

Make Circular Economy Simpler, More Efficient and More Competitive

Interreg MED
GREEN GROWTH Community
Policy Recommendations



Key Messages

In order to reach the goal to **make Circular Economy (CE) simpler, more efficient and more competitive**, this document suggests to take a holistic, integrate and cooperative approach, by considering all the phases in which CE is structured, at different scales (from local to European) and considering a wide range of stakeholders involved in the implementation of CE models.

The policy recommendations proposed by the Green Growth community are structured into six main areas as follows:

- **Investments and access to finance:** support long-term investments and access to finance, while developing instruments to ensure an adequate evaluation of the risks of investments and assessment parameters for bankability and encourage the adoption of circular business models
- **Technological infrastructure:** conceive infrastructures as platforms, improve infrastructures with a high Technology Readiness Level (TRL) and promote

knowledge about innovative technologies

- **Labour market and employment:** provide adequate qualified professionals, also by tackling disruptive effects on existing labour segments and linking social protection and re-training processes in the transitional phase
- **Awareness and knowledge:** promote social and economic desirability of CE and CE entrepreneurial culture, building on public opinion's good predisposition towards CE
- **Cooperation among stakeholders and technology transfer:** stabilise relational and capitalisation mechanisms and reinforce trust among actors
- **Cross-cutting issues:** counteract both overregulation and the lack of specific policies on the field of CE, increase awareness and knowledge on existing regulatory frameworks impacting on CE development, and focus on waste management regulation and procurement laws as key factors to promote CE



Summary

Making circular economies simpler, more competitive and more desirable than the linear, traditional ones: this is the perspective defined within this document, which embraces the main characteristics of circular economies and suggests policies and interventions to reach the abovementioned goals.

The document is the results of the **active involvement of Interreg MED Green Growth community** and its projects and promotes an framework for the development of CEs, involving different actors across different phases (production, consumption, management of waste, re-use of waste as secondary raw material) and scales (local, regional, national, European). Indeed,

suggested policies and interventions presented are supposed to be implemented as a result of a cooperation among institutional, economic and social stakeholders.

The document specifically focuses on **six thematic areas**: investments and finance, technological infrastructure, , labour market and employment, awareness and knowledge, cooperation among stakeholders, technology transfer and cross-cutting issues. Policy recommendations and possible interventions are clustered according to these categories.



Introduction

Circular Economy

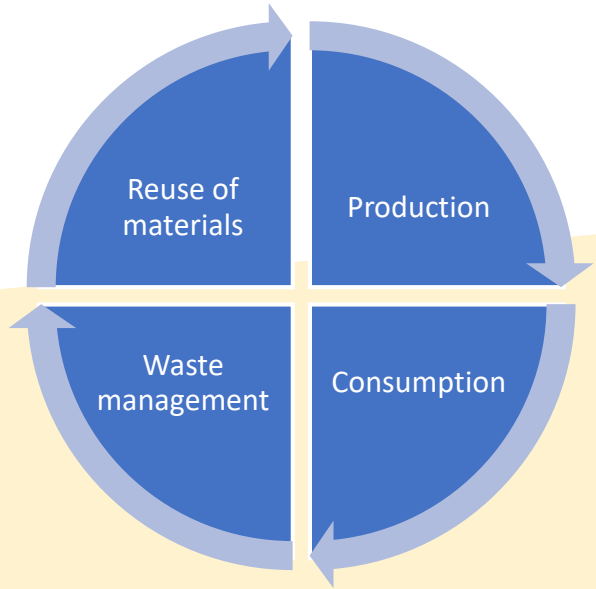
With the **Circular Economy Package** (2015)¹, the European Commission has defined several measures aimed at closing the resource loop. The Circular Economy Package intervenes along the **whole lifecycle of products and materials**, including:

- Production
- Consumption
- Management of waste
- Re-use of waste as secondary raw materials

The strategy is strictly related with **climate change adaptation and mitigation strategies**.

Energy saving and greenhouse gas emissions reduction, as well as the first-ever European Strategy for Plastic, are, indeed, at the core of CE strategy. **CE is a key factor to succeed in the ambitious goal to transform the EU into the world's first climate neutral major economy by 2050**, as foreseen by the European Commission in November 2018².

A CE strategy requires a **holistic approach** in the process of transforming the way we produce and consume goods and manage waste. **All the dimensions of sustainability** (i.e. environmental, economic and social) **and the scales of intervention** (from local to global and vice versa) **must be taken into consideration**. This implies also the need of a **strong cooperation among different stakeholders**.



Interreg MED Green Growth Community

The **Interreg MED Green Growth community**³ is a thematic community of projects in the framework of the Interreg MED programme, which is a transnational European Cooperation Programme for the Mediterranean area.

Within the Green Growth theme of the Interreg MED programme, SYNGGI – “Synergies for Green Growth Initiative – Energising the Impact of Innovation in the Mediterranean” – is the project managing the Interreg MED Green Growth community (2016-2019). This community has a total of 14 modular projects. **The SYNGGI project acts as a dynamic network to unify project results, support MED stakeholders and create a fruitful and collaborative environment for all implicated bodies.**

¹ More information can be found at: https://ec.europa.eu/commission/priorities/jobs-growth-and-investment/towards-circular-economy_en

² https://europa.eu/rapid/press-release_IP-18-6543_en.htm

³ <https://green-growth.interreg-med.eu>

The methods that are used within that framework aim to **stimulate the sharing of the project results and findings and enhance the cross-sectorial innovation practices** among key Mediterranean stakeholders. Moreover, strong emphasis is given in the capitalisation process, with the objective to create common policy outcomes to contribute to the vivid legal framework that needs constant revision and input, such as the EU Circular Economy Action Plan and other relevant environmental policies.

To achieve Green Growth through the implementation of a Circular Economy, a systematic approach that fosters cooperation and collaboration is required. The SYNGGI project, in the framework of the Interreg MED Green Growth community, addresses the objectives of a circular economic model by applying a **horizontal approach that brings together a diverse community of experts and stakeholders** to emphasise regional (Mediterranean) needs and joint interests.

Within the Interreg MED Green Growth Community, **four Thematic Working Groups (TWGs)** were established with the purpose of facilitating systematic technical cooperation, synergies and joint work within the community. The themes were established in alignment with the EU Circular Economy Action Plan's indicator framework for monitoring the progress towards a Circular Economy. Following this framework, the TWGs categorised the 14 Modular Projects of the MED Green Growth community into the four thematic working groups (TWGs).



Thematic Working Groups

TWG 1

● Production and Consumption: *Resource Efficiency*

Projects CAMARG, ESMARTCITY, MADRE, MED GREENSHOUSES, PEFMED, REINWASTE

Relevant CE Indicator EU self-sufficiency for raw materials, Waste generation

Main targets energy efficiency, sustainable production & consumption, market uptake of eco-innovative patterns & zero-km products, greener supply chains, prevention of waste generation, food safety, smart city paradigm

TWG 2

● Production and Consumption: *Smart and Green Public Services*

Projects ESMARTCITY, GRASPINNO, GREENMIND

Relevant CE Indicator Green Public Procurement

Main targets capacity building of Pas and SMEs, urban ICT

TWG 3

● Waste Prevention & Management

Projects REINWASTE, RE-LIVE WASTE

Relevant CE Indicator Waste generation, Overall recycling rates, Recycling rates for specific waste

Main targets bio-waste, organic waste, inorganic waste, KETs, BATs

TWG 4

● Competitiveness & Innovation

Projects ARISTOIL, CREAMINNOVATION, EMBRACE, FINMED, GRASPINNO, GREENOMED, REINWASTE

Relevant CE Indicator Private investments, Jobs and gross value added, Patents

Main targets technological and methodological innovation, green jobs, patents, industrial symbiosis

Vision

Within the framework of Green Growth, CE is framed as a **transitional and multi-dimensional approach towards the goal of environmental neutrality of the European market system**, combining environmental sustainability with social equality, fairness of labour conditions and empowerment of local communities.

The process towards the implementation of CE models implies to intervene on:

- **The overall economic system**, by reframing the relationship between the economic sphere and other systems, such as the environment. According to this vision, institutions have a key role in addressing the pure profit view of many private operators, establishing a medium/long-term view on the environmental costs of non-sustainable productions (Life Cycle Cost) and intervening by means of rules and financial and non-financial incentives. This approach would preserve and eventually increase natural capital, by controlling limited stocks and balancing the flow of renewable resources;
- **Productive processes**, both of goods and services, by shifting from linear to circular/closed-loop systems and by addressing the problem of side effect/negative externalities of traditional productive chains (i.e. greenhouse gas emissions, among others);
- **Product lifecycles** (i.e. length and articulation), by extending it through reuse, repairing, upgrade, and exchange strategies. Product lifecycles are also linked to the optimization of the use of biological and non-biological resources. The reconfiguration of waste management cycle constitutes one of the biggest challenges in the field of CE;
- **Relationships among stakeholders**, as a consequence of the previous aspects. CE may trigger cooperative and innovative processes, paving the way to new business models. These models may lie within different sectors (i.e. when the reshaping of products lifecycles and waste management connects different production chains), actors (private, public, R&D, third sector organisations, etc.) and scales (regional, national, European). CE may also promote the development of innovative (eco)systems, where the exchange of products and materials is associated with the sharing of knowledge, information and social capital.



Advantages deriving from the full implementation of CE models pertain to different spheres, according to SYNGGI project partners:

- Creation of new jobs and **economic growth**
- Creation of opportunities for **social integration** and cohesion
- Better **quality of life** (also for future generations)
- **Energy savings**
- **Reduced greenhouse gas emissions**
- Boosting of **innovation**
- Boosting of competitiveness and of **new business strategies/opportunities**, deriving from the transformational and regenerative effects of CE
- **Stabilisation of the economic system** against scarcity of resources and volatile prices
- Positive effects on **social perception and consumers' awareness** about topical issues as the climate change
- Promotion of **efficient ways of producing and consuming**



Policy Recommendations

The document identifies **17 policy recommendations** and **33 suggested interventions** which are presented below as clustered in the following **6 thematic areas**:



**Investments and
Access to
Finance**

**Awareness
and Knowledge**

**Labour Market
and Employment**



**Cooperation
Among
Stakeholders
and Technology
Transfer**



**Cross-Cutting
Issues**



**Technological
Infrastructure**





Investments and Access to Finance

Policy Recommendations

The area of investments and access to finance involves topics as:

- **risk of investments**
- **financial barriers and incentives**
- **trust of entrepreneurs**
- **knowledge about the existing financial instruments and innovative funding**

Encourage the adoption of circular business models

It is fundamental to raise awareness and promote capacity building for SMEs and Public Authorities on the advantages and financial opportunities deriving from CBM.

Moreover, a specific financial support could encourage SMEs to transform their business model

Support long-term investments and access to finance

Long-term investments have a crucial role in promoting product and process innovation. Such investments are particularly difficult to be implemented in Mediterranean countries, due to the overall economic situation, the average size of enterprises, and the low level of awareness and trust of both entrepreneurs and investors

Ensure an adequate evaluation of the risks of investments and assessment parameters for bankability

The majority of Banks are not ready to evaluate CE projects and innovative business models due to a lack of adequate evaluation and assessment parameters for bankability. New risk assessment methodologies and/or the improvement of existing ones could support businesses and financial institutions in evaluating whether an investment supports the CE or not

Investments and Access to Finance

Possible Interventions

Proposals were collected from:

TWG1 ●

Resource Efficiency

TWG2 ●

Smart and Green Public Services

TWG3 ●

Waste Prevention&Management

TWG4 ●

Competitiveness&Innovation

● **Promotion of foreign/national private investments** Innovative approaches towards CE need the support of private investors. Private investments could transform ideas into business opportunities, bringing innovative solutions directly to the market, enhancing their optimization and their replicability potential. Networking environments with potential investors should be promoted and reinforced (e.g. business forums, matchmaking events, business support platforms). Incentives and trainings could further encourage investors
Main actors: European institutions, Banks and financial institutions, Development agencies

● ● **Improvement of the accessibility to national/EU financing, funding and blending schemes** The promotion of CE solutions could be fostered by programmes supporting companies in exploring the available financing and funding schemes, in order to identify the most suitable instruments. Tools, such as the European Investment Advisory Hub and the European Investment Project Portal, could provide technical assistance for investments. More tools and raising-awareness activities could further promote well-designed investment proposals with high implementation potential
Main actors: Development agencies, Clusters/consortiums, Chambers of Commerce

● ● **Inclusion of green and smart mobility industry in Regional Operational Programmes (ROPs), national funding programmes and Research and Innovation Strategies**

for Smart Specialisation (RIS3)

Absence of open data related to mobility represents an issue that hinders the development of new innovative services and solutions in a strategic sector for the development of the Mediterranean area. There is an open discussion on whether existing data should remain closed or be open to industries that could develop greener and smarter mobility schemes. Funding mechanisms at the regional and national level could support the transition towards more open schemes for the benefit of new application paradigms enhancing sustainability
Main actors: Regional institutions, Local institutions

● ● **Inclusion of specific Green Public Procurement (GPP)-CE related working programmes in upcoming EU-funded research** So far, EU-funded research on GPP has been mainly focused on energy-related topics, not considering other relevant aspects of CE related to material efficiency (including product design to tackle planned obsolescence) and the promotion of a collaborative economy in general. Future EU research framework programmes should, therefore, include specific calls for the integration of the CE in GPP. This could be promoted within programmes with a regional focus (e.g., INTERREG, ERDF, etc.) due to their local-scale approach. Such programmes could enhance key aspects for GPP and CE, especially in the sector of public services (e.g. local cooperation and public-private partnership)
Main actors: European institutions, Regional institutions, Local institutions



- **EU definition of taxonomy and benchmarks** The definition, at the EU level, of CE finance along with a taxonomy and benchmarks is fundamental in order to measure the “circularity” of projects and to correctly evaluate the risks connected to “linear” ones. This will ultimately support businesses and financial institutions to identify CE opportunities

Main actors: European institutions, Banks and financial institutions, Chambers of Commerce, Trade associations

- **Development by financial institutions of new CE financial strategies** The development, by financial institutions, of a CE financial strategy where the risk assessment considers the negative and the positive externalities generated by projects in a long-term perspective is a key factor in promoting CE development. A compared analysis of risks/benefits deriving from linear and circular business models should be considered as well

Main actors: European institutions, Banks and financial institutions, Chambers of Commerce



Technological Infrastructure

Policy Recommendations



The area of technological infrastructure involves issues as:

- **availability of technological infrastructure**
- **maintenance of technological infrastructure**
- **definition of business models able to seize the opportunities generated by the development of CE**

Conceive infrastructures as platforms

1 Infrastructures can be conceived as platforms, giving the possibility to innovatively (re)organise the relationship between productive processes, product lifecycles and waste management (i.e. GPP platforms, platforms to exchange waste and to aggregate enterprises logistic needs)

Improve infrastructures with a high TRL

2 Infrastructures with a high TRL (Technology Readiness Level) give the possibility to small and medium enterprises (SMEs) to understand, test and evaluate advanced innovations

Promote knowledge about innovative technologies

3 The lack of knowledge about innovative technologies, and, more in general, a high digital divide, call for a strong commitment to promote accessibility to technological infrastructures. The access to knowledge, moreover, is a key factor in connecting environmental sustainability with social sustainability

Proposals were collected from:

● TWG1

Resource Efficiency

● TWG2

Smart and Green Public Services

● TWG3

Waste Prevention&Management

● TWG4

Competitiveness&Innovation

Technological Infrastructure

Possible Interventions

● **Collaboration with tech hubs** Tech hubs support new companies (start-ups, SMEs) and provide infrastructure and trainings for successful feasibility studies and business plans, thus ensuring a high TRL and self-sustainability. Moreover, they encourage experimentation, networking and synergies. In this sense, tech hubs and tech hubs networks could have a key role in CE development, through the sharing of resources, experiences and knowledge to develop large scale projects regarding CE
Relevant actors: Regional institutions; Local institutions, Research institutions, Technological centres, Universities, Clusters/consortiums

● **Creation of new SMEs/start-ups addressing the needs for technological infrastructure** There is a strong need for new business models and services to provide new technological infrastructure (or upgrade/maintain existing ones) in the green sector. To this end, the creation of new innovative SMEs can result in new services, ensuring a connection between different domains and a proper upgrade/maintenance of existing infrastructure. Trainings for start-ups and provision of information related to technological infrastructures could support the development of new business models, fostering the implementation eco-innovative solutions
Relevant actors: Development agencies, Research institutions, Technological centres, Universities, Clusters/consortiums, Companies of the ITC sector

● **Adoption of context-related rather than one-size-fits-all approaches and solutions** The costs and the availability of expertise are two of the main issues

for technological infrastructure deployment (especially in smaller and more isolated areas, such as mountain and islands). Furthermore, issues related to the maintenance and upgrade of deployed infrastructures are relevant both in small and in larger areas. A possible solution could be the adoption of a context-related approach, followed by a standardization of solutions, allowing for a decrease in overall costs and the accomplishment of economies of scale. Moreover, widening the “context” by following a “breaking down the silos” approach could further contribute to this
Relevant actors: Regional institutions, Local institutions, Development agencies, Clusters/consortiums

● **Inclusion of Ecosystem Services (ES) evaluation in economic strategies** A method for the adoption context-related approaches and solutions could be to classify and assess ES for specific areas according to multiple benefits (both goods and services) provided by ecosystems to humans. This method adopts a long-term view, considering the overall benefits provided by CE-produced goods and services, (i.e. modern economic systems based on economies of scale and few standardized products)
Relevant actors: Regional institutions, Local institutions, Development agencies, Clusters/consortiums

● **Promotion of standards in ICT procurement** One of the most important aspects hindering the development of CE in the ICT sector (Information and Communication Technology) is the lack of interoperability and compatibility between different elements of a system/network or between different products. A key tool to foster interoperability among products



and/or services could be the use of standards in ICT procurement. This approach could foster companies to set standards and share intellectual property/data with other actors. In turn, this can facilitate the creation of common platforms. The establishment of a common framework could allow competing suppliers of ICT solutions to focusing on further innovations rather than developing their own proprietary system, thus enhancing interoperability

Relevant actors: European institutions, Standardisation bodies, Research institutions, Technological centres, Universities, Clusters/consortiums





Labour Market and Employment

Policy Recommendations

Labour market dynamics are a key factor when discussing CE development. In fact, **the development and the expansion of new economic models has relevant impacts** – and even disruptive effects – **on the existing labour market** (e.g. need of new skilled professionals).

Provide adequate qualified professionals

The lack of qualified professionals in the field of CE, with proper technical, communication and dissemination skills, could hinder the development of CE models in the short term. Institutions, training systems and enterprises should cooperate to provide adequate qualified professionals to address the emergent needs of the economic system

Tackle disruptive effects on existing labour segments

The disruptive effects on existing labour segments pose a crucial challenge to training organisation and innovation and research centres. Training processes are the focus of this policy recommendation; in this case, however, the goal would be to re-train workers who are already in the labour market

Link social protection and re-training processes in the transitional phase

In the transitional phase from high-carbon and linear economies to low-carbon and circular economies, social protection measures and re-training instruments are key

Labour Market and Employment

Possible Interventions

Proposals were collected from:

TWG1 ●

Resource Efficiency

TWG2 ●

Smart and Green Public Services

TWG3 ●

Waste Prevention&Management

TWG4 ●

Competitiveness&Innovation

● **Reinforcement of SMEs' and entrepreneurs' capacities to access to the green market (energy, smart city, mobility) and use/exploit open data opportunities** Capacity building is necessary for a model shift, towards CE. First of all, companies now competing should perceive themselves as partners, cooperating in a wider, more standardised and more open ecosystem. For example, in the framework of technological innovation, exploiting standardised technologies and building on top of open data, could lead to overcome scale costs and define new products and services. Secondly, at a time of such disruptive technologies (e.g. Virtual Reality, Augmented Reality, Artificial Intelligence and Collaborative Platforms) there is also a need for a disruptive education, to be offered to SMEs and entrepreneurs, allowing them to understand and grasp the direction in which the market goes (e.g. through Hackathons, Datathons, or LABs - Innovation hubs or Living LABs, etc.)
Relevant actors: Local institutions, Research institutions, Technological centres, Universities Enterprises, Clusters/consortiums, Training organisations

● **Capacity building activities to address labour market need for qualified professionals** Companies' lack of qualified professionals in the field of CE is growing, while new jobs are needed in the CE sector (i.e. along the whole supply chain and in the application of eco-innovative, resource-efficient and smart technologies). Capacity building activities would support the training of new professionals while improving the skills of already involved stakeholders (i.e. research

institutes, technological centres and enterprises)

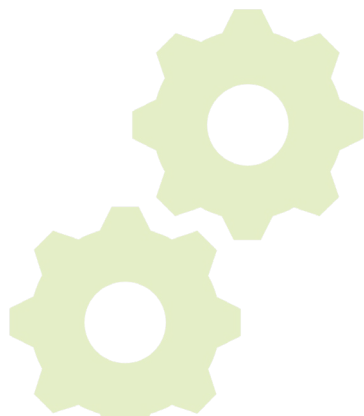
Relevant actors: Local institutions, Development agencies, Clusters/consortiums, Training organisations, Professional associations

● ● **Development of clusters** In order to share knowledge and available best practices, cooperation among different actors is crucial. Moreover, it is fundamental to promote the collaboration and the sharing of knowledge among different actors, stakeholders and existing clusters and networks. This could be done by establishing networking mechanisms (e.g. networks, associations, clusters etc.). Some regions, for instance, are currently providing added value support services, through cluster initiatives, or by establishing partnerships pivoting on strategic enterprises

Relevant actors: Regional institutions, Local institutions, Research institutions, Technological centres, Universities, Trade associations

● **Localisation of food systems through short supply chains**

Localising food systems is one of the top priorities in order to create sustainable links between producers and consumers. In order to achieve the localisation of food system it is key to implement alternative food production-distribution-consumption configurations, for a better sharing of added value, and to avoid high power structures and intermediaries, through economically and socially fair relations. Shorter supply chains facilitate the access to high quality seasonal and local products at an affordable cost, through an environmentally friendly and resource



efficient model. Within this framework, local public authorities should act as facilitators, adopting easier administrative procedures and establishing open spaces, for the development and growth of these models

Relevant actors: Regional institutions, Local institutions, Trade associations, Enterprises

● **Promotion of SMEs innovation processes on an international level**

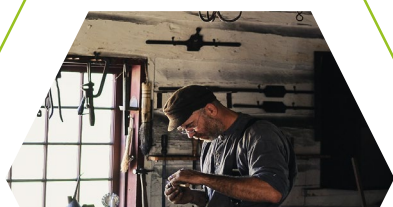
It is necessary to support SMEs in their innovation & internationalisation processes to seize, in cooperation with local institutions and research institutes, market opportunities of the green and smart mobility industry. The development of transnational services for SMEs, by capitalizing the partners' and other local/regional stakeholders' previous experience, is crucial to support market analysis, business matching and application to public funding

Relevant actors: Development agencies, Clusters/consortiums, Training organisations

● **Support of education & training for green economy job's opportunities**

Proper training for future workers and capacity building to improve technical, communication and dissemination skills and knowledge of already active workers, are needed to address the lack of qualified professionals in the field of CE. BAT (Best Available Technologies) are essential in order to ensure a constantly "updated" labour force. Social protection and re-training instruments, as well as economic incentives during the pioneering steps, should be provided as well

Relevant actors: Clusters/consortiums, Training organisations, Research institutions, Universities



Awareness and Knowledge

Policy Recommendations



Awareness and knowledge area includes topics as **knowledge on CE and its benefits**, **awareness about long-term benefits** and **entrepreneurial culture**

Promote social and economic desirability of CE

The issue of social and economic desirability of CE, which lies on the field of awareness and knowledge, is crucial in strengthening CE policies effectiveness

Promote CE entrepreneurial culture

Increasing awareness is a way to tackle the physiological inertia in the adoption of new business models and the lack of an adequate entrepreneurial culture

Exploit public opinion's good predisposition towards CE

In general, there is a good perception of CE in the public opinion. This could be "extended" beyond its current horizon. For example, the problem of plastic pollution, at the centre of public debates, led many countries to act towards the abolition of plastic

Proposals were collected from:

- TWG1
Resource Efficiency
- TWG2
Smart and Green Public Services
- TWG3
Waste Prevention&Management
- TWG4
Competitiveness&Innovation

Awareness and Knowledge

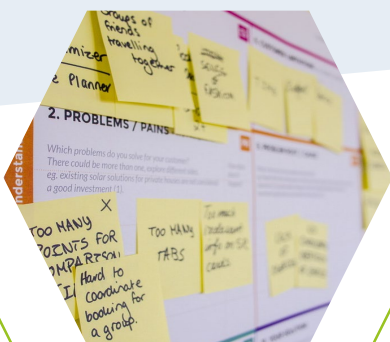
Possible Interventions

● Promotion of local participation

Environmental and awareness campaigns, raising the attention on the social, environmental and economic benefits of the CE, should be developed among citizens and other stakeholders. A wide participatory process is required in order to involve the different stakeholders in the process of defining CE models adapted to local needs. Success stories and ambassadors would be helpful to this end, while Smart Specialization Strategies in different regions could present an adequate forum for such a participation
Relevant actors: Regional institutions, Local institutions, Trade organisations, Consumers associations

● Increase of public awareness on technology availability and towards the industry sector's awareness regarding actual market needs The rapid pace of technological advancement makes it difficult for the general public, and for end users as well, to be constantly aware about technological availability, the direction of the technological progress and its disruptive effects. It is thus important to raise awareness about this, among both end users and the general public. Pilot actions should focus more proactively on the involvement of end users in a participatory process for collecting their feedback on their actual needs and possible solutions

Relevant actors: Regional institutions, Local institutions, Trade organisations, Consumers associations, Research institutes, Technological centres, Universities, Enterprises



Cooperation Among Stakeholders and Technology Transfer

Policy Recommendations



Cooperation and technology transfer area covers:

- the sharing of knowledge and good practices
- cooperation among enterprises, public bodies, universities, technological and research centres
- public-private partnership

1 Stabilise relational and capitalisation mechanisms

Widespread lack of stable relational and capitalisation mechanisms among CE actors should be addressed, considering that effective cooperation is dependent on economic stability, common ideology and/or an appealing infrastructure model

2 Reinforce trust among actors

The lack of trust among different actors involved in the development of CE could be counteracted by giving more visibility to the positive results of cooperation in this field. Trust is a key resource in building a CE-friendly environment



Cooperation Among Stakeholders and Technology Transfer

Possible Interventions

Proposals were collected from:

TWG1 ●

Resource Efficiency

TWG2 ●

Smart and Green Public Services

TWG3 ●

Waste Prevention&Management

TWG4 ●

Competitiveness&Innovation

● **Promotion of eco-innovative technologies to support sustainable and resource-efficient production patterns** The agri-food sector is one of the most resource (soil, energy, water) demanding sectors and, on the same time essential and critical for the prosperity of the MED countries, which is, in turn, one of the areas most affected by the effects of climate change. The capitalisation and the promotion of eco-innovative technologies will contribute to CE development, by supporting sustainable and resource efficient production patterns and energy and water efficiency, ultimately contributing to Green Growth and sustainable agriculture

Relevant actors: Development agencies, Research institutions, Technological centres, Universities, Clusters/consortiums, Enterprises

● **Provision of greater support to already existing clusters and promotion of their cooperation (rather than competition)** Clusters, usually focusing on a specific thematic or technological domain, could foster a collaborative attitude among their members. It is key to enhance collaboration among clusters at the national and international scale, avoiding

the oxymoron of competing organisations. Cooperation should address common problems, by following a holistic approach (i.e. conceiving problems of a specific sector as resources/opportunities for another one). To create new networks, possible actions are: test new market strategies; gain access to new public funding; offer to SMEs services for "network tariff"; provide a transferable model of services for clusters and agencies; set up a transnational innovation network involving authorities, companies and research institutes; implement a program targeted to clusters and agencies for the promotion of their transnational activities; support local authorities to integrate the project with the involved regions' specialisation strategies

Relevant actors: European institutions, National institutions, Regional institutions, Local institutions

● **Promotion of small scale eco-industrial parks (EIPs)** CE is the result of a complex interaction between different systems, the mere possibility of a profit may not be sufficient to fully and systematically implement it. An effective planning is needed to have a non-marginal application of the CE concept. In this sense, EIPs could support the development of economies with a stable system for material flow within the industrial areas. (i.e. enterprises manage their resources using a lifecycle approach, in order to optimise the use of water, energy, and materials and minimise environmental damage. Their practices will include recycling and reuse



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Relevant actors: European institutions, National institutions, Regional institutions, Local institutions, Chambers of commerce, Trade organisations, Clusters/consortiums



- **Establishment of an open network of technological infrastructures for SMEs at EU level to promote the integration of advanced manufacturing technologies into production processes**

Research infrastructures represent a key tool of the EU in order to foster scientific research and innovation in sectors of critical importance. It would be advisable to establish in a similar way technological infrastructure for SMEs, for the integration of manufacturing technologies into their production processes. In this context, a two-step approach is recommended:

- First step: identification of existing technological infrastructures, at the EU level (e.g. Industry 4.0, Industrial Internet of Things, Edge Computing, Big Data analytics for manufacturing processes, Artificial Intelligence, New Materials)

- Second step: networking. It implies an agreement on the “model architecture”, in order to offer remote and on-place access to their facilities for dissemination, capacity building, and experimentation purposes, ultimately developing a common collaborative platform

Relevant actors: European institutions, Development agencies, Research institutions, Technological centres, Universities, Clusters/consortiums, Chambers of commerce

- **Establishment of horizontal project levels** As in the case of Green

Growth Thematic community, horizontal projects allow for communication between members and projects of the community, knowledge exchange, building activities of joint/ transversal basis, setting up of thematic events, etc. Ultimately, horizontal projects contribute to the creation of a solid community that acts as a hub to collect, disseminate and capitalise project results among several actors

Relevant actors: European Institutions, National institutions, Regional institutions, Local institutions, Development agencies, Research institutions, Technological centres

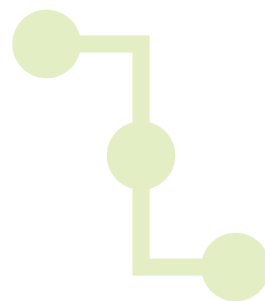
- **Involvement of actors in the definition of Smart Specialization Strategies**

The creation of regional networks, e.g. through platform where different actors can interact and share resources, could facilitate the encounter of supply and demand and help to reach an efficient use of resources. At the same time, regional actors should be actively involved in the definition of regional development strategies. This could be done, for example, by promoting public consultations by regional authorities, in order to collect stakeholders' inputs and needs before planning the regional strategy (Smart Specialization Strategy)

Relevant actors: European institutions, Regional institutions, Research institutions, Technological centres, Universities, Clusters/consortiums

Cross-Cutting Issues

Policy Recommendations



Cross-cutting issues, which are transversal to the previous thematic areas, include:

- **stakeholders' involvement in shaping local, national and international policies**
- **differences among regional and national legislation**
- **Smart Specialization Strategies**

Counteract both overregulation and the lack of specific policies on the field of CE

The need to find a balance between the development of specific policies, while avoiding overregulation, is particularly challenging. A further element to be considered is the need to define a proper scale of intervention, both at the institutional (i.e. local, national, European) and sectorial level (since sectors are more interconnected in CEs)

Increase awareness and knowledge on existing regulatory frameworks impacting on CE development

Focus on waste management regulation and procurement laws as key factors to promote CE

Waste management regulation and procurement laws hinder the full development of CE. In the first case, traditional processes of waste treatment are often still encouraged. In the second case, legal frameworks usually provide for the rule of procurement at the best cost and maximum discount, making it difficult for administrators to choose CE products and services (that still have a higher cost than “traditional” ones)

Proposals were collected from:

● TWG1

Resource Efficiency

● TWG2

Smart and Green Public Services

● TWG3

Waste Prevention&Management

● TWG4

Competitiveness&Innovation

Cross-Cutting Issues

Possible Interventions

● **Implementation of national strategies to support project actions and outcomes** National strategies are needed to promote eco-innovative investments, as well as actions developed in network, not only individual initiatives. In this sense, a bottom-up approach should be adopted, identifying the gaps at the local/regional level, though the involvement of relevant stakeholders

Relevant actors: European institutions, National institutions

● **Promotion of energy efficiency measures in urban infrastructures**

According to municipal energy audits, measures that promote the use of efficient street lighting systems and the renovation of existing buildings (the main energy consuming municipal services) would lead to significant energy savings. Moreover, in some regions of the MED area, water pumping facilities are another sector in which energy savings can be achieved. In order to improve the capacity of public authorities to achieve energy efficiency, it is fundamental to act not only at the technical level, but also at the legal level (i.e. public procurement process). In this sense, a fundamental step could be the adoption of a Smart City Strategy at the municipal level (or by other Public Authorities)

Relevant actors: National institutions, Regional institutions, Local institutions, Infrastructure providers

● **Integration of metropolitan agriculture in strategic city planning**

The creation of a normative environment that addresses the specificities of metropolitan agriculture and facilitates the development of urban and peri-

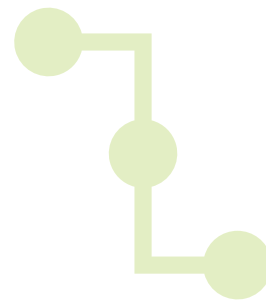
urban food-related projects is crucial in fostering sustainable and resilient local food systems. The integration of such elements in territorial and sectorial strategic planning is needed at all levels (EU, national, regional, local). Some of the actions that could help to preserve and strengthen urban and peri-urban agriculture are the following: adoption of practices that align with a CE perspective (e.g. reusing rainwater or recycling urban organic waste as fertilizers); facilitation of the access to appropriate land for new farming projects; trainings on sustainable farming

Relevant actors: National institutions, Regional institutions, Local institutions, Food companies

● **Use of bio-based packaging materials in the agri-food sector**

In the agri-food sector, oil-based plastic can be replaced by more sustainable bio-based material. The diversification of exploitable non-food bioresources, in particular the by-products of agriculture, is one of the main areas of research in the 3 agri-food sectors (horticulture, meat and dairy products). The choice of different materials should take in account the product nature, the food processing, the logistic part and the expected use for the consumer. Chosen bio-based materials should be compliant regarding the specifications on several characteristic (e.g. gas barrier, light barrier, mechanical and thermal resistance, microwavable etc.). The end of life of products should also be studied (i.e. recyclability, energy recovery, compostability and/or biodegradability)

Relevant actors: European institutions, National institutions, Food companies, Civil society



- **Extension of the Product Environmental Footprint (PEF) approach to the agri-food sector**

2013/179 EU Commission

Recommendation establishes two harmonised methods for the calculation of environmental performance throughout the lifecycle, namely: the PEF and the Organisation Environmental Footprint (OEF). The recommendation asks for the use of these methods by Member States, companies, private organisations and the financial community. National roadmaps have been developed, with the aim to pave the way to a favourable policy and entrepreneurial context, for the extension of the PEF approach to the agri-food sector. This emphasizes the readiness of the sector to embed the PEF analysis as a “normal practice”, as well as to adopt sustainability standards of PEF

Relevant actors: European institutions, National institutions, Enterprises, Food companies, Standardisation bodies

- ● **Measures to guarantee the achievement of the extended producer responsibility** It is fundamental to develop measures and legislative proposal, at the national level in each Member State, for the achievement of the extended producer responsibility (i.e. to transpose Directive 2018/851, amending Directive 2008/98/EC on waste)

Relevant actors: European institutions, National institutions

- ● ● **Adoption of Life Cycle Costing (LCC) criteria in Green Public Procurement (GPP) and by public authorities in general** Procurement laws usually provide for the rule of procurement at the best cost and

maximum discount. This makes it difficult for administrators to choose CE products (that still have a higher cost than “traditional”/linear ones). LCC estimates all the costs that will be incurred throughout the lifetime of a product (work or service) especially those not reflected in the purchase price (such as resource use, maintenance and disposal). The application of this methodology remains limited, due to the lack of reliable data, for the evaluation of costs, and the lack of competence and knowledge of public purchasers and regulating authorities. Possible actions to promote the adoption of LCC by public authorities are: extension of LCC to new product categories and simplification of the existing ones; development of a proper legal framework and technologies to make available relevant information regarding production cycles

Relevant actors: European institutions, National institutions, Standardisation bodies, Research institutions, Technological centres, Universities

- **Enhancement of CE aspects into the GPP procedures** Public procurement accounts for 14% of EU GDP. If circular requirements (e.g., reparability, durability, recyclability etc.) would be systematically used to procure public services and products, public procurement could play a key role in boosting the CE. To this end, policymakers should enhance and further develop GPP criteria linked to CE, by ensuring the practicability of the requirements; they could also develop guidance on how to use criteria to proactively create circular outcomes

Relevant actors: European institutions, National institutions, Standardisation bodies

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