



**CASI: Public Participation in Developing a Common Framework
for Assessment and Management of Sustainable Innovation**

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CASI

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DRAFT PROPOSAL OF COMMON FRAMEWORK FOR ASSESSMENT AND MANAGEMENT OF SUSTAINABLE INNOVATION (CASI-F)

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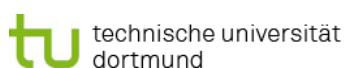
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1. Understanding CASI-F

1.1. Introduction to CASI

The work on the CASI project spans over a period of 42 months (3.5 years) from 1 Jan 2014 until 30 Jun 2017, and is structured into 11 work packages. CASI is supported by the Science in Society Programme of FP7.

- **WP1 Management.** This work package establishes the management structure and internal management procedures. A Steering Committee is established as an oversight mechanism of the project, as well as an Advisory Committee and a Network of country correspondents to expand the geographical outreach of the project.
- **WP2 State-of-the-art.** WP2 lays the foundation for the rest of the project. It involves a state-of-the-art report on research and innovation related to the grand challenge "Climate action, environment, resource efficiency and raw materials". Review, analysis and mapping of sustainable innovation initiatives were carried out to establish a conceptual theoretical framework, complemented by empirical cases gathered across Europe, and provide a section on working definitions and approaches on sustainable innovations. This WP is closely interlinked with WP3, WP4, WP5 and WP6.
- **WP3 Dialogue and Participation.** WP3 runs in parallel with WP2 and goes beyond it, aiming to build a common understanding of sustainable technological and social innovation, as well as a common approach concerning the societal challenge "Climate action, environment, resource efficiency and raw materials" among the CASI partners and country correspondents. It will further enhance the dialogue among consortium partners, country correspondents and relevant stakeholders across Europe on sustainable innovation and environment-related issues through involvement of citizens in research and innovation policy-making, and identifying topics for future research.
- **WP4 Common Framework for Assessment and Management of Sustainable Innovations (CASI-F).** The objective here is to develop a common framework for assessing the sustainability of innovations, i.e. their advantages, disadvantages, relevance, benefits and risks, particularly their social, environmental and economic dimensions, taking into account general public concerns. For this purpose, an online survey will be launched, and CASI-F will be consulted with relevant stakeholders in the 12 participating countries.
- **WP5 Pilot projects on testing and validating CFAMSI.** In order to avoid collecting irrelevant and useless data, the CASI partners will conduct a pilot testing of CASI-F. CASI-F will be applied to a number of technological and social innovation cases gathered in WP2, so as to (i) identify shortfalls and (ii) propose adjustments/corrective changes to the assessment methodology.
- **WP6 Management of sustainable innovation.** WP6 runs in parallel with WP5. The partners will work with the case studies' actors involved in WP5 (technology or social innovators) in order to verify and introduce the requested or suggested changes in the final version of CASI-F.
- **WP7 Policy Watch.** This WP established a common interface for easy monitoring of EU and national policy cycles in order to enable the streamlining of sustainable innovation measures into organisational, national and European strategic and policy planning processes. Throughout this WP, partners will be engaged in producing policy briefs. The immediate output of this WP will serve as input for the elaboration and advancement of policy recommendations within WP8. A natural outcome is the European Network on Sustainable Innovation Policy Watch.

- **WP8 Policy Recommendations.** Activities are focused on developing specific policy recommendations for stimulating wider societal engagement in sustainable innovation activities, for their assessment and improved public management, targeting different levels of governance.
- **WP9 Heritage.** The main challenge is to ensure that stakeholders in Europe, both within and external to the consortium will benefit from CASI's outcomes. Several approaches are employed so that the overall sustainability will be ensured beyond CASI's formal duration.
- **WP10 Communication and dissemination.** All communication and dissemination approaches to be applied during the project will be listed in a communication strategy aiming to raise awareness among all groups of stakeholders as to why it is necessary for them to interact, exchange ideas and participate in the process of sustainable innovations assessment, as well as aiming to reach all targeted audiences.
- **WP11 Evaluation.** This WP established the systems for internal and external evaluation for ensuring that project progress and results are in accordance to the work plan and meet the objectives of the FP7 Science in Society programme.

The core objective of WP4 is to develop a common framework for assessing the advantages, disadvantages, relevance, benefits and risks of sustainable innovation, particularly social, environmental and economic dimensions, while taking into account general public concerns. To do so, Task 4.2 'Draft proposal of Common Framework for Assessment and Management of Sustainable Innovation (CASI-F)' set up a working group to examine:

- The role and purpose of assessment of sustainable innovation.
- The societal participation in the assessment process.
- The appropriate assessment tools that can be used for different stakeholders.
- The stages of the R&I process where assessment through public participation will be most useful.
- The indicators for assessment.

The impact on human health and social equity issues has also been considered in the development of CASI-F. The following subsections present the main conclusions on these considerations.

1.2. What is the role of CASI-F?

- Assess the critical issues (including opportunities, risks, drivers and barriers) of sustainable innovation (SI), particularly the social, environmental and economic dimensions, taking into account citizens visions, so as to support SI management decisions through actionable multi-level advice at: *Top level* (Strategic actions); *Middle level* (Tactical actions); and *Front-line level* (Operational actions).

1.3. What is the purpose of CASI-F?

- Assess the relevance of SI evidence, visions and policies for governance, business, civil society and research & education actors
- Assess the effectiveness of SI evidence-, vision- and policy-based actions in terms of implementability and sustainability
- Provide multi-level advice on SI management for governance, business, and civil society and research & education actors at: Strategic level, Tactical level, and Operational level.
- Identify good practice based on assessment
- Generate new knowledge to support management of SI

1.3.1. Why 'Common'?

The term '**common**' refers to something that is *developed, owned and used* by two or more stakeholder groups or players. In terms of joint development and ownership, the nature of the CASI project means that CASI-F is in fact co-developed and co-owned by a consortium of 19 partners in 12 countries. Furthermore, CASI-F will be used by all partners in the context of the CASI project activities in WPs 3, 4, 5, 6, 7, 8, 9, and 10. Besides the project-related or internal justification for 'common' to be used as a definitional element, CASI-F will also be piloted by developers, managers, promoters and beneficiaries of at least 40 sustainable innovations (SI) and will be open for external use during and after the project, thus broadening the scope for potentially becoming 'commonly' used beyond the CASI consortium.

1.3.2. Why 'Framework'?

By including the term '**framework**', CASI-F makes explicit reference to its capability to function as an intentionally built *structure*, which interconnects multiple *dimensions, issues and criteria* to serve a given purpose, i.e. to support the assessment and management of sustainable innovation. However, due to its 'common' nature, the structure needs to be flexible enough in order to be adaptable to the needs of different types of users. In other words, CASI-F requires generic and customisable sets of building blocks and elements. There are many frameworks for the assessment and management of environmental-technical performance, business and investment responsibility, innovation policy and integrated impact assessment (see table below). CASI-F cannot aim to improve the technical detail for assessment and management of existing frameworks. Instead, CASI-F approach to SI assessment will focus on improving the mapping of SI practices, outcomes and players with the aim to (i) identify good practices and (ii) generate new knowledge that will allow supporting the management of SI at different stages of the innovation process.

2. CASI-F in the CASI context

2.1. Synergies with WP3

- **Citizens and expert meetings** - important higher level actions (strategic and tactical) can be distilled from the 24 consultations with citizens who based on their hopes and fears would produce their visions for sustainable future together with proposed actions, which would support the achievement or avoidance of such future.
- The results of the citizens' panels will be discussed by experts and translated into research priorities to be finally validated by the citizens in the second round of the citizens' panels.
- **Stakeholders Mutual Learning Seminars (MLS)** will be organised in 12 partnering countries and include a wide range of stakeholders.
- Involved policymakers, civil society, businesses and members of the scientific community can through the interaction and discussion on the different issues of sustainability help identify different types of SI supporting actions, both at the higher policy level as well as operational level.
- **Webinar for wider societal learning and participation** will attract various stakeholders from across Europe in order to further increase the knowledge and capacity of different stakeholders, namely, businesses, policymakers, civil society organisations and the scientific community. The seminar will be divided into: (1) sessions for all stakeholders which can be used to identify actions at the strategic and tactical levels, as well as (2) smaller target groups who can learn and provide additional feedback on sector specific (i.e. operational) actions for the management of SI.

2.2. Synergies with WP4

- **Online survey on the characteristics of sustainable innovation** – the online survey will involve at least 1,500 correspondents from all over Europe including (1) invited by the Enterprise Europe Network (EEN) respondents from the business sector, the civil society sector and various business association and (2) invited by the project partners and country correspondents policymakers, academia, research organisations and public administration representatives from their respective countries. The results of the survey would provide an external assessment on a set of actions for the successful management of sustainable innovation.
- **Stakeholders' workshop on the draft proposal of CASI-F** – the draft proposal of the CASI-F framework will be disseminated and discussed with stakeholders' in each partnering country. Amongst the stakeholders would be representatives from the policymaking/public sector, research, civil society and the businesses whose views and concerns would be considered and integrated into the final version of the CASI-F framework. The stakeholders would be expected to provide insights on useful actions at the three possible fronts, i.e. strategic, tactical and operational levels.

2.3. Synergies with WP5

- **Pilot projects on testing and validating CASI-F** – the pilot will use the CASI-F framework to assess selected cases of technological and social innovations identified through the mapping activity of WP2. The pilot involves CASI partners and aims at identifying weaknesses and loopholes within the application of the framework and can further assess internally the different types of actions that are proposed as part of the framework. The feedback would be utilised to improve the framework including specific actions.

2.4. Synergies with WP6

- **Obtaining feedback from the innovators** – WP6 focuses on the involvements of innovators in the assessment of the usability and relevance of the CASI-F framework through (1) completing a self-assessment checklist (incl. qualitative and quantitative criteria) by innovators, and (2) conducting interviews and working meetings with innovators. Both activities will provide further opportunity for the assessment of the usefulness and application of proposed operational actions from the perspective of the innovators.

2.5. Synergies with WP7

- **Policy briefs/ Policy report/ Policy blog** – the various activities of work package 7 are useful in fleshing out the context for the formulation of action through identifying opportunities and threats to which relevant actions would be matched accordingly. The national and EU-level policy briefs also provide a set of recommendations that can apply at the higher (i.e. strategy and tactical) levels.

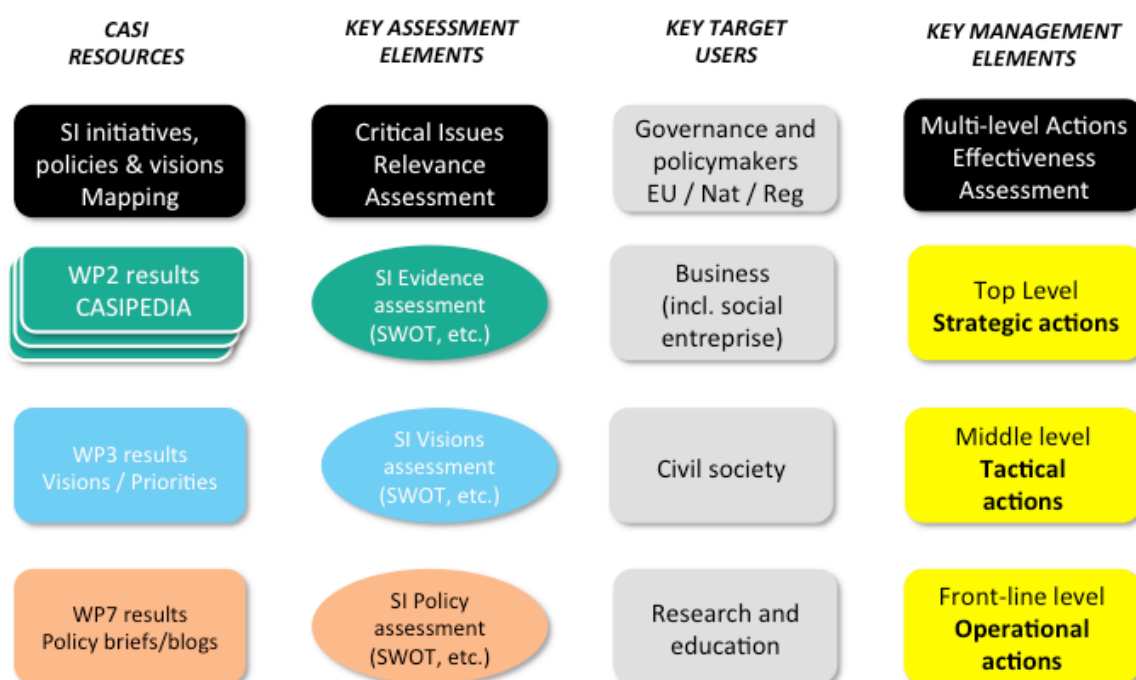
2.6. Synergies with WP8, WP9, WP10

- **Policy recommendations, CASI tutorial and CASIPEDIA** – the combined results from the CASI-F implementation in WP4-WP7 will feed the policy dialogues and the final CASI conference, thus contributing to the preparation of policy recommendations.
- In addition, the practical lessons from the various practical CASI-F applications will be shared via the web-based CASI tutorial platform, which will be linked to CASIPEDIA and the Ideas/Actions bank developed in WP10.

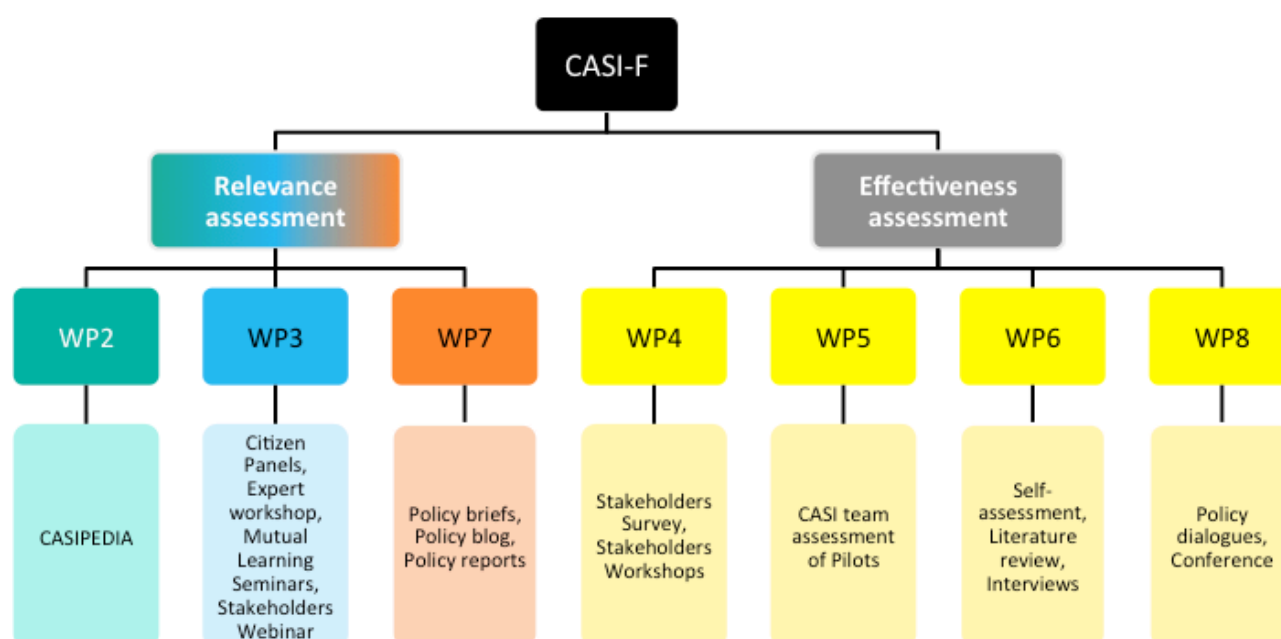
2.7. What are the basic elements of the CASI-F?

The figure below shows the basic elements of the CASI-F:

- **CASI resources:** CASI-F is based on the mapping of three main sources of information focused on sustainable innovations. These resources are based on the mapping work conducted in WP2 (CASIPEDIA), WP3 (visions and related research priorities) and WP7 (policy briefs/blogs).
- **Key assessment elements:** CASI-F uses the abovementioned CASI resources to conduct critical issues relevance assessment. Such an assessment is based on desk research and insights of CASI team members involved in the analysis of strengths, weaknesses, opportunities, threats and other critical issues associated to WP2, WP3 and WP7 results.
- **Key target users:** CASI-F is aimed to support SI assessment and management decisions of four main types of users namely: 1) governance and policymaking actors at EU, national and regional levels; 2) business actors, including social entrepreneurs; 3) civil society actors, including NGOs; and 4) research and education actors, including private and public RTOs.
- **Key management elements:** CASI-F takes into account the needs of the four types of target users in order to generate 1) *strategic actions* to support top level management, 2) *tactical actions* to support middle level management, and 3) *operational actions* to support front-line management. The combined set of multi-level actions constitute the building blocks of the online 'actions bank', where registered users are able to conduct multi-level actions 'effectiveness assessment' in terms of implementability and sustainability (see section 3.4 below).

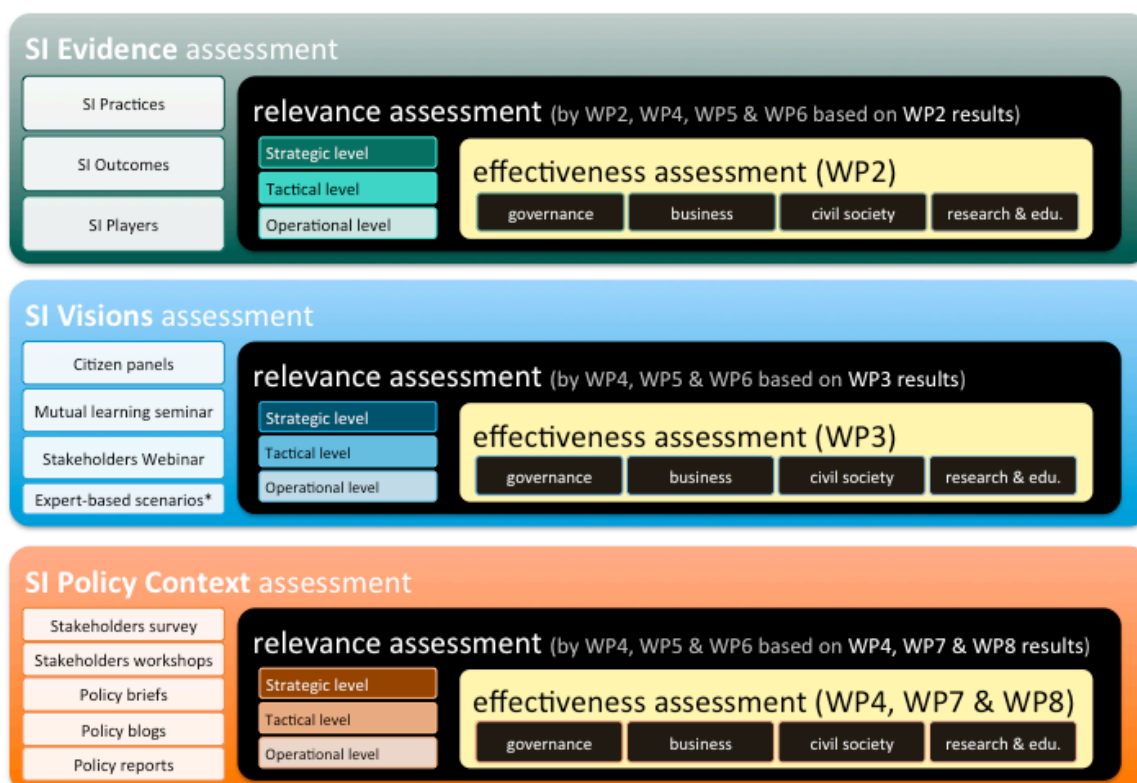


2.8. How do the basic elements relate to CASI work packages?



2.9. How does CASI-F combine relevance assessment with effectiveness assessment?

Relevance assessment is conducted by CASI partners to populate the CASI ‘actions bank’, while effectiveness assessment is user-oriented, thus conducted by individual stakeholders registered to the CASI ‘actions bank’.



3. What types of relevance will be assessed by CASI-F?

CASI-F is primarily focused on the assessment of SI actions' relevance for four target groups and three levels of management.

SI relevance for target groups	SI relevance for multi-level managers
<ul style="list-style-type: none"> • Governance • Business • Civil society • Research and education 	<ul style="list-style-type: none"> • Top level managers or Strategic actions • Middle level manager or Tactical actions • Front-line managers or Operational actions

3.1. Example of CASI-F applied to WP2 results

SI evidence: WAI (SP) ¹	GOVERNANCE	BUSINESS	CIVIL SOCIETY	RESEARCH & EDU
TOP LEVEL OR STRATEGIC ACTIONS	Facilitate tools for reinforcing SME's international network and internationalisation skills <i>Barrier: They should reinforce the international network and the necessary skills for internationalisation)</i>	Increase staff's innovation management skills and capabilities	Explore the potential implementation of SME's sustainable solutions on emerging countries (NGOs)	Strengthen the cooperation of SME's with local Universities
MIDDLE LEVEL OR TACTICAL ACTIONS	Develop technology data-sharing platforms	Elaborate technology roadmaps <i>Factor of success: The waste-transformation solution is entirely based on mechanical and calorific processes)</i>	Participate as a partner in EC funded projects with local SMEs	Promote the dissemination of SME's best practices through shared courses and events (e.g. the week of "recovered residues")
FRONT-LINE LEVEL OR OPERATIONAL ACTIONS	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

¹ <http://www.casi2020.eu/casipedia/cases/1089>

3.2. Example of CASI-F applied to WP3 results

SI vision: Citizen Panel (CZ) Insects - the dish of the future (Fear: lack of food security)	GOVERNANCE	BUSINESS	CIVIL SOCIETY	RESEARCH & EDU
TOP LEVEL OR STRATEGIC ACTIONS	Develop legislative advice for the breeding and consumption of insects in Europe.	Invest in marketing and capacity building activities for human consumption of insects.		
MIDDLE LEVEL OR TACTICAL ACTIONS	Provide financial incentives and facilitate the development of required technological infrastructure for insect trade in the food chain.	Collaborate with other stakeholders interested in introducing the new insect-based products in the market.		Disseminate outcomes of research activities and train relevant stakeholders.
FRONT-LINE LEVEL OR OPERATIONAL ACTIONS	Disseminate information on the safety and benefits of insects consumption to gain trust of potential consumers.	Develop safe insect breeding and processing techniques and technologies.	Collect or breed insects yourself.	Conduct further research on the consumption of insects.

3.3. Example of CASI-F applied to WP7 results

SI policy: Policy Brief (EU) ²	GOVERNANCE	BUSINESS	CIVIL SOCIETY	RESEARCH & EDU
TOP LEVEL OR STRATEGIC ACTIONS	Support partnerships that allow national and regional stakeholders to step out of common network boundaries into strong international alliances.			
MIDDLE LEVEL OR TACTICAL ACTIONS	Share best practices and proven experiences from successful initiatives in smart cities.			
FRONT-LINE LEVEL OR OPERATIONAL ACTIONS	Set up indicators and monitor results to track progress in smart cities development.			

3.4. What types of effectiveness will be assessed by CASI-F?

3.4.1. SI actions effectiveness in terms of implementability

- Importance (Necessary & Sufficient)
- TEEPSE Feasibility

3.4.2. SI actions effectiveness in terms of sustainability

- Social
- Economic
- Environmental

² CAN SMART CITIES BE SUSTAINABLE INNOVATION ACTORS? CASI Policy brief 31.3.2014 CASI-PB-1.2014-EUROPE.

4. Using CASI-F

The CASI-F is a working pan-European online tool, providing resources and guidance on SI:

- **Innovations:** including 193 fully mapped innovations and 500+ in basic form.
- **Policies:** including policy briefs at national and EU levels (during the life of the CASI project).
- **Visions:** including 50 participative citizens' visions.

The CASI-F focuses on:

- 4 themes: climate change, environment, resource efficiency and raw materials.
- 2 interactive 'tracks': SI Assessment and SI Management.
- 28 EU member states, with some case studies from the rest of the world.

4.1. What would CASI-F user do in each track?

To help the users there are two main 'tracks', each with online interface and guidance.

- **SI Assessment track:** this covers '**what**' *actions* can be related to the various *Innovations / Policies / Visions* considered by WP2, WP3 and WP7 teams, and the community of CASIPEDIA users.
- **SI Management track:** this covers '**how**' the *actions* can be used to manage *critical issues* (e.g. risks, opportunities, drivers) associated to the *Innovations / Policies / Visions* considered by WP2, WP3 and WP7 teams, and the community of CASIPEDIA users.

The 'Actions' are targeted on different user types (Governance, Business, Civil society and Research and education), who play different and sometimes multiple roles: innovators, enabler, sponsor, and beneficiary. Users are invited to give feedback on these actions, as to implementability and sustainability. This user feedback bridges the gap between 'assessment' and 'management' – i.e. users provide assessments on the management of innovations and policies.

4.2. What are the themes & types of innovation?

- There are **4 key themes** from the EU requirements: climate change, environment, resource efficiency and raw materials.
- There are **22 sub-themes** covering all aspects of the above.
 1. Alternative raw materials
 2. Awareness on raw materials shortage
 3. Biodiversity examination and understanding
 4. Climate action by sustainable lifestyle
 5. Climate action eco-innovation policies
 6. Climate change adaptation solutions
 7. Climate change mitigation solutions
 8. Climate change projections and scenarios
 9. Eco-innovation and green economy transition
 10. Eco-solutions to reduce raw materials use
 11. Effective raw materials policies
 12. ICT mapping natural resources and trends
 13. ICT systems improving resource efficiency
 14. ICT systems to map raw materials trends
 15. ICT to assess and predict climate actions
 16. Long-term raw materials availability

17. Raw materials conscious sustainable lifestyle
18. Resource efficient sustainable lifestyles
19. Solutions for cultural heritage assets
20. Solutions for water imbalances
21. Solutions to explore, extract, process and recycle
22. Strategic intelligence and citizens' participation

- Many projects and policies cover a number of themes and sub-themes, and some of the most interesting are addressing system-level transformations.
- There are **7 types of innovation** identified in the system: product / service / marketing / organization / governance / social / system level. Again, many projects and policies cover a number of these types, and some of the most interesting are addressing system-level transformations.

4.3. Who can use the CASI-F?

- The main target users are the SI intermediaries, i.e. innovation agencies, technology transfer firms, industrial associations, some NGOs, civil society organisations (CSOs), regional programmes etc., generally as represented by the Enterprise Europe Network. With these we can assume a good working knowledge of innovation, development, sustainability issues, etc. Each of these will have a portfolio of 'clients' of firms, SMEs, lobby groups etc.: we think that the CASI-F will provide practical benefits so that they are committed users and get past the learning curve, etc. In particular, systematic use of CASI-F could lead to better intelligence on SI practices and action plans.
- The system is also open to individual firms, municipalities, NGOs, citizens etc. (However, CASI does not have the resources for presentations to explain everything in popular language and the system language is English).

Who can join the CASI Community?

- Users who contribute can join the CASI Community. They get full access to all functions, by providing feedback on the Actions, and/or mapping an *Innovation* or writing a *Policy Issue* (in the ideas bank).
- Other users are invited as 'guests' with entry-level functions.

4.4. How do they use it? SI Assessment track:

This track addresses more the '**what**' questions: i.e. what did the **Innovations** achieve the sustainability outcomes: what are the key or emerging **Policies**: what are the **Visions** of citizens in that theme?

- **Resource library functions:** users can search for *Innovations* by sustainability outcomes, and by types themes, etc. Users can search for *Policies* or *Visions* with similar categories.
- **Comparison / benchmark functions:** users can call up the most similar *Innovations* for comparison, for a number of 'what' questions (e.g. outcome transformations, SWOT, barriers etc.). The stories behind each *Innovation* can then be reviewed and shared for mutual learning.
- **Feedback functions:** users are invited to provide assessments of the Action Recommendations, which are most relevant to them, to build up a Delphi-type crowd-source profile for each (rating actions in terms of importance and feasibility). By the end of the project, the results will feed the CASI policy recommendations report. The assessment covers 'importance' and 'feasibility' under different technological, economic, environmental, political, social and ethical (TEEPSE) issues.

4.5. How do they use it? SI management track:

This track addresses more the ‘**how**’ questions: i.e. how to manage critical issues associated to the *Innovations / Policies / Visions* available in CASIPEDIA.

- **Resource library functions:** users can search for relevant actions associated to *critical issues*.
- **Comparison / benchmark functions:** users can call up actions (i.e. responses to critical issues) of similar *Innovations / Policies / Visions* for comparison. The stories behind each Innovation and its ‘processes’ can then be reviewed & discussed.
- **Feedback functions:** e.g. how to support an Innovation? How to make a *Policy* more effective.

4.6. What would be the most commonly expected user queries?

How does my innovation look in comparison to others in the same sector?

- This uses a benchmarking function to display the 10 nearest matches in each of the key features of the project (as based on CASIPEDIA structure). The matches are selected on the basis of a simple 1-5* rating, but the more interesting part is then the justification text provided by the mapper or case contributor.

What are the common ‘barriers’ for innovations in ‘ICT for climate change’, and how to overcome them?

- Here we filter for ‘ICT for climate change’, and call up for the listed *Innovations / Policies / Visions*. The Actions for each are shown alongside so we get an idea of how the barriers are addressed.

How can my client’s social innovation prototype get access to funding?

How can my association’s technology innovation strategy improve its public image?

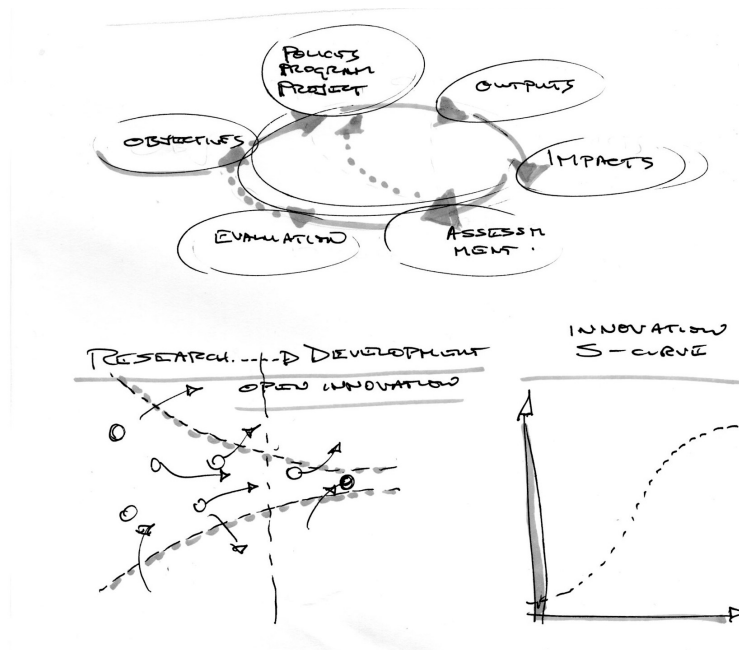
What does the CASI Community think about EU policies on resource efficiency?

- This looks up the Delphi feedback on the Actions on that topic (and closely matched topics), which come from each of the *Innovations / Policies / Visions*.

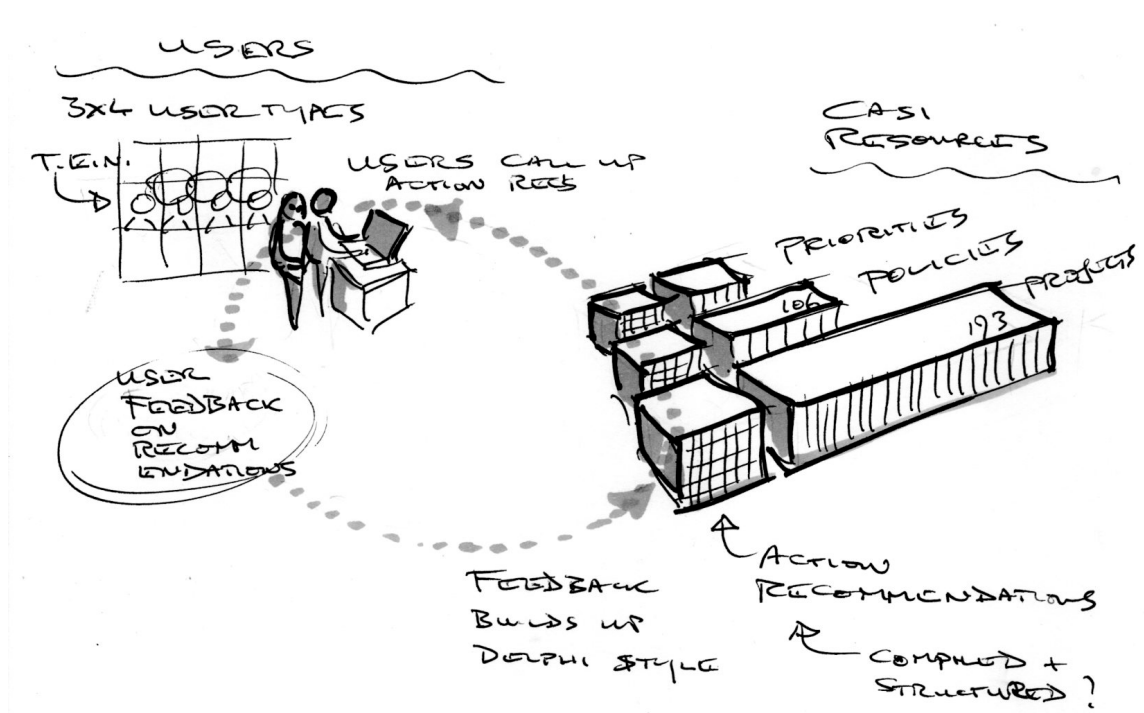
Annexes

Preliminary concept diagrams

Basic concepts of management & assessment:



Current scheme: with feedback on Actions:



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