

Assessing and Managing Sustainable Innovation - The CASI Framework

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Key principles of CASI-F





CASI-F is a tool to assess and manage socio-technical system changes





CASI-F alignment with key European governance principles

Governance Principles	CASI-F Track 1 Innovations (Niche level)	CASI-F Track 2 Policies (Regime level)	CASI-F Track 3 Aspirations (Landscape level)
Openness	Sharing a wide range of SI initiatives through the CASIPEDIA database	Facilitating access to CASI policy briefs and policy blogs	Sharing citizen visions through CASI Visions Bank
Participation	Engaging with stakeholders, innovators and experts	Promoting policy debates through CASI policy blog	Eliciting desirable futures from civil society actors
Accountability	Dynamic assessment and tracking of SI practices responsibilities, SI players fair play, and SI outcomes impact	Disseminating EU/national SI policy developments	Assessing the alignment of current research priorities with citizen visions Assessing citizens' priorities with experts panels
Effectiveness	Generating SI actions from systematic analysis of SI initiatives	Comparing policy initiatives, thus supporting evidence-based policy advice	Translating citizen visions into research priorities
Coherence	Co-producing advice at strategic, programming and operational levels	Aligning policy advice with existing and emerging policy goals, e.g. avoiding redundancies	Identifying true economic, social and environmental benefits of visions

CASI-F compliance with the RACER criteria of the EC's Impact Assessment Guidelines

RACER Impact Assessment Criteria	CASI-F Track 1 Innovations (Niche level)	CASI-F Track 2 Policies (Regime level)	CASI-F Track 3 Aspirations (Landscape level)
Relevant (closely linked to European sustainability objectives)	All CASI-F tracks are 'climate action, envi	focused on Horizon 2020 So ronment, resource efficienc	ocietal Challenge on y and raw materials'
Accepted (by key stakeholders, especially innovators)	All types of stakeholders	Especially policy makers	Especially citizens and experts
Credible (with transparent and trustable sources)	Ongoing innovations	Current policies	Shared visions
Easy (in terms of data collection and analysis at reasonable cost)	Open mapping Desk research Interviews	Desk research Briefing templates Editing board	Citizen panels Expert panel Desk research
Robust (replicable and systematic process)	CASIPEDIA Ideas Bank Actions Bank	Policy Briefs Policy Blogs	Visions Bank Ideas Bank Actions Bank

CASI-F sources of knowledge and strategic intelligence

Sources of knowledge	CASI-F Track 1 Innovations (Niche level)	CASI-F Track 2 Policies (Regime level)	CASI-F Track 3 Aspirations (Landscape level)
Evidence	500+ innovations from EU+	National and EU policies	Hopes and fears of citizens
Expertise	Innovators and CASI team	CASI team	Sustainability experts
Creativity	Innovators and CASI team	CASI partner	50 visions from EU citizens
Interaction	Interviewing and coaching	CASI editorial task forces	Citizen-Expert-Citizen process



Assessing Sustainable Innovation





CASI-F process

Mapping sustainable innovation Intelligence 1.0 Basic Assessment

Assessing critical issues and ideas Intelligence 2.0 Deep Dive Assessment

Positioning actions and roadmaps

Intelligence 3.0 Management and Advice



Monitoring transformations



How to map a case

ne ut × vs & Calendar × ary × g × pedia ×	Public Participation in	Developing a Common Sustainab	ASI Framework for Assessm le Innovation	nent and Management of
		CASES SI PI	LOTS MAP A CASE	
ots	<u>-</u>			
case	Welcome to CASIPEDIA - a unique	bank with over 500 sustainable in	novation initiatives mapped by the C	CASI project, where activists, experts
bank ~	and supporters of sustainability a sustainability. We invite you to ex	ιgendas can find various initiatives κplore CASIPEDIA to find out that ir	combining the environmental, econ novative ideas can be many things,	10mic and social dimensions of both novel products and services, new
ns bank	business and marketing strategie	s, interesting social and system dev	relopments, as well as emerging poli	cies and regulations.
ons bank 🗸 🗸	Search Search	Sort by date of last	indate ***	SEARCH RESET
& Contact			***	
	✓ All SI Title	SI Description	SI Lead organisation SI Of	ojectives SI Origin
DISCUSSION	Filter			
PLOAD DOCUMENT	TYPE OF INNOVATION	KEY AREAS	SUCCESS FACTOR	GEOGRAPHICAL SCOPE ^
	Product (195)	Resource efficency (398)	Economic (356)	National (270)
MAPACASE	Service (121)	Climate action (346)	Environmental (344)	Local (221)
ADD AN IDEA	Social (75)	Raw materials (258)	Technological (279)	International (158)
	Organisational (62)	Environmental (57)	Social (277)	
У (f)	Governance (46)		Political (138)	
	System (31)		Spatial (104)	
	Marketing (19)		Ethical (74)	

Basic Assessment of Sustainable Innovations

- 1. SI Name
- 2. SI Description
- 3. SI URL
- 4. Lead organisation
- 5. Lead organisation URL
- 6. SI Scope
- 7. Link to H2020 priorities
- 8. SI Type
- 9. SI Objectives
- 10. SI Factors of success
- 11. SI Barriers
- 12. SI Drivers
- 13. Opportunities
- 14. Threats
- 15. Transformations
 - Economic Systems transformations
 - Infrastructure Systems transformations
 - Government Systems transformations
 - Social Systems transformations
 - Individual Development Systems transformations
 - Environment & Resource Systems transformations





Fully-fledged Assessment of Sustainable Innovations

Assessing SI Practices

- 1. SI Name
- 2. SI Description
- 3. SI URL
- 4. Lead organisation
- 5. Lead organisation URL
- 6. SI Scope
- 7. SI Date range
- 8. Link to H2020 priorities
- 9. SI Type
- 10. SI Objectives
- 11. SI Origins
- 12. SI Factors of success
- 13. SI Barriers
- 14. SI Drivers
- 15. SI Tensions
- 16. Funding/market potential
- 17. Mobilisation degree
- 18. Mutual learning processes
- 19. SI transferability
- 20. Similar SI elsewhere
- 21. SI assessment methods

Assessing SI <u>Outcomes</u>

- 1. SW<u>OT</u>
- 2. Policies
- 3. Spin-offs
- 4. Publications
- 5. Skills and competences
- 6. Transformations
 - Economic Systems
 - Infrastructure Systems
 - Government Systems
 - Social Systems
 - Individual Dev. Systems
 - Environ. & Resource Systems

Assessing SI Players

- 1. Innovators
- 2. Funders/Sponsors
- 3. Supporters/Brokers
- 4. Beneficiaries/Users





Assessing the engagement of key players



Assessing the roles of key players





Types of critical issues

Critical issues are those **barriers**, **drivers**, **opportunities**, and **threats** introduced in CASIPEDIA during the mapping process.

All the critical issues are automatically collected from the mapping process and gathered in the CASI **ideas bank.** The bank is publically available and allows exploring critical issues from other SI actors.

After introducing the critical issues that are relevant to your SI initiative or mapped case, the system will produce a list of issues to be further assessed in terms of **importance** and **urgency**.

Based on this rating, the system generates the most important critical issues to be considered for action.





Ideas Bank

	* .			(A) [®]
Home		CAC		
About ~				
News & Calendar 🛛 🗸	Public Participation in Deve	loping a Common Framewor	k for Assessment and Management of	
Library ~		Sustainable Innovati	n	
Blog ~		Q		
Casipedia ~		1 Com		
ldeas bank 🛛 🗸 🗸				
Main	-	IDEAS BANK ADD AN	IDEA	
Add an idea	CASI has mapped 500+ cases of Sustainab	ole Innovations from across EU and beyond.	From those, the	
Actions bank	193 most CASI-relevant cases were selecte	ed for further analysis, which helped to gath	her a wide range of barrier driver	
Visions bank 🛛 🗸 🗸	represent existing or potential: (1) barrier	rs, (2) drivers, (3) opportunities, or (4) threat	s, which can idea	
Help & Contact	Influence the success (i.e. uptake/implem) To explore the Ideas Bank:	ientation/diffusion) of sustainable innovat	opportunity threat	
DISCUSSION	 Browse the ideas using the various Find out the type of idea and associ political, social, ethical, spatial) by 	filters iated success factor clustered around TEEPs hovering over ideas' icons	SES categories (technological, economic, environmental,	
UPLOAD DOCUMENT	✓ Add your own ideas			
MAP A CASE	Search Search	Sort by date of last update	SEARCH RESET	
ADD AN IDEA	Filter			
	TYPE OF INNOVATION	TYPE OF IDEA	TEEPSES ^	
in 😏 (f) 🔄	Product / Process (124)	SI Barrier (202)	Technological (87)	
	Service / Process (228)	SI Driver/trend (210)	Economic (207)	
	Organisational / Business model (51)	SI Opportunity/benefit (218)	Environmental (106)	

SI Threat/risk (146)

Political (114)

Marketing (44)



Managing Sustainable Innovation





From critical issues to actions

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+ SUGGEST ACTION

CRITICAL ISSUES RELATED TO THIS CASE:

DUE TO THE ECONOMICAL CRISIS MANY COMPANIES ARE INTERESTED IN GREEN SOLUTIONS BUT CAN'T AFFORD TO INVEST MONEY IN SUSTAINABLE SOLUTIONS

Due to the economical crisis many companies are interested in green solutions but can't afford to invest money in sustainable solutions. Also sometimes raw materials have a very low cost which...



1. - Action description

2 Select the level of action	
Select an option	~
3 Select relevant actors	
Select an option	~
4 Select action type	
Select an option	~
5 Select relevant SI management key	aspect
Select an option	~
6 Rate the importance	* * * * * *
7 Rate the feasibility	*****
8 Rate the economic impact	*****
9 Rate the social impact	*****
10 Rate the environmental impact	*****
11 Related ideas (if an action applies t	o more than one critical issue)
Growing popularity	Human resources
Impact measurement	Improving social inclusion and increasing employment opportunities for disabled people
More attractive cities, better quality of life	Political momentum
Public and private sector support for SI	Sustainable finances
12 Restricted?	No Yes
By saving the idea, I accept the Terms & Conditions	Problem posting the post
	CREATE THE ACTION
	_



Examples of CASI-F supported actions

	GOVERNMENT	BUSINESS	CIVIL SOCIETY	RESEARCH & EDU
STRATEGIC LEVEL	Facilitate tools for reinforcing SME's international network and internationalization skills.	Increase staff's innovation management skills and capabilities	Explore the potential implementation of SME's sustainable solutions on emerging countries.	Strengthen the cooperation of SMEs with local Universities.
	This action wi	Il be transformed into a road	dmap later on, as a	n example
TACTICAL LEVEL	Develop technology data-sharing platforms.	Elaborate technology roadmaps.	Participate as a partner in EC funded projects with local SMEs	Promote the dissemination of SMEs best practices through shared courses and events (e.g. the week of "recovered residues").
OPERATIONAL LEVEL	Deliver seminars on (sectoral) technology management at regional level.	Feed an internal database with new technologies identified in trade/technology events, suppliers and users (open innovation).	Organise monthly meeting with local SMEs so as to share collaboration opportunities.	Edit brochures with local SMEs information and contact data.





Lessons from managing sustainable innovations







Actions Bank

Home			CASL			
About	~					
News & Calendar	~	Public Participation in Dev	eloping a Common Framework for	Asses	sment and Management of	
Library	~		Sustainable Innovation			
Blog	~		a			
Casipedia	~					
Ideas bank	~					
Actions bank			ACTIONS BANK ADD AN ACTION			
Visions bank	~					
Help & Contact		Search Search	Sort by date of last update	() ¥ý •	SEARCH RESET	
DISCUSSION		Filter				
Discossion		LEVEL	ACTOR		TYPE OF INNOVATION ^	
UPLOAD DOCUMEN	Π	Strategic (231)	Government (173)		Product (66)	
MAP A CASE		Programming/Tactical (212)	Business (173)		Service (210)	
		Operational (200)	Civil society (157)		Organisational (84)	
ADD AN IDEA			Research and education actors (140)		Marketing (15)	
					Social (182)	
in 🔰 (f					System (37)	
					Governance (40)	
			SECTORAL DELEVANCE			-
		Education 141	Human/Social services		Other services 109	•
		Transport 107	Manufacturing 104		Agriculture 89	
		Energy 88			Arts & Entertainment 82	



From Actions to Roadmaps





SI Management Dimension 1: Context

CONTEXT

The success of Sustainable Innovation depends greatly on its context. Firstly, the 'momentum' reflects a potential space for innovation: the expectations of entrepreneurs and other actors: the political drive from regulators or procurement: the exemplars from other ecological or social enterprises: and the perception of 'problems' which call for solutions. Second, the critical factors of 'foresight' show the capacity to anticipate, strategize, and get over gaps in the innovation curve. Thirdly, 'resources' show simply the necessary combinations of skills, finance, location, markets etc. Fourthly, 'mobilization' is the capacity for action, as in public participation, community support, institutional support, champions and facilitators, public-private partnerships, research and education engagement.

	Political setting
1. MOMENTUM	Exemplars
	Problems
	Horizon scanning
2. FORESIGHT	Strategic targets
	Trends
	Geographical setting
	Funding sources
3. RESOURCES	Infrastructure
	Data sources
	Scalability
	Public participation
	Community support
	Institutional support
4 MOBILISATION	Champions and facilitators
4. MODILIOATION	Public-Private Partnerships
	Research and education engagement

SI Management Dimension 2: People

PEOPLE

The role of people – actors, stakeholders, players, intermediaries etc, acting as individuals, households, groups, firms, professions, communities or sectors – cannot be under-estimated. Many policy objectives are unfulfilled if they did not connect or mobilize the right people, or did not provide the right incentives and enabling factors. In parallel there is a focus of attention on 'the entrepreneur' or 'leadership' as one of the most critical factor: However in a complex knowledgebased supply chain, or a complex social community with multiple needs, it seems that the vital qualities of entrepreneurship or leadership are likely to be distributed, networked, risk-shared, and team-based. For sustainable SI (in contrast to mainstream innovation) there may be a stronger case for such qualities as emergent from the wider innovation ecosystem, even while the traditional 'heroic' image continues of the lone innovator. This has implications for SI-related innovation policy, which may take a conventional MBA-type approach, or look more widely to the community in context.

	Leadership
	Charisma
5. APTITUDE	Creativity
	Knowledge
	Enthusiasm
	Empathy
6. ATTITUDE	Involvement
	Commitment

SI Management Dimension 3: Process

PROCESS

Innovation is widely accepted to be a **complex**, **participatory** and **multifaceted** process. In particular, the analysis of CASIPEDIA confirms that a large number of actors and perspectives need to be considered in the study of innovation projects. SI process assessment and analysis are based on the interpretation of many **influencing factors** and their potential **combination**.

Given the varied possibilities of clustering, and with the aim of simplifying, here the SI process factors is analysed from two perspectives: a 'catalyst aspects' category, i.e. those factors that contribute to activate and launch the innovation, and a 'fosterer aspects' category, which includes those factors that make possible the continuity and consolidation of SI actions.

	Comprehensibility
	Crowd-sourcing
	Learning by doing
7 CATAIVSTS	Supportive services
	Absorptive capacity
	Ex ante impact evaluation
	Piloting and experimenting
	Incentives
	Coordination
	Networking and synergy
	Knowledge management
5. TOSTERERS	Intellectual property management
	Ex post evaluation and monitoring
	Communication and dissemination

SI Management Dimension 4: Impact

IMPACT

The impact of sustainable innovation may be analysed from two different perspectives. On the one hand, we may focus on those 'system transformation-oriented' or structural objectives whose fulfilment would indirectly suppose a positive contribution to sustainability challenges, e.g. changes in lifestyle, actions for economic growth, initiatives to reinforce community-sense, entrepreneurship and knowledgesharing strategies, among others. On the other hand, impacts may respond to narrower sustainabilityproblem-oriented actions, thus the effect of sustainability actions should be measured in terms of their social, economic or environmental sustainability. The analysis of CASIPEDIA have shown that SI projects usually combine both transformational and sustainability strategies.

	Economic growth
	Community sense
	Entrepreneurship
. TRANSFORMATIONS	Knowledge sharing
	Jobs and competences
	Stakeholders development
	Multi-challenge approaches
	Social sustainability
10. SUSTAINABILITY	Economic sustainability
	Environmental sustainability

Lifestyle changes

Example of an action roadmap

Relevant action: "increasing staff's innovation management skills and capabilities"

CONTEXT related actions	MOMENTUM Identify and analyse database of existing innovation management programmes in international Business schools and attend Education fairs.	FORESIGHT Identify emerging management skills and capacities in the sector, through journals, conferences, etc.	RESOURCES Apply to local/national funds for management skills development.	MOBILISATION Establish new contacts with local/regional business schools, and researchers dealing with management skills and capabilities development (becoming a case study in schools) and incorporate action research in the company.	
PEOPLE related actions	APTITUDE Create an internal repository to facilitate the knowledge transfer within the company, differentiating management skills from technical education.		ATTITUDE Foster staff's creativity with participatory workshops , e.g. generate future actions through highly-transformed scenarios.		
PROCESS related actions	CATALYSTS Involve key stakeholders in piloting & experimenting the firm's innovation phases.		FOSTERERS Establish incentive procedures to award staff's professional development.		
IMPACT related actions	TRANSFORMATION Analyse the personnel training objectives in relation to the local jobs & competences.		SUSTAINABILITY Develop staff's education plans for the employers' family so as to conciliate professional and personal development.		

46 CASI Action Roadmaps by actors

	GOVERNMENT	BUSINESS	CIVIL SOCIETY	RESEARCH & EDU
LEVEL 1: STRATEGIC ACTIONS				
LEVEL 2: TACTICAL ACTIONS	4% roadmaps	48% roadmaps	28% roadmaps	20% roadmaps
LEVEL 3: OPERATIONAL ACTIONS				







Next steps

Using meta-analysis of Innovations, Policies and Aspirations to identify Research and Innovation policy priorities





Top 10 research & innovation policy agendas

- Strengthening eco-community empathy and crowd-driven development
- Developing sustainable bioeconomy and infrastructure systems
- Deploying responsible environmental and water management strategies
- Creating sustainable bio-fuel and renewable energy solutions
- Promoting foresightful governance and sustainability intelligence
- Advancing recycling and circular use of waste and raw materials
- Embedding sustainability in cultural heritage, education and lifestyles
- Foster eco-local-agriculture and bio-resources efficiency

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- Implementing sustainable transport and smart mobility innovations
- Dealing with climate issues and managing greenhouse gas emissions



Final remarks

- 1. CASI-F is a framework that supports sustainable innovation assessment and management activities.
- 2. CASI-F can be utilised by Government, Business, Civil Society and Research and Education actors.
- 3. CASIPEDIA enables actors to map and share information (practices, outcomes and players) about their innovations.
- 4. CASI-F facilitates an intelligence-process that transforms critical issues and ideas into actionable advice and roadmaps.
- 5. The meta-analysis of critical issues, actions and roadmaps can help to identify research and innovation policy priorities.





Thank you!

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