This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No730313

Synergic Circular Economy across European Regions

SCREEN

Deliverable D 3.3

Guidelines for assessing projects' circularity and their TRL

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Due Date	May 30th, 2018
Delivery Date	Oct 25th, 2018
Work Package	3
Dissemination level	Public

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Introduction

SCREEN is an H2020 coordinating and supporting action participated by 17 European regions, aiming at the definition of a replicable systemic approach towards a transition to Circular Economy in EU regions within the context of the Smart Specialization Strategy.

This project also deals with the identification and implementation of operational synergies between different value chains: such identification relies on a "*Roadmap for Building Circular Value Chains - a Guideline for regional research and identifying synergies*" (deliverable D3.3 of the SCREEN project) that specifically asks (chapter 6 , page 57-58) to indicate the Technology readiness level (TRL).

The first part of this document explains how to considers, according to the above mentioned Roadmap ,the technology readiness level of the prospected synergies by grouping them up in:

a) Promising fields;
b) Innovation target;
c) Mature fields,

During the implementation of the project and the definition of its four key steps, the need of having a clear and transparent methodology to assess project's circularity became more and more important, because several funding institutions, including regions, plans to finance circular economy projects but their funds' management procedures still lack of specific assessment criteria for the circularity of a project.

SCREEN therefore delivered a set of assessment criteria to evaluate the projects' circularity by taking into consideration both environmental and socio-economic dimensions. The definition of the assessment criteria was commonly agreed among the SCREEN partner through 3 rounds of "*Plan-do-check-correct*" that took more than 14 months, up to arrive at the Version 3.0 described in this deliverable; specific details of all the discussions and tests that led to the current version are available in the project deliverable D3.2 "Policy Lab".

Given the large and still increasing number of Circular economy definitions [1], a methodology initially agreed among 17 European regions and further well accepted by a large number of different stakeholders **is a useful complementing instrument for all those programme managers dealing with circular economy projects.** A noticeable advantage and novelty of the SCREEN methodology is the possibility to use it as additional assessment criteria in different kind of programmes such as ERDF, HORIZON, INTERREG, LIFE, as well as national and regional ones. Its only limit is given by the fact that such a procedure has to be necessarily used as an integration of already existing evaluation procedures

With this version 3.0, the SCREEN Consortium formally ask the Commission to adopt the assessment criteria for projects' circularity as additional criterion (like the ones already adopted) for those Horizon 2020 and Horizon Europe projects dealing with Circular Economy and ranked with the same score through to the three main criteria Excellence, Impact and Implementation.

Level 1: Technology Readiness Level (TRL)

The first classification criterion groups synergies according to their technology readiness level.

Initially developed by Nasa, the *Technology Readiness Levels* (TRL) is a methodology for measuring the maturity degree of a certain technology as well as it allows comparison of maturity between different types of technology. The maturity level of the technology is classified in nine different levels. Lower scores over the TRL scale indicate technologies which need great investments to have the technology used in the market. Higher scores over the TRL scale identify technologies which are ready for daily use in the market.

The nine steps of the TRL scale are described as in Table 1.

Table 1. Technology readiness level scale

Technology Readiness Level (TRL)	Description
TRL 1 - Basic principles observed	Scientific research begins to be translated into applied research and development.
TRL 2 – Technology concept formulated	The concepts that underpin the technology are formulated. However, the application is still speculative: there is not experimental proof or detailed analysis to support the conjecture.
TRL 3 – Experimental proof of concept	At this level, research and development (R&D) starts performing both analytical studies to set the technology into an appropriate context and laboratory-based studies to validate that the analytical predictions are correct. This level constitutes "proof-of-concept" validation of the concepts formulated at TRL 2.
TRL 4 – Technology validated in laboratory	Following successful "proof-of-concept" work, basic technological elements are integrated to establish that they can work together to achieve concept-enabling levels of performance for a component and/or breadboard. The validation is often the "first-prototype", and therefore relatively "low-fidelity"
TRL 5 – Technology validated in relevant environment	The fidelity and reliability of the tested component and/or breadboard have increased significantly. The basic technological elements are integrated with reasonably realistic supporting elements in order to test them in a 'simulated' or somewhat realistic environment.

Technology Readiness Level (TRL)	Description
TRL 6 – Prototype technology demonstrated in relevant environment	Representative model or prototype is tested successfully in a relevant environment. At this point, the maturation step is driven by assuring management confidence rather than by R&D requirements.
TRL 7 – System prototype demonstration in operational environment	The system prototype is demonstrated in the operational environment. In this case, the prototype should be near or at the scale of the planned operational system.
TRL 8 – System complete and qualified	In almost all cases, this level is the end of true 'system development' for most technology elements. The system is ready to pass from the R&D to the production department.
TRL 9 – Actual system proven in operational environment	The technology has been released as well as produced.

The technology in circular economy synergies

Circular economy applications are the results of innovation processes which use different technologies for reducing pollutants and reusing resources in cleaner production processes [2]. The technology innovation is the cornerstone of the circular economy synergies, as the reuse of resources, exploitation of waste, and the exchange of materials across different subjects always require transformation technological capabilities.

Technology is thence to be intended as a broad concept encompassing skills, knowledge, capabilities, techniques, materials, machinery, computers, tools, and devices used in material transformation processes. [3]

TRL groups

The TRL scale presents a high level of granularity for the classification of technologies. For the anticipated classificatory needs of circular economy synergies – however – it is worth reducing the granularity of the scale to three levels which group up different TRL scores:

- Base research targets;
- Innovation transfer targets;
- Market ready.

Base research targets

The first group (base research targets) is that of synergies which have potential to develop into actual circular economy applications, but whose technologies require more base research to make them actual.

Synergies classified in this group are referred to technologies which are – at maximum – at the proof-of-concept or at the first prototype level. The technologies are under research, they have just been outlined, and require further research and detailed analysis to potentially sustain an actual synergy.

Those interested in classifying synergies should choose this level when the technology has just been described, is at the level of proof-of-concept and lack detailed analysis and studies that support the actual capabilities of the technology itself. Even when the technology reaches the prototype level, it shall be still classified in the base research targets group if the prototype supports only laboratory or on-field experimental applications necessary to further refine the technology.

On average, synergies whose underpinning technology score a TRL level from one (included) to four (included) would be classified as base research targets.

Innovation transfer targets

The second group (innovation transfer targets) is that of synergies whose underpinning technologies overpassed the definition phase and show an adequate level of reliability so to be ready to be moved in production environments. These synergies are the targets for innovation transfer with the aim of reaching the markets.

Synergies classified in this group are based on technologies which proved to be working with adequate level of confidence in laboratory settings, or also working in real-life or quasi-real-life scenarios (including simulated or duplicated settings). The technologies at the prototype level are to be classified in this group if the prototype has successfully passed a test in a relevant – other than the laboratory – environment, including real life tests.

Those interested in classifying synergies should choose this level when the technology has already been successfully researched for some time and overpassed the laboratory phase with prototypal implementations replicating or simulating daily operating conditions. Also, technologies which have demonstrated to work in a real-life operational environment shall be classified in this group. The technologies shall show all the different levels of tests and demonstration, up to the planned operational use, which instead characterize a technology of a different level of maturity.

On average synergies whose underpinning technologies score a TRL level from five (included) to eight (included) would be classified as innovation transfer targets.

Market ready

The third group (market ready) is that of synergies whose underpinning technologies are mature for daily use and are in use – not necessarily in the context of a circular economy synergy – in production processes.

Those interested in classifying synergies should choose this level when the technology is already in the market and it is used in real life production processes. Even when the technology has not yet

been adopted by companies – i.e. like in the case of new technologies brought to the market – it should be classified in this group if the technology is available as a ready-made solution, or if its operational use is just planned and does not require further research, tests, or demonstrators prior daily use.

Synergies whose underpinning technologies score a TRL level of nine would be classified as market ready.

Assessing synergies with multiple technologies

Circular economy synergies might rely not just on a single piece of technology, but on a set of technologies which work combined as a system. Under these circumstances there is the possibility that the synergy is supported by technologies with different technology readiness level scores. Hence these technologies might be classified in different groups.

Considering that the technologies are meant to work as a system in the synergy, for the purpose of the classification of the maturity level of the synergy we advise to use the lowest score. As a matter of instance if a synergy is based on two technologies, one classified as market ready, the second as base research target, the synergy shall be classified as base research target as further research is required to progress a key component of the technology for the synergy to be exploited on the market.

Level 2: Assessing projects' circularity

The SCREEN project has developed a common methodology based on four different steps, summarized in the figure below.

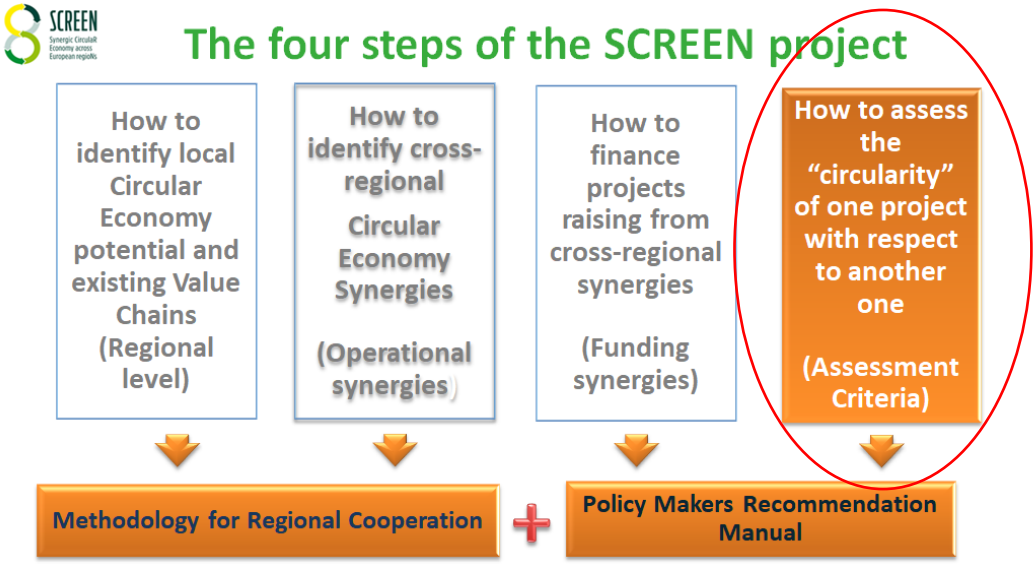


Figure 1. The four steps of the SCREEN project.

The first step is related to the identification of local potential value chains in each region (Deliverable D2.1), and the second one deals with cross-regional synergies between different value chains (Deliverable D3.1). Since such synergies usually lead to different cross-regional projects, the third step faced the issue of financing them through funding synergies (Deliverables D3.2 and D3.4).

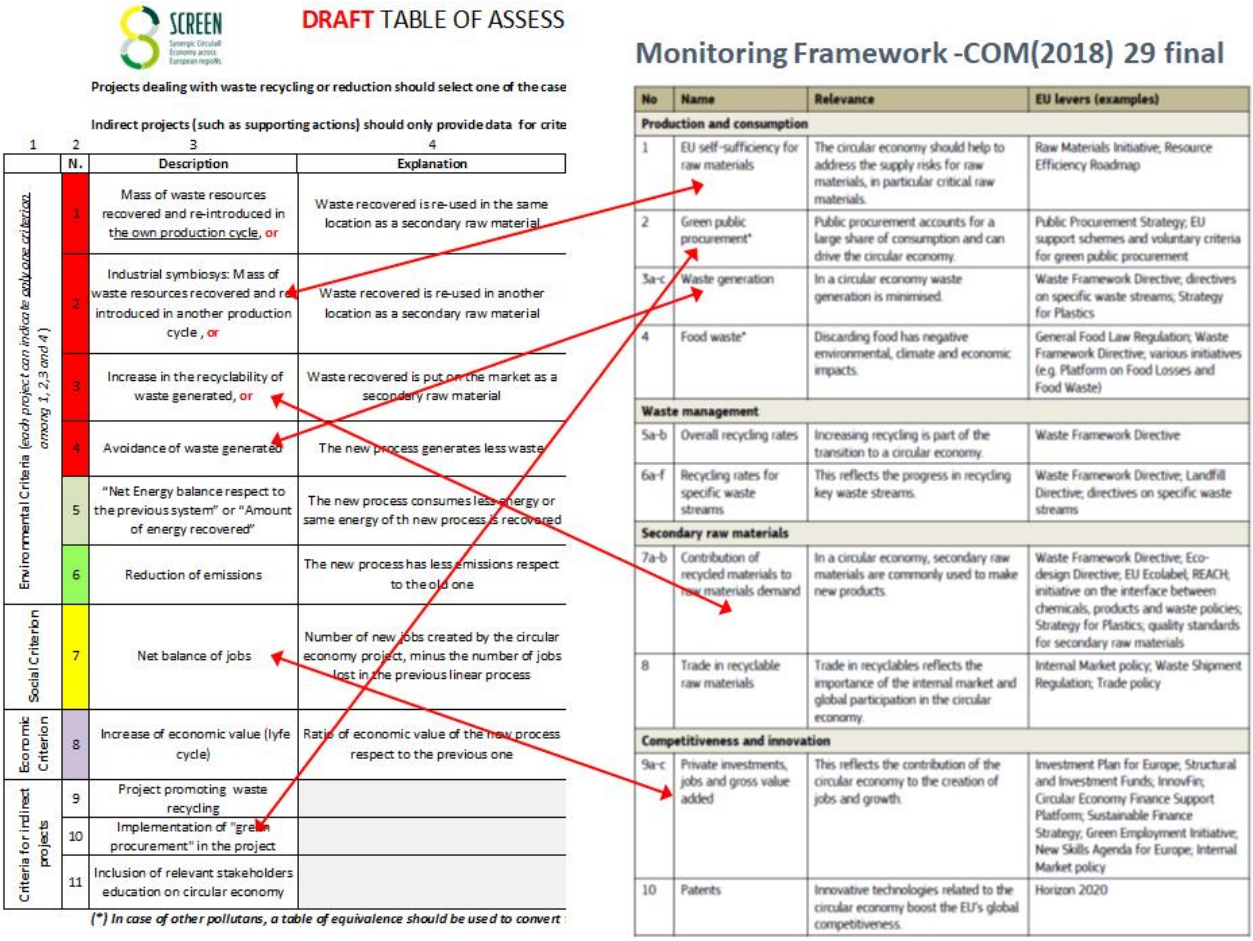
The agreement between regions about a synergic use of funds necessarily implies a **common agreement on how to assess specific projects dealing with circular economy:** the fourth step has therefore identified a methodology how to assess the "circularity" of one project with respect to another one, in order to allow programme owners to make clear and transparent ranking lists of the projects to be financed. **This is a fundamental step to allow an actual regional cooperation in the field of circular economy, where the large number of different definitions[1] is sometime generating confusion and uncertainties.**

A draft table of assessment criteria (Version 2.0) for circular economy projects has been prepared after several months of discussions and tests between the 17 SCREEN regions and other stakeholders (details of the discussion in the Deliverable D3.2): it was intended as a tool for helping the evaluators of circular economy projects asking for regional funds.

The European Commission issued on 16th of January 2018 a Communication "on a monitoring framework for the circular economy" (http://ec.europa.eu/environment/circular-economy/pdf/monitoring-framework.pdf), containing 10 indicators selected to capture the main elements of a circular economy. **Although SCREEN has worked in a completely independent and separate way from the Commission's product**, there was a noticeable correspondence between the

[1] *J. Kirchherr et Al. - Conceptualizing the circular economy: An analysis of 114 definitions - Resources, Conservation and Recycling Volume 127, December 2017, Pages 221-232, - https://doi.org/10.1016/j.resconrec.2017.09.005*

indicators of the document mentioned and the draft table of evaluation criteria proposed for the projects, as shown in the following figure.



DRAFT TABLE OF ASSESS

Projects dealing with waste recycling or reduction should select one of the case

Indirect projects (such as supporting actions) should only provide data for crite

1	2	3	4
	N.	Description	Explanation
Environmental Criteria (each project can indicate only one criterion among 1, 2, 3 and 4)	1	Mass of waste resources recovered and re-introduced in the own production cycle, or	Waste recovered is re-used in the same location as a secondary raw material
	2	Industrial symbiosys: Mass of waste resources recovered and re introduced in another production cycle , or	Waste recovered is re-used in another location as a secondary raw material
	3	Increase in the recyclability of waste generated, or	Waste recovered is put on the market as a secondary raw material
	4	Avoidance of waste generated	The new process generates less waste
	5	"Net Energy balance respect to the previous system" or "Amount of energy recovered"	The new process consumes less energy or same energy of th new process is recovered
	6	Reduction of emissions	The new process has less emissions respect to the old one
Social Criterion	7	Net balance of jobs	Number of new jobs created by the circular economy project, minus the number of jobs lost in the previous linear process
Economic Criterion	8	Increase of economic value (lyfe cycle)	Ratio of economic value of the new process respect to the previous one
Criteria for indirect projects	9	Project promoting waste recycling	
	10	Implementation of "green procurement" in the project	
	11	Inclusion of relevant stakeholders education on circular economy	

(*) In case of other pollutans, a table of equivalence should be used to convert

Monitoring Framework -COM(2018) 29 final

No	Name	Relevance	EU levers (examples)
Production and consumption			
1	EU self-sufficiency for raw materials	The circular economy should help to address the supply risks for raw materials, in particular critical raw materials.	Raw Materials Initiative; Resource Efficiency Roadmap
2	Green public procurement*	Public procurement accounts for a large share of consumption and can drive the circular economy.	Public Procurement Strategy; EU support schemes and voluntary criteria for green public procurement
3a-c	Waste generation	In a circular economy waste generation is minimised.	Waste Framework Directive; directives on specific waste streams; Strategy for Plastics
4	Food waste*	Discarding food has negative environmental, climate and economic impacts.	General Food Law Regulation; Waste Framework Directive; various initiatives (e.g. Platform on Food Losses and Food Waste)
Waste management			
5a-b	Overall recycling rates	Increasing recycling is part of the transition to a circular economy.	Waste Framework Directive
6a-f	Recycling rates for specific waste streams	This reflects the progress in recycling key waste streams.	Waste Framework Directive; Landfill Directive; directives on specific waste streams
Secondary raw materials			
7a-b	Contribution of recycled materials to raw materials demand	In a circular economy, secondary raw materials are commonly used to make new products.	Waste Framework Directive; Eco-design Directive; EU Ecolabel; REACH; initiative on the interface between chemicals, products and waste policies; Strategy for Plastics; quality standards for secondary raw materials
8	Trade in recyclable raw materials	Trade in recyclables reflects the importance of the internal market and global participation in the circular economy.	Internal Market policy; Waste Shipment Regulation; Trade policy
Competitiveness and innovation			
9a-c	Private investments, jobs and gross value added	This reflects the contribution of the circular economy to the creation of jobs and growth.	Investment Plan for Europe; Structural and Investment Funds; InnovFin; Circular Economy Finance Support Platform; Sustainable Finance Strategy; Green Employment Initiative; New Skills Agenda for Europe; Internal Market policy
10	Patents	Innovative technologies related to the circular economy boost the EU's global competitiveness.	Horizon 2020

Figure 2. Correspondence between the SCREEN indicators (Version 2.0) and the Monitoring Framework ones

The Circular Economy Stakeholder Platform hosted the SCREEN online questionnaire launched to gather feedbacks and comments from external stakeholders; it was open from March until May 2018.

Figure 3. SCREEN survey on the European Circular Economy Stakeholder Platform

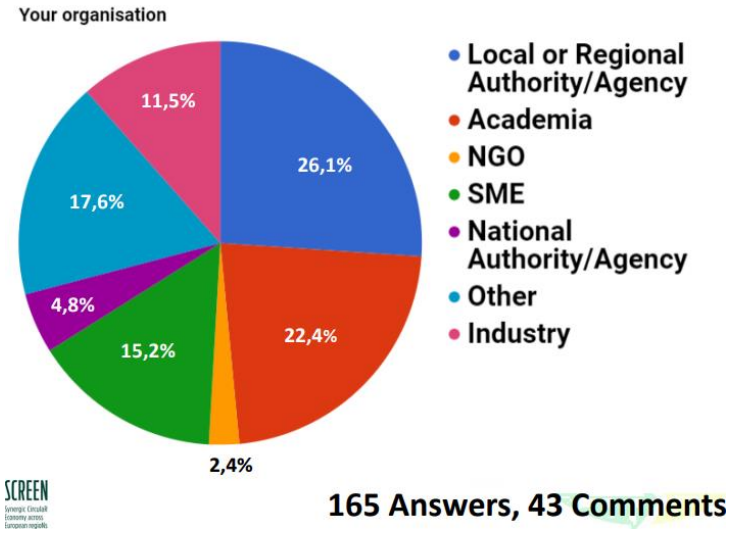


Figure 4. Overview of the subjects who answered the questionnaire

The questionnaire was closed on 15 May 2018 and gathered 165 answers plus 43 additional comments from several European stakeholders. The comments were extremely positive and the comments and suggestions were of a great help to fine-tune the table and make it closer to the real stakeholder's needs.

The detailed results of the questionnaire are available in the Annex 1; figure 5 below shows the results of the question 11 asking for an overall evaluation of the proposed criteria, from *0="poor"* to *9="very good*". The72,7% of the answers gave a score 7, 8 or 9, thus confirming an high grade of acceptance of the proposed criteria.

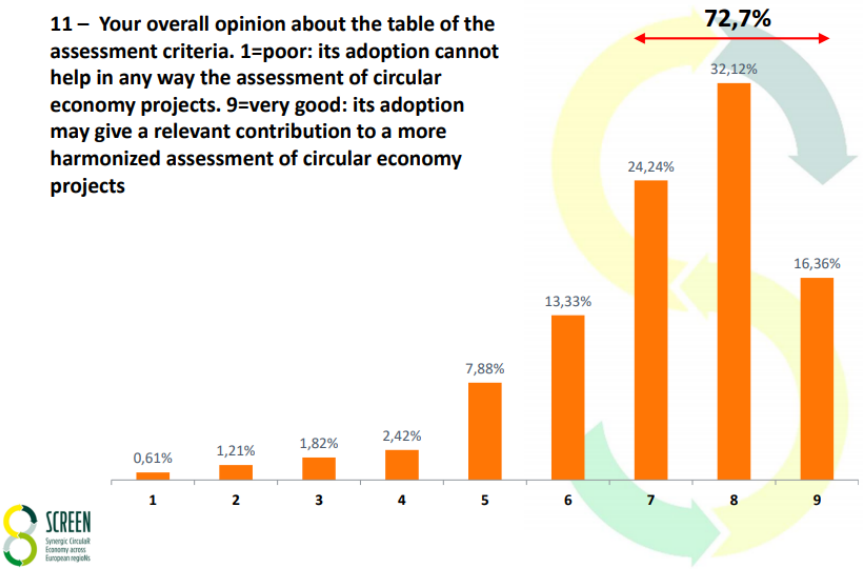


Figure 5. Overview of the overall evaluation of the proposed criteria

Such results were discussed during the SCREEN Policy lab in Brussels on 30th of May 2018, held at the European Economic and Social Committee, gathering comments from the participants.

A further implementation of the assessment criteria was conducted on the basis of all the comments and suggestions received, including some very detailed comments sent by the Dutch Ministry of Infrastructures[2]

The result of such implementation is the version 3.0 shown in the following pages, together with the instruction for both applicants and assessors and a practical example for its application.

[2] This comment is available in the Deliverable D3.2 in the section 4.4.2 "*Briefing document for the 4th Policy Lab meeting*"

TABLE OF ASSESSMENT CRITERIA FOR CIRCULAR ECONOMY PROJECTS - REV. 3.0

These criteria are based on the explanation given in the circular economy action plan [COM(2015) 614], where circular economy is explained as an economy ***'where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste minimised'***. The cost (€/year) as an intermediate indicator is a mean to harmonize the different metrics and to easily arrive at a coherent and transparent ranking list.

		A	B	C	D	E	F
	N.	**CRITERION**	**Explanation**	***Metrics***	***Additional parameters***	***Assessment indicator***	***Weight***
PRODUCTION	1	**ECO- Design**	Re-shaping the first stage of an industrial process (Product design) in order to reduce the waste generated AND/OR increase the life of the final product	Kg/year of virgin material avoided through the new process AND/OR by the prolongation of the product's life	Economic value of the virgin material (€/Kg)	Metrics x additional parameter (€/year)	10
	2	**New production process accepting "secondary raw material"**	Replacement , total or partial, of virgin material with "secondary raw material"	Kg/year of virgin material avoided through the new process	Economic value of the virgin material (€/Kg)	Metrics x additional parameter (€/year)	8
CONSUMPTION	3	**RE-Use, Re-Manufacturing, Refurbishment,**	Prolongation of the life of a certain product that otherwise will be disposed	Kg/year of virgin material avoided by the prolongation of the product's life	Economic value of the virgin material (€/Kg)	Metrics x additional parameter (€/year)	8
DISPOSAL	5	**Mass of waste resources recovered and re-introduced in a production cycle as secondary raw material**	The new process generates waste that can be re-used in the same process or in another production process	Kg/year	Economic value of the secondary raw material(€/Kg) **minus** Cost of its transport to the production site (€/Kg) (*)	Metrics x additional parameter (€/year)	8
	6	**Project promoting waste recycling**	Promotional campaign with a specific target producing a specific waste	Waste produced by the target Kg/year	Cost of disposal (€/Kg)	Metrics x additional parameter (€/year)	6
ENVIRONMENTAL CRITERIA	7	**"Net Energy balance respect to the previous system" or "Amount of energy recovered"**	Energy (KWh) used in the old process per unit of product divided by energy used in the new process for the same unit of product	Number that can be lower or higher than 1		Metrics (the number in column C)	1 (*the assessment indicator is "per se" a weight*)
	8	**Reduction of emissions**	Emissions of CO2 (**) generated by the old process per unit of product divided by emissions used in the new process for the same unit of product	Number that can be lower or higher than 1		Metrics (the number in column C)	
SOCIAL CRITERION	9	**Net balance of jobs**	Number of new jobs created by the circular economy project, minus the number of jobs lost in the previous linear process	N = Number of full time working units (can be positive or negative)	P = Number of full time woking units in the old process	$1+\frac{(N)}{P}$	
Applicants may select only one of these two boxes	☐	**Implementation of "CIRCULAR PROCUREMENT" in the project** *(tick the box if relevant)*		The wheigt of the related project is increased by 50%			
	☐	**Educational projects targeted to relevant stakeholders** *(tick the box if relevant)*		The wheigt of the related project is increased by 20%			

(*) In case the secondary raw material does not have a final destination but is just "put on the market", the weight is reduced from 8 to 7

(**) In case of other pollutans, a table of equivalence should be used to convert them into CO2 equivalent emissions - https://climatechangeconnection.org/emissions/co2-equivalents/

Assessment Procedure

Applicants should:

1) Select the item in which their project falls - only one among the options from 1 to 6;

2) Clearly describe the project and its metrics as requested in column C;

3) Declare and prove the economic value of the materials/cost of disposal by using current market prices, as requested in column D;

4) Provide the information related to the environmental and social criteria, as requested in rows 7, 8 and 9.

Circular procurement or educational projects should anyway enable or facilitate a project falling in one of the option from 1 to 6, thus the relevant box should be selected and the same above procedure should be completed.

Assessors should:

1) Verify the compliance to the above instructions and the congruence of the metrics declared with respect to the project description;

2) Verify that the economic value/costs are adequately proven.

3) Multiply the metrics of the chosen criterion (only one among the options from 1 to 6) per its additional parameter, thus obtaining a value expressed in €/year.

4) Multiply such a value for the assessment indicator 7, then for the indicator 8 and finally for the indicator 9, obtaining a value in €/year that can be higher or lower than the previous one;

5) Verify if one of the boxes "circular procurement" or "educational project" and apply the related weight.

Example of Application

The following example shows how the "*intermediate*" cost indicator is used only to harmonize different metrics and therefore allows to compare different kinds of projects; it disappears at the end, where the circularity of one project respect one or more others is expressed by a pure number.

Project 1

A company producing a product X has a current annual production of 1500 units and 19 workers. The company submits a project for a re-design of its products in order to reduce the amount of raw materials needed for the production. The right option is the N.1 "ECO-Design"

The project contains a detailed list of the raw materials avoided through the new design process, together with their value at the current market prices (that are adequately proven). Such a list shows, for each new unit, a total of 4 kg of material avoided respect to the previous project, having a value of 10,05€.

The amount of energy used in the new process will be 250 Kwh per unit, while the current process needs 275 Kwh per unit

The current amount of equivalent CO2 generated per each unit produced is 12,432 Kg, while the new process will generate 11,025 Kg.

The new process will imply the reduction of personnel from 19 to 18, for the same amount of production, thus Number of new employees N=-1, Number of current employees P=19.

Assessment of project 1

- Metrics (row 1, column C): 1500 units/year X 4Kg of raw materials avoided = 6000Kg/year
- Additional parameter: The average value of the material avoided is 10.05/4 = 2,512 €/kg
- Assessment indicator (step 1) = 6000Kg/year X 2,512 €/kg = 15.072,00 €/year
- Environmental criterion 7 = 275 Kwh/250 Kwh = 1,100
- Environmental criterion 8 =12,432 Kg /11,025 Kg =1,127
- Social criterion 9 = 1+(-1/19) = 0,947
- Assessment indicator (step2) = 15.072,00€/year X 1,100 X 1,127 X 0,947 = 17.694,47 €/year
- Circular Procurement NO
- Educational Project NO
- Weight of criterion 1 = 10
- Final assessment = 17.694,47 X 10 = 176.944,70 €/year

Project 2

A not-for profit organisation submit a project foreseeing a promotional campaign targeted to the public authorities of the Region XX to collect the obsolete/damaged furniture of their offices usually disposed in landfills, that will be partially (the obsolete ones) put in a second-hand furniture market and partially (the damaged ones) put in the market of the secondary raw materials. The project also foresees a specific

training targeted to the officers of public authorities on how to launch public calls for the re-use their other obsolete materials before disposing them.

The application contains a study showing that all the public offices in the Region XX change in average 825 furniture pieces per year, the average weight of the single piece is 17,74 Kg for a total disposed mass of 825 X 17,74 = 14.635,50 Kg per year. The study also demonstrates that in the Region XX the average total cost of disposal of office furniture is € 0,87/Kg.

The not-for profit organisation has currently 3 full time employees and with the new project will hire 3 new full time employees.

The right option is the N.6 "Project promoting waste recycling" The box "Educational project targeted to relevant stakeholders" is marked due to the training of public officers. Criteria 7 and 8 are not applicable and have the "*neutra*l" value 1. P = current full time personnel= 3; N = number of new employees = 3

Assessment of project 2

- Metrics (row 6, column C): 14.635,50Kg/year avoided to be disposed in landfills
- Additional parameter: Cost of disposal = 0,87 €/kg
- Assessment indicator (step 1) = 14.635,50 Kg/year X 0,87 €/kg = 12.732,89 €/year
- Environmental criterion 7 = not applicable = 1
- Environmental criterion 8 = not applicable = 1
- Social criterion 9 = 1+(3/3) = 2
- Assessment indicator (step2) = 12.732,89 €/year X 1,00 X 1,00 X 2,00 = 25.465,77 €/year
- Circular Procurement NO
- Educational Project YES
- Weight of criterion 6 = 6, further increased by 20% = 7,2
- Final assessment = 25.465,77 X 7,2 = 183.353,54 €/year

Comparing the circularity of the two projects

Project 2 is $\frac{183.353{,}54\ €/\text{year}}{176.944{,}70\ €/\text{year}}$ = 1,036 times more circular than Project1

The above circularity criterion should be added to the usual criteria adopted for the projects' assessment

(Note: In case of several projects the procedure is the same and the circularity of each project will be compared against the one having the highest value)

Feedback from EU Institutions and other stakeholders

The officer of the Dutch Ministry of Infrastructures who sent the detailed comments mentioned in the previous section was invited as keynote speaker in the SCREEN final conference held in Rome on 18 and 19 October 2018 (Details in the Deliverable D 6.5). In his speech he also summarized his comments and a proposal to join the forces for a further future development of the assessment criteria.

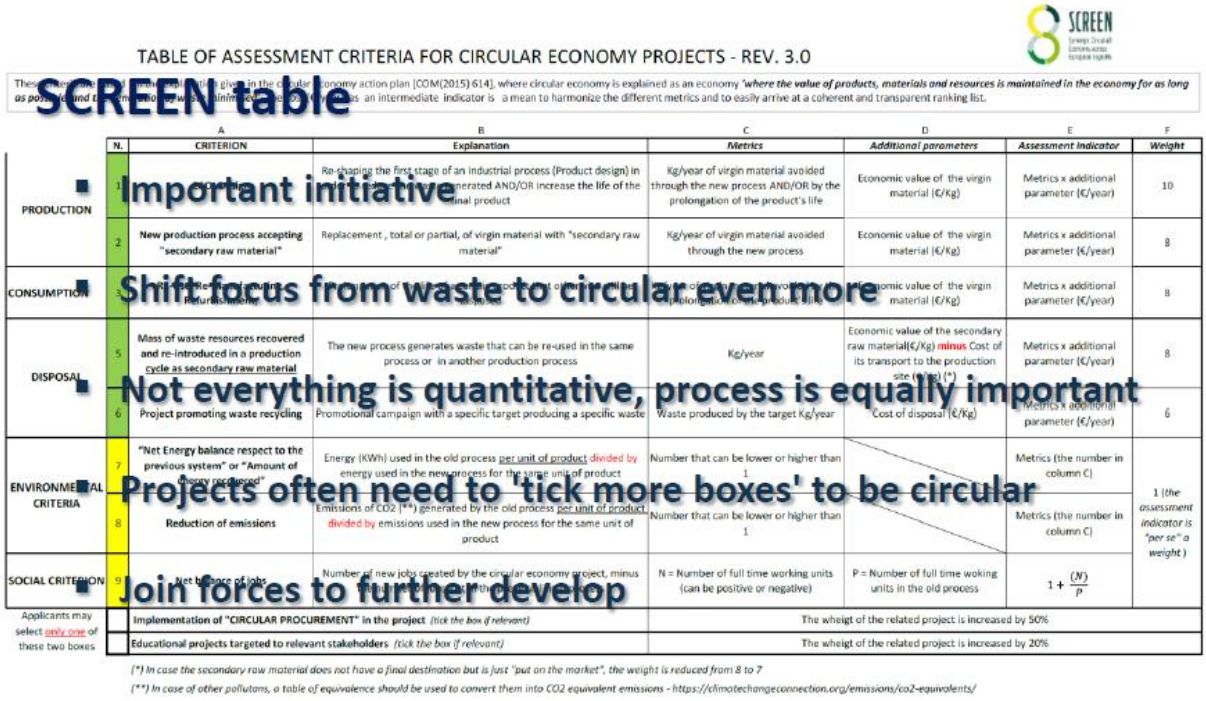


Figure 6. Comments by the Keynote speaker and proposal for a further cooperation

The table of Assessment Criteria Rev3.0 has been sent to DG ENV and to the Coordinating Committee of the Circular Economy Stakeholder Platform, asking for a feedback. A meeting in DG ENV was held on 24/09/2018, where the SCREEN project manager and representatives of Flanders and Crete regions explained the details of the table and answered to several questions posed by the EC officers. Their feedback (received after the end of the project) is reported hereinafter:

General comments:

We welcome the initiative to define criteria which could help regions assessing how much the projects are circular.

We suggest that these criteria are based on clear and simple indicators, for which data at project level can be calculated in an easy and transparent way, by using solid methodology.

A link to the indicators used in the EU monitoring framework for the circular economy is welcome, but some key issues are missing.

In relation to the Table – Rev 3.0, DG ENV has some remarks on both the choice of the indicators and on the weighting criteria used to get the overall index.

Specific comments:

A general formula for calculating the final score and the link to the cells in the Table is not clear.

For criterion 1: Regarding Eco-design, it is not clear if this relates to eco-design of energy related products (falling under the eco-design directive) or in general. It would be better to refer to circular design. Also, regarding the weight, it should be taken into account that some producers would have to comply with this criterion in order to comply with the directive, hence, it should not be considered at the same level.

For criterion 2, this is about 'recycled content'. This should be given the same weight as criterion 1.

In criterion 3, it is important to add 'Repair'.

Criterion 5 is simply industrial symbiosis, it could be good to add this wording? What's the role of by-products? Does it have the same weight if it is the production process of a different company?

On criterion 6 , the metrics should refer to collected waste, not produced waste.

The Category of criteria 7 and 8 is not appropriate, as other criteria (from 1 to 6) are also environmental. We could possibly use "Benefits for Climate" , "Energy and climate" or just "Climate".

The Category for indicator 9 could be "Employment". The column C, D, E for criterion 9 are not consistent and the wording should change.

The last two lines can be filled in a very discretional way by the applicant , and would much influence the final score (from +20 to +50%). In particular a definition of "circular procurement" is needed.

It would be good to also include waste reduction as an indicator (probably under Consumption), defined as total tonnes or kg of waste avoided (implementing the project, compared to the old process), and also addressing the key sectors of circular economy, in particular : a specific plastic waste reduction, and WEEE waste reduction defined as total tonnes or kg of waste avoided (implementing the project, compared to the old process). For WEEE it would be good to specify which are the specific raw materials which are kept at the end of the new process. We note that this criterion was previously included as criterion 4 and do not understand why.

Finally, as discussed during the meeting, it is difficult to assess whether the application of different weights could help to clarify the circularity of a project and why a regional authority should be forced to give 'more points' to those focusing on criterion 1, 2, 3 and 5.

Next steps

Due to the need of closing the project and submitting the final deliverables, the current version 3.0 has not been further elaborated within the SCREEN project; however, the Consortium maintains its Policy Lab operative and has already launched an internal discussion on the feedbacks received: The table of Assessment Criteria will be further elaborated and discussed with the concerned European Commission's services , waiting in the meanwhile for a SCREEN follow up.

The SCREEN Consortium formally ask the Commission to adopt the assessment criteria for projects' circularity as additional criterion (like the ones already adopted) for those Horizon 2020 and Horizon Europe projects dealing with Circular Economy and ranked with the same score through to the three main criteria Excellence, Impact and Implementation.

References

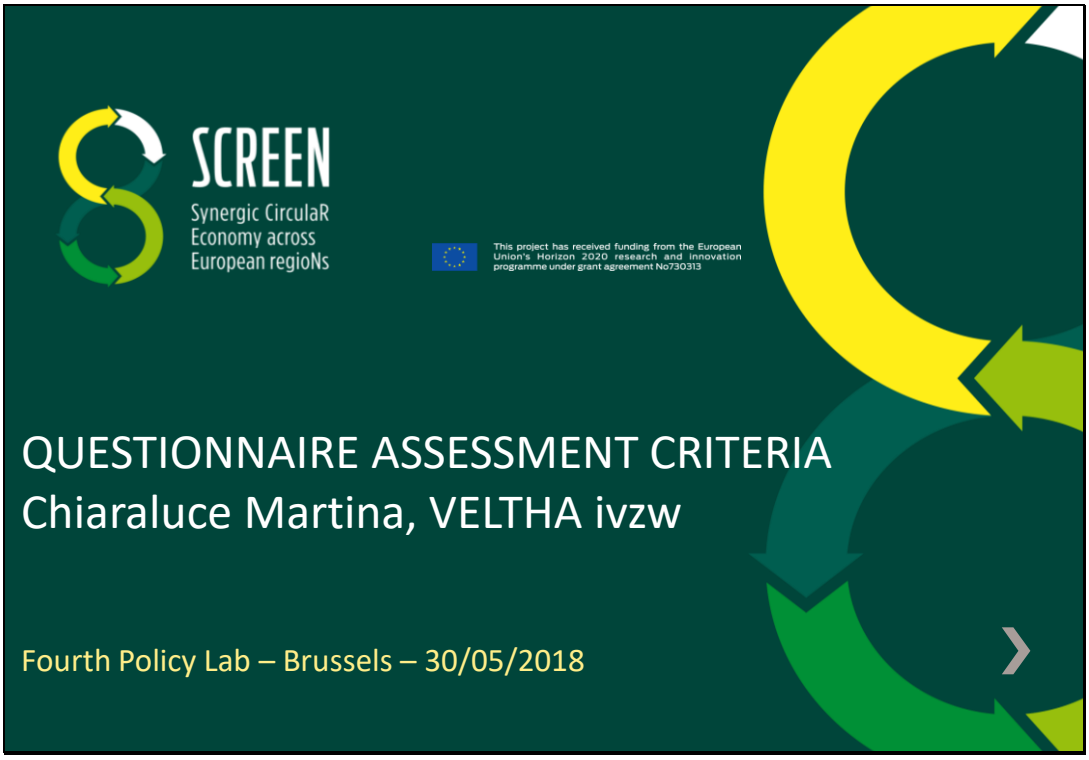
[1] J. *Kirchherr et Al. - Conceptualizing the circular economy: An analysis of 114 definitions* - Resources, Conservation and Recycling Volume 127, December 2017, Pages 221-232, https://doi.org/10.1016/j.resconrec.2017.09.005

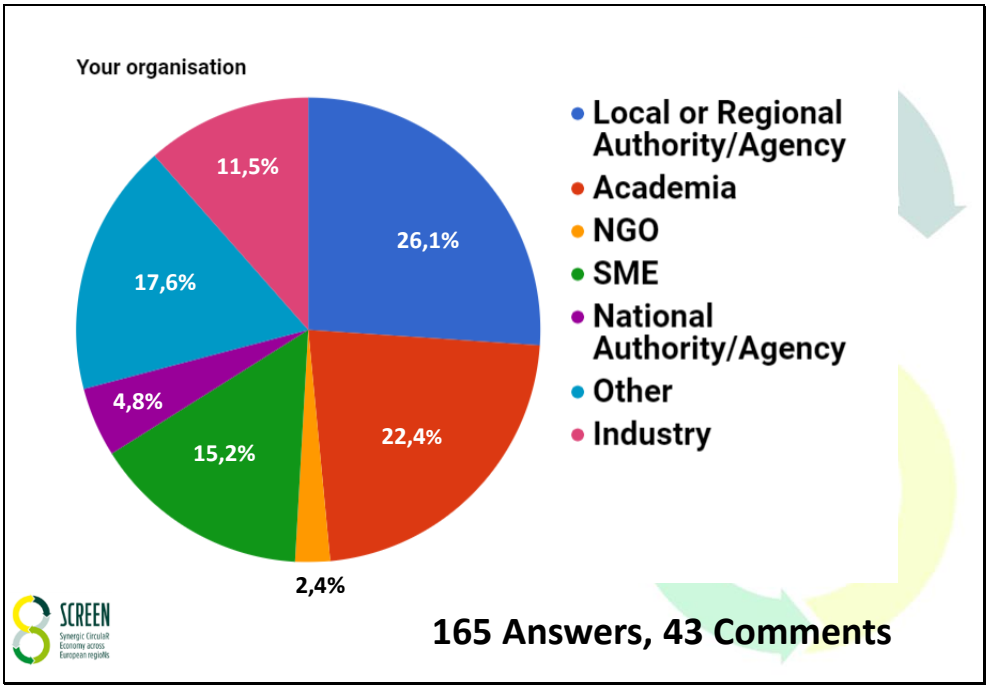
[2] Ruggieri, A., Braccini, A.M., Poponi, S., Mosconi, E.M.: A Meta-Model of Inter-Organisational Cooperation for the Transition to a Circular Economy. Sustainability. 8, 1153 (2016).

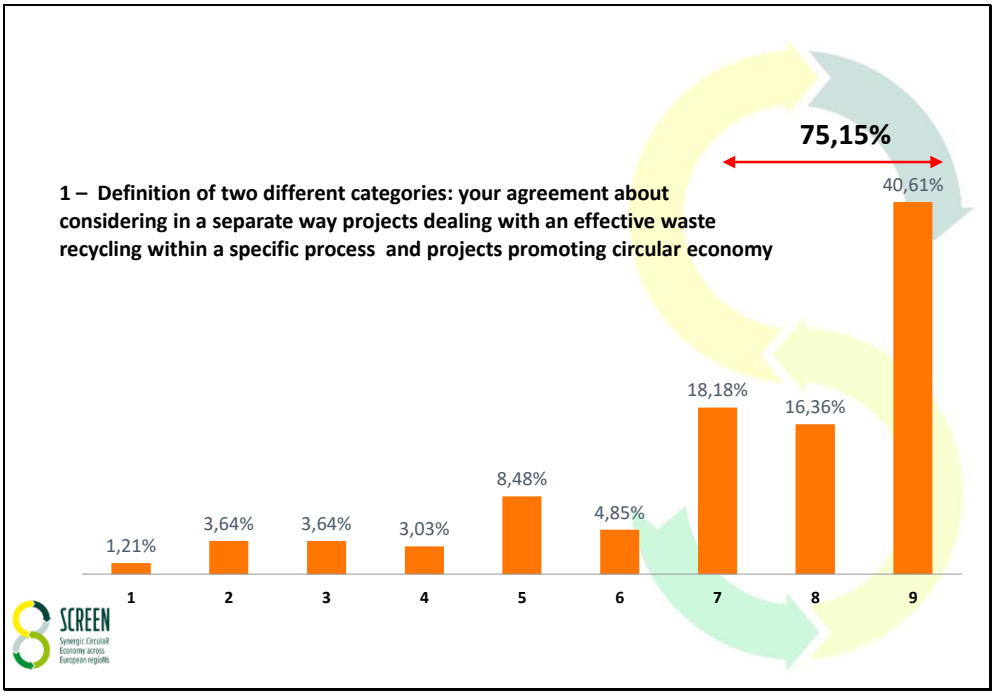
[3] Jones, G.R.: Organizzazione - Teoria, Progettazione, Cambiamento. Milano, Egea (2007).

Annex: Results of the questionnaire on the draft table of assessment criteria for circular economy projects

The following slides show a summary of the comments received on the version 2.0 of the table; the current version 3.0 has been elaborated on the basis of such comments.


SCREEN
Synergic CirculaR Economy across European regioNs
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No730313
QUESTIONNAIRE ASSESSMENT CRITERIA
Chiaraluce Martina, VELTHA ivzw
Fourth Policy Lab – Brussels – 30/05/2018


Your organisation
26,1%
22,4%
2,4%
15,2%
4,8%
17,6%
11,5%
Local or Regional Authority/Agency
Academia
NGO
SME
National Authority/Agency
Other
Industry
SCREEN
165 Answers, 43 Comments


1 – Definition of two different categories: your agreement about considering in a separate way projects dealing with an effective waste recycling within a specific process and projects promoting circular economy
75,15%
1,21%
3,64%
3,64%
3,03%
8,48%
4,85%
18,18%
16,36%
40,61%
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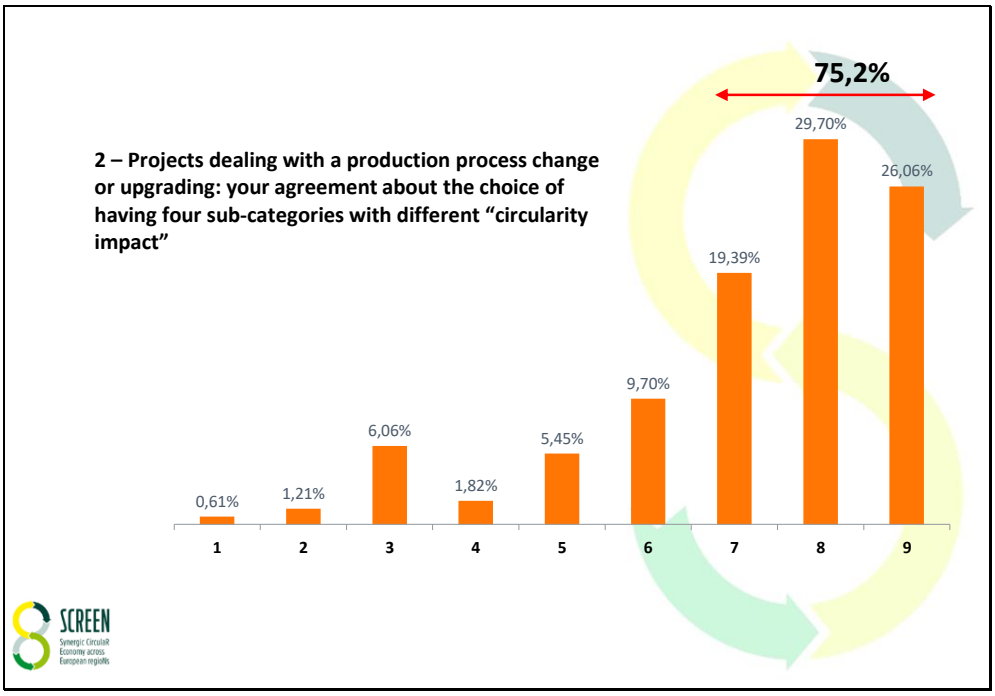
SCREEN


2 – Projects dealing with a production process change or upgrading: your agreement about the choice of having four sub-categories with different "circularity impact"
75,2%
0,61%
1,21%
6,06%
1,82%
5,45%
9,70%
19,39%
29,70%
26,06%
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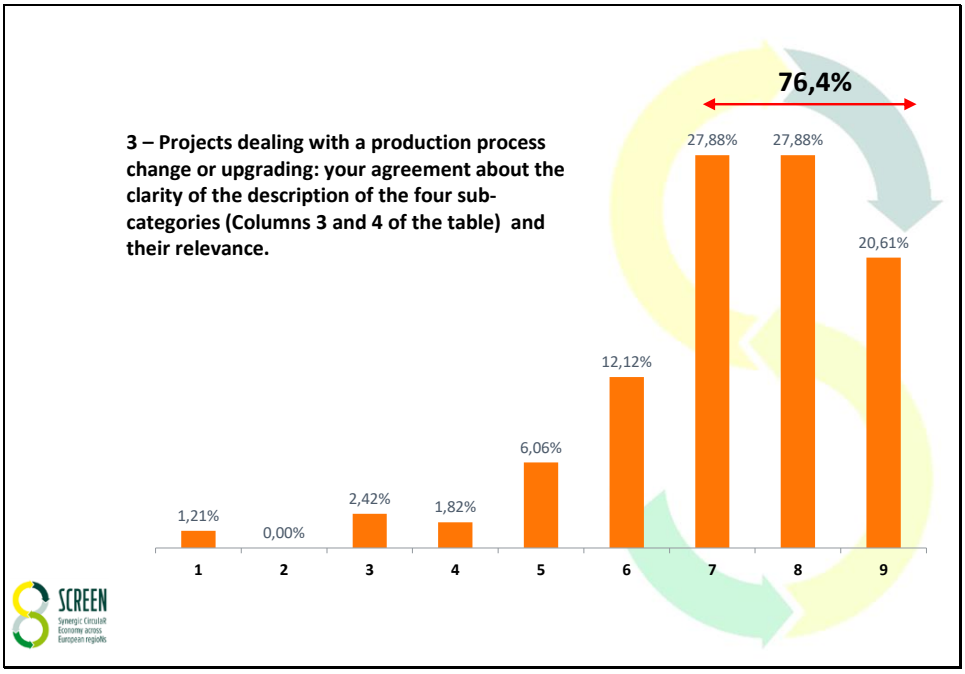
SCREEN


3 – Projects dealing with a production process change or upgrading: your agreement about the clarity of the description of the four sub-categories (Columns 3 and 4 of the table) and their relevance.
76,4%
1,21%
0,00%
2,42%
1,82%
6,06%
12,12%
27,88%
27,88%
20,61%
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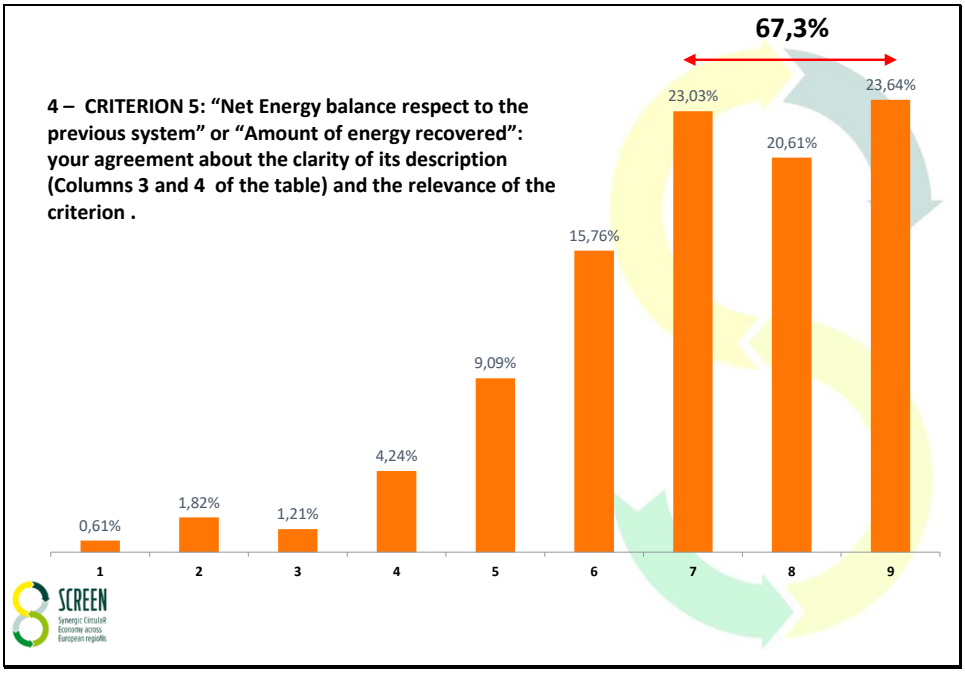
SCREEN


4 – CRITERION 5: "Net Energy balance respect to the previous system" or "Amount of energy recovered": your agreement about the clarity of its description (Columns 3 and 4 of the table) and the relevance of the criterion .
67,3%
0,61%
1,82%
1,21%
4,24%
9,09%
15,76%
23,03%
20,61%
23,64%
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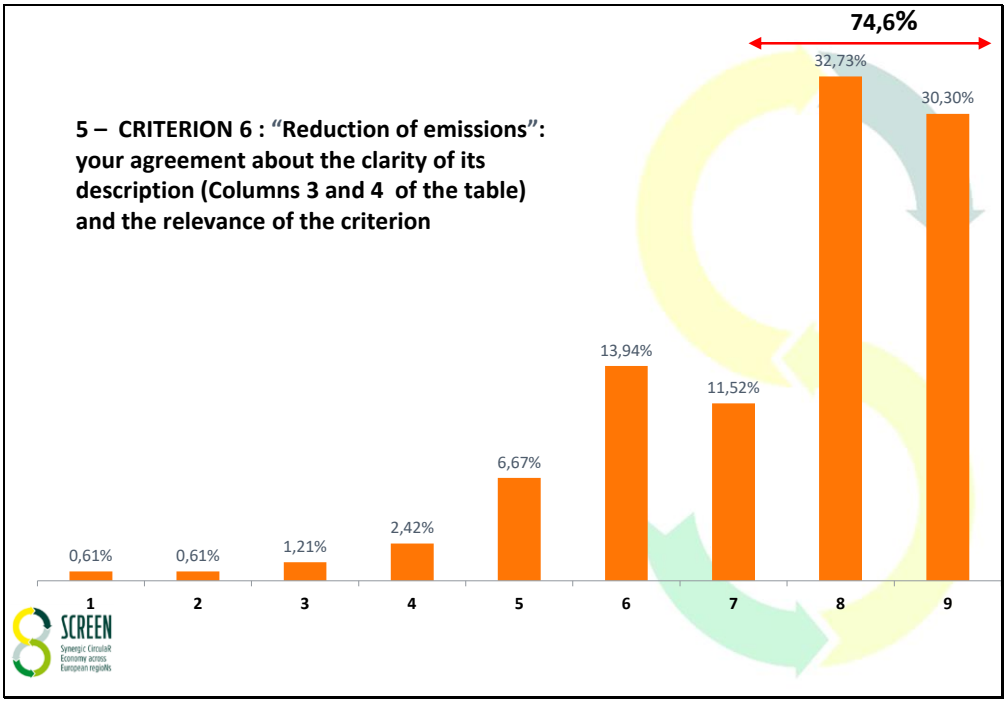
SCREEN


5 – CRITERION 6 : "Reduction of emissions": your agreement about the clarity of its description (Columns 3 and 4 of the table) and the relevance of the criterion
74,6%
0,61%
0,61%
1,21%
2,42%
6,67%
13,94%
11,52%
32,73%
30,30%
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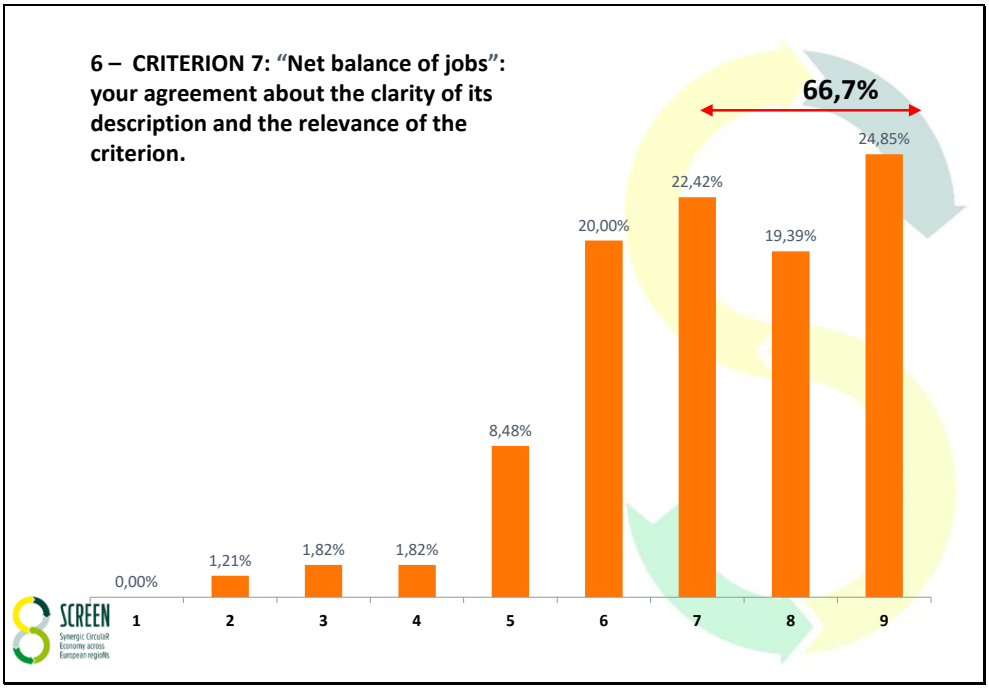
SCREEN
Synergic Circular Economy across European regions


6 – CRITERION 7: "Net balance of jobs": your agreement about the clarity of its description and the relevance of the criterion.
66,7%
0,00%
1,21%
1,82%
1,82%
8,48%
20,00%
22,42%
19,39%
24,85%
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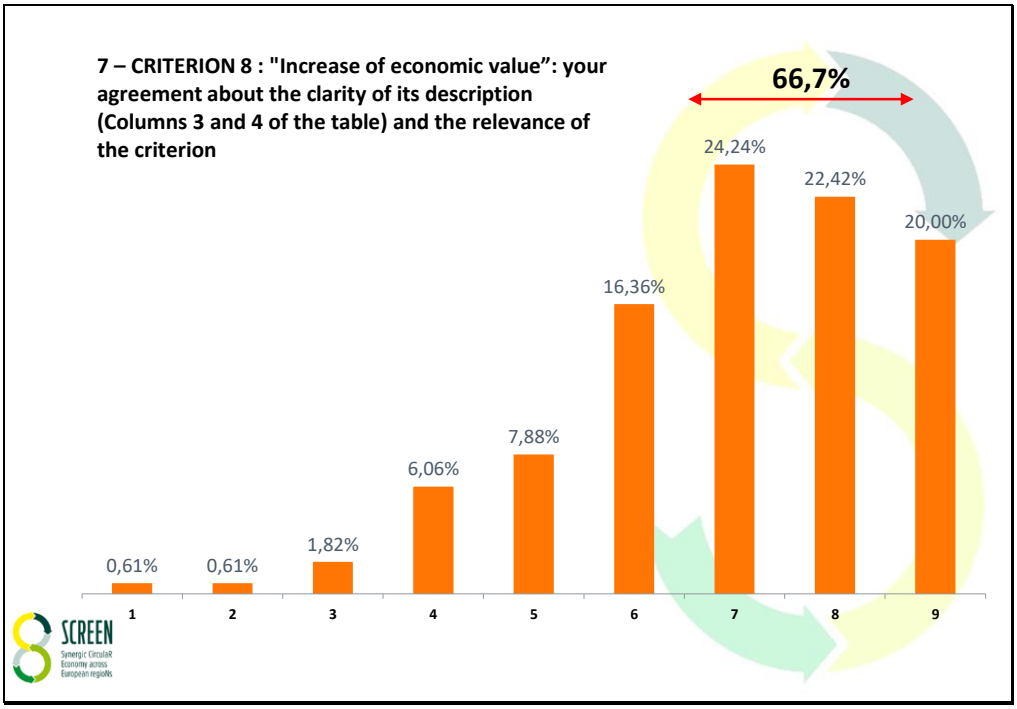
SCREEN
Synergic Circular Economy across European regions


7 – CRITERION 8 : "Increase of economic value": your agreement about the clarity of its description (Columns 3 and 4 of the table) and the relevance of the criterion
66,7%
0,61%
0,61%
1,82%
6,06%
7,88%
16,36%
24,24%
22,42%
20,00%
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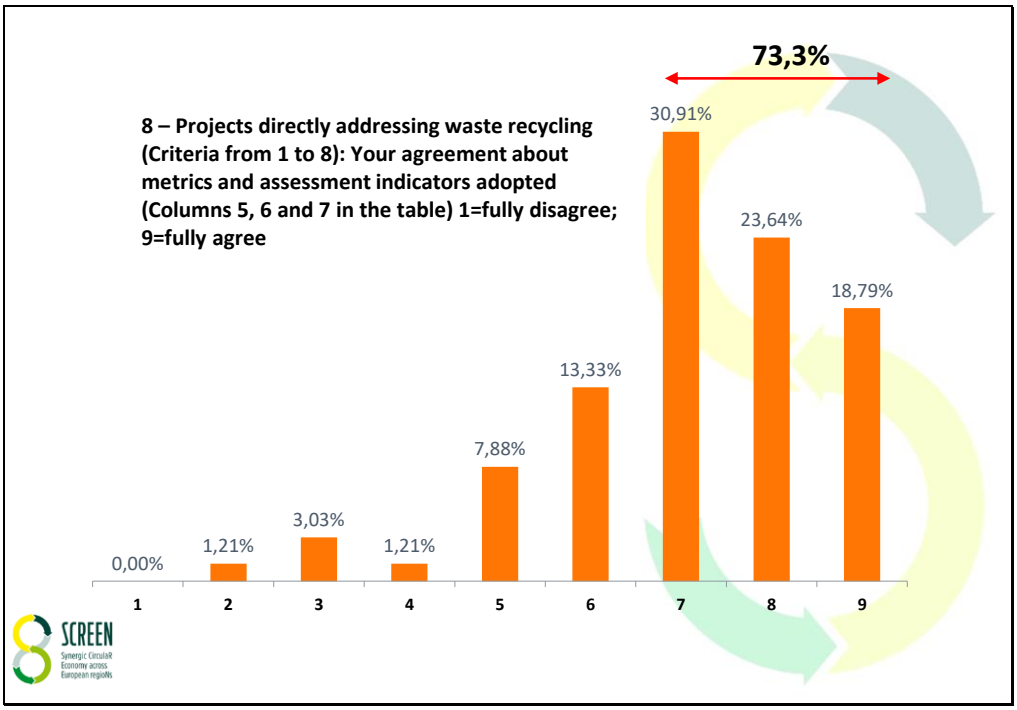
SCREEN


8 – Projects directly addressing waste recycling (Criteria from 1 to 8): Your agreement about metrics and assessment indicators adopted (Columns 5, 6 and 7 in the table) 1=fully disagree; 9=fully agree
73,3%
0,00%
1,21%
3,03%
1,21%
7,88%
13,33%
30,91%
23,64%
18,79%
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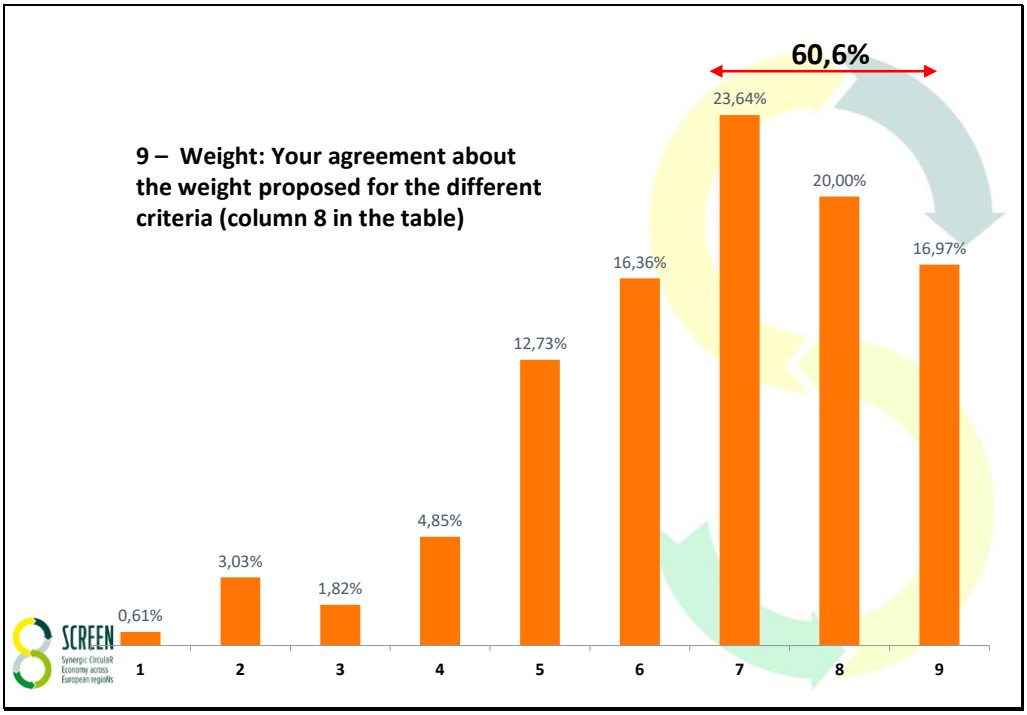
9 – Weight: Your agreement about the weight proposed for the different criteria (column 8 in the table)
60,6%
0,61%
3,03%
1,82%
4,85%
12,73%
16,36%
23,64%
20,00%
16,97%
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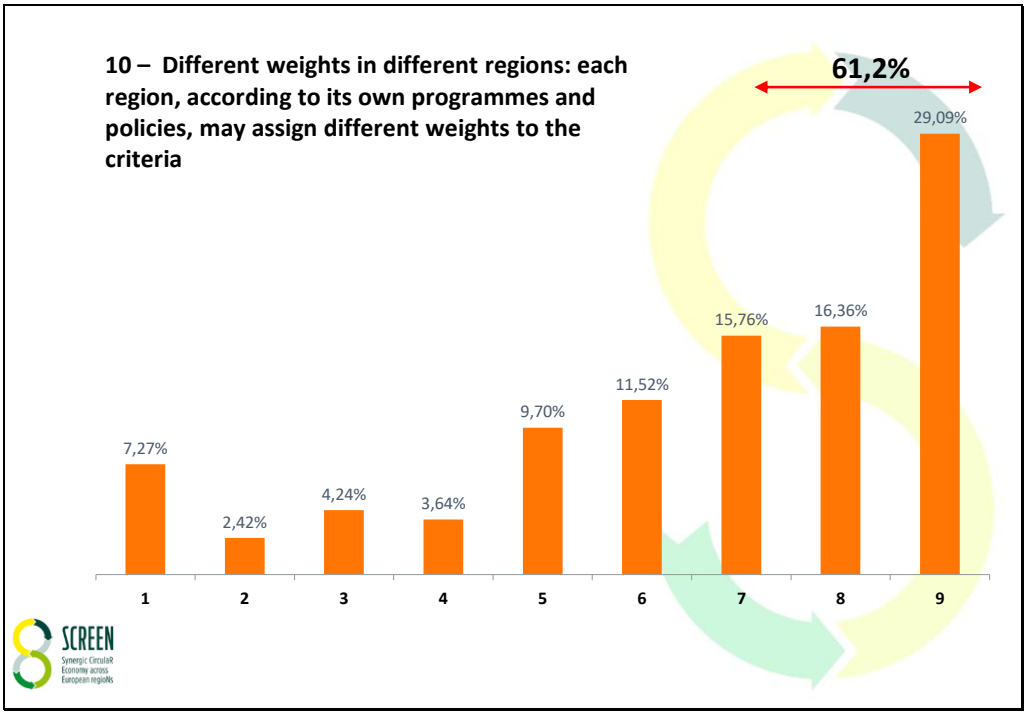
10 – Different weights in different regions: each region, according to its own programmes and policies, may assign different weights to the criteria
61,2%
7,27%
2,42%
4,24%
3,64%
9,70%
11,52%
15,76%
16,36%
29,09%
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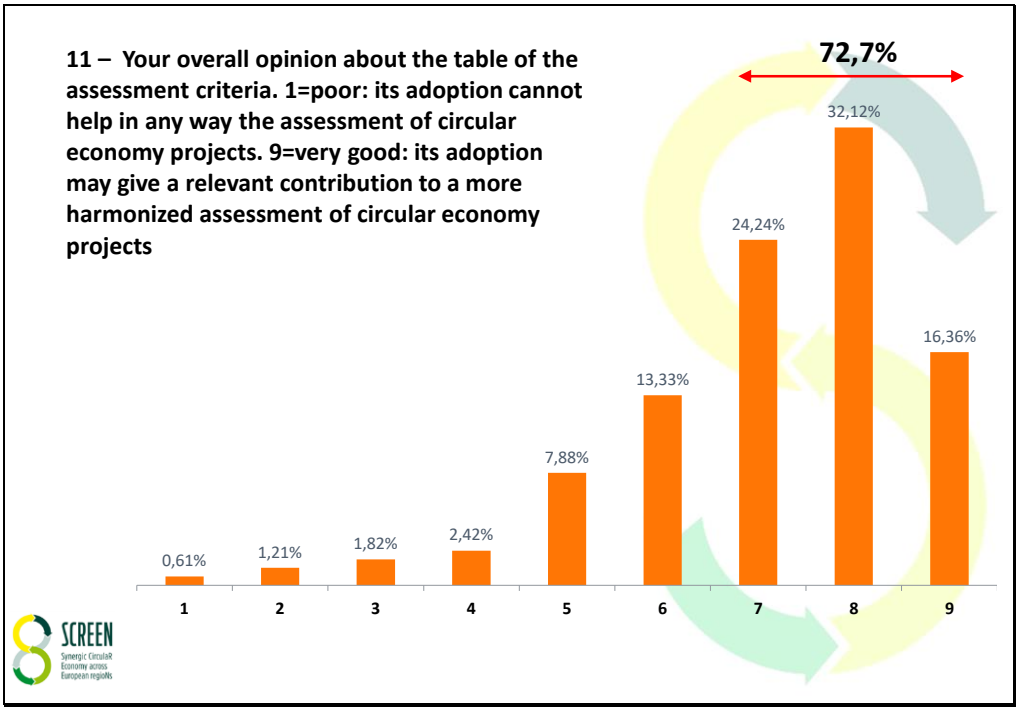
11 – Your overall opinion about the table of the assessment criteria. 1=poor: its adoption cannot help in any way the assessment of circular economy projects. 9=very good: its adoption may give a relevant contribution to a more harmonized assessment of circular economy projects
72,7%
0,61%
1,21%
1,82%
2,42%
7,88%
13,33%
24,24%
32,12%
16,36%
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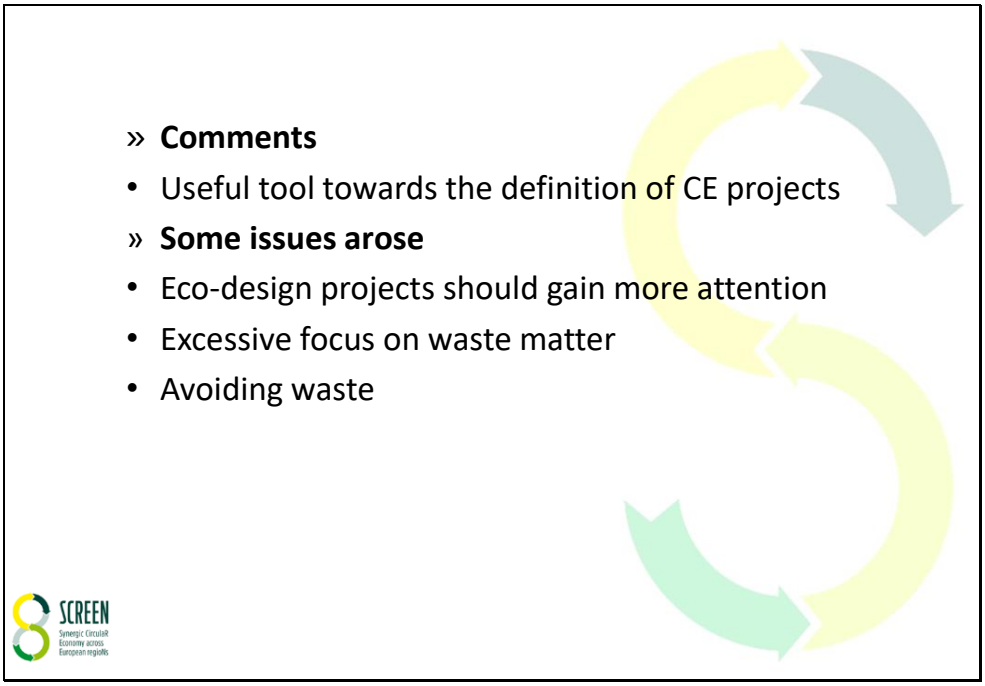
» Comments
• Useful tool towards the definition of CE projects
» Some issues arose
• Eco-design projects should gain more attention
• Excessive focus on waste matter
• Avoiding waste
SCREEN

GEOGRAPHICAL ORIGIN	NUMBER OF APPLICANTS WHO LEFT COMMENTS
Italy	13
Portugal	6
Spain	4
UK	3
Denmark	1
Finland	6
Netherlands	1
Other	9
TOTAL AMOUNT	
43	

Thank you for your Attention!

Martina Chiaraluce
Veltha