitive structure of companies and the dynamics of foreign direct investments (both in the form of M&A and greenfield investments); ii) the reconfiguration of global value chains (GVCs) induced by the diffusion of circular economy practices, leveraging data relating to import-export flows and supply-chain relationships with particular attention to strategic sectors and energy-intensive industries; iii) sustainability indices and emissions measures in supply-chain relationships; iv) the interaction between generalised migration flows, specialised foreign workers employed by domestic and multinational companies and international student migration; v) local systemic interactions between businesses, universities and institutions.
Importo dotazione finanziaria	300.000,00 €
Costo minimo progettuale	150.000,00 €
Costo massimo progettuale	300.000,00 €
Ambito territoriale	Regioni del Mezzogiorno

Tematica T11	Transizione circolare e rischio ambientale nei territori (WP4)
Objective	The increasing occurrence of climate-related extreme events and environmental challenges might impact differently the socio-economic system of different territories, depending on their exposure, vulnerability, and capacity to manage environmental risks and opportunities. These multidimensional challenges call for the creation of a set of information available to researchers and policy makers to advance the understanding of the direct and indirect effects on different economic agents and at different spatial scales.
Scope	To meet this objective, geo-localized data on changes in climatic conditions, ecological characteristics, physical features, and environmental stress (e.g., hydrological or fire risks) will have to be collected for Italian territories at the most detailed geographical level possible. Data will be organised in a dedicated dashboard and will contribute to develop a monitoring tool to support the governance and management of climate risk, warning systems, and recovery strategies. Final data should be provided in Excel format or other formats compatible with statistical software such as STATA, R Studio or Python.



Importo dotazione finanziaria	200.000,00 €
Costo minimo progettuale	100.000,00 €
Costo massimo progettuale	200.000,00 €
Ambito territoriale	Italia

Tematica T12	Adozione di innovazioni per la transizione circolare: dati di impresa e indicatori territoriali (WP1)
Objective	Adopting green innovations is crucial to observe a tangible impact on the environmental performance of economic activities. Yet, there is a lack of systematic micro-level evidence. The topic aims to investigate firms' adoption dynamics of CE-related innovation based on the implementation of a survey approach.
Scope	Proposals are expected to provide survey data pertaining to the adoption of CE innovation by Italian firms. The questionnaire has to capture essential dimensions concerning the definition of innovation (process/product; radical/incremental; etc.). The sampling approach has to ensure representativeness at least at the NUTS 2 level. The sample has to be stratified also according to size and sector of activity. Proposals might focus on a restricted number regions as testbed. In that case, at least a region per each of the 4 macro-areas has to be surveyed. The scalability and replicability conditions over time must be explained in detail. Final data should be provided in Excel format or other formats compatible with statistical software such as STATA, R Studio or Python.
Importo dotazione finanziaria	150.000,00 €
Costo minimo progettuale	75.000,00 €
Costo massimo progettuale	150.000,00 €
Ambito territoriale	Italia