CASI POLICY BRIEF

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CASI: Project description

Public Participation in Developing a Common Framework for Assessment and Management of Sustainable Innovation (CASI)

COORDINATOR:
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CONSORTIUM:
The CASI consortium consists of 19 partners representing 12 European countries. Country correspondents extend the reach to all EU-28 countries.

FUNDING SCHEME:
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Sustainable Innovation across Key Sectors and Societal Challenge 5

Insights for and from Austria

EXECUTIVE SUMMARY

The European Union (EU) targets growth based on smart, sustainable and inclusive economies, which can be promoted through profound changes in the European economic sectors. Opportunities for industrial sectors to renew themselves are largely provided by sustainable innovations. Innovations are driven by the Horizon 2020 as a framework programme for research and innovation. The funding focuses on seven societal challenges, of which sustainable innovation emerges as an important driver, especially in Societal Challenge 5 related to climate action, environment, resource efficiency and raw materials.

OPPORTUNITIES FOR RENEWAL OF INDUSTRIAL SECTORS PROVIDED BY SUSTAINABLE INNOVATIONS

CASIPEDIA IS A REPOSITORY OF SUSTAINABLE INNOVATION CASES

The CASI project's answer to SC5 is to develop a methodological framework for the assessment and management of sustainable innovation (SI). As one of the aspects of the framework, CASI presents a wide selection of European SI initiatives in an online repository named CASIPEDIA, which covers at least 21 sustainable innovation initiatives from each of the EU-28 countries and altogether presents over 500 SI cases.

RELATIONSHIP BETWEEN THE KEY PRIORITY AREAS AND SECTORAL RELEVANCE

This policy brief looks at the sectoral relevance of the SI initiatives collected in the CASIPEDIA against the challenges of climate action, environment, resource efficiency and raw materials. The policy brief discusses how key policy developments are related to SI and connects the sectoral analysis on SC5 with policy developments at the national level. Finally, recommendations are produced.

AUSTRIA'S GOVERNMENT TARGETS BIOECONOMY AND CLEAN SOLUTIONS

In Austria, sustainable growth remains a priority while sustainable innovation, in particular, becomes strongly prominent in bioeconomy - an emerging field supporting wealth and improving quality of life. Although no coherent strategy is yet in place, the Ministry of Transport, Innovation and Technology (BMVIT) and the National Fund for Climate and Energy Research (KLIEN) are currently developing one in connection with an RTI strategy targeting 'Energy 2050'. The target of decarbonization is set to establish 95% carbon free processes in industrial sectors, agriculture, housing and transport.

The CASI project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 612113

Introduction

The growth target of the European Union (EU) based on smart, sustainable and inclusive economies can be spurred by profound changes in the European economic sectors. These changes emerge because new ICT-based solutions change the logic of several sectors and the labour market throughout the European societies.

SUSTAINABLE INNOVATION AS DRIVER FOR CHANGE

Opportunities for industrial sectors to renew themselves can be provided by sustainable innovations. The Horizon 2020 as a framework programme for research and innovation is one of the drivers for innovations. Its research funding focuses on seven societal challenges where sustainable innovation emerges as an important promoter. CASI focuses on Societal Challenge 5 that relates to climate action, environment, resource efficiency and raw materials.

SC5 FOCUS ON CLIMATE ACTION, ENVIRONMENT, RESOURCE EFFICIENCY AND RAW MATERIALS

The Horizon 2020 Societal Challenge 5 (SC5) aims at improving, protecting and securing well-being by steering research and innovation resources towards climate action, environment, resource efficiency and raw materials. The Horizon 2020 research and innovation funding for SC5 targets the preservation of current and the acquisition of new resources, efficient use of raw materials, the sustainable management of natural eco-systems and the limitation of global warming at maximum 2 C degrees.

CASIPEDIA PRESENTS A WIDE SELECTION OF EUROPEAN SUSTAINABLE INNOVATION INITIATIVES

CASI project responds to the Societal Challenge 5 with the main objective to develop a methodological framework for the assessment and management of sustainable innovations (SI) through public engagement in the RTDI system by ensuring the commitment of a broad spectrum of societal stakeholders including industry, policy-makers, research organisations and academia, civil society organisations and the general public. In order to introduce an overview of the European situation in relation to sustainable innovation, CASI presents a wide selection of European SI initiatives in an online repository - CASIPEDIA.

THE POLICY BRIEF PROVIDES INSIGHTS ON SI IN NATIONAL POLICIES

The next section of this policy brief presents a European analysis of sustainable innovation initiatives from the CASIPEDIA database, and showcases the sectoral relevance of the SI initiatives. A statistical analysis is used to identify differences in how SI initiatives in key European sectors relate to the topics of Societal Challenge 5. In the following section, the brief discusses how the key policy developments at the national level are related to SI, and connects the sectoral analysis on SC5 with national policy developments in an attempt to provide input to strategic and programmatic policy agenda settings. The idea is to provide insights on how SI could address national Societal Challenge 5 topics based on the European analysis of SI initiatives across key sectors. Finally, the brief discusses policy developments at the national level and provides some recommendations for the future development of SI initiatives and their support.

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European analysis

SI ACROSS KEY SECTORS AND SOCIETAL CHALLENGE 5 TOPICS

The sustainable initiatives mapped in CASIPEDIA have been categorized according to sectoral relevance. This section looks at the relationship between the key priority areas of Horizon 2020 SC5 i.e. climate action, environment, resource efficiency and raw materials and the sectoral relevance of the SI initiatives. Five key sectors, i.e. those with the greatest number of initiatives, are included in the analysis: Manufacturing (284 initiatives), Energy (235), Water (177), Agriculture (160) and ICT (127). Statistical analysis is used to identify differences in how SI initiatives in these sectors relate to the priority areas of SC5.

Table 1. Number of CASIPEDIA sustainable innovation initiatives across key sectors (left) and Societal Challenge 5 topics (top). (+) indicates major over-representation, (-) major under-representation.

	Climate action	Environment	Raw materials	Resource efficiency
Manufacturing	81	8 (-)	94 (+)	101
Energy	86 (+)	11	54	84
Water	53	8	45	71
Agriculture	50	25 (+)	34 (-)	51 (-)
ICT	39	6	24 (-)	58 (+)
Total	*309*	*58*	*251*	*365*

SECTORAL AND SC5 RELEVANCE OF SI INITIATIVES

Table 1 demonstrates how CASIPEDIA initiatives are distributed across the key sectors emerging from the database and the topics of the SC5. Statistical analysis shows that it is meaningful to examine the distribution of SI initiatives across these sectors and topics, because the observed variation in the distribution of cases is not created by chance (Pearson's chi-square test for independence, p-value <.000) (Tregner-Mlinaric et al. 2016).

Major over- and under-representation of SI in cells uniting sectors and Societal Challenge 5 topics merits policy interest. A number of sectoral observations can be made in terms of SC5 topics:

KEY SECTORS HAVE DIFFERENT SI PROFILES

- SI initiatives in the manufacturing sector are over-represented in the topic of raw materials and under-represented in the topic of the environment. This indicates that sustainable innovations in manufacturing are more likely to take place in the topic concerning raw materials and less likely in the topic on environment.
- SI initiatives in the energy sector focus on Societal Challenge 5 topic relating to climate action.
- In contrast, SI initiatives in the water sector address all four SC5 topics in a balanced way.
- The agricultural sector is heavily over-represented in SI initiatives that focus on the environmental SC5 topic. Correspondingly, its SI initiatives are under-represented in SC5 topics on resource efficiency and raw materials.

Appendix 1 shows how these findings relate to national strategies in relevant sectors in 12 selected European countries.

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Perspectives on sustainable innovation in Austria

SUSTAINABLE BIOECONOMY AND CLEAN SOLUTIONS

The current Government committed itself (under Coalition Agreement) to a long-term environmental policy. Under the framework termed 'Eco-social economy' the key objectives are as follows: (1) economic sustainability; (2) improvement of quality of life; (3) reduction of pollution through harmful substances and noise; (4) preserving biodiversity; and (5) development and increasing use of renewable energy and resource efficiency.

The Government also takes its global responsibility seriously by pursuing an ambitious climate target ('<2°C') and anti-nuclear power plant policy, while the policy itself strengthens Austria as a business and employment location. Other key areas are targeted by two strategic policies: (1) an "Integrated Energy and Climate Strategy", which is currently (i.e. 2016) under discussion in the form of a Greenbook published for public consultation by four Ministries; and (2) the development and implementation of the Austrian "Low Carbon Development Strategy" (LCDS) to reduce the emissions of greenhouse gases until 2050 by 95% compared to the level of 1990.

With regards to Europe 2020 (20/20/20) objectives, Austria took measures to realize the self-commitment to further increase the use of renewables in the energy sector to 34%, energy efficiency by 20% and reduce greenhouse gas emissions by 16%. In order to protect the habitat and sustainable use of resources, objectives are laid out, in particular, concerning sustainable water management, air pollution control, biodiversity, and high quality of life and opportunities through a sustainable economy.

With regards to sustainable innovation two public bodies play a major role in structuring and financing RTDI (Research, Technology Development and Innovation), funding programs of the BMVIT (Federal Ministry of Transport, Innovation and Technology) addressing 'City of the future', 'Factory of the future', 'Production of the future', and a number of pilot plants for Industry 4.0. The Austrian Council for Research and Technology Development is the prime advisory body of experts to the Government. By publishing 'Recommendations' (e.g. on Innovative public procurement, Social Business, Advancing crowd-funding culture, etc.), as well as by monitoring RTDI developments, in general, the Council provides guidance to researchers, industries, universities and policy makers alike.

ENVIRONMENT RELATED ICT FOSTERS ECONOMIC GROWTH

The CASI analysis of sustainable innovation initiatives across key European sectors in relation to the SC5 topics shows an underrepresentation in the topic of ICT in connection with environmental issues. However, the green economy is growing in Austria due to innovative business models based on environmental technologies and the bio-economy. For example, currently one in twenty jobs in Austria are green jobs, which over the last three years generated 35.4 billion euros.

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ADVANCED ENERGY RELATED SUSTAINABILITY

Looking at SI cases in CASIPEDIA, Austria seems to be a forrunner in terms of energy related SI. Austria's policies clearly reflect that improvement in resource efficiency is a key issue in order to achieve significant reductions in energy consumption by the middle of the 21st century. As in any other industrialized country phasing-out of fossil fuels, significant transformation of the energy system is needed. For an increase in energy efficiency, it is necessary to promote energy from renewable sources and reduce consumption, as well as to apply numerous incentives and regulatory and fiscal measures.

MORE BIODIVERSITY AND LESS AGRICULTURAL POLICIES

Almost 80% of Austria's surface is agricultural and forest land. While agriculture-related SI initiatives are underrepresented in CASI, 18% of Austrian farmers practice organic agriculture and 21% of agricultural areas are organically farmed. This may be explained by the fact that Austria's policies focus less on agriculture and more on biodiversity conservation. With the Biodiversity Strategy 2020+, a framework has been created to ensure long-term and efficient ecosystem protection. 'Arche Noah – diversity of cultural plants' is an example of biodiversity related sustainable innovation that can be found in CASIPEDIA (http://www.casi2020.eu/casipedia/cases/768).

MAINTANCE OF WATER AND AIR QUALITY

The CASI analysis further illustrates that water-related sustainable innovations are underrepresented in connection with environmental challenges. However, trend analysis shows that the maintenance of Austria's good quality of running water, as well as the quality of air, continues. These measures should remain in place in order to more effectively address societal challenges and the Europe 2020 targets.

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Discussion and reflections

AUSTRIA'S TRANSITION TO SUSTAINABILITY

Quite often strategies and programs of governments are outlined and verbalized much better than implemented. 'Drilling thick boards' (Max Weber) in politics requires commitment, material, financial and human resources, embedded in a system of infrastructure, knowledge, industries, education and training, and – not least – a certain 'innovation culture'.

Austrian politicians like to claim a leading role in environmental affairs of the country, yet the overall picture appears scattered. Reductions plans regarding CO2 and other greenhouse gases emissions are way behind ambitious objectives. On the other hand, Austria has the largest portion of farmland dedicated to organic food production. Climate change has become a public issue as is the rejection of nuclear energy. Biodiversity and many experiments, cases and studies concerning the necessity, possibilities and likelihood of transforming the socio-economic system towards sustainability, not least based on sustainable and social innovations, receive a lot of attention, yet without sufficient impact.

It is important that the debates, studies and strategies addressing sustainable innovation and the future of energy and climate change in Austria reach out towards a medium to long-term future of the year 2050. Expert panels, research and policy dialogues thereby adjust to the mid-century prospects of the COP 2015 Paris Agreement. Moreover, for the first time Energy 2050 dialogues now include more than merely technology-oriented themes such as buildings, infrastructures, mobility or industry. The topics of transition processes and social innovation will be included in research and project funding from 2017 onward.

The transition to sustainability requires systemic changes in everyday life (behavior, patterns of social relations and lifestyles), in agricultural and industrial production, service industries, mobility, housing and the utilization of technologies. To a large extent, it seems accepted that relevant technologies are already available (or will emerge rapidly along the way), but the real bottleneck lies in the social and economic realms.

The persistence of the dominant socio-economic systems are repeatedly 'verified' by the inappropriate adherence to 'growth' as indicator of economic prosperity. This economic paradigm comes along with a rigid unsustainable social system that hails material consumption and abundance of products as sacrosanct measures of welfare.

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Recommendations for the policy-makers in Austria

RECOMMENDATIONS

1. Recognize that sustainable (including social) innovations are key to economic and societal transformation towards decarbonization and sustainability at large.

2. Accept that such a transformation is of historic and systemic nature. It will be extremely challenging, if not unlikely, though necessary to succeed.

3. Indispensable preconditions are threefold:
- Strong political commitment and leadership
- Public and private investment in transition research, social innovation and knowledge diffusion in practice (by applying various formats such as social experiments, pilot areas, etc.)
- Enable and support emotionally positive images of a carbon-free future

4. The interplay of research, business and policy-making must surmount the focus on topics like energy demand vs. energy supply, or efficiency (saving, waste, etc.) of energy and resources, measured in kW/h, Joule or other technical parameters. Such indicators should be rated secondary when analyzing an energy system, sustainability or vulnerability (or contributions, respectively) to climate change. Priority should be given to indicators and measures of the functionality of energy or an innovation to satisfy people's needs (i.e. shelter, nourishment, housing, mobility).

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FUNDING SCHEME: Coordination and support action, funded under the 7th Framework Programme of the European Community, SCIENCE-IN-SOCIETY-2013.1.2-1.
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WEBSITE: www.casi2020.eu
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Appendix 1 Sectoral relevance of sustainable innovation in national strategies

Name of policy/policies	Sectoral relevance	Insights
AUSTRIA		
Work programme of the Austrian Government 2013 to 2018; Integrated Energy and Climate Strategy;	Energy, water, ICT, agriculture	In current government programme the key sector related policies are following: (1) growth and employment in the countryside; (2) safeguarding and developing living and economic locations in rural regions; (3) securing energy supply; (4) protection of the environment and promotion of sustainable growth.
BELGIUM		
Energieplan: Voorstelling van nieuwe subdoelstellingen hernieuwbare energie 2020 voor stakeholderoverleg, conceptnota aan de Vlaamse regering, De Vlaamse minister van Begroting, Financiën en Energie. Beleidsbrief Energie 2016-2017, ingediend door viceminister-president Bart Tommelein, 26 October 2016. Zonneplan, conceptnota aan de Vlaamse regering, De Vlaamse minister van Begroting, Financiën en Energie.	Energy	The analysis of Flanders' energy policy against CASIPEDIA insights about sector relevance and Horizon 2020 SC5 priorities reveals that the analysed energy policies correspond with the finding of overrepresentation of SI cases dealing with climate action. But substantial attention is also dedicated to resource efficiency and to a lesser but increasing extend to raw materials by Flander's energy policy. The environmental priority remains rather absent from the analysed energy policy, which also corresponds with insights from CASIPEDIA.
BULGARIA		

Name of policy/policies	Sectoral relevance	Insights
Innovation strategy for smart specialization of Bulgaria; Circular economy agenda;	Manufacturing Cleantech Mechatronics Energy Health and Wellbeing ICT	Consider better the drivers of sustainable innovation and introduce incentives and supporting measures to encourage the revival of the manufacturing sector, and especially the priority sectors; Speed up the introduction of criteria for resource efficiency and its wide adoption Consider better the drivers of sustainable innovation and introduce incentives and supporting measures to encourage the revival of the manufacturing sector, and especially the priority sectors; Speed up the introduction of criteria for resource efficiency and its wide adoption Encourage pilot projects for innovation for circular economy and especially such demonstrated at public facilities/terrains because of the catalyzing effect it brings on business and society. Consider closely the social factor and the positive impact it brings to innovation - something for which CASI finds evidence for.
CZECH REPUBLIC		
National Reform Programme (NRP) of the Czech Republic (2016)	Energy, agriculture, manufacturing	The importance of energy-related SI for climate action, agriculture-related SI for environment and manufacturing sector SI for raw materials shall be considered when responding to Horizon 2020 objectives under Societal Challenge 5.
DENMARK		
Danish government’s resource strategy - I & II (2015-2027)	Accommodation and Food	Mostly relates to efforts that enable people to conduct a sustainable lifestyle, there is scope for a more systemic look at the sector.
Danish government’s resource strategy - I & II (2015-2027)	Construction	Solutions for water imbalance and raw material shortage awareness and long-term availability, are areas that merit attention and there should be scope for innovation activities. A focus on incorporating circular economy could be one of the policy initiatives.
Danish government’s resource strategy - I & II (2015-2027)	Manufacturing	Sustainable innovation activities should be directed at: raw material policies, plans for long-term raw material solutions and specially ICT solutions in the manufacturing domain.

Name of policy/policies	Sectoral relevance	Insights
Danish government’s resource strategy - I & II (2015-2027)	Retail	The retail sectors attract innovation actions, focusing on a resource efficient and raw material conscious lifestyle, but fail to push the innovation process in a number of other areas: Effective raw material policies, developing alternative raw materials and circular economy solutions.
FINLAND		
Programme of Prime Minister Sipilä’s Government/ Key objective: ’Bioeconomy and clean solutions’	energy	SI in energy relates to climate action
Programme of Prime Minister Sipilä’s Government/ Key objective: ’Bioeconomy and clean solutions’	manufacturing	Considering environmental aspects in manufacturing could bring SI
Programme of Prime Minister Sipilä’s Government/ Key objective: ’Bioeconomy and clean solutions’	agriculture	SI in resource efficiency and raw materials could renew the agricultural sector
GERMANY		
German sustainability strategy on national and federal state levels	’Environmental Economy’ at federal state level, sub-sectors "materials, material efficiency and resource economy", "energy efficiency and energy saving". Possibilities for an economic renewal of former heavy industries through green economy.	The worldwide increase of environment protection efforts, in conjunction with megatrends and the shortage of resources, leads to innovation potential in green economy and especially in environmental economy. Thereby, the sector offers possibilities to an economic renewal and simultaneous enables a transition towards sustainability.
ITALY		

Name of policy/policies	Sectoral relevance	Insights
National Energy strategy for period 2020-2050 for a low-carbon Italy.	Renewables	The National Energy Strategy (NES) for Italy sets the four main objectives: significant reduce of the energy cost gap, to achieve and exceed the environmental and decarbonisation targets, continue to improve the security of supply and to foster sustainable economic growth by developing the energy sector.
POLAND		
Strategy for Innovation and Efficiency of the Economy - Dynamic Poland 2020	Energy, Industry	Within the strategy, sustainable innovation comes best forth in the objective of 'Increased resource and raw materials efficiency' with two lines of measures targeting (1) transformation of social and economic systems towards a 'greener path', with a focus on decreasing material and energy consumption index of the economy; and (2) Support for development of sustainable building construction sector.
PORTUGAL		
Commitment for Green Growth, by the Portuguese Government	Portugal has made a cross sectoral green growth commitment covering resource use, low carbon growth and climate change adaptation born of an intense nationwide stakeholder consultation and expressed in an nationwide strategic plan.	The Portuguese government through the Commitment for Green Growth policy has made a clear pledge to increase the 'green' VAB and 'green' exports, leading to a higher number of 'green' jobs. With this commitment, it is anticipated that Portugal will promote more efficiently the use of resources, contributing to an increase of the productivity of the materials, of energy efficiency, water efficiency and use of public transport. This will make Portugal a more sustainable nation, with reduced CO2 emissions and valued biodiversity and with a more strengthened share of renewable energies.
SLOVENIA		
Resolution on Research and Innovation Strategy of Slovenia 2011-2020	Technologies for sustainable economy	The Resolution on the NRDP 2006-2010 followed the example of Central European priorities and between five broad priority fields include also technologies for sustainable economy. The process of recognition and selection of priority fields shall be permanent and bottom-up open process.

Name of policy/policies	Sectoral relevance	Insights
Slovenian's Smart Specialisation Strategy	Energy, food production, tourism	Slovenian Smart Specialisation strategy recognised importance of natural (and traditional) resources for the future and pertains areas of application which depend on the use of natural resources. It addresses number of stakeholders, which are without an obvious dominant actor. Progress depends on the integration of various production stages into a single chain or network. Role of the state is seen as the promoter of cooperation, assuming the risks related to the development of technologies, as well as state key role in establishing adequate regulatory conditions.
UNITED KINGDOM		
UK Renewable Energy Roadmap to meet 2020 targets.	The document relates to the energy sector bur more specifically renewable energy.	The UK government through this policy has made a clear commitment to increase the amount of renewable energy deployed in the UK. It's anticipated that it will help the UK become more energy secure, protecting consumers from fossil fuel price fluctuations, driving investment into new jobs and businesses in the renewable energy sector, as well as keeping the UK on track to meet the 2020 carbon reduction objectives.

Appendix 1 summarises relevant and representative policies and initiatives in selected countries participating in the CASI project. Each of these summaries is presented in greater detail in respective national level policy briefs available on the CASI website at www.CASI2020.eu. A more in-depth European level policy brief is also available on the site.