

DECISIVE Final Conference

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Allowing local and regional authorities to
assess their biowaste collection and
treatment schemes with the DECISIVE DST

Fundació ENT
Rosaria Chifari



DECISIVE

A DECENTRALISED MANAGEMENT SCHEME FOR
INNOVATIVE VALORISATION OF URBAN BIOWASTE



This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 689229.

The tool



Projects list

+ Create new Project

Private Projects Public Projects

Code	Project Name	Project Type	Created	Actions
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<https://dst.decisive2020.eu/>

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User Manual

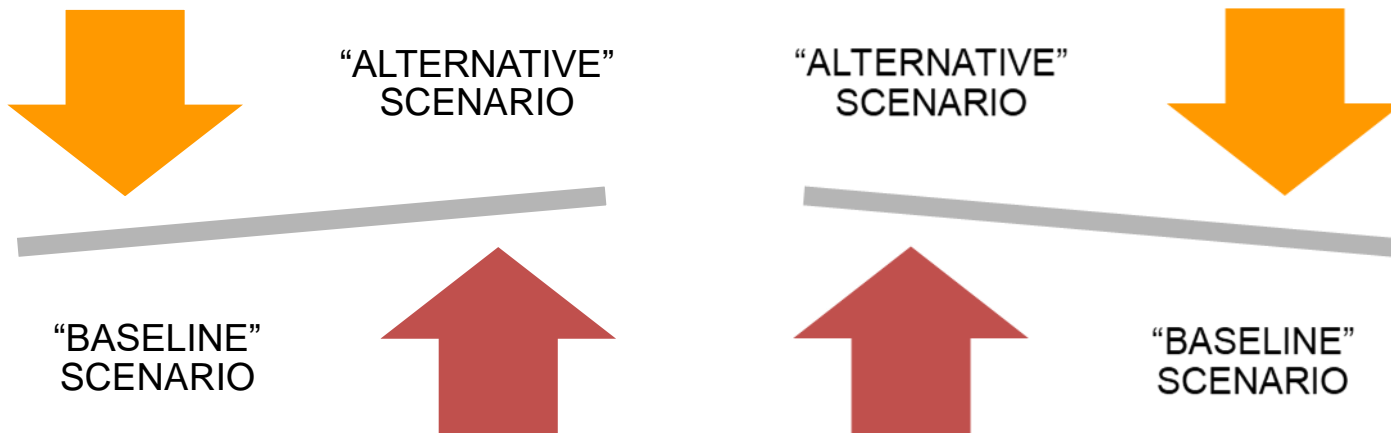
DECISIVE Decision Support Tool (DST)



Goal of the DST

Assessing the performance of **biowaste management** options in a specific area according to a defined set of indicators.

To get a 1st and quick evaluation of different scenarios.
E.g. Baseline vs Alternative.



Comparing local treatment vs community/regional/national treatment

Focus on BIOWASTE

Potential Users of the DST

The target users of DST are **competent authorities, consulting firms and waste operators.**

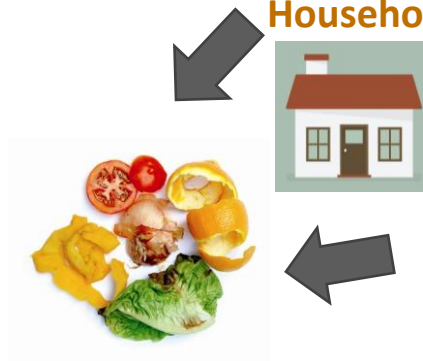
Municipalities



Public authority responsible for treatment



Households and commercial users



**Big biowaste generators:
Commercial activities and services**

Biowaste producers



Entities responsible for the biowaste treatment

Waste management companies

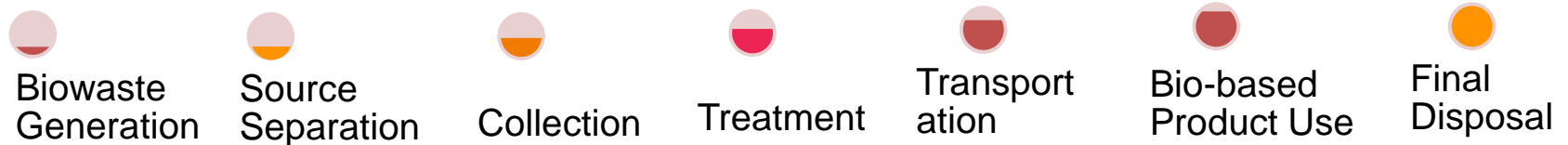


Waste management consultancies



Functioning of the DST

- The tool works with **projects** (i.e. case study) and each project can include different scenarios.
- The tool compares **scenarios** within a project.
- For each scenario, the tool takes into account the following key Waste Management stages.



- Each project can be built or using libraries of waste processes included in the DST database or creating own libraries (available time and data)
- Values of the assessment indicators are calculated based on the values inserted in the libraries.

Indicators used in the DST

- The performance of the different biowaste management systems is assessed using the set of the following indicators:

Environment	Economy	Society	Regulation	Mass Flow
<ul style="list-style-type: none">• Climate Change(kg CO2 eq)• Energy recovery indexes (P/P+C)• Transport intensity (km*t)	<ul style="list-style-type: none">• CAPEX (investment costs)• OPEX (operational costs)• Revenues	<ul style="list-style-type: none">• Local Labour (worker - hours)• Space requirement (m2)• Sorting Time (hours)	<ul style="list-style-type: none">• Fertilizer regulation on heavy metals content (area needed to respect Nitrate limitation)	<ul style="list-style-type: none">• Biowaste• Nutrients• Macro-impurities

- Results obtained from the DST will strictly depend on this list of indicators and from the data used for building the libraries of waste processes.

Assessing changes in biowaste management systems...

Changes in collection systems:

- ❖ Street Containers
- ❖ Door to Door
- ❖ looked containers

Changes in the biowaste treatment technologies:

- ❖ Home composting
- ❖ Composting
- ❖ Anaerobic Digestion

Changes in the biowaste treatment schemes:

- ❖ Local treatment
- ❖ Regional treatment
- ❖ National treatment

Changes in the biowaste transport

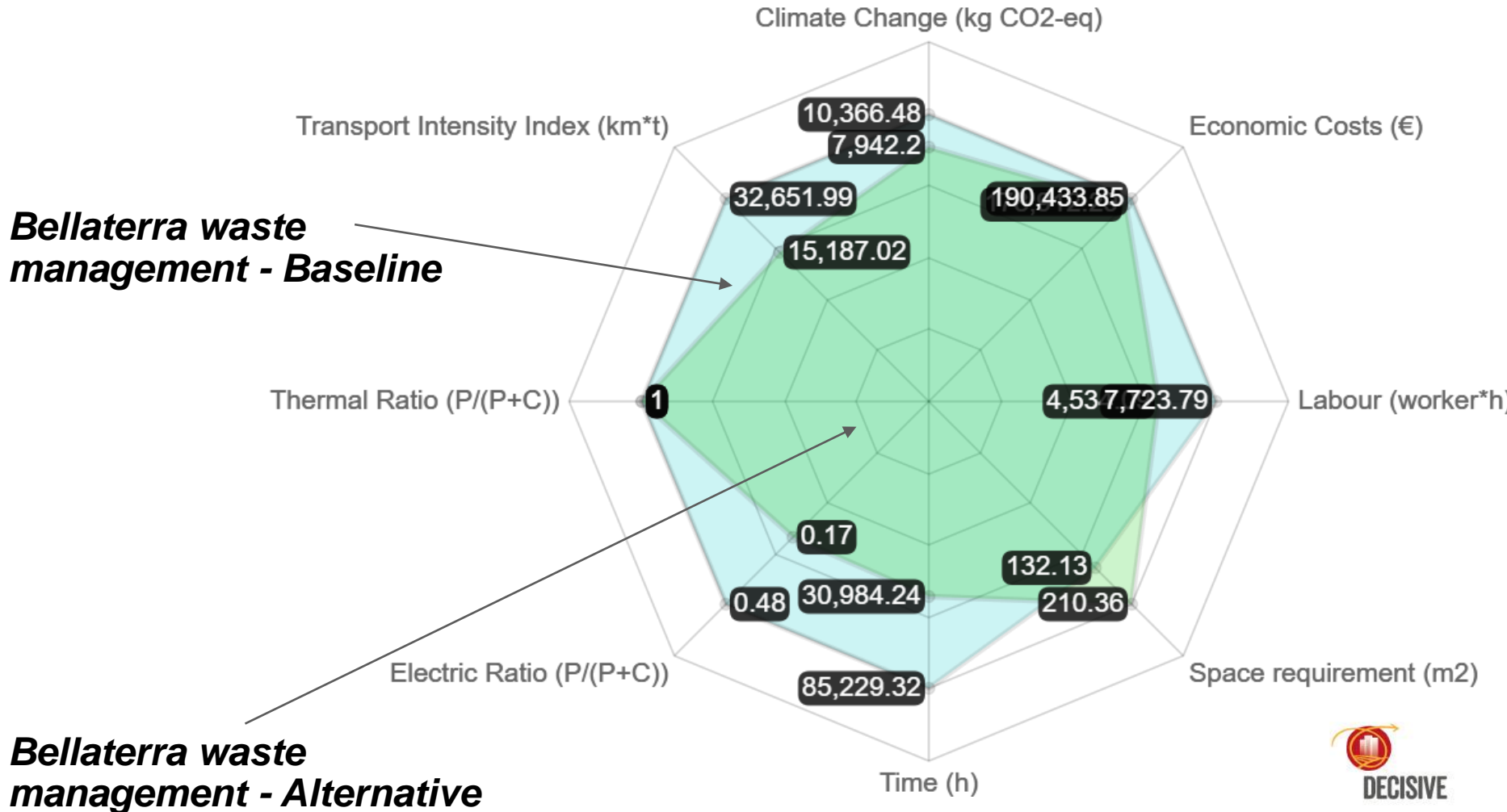
- ❖ Change in routes
- ❖ Change in waste treatment plant location

Changes in the biowaste final disposal

- ❖ Landfill
- ❖ Incineration
- ❖ Waste water treatment plant

Scenario assessment results

■ Bellaterra University alternative
 ■ Bellaterra University baseline



Supporting decision-making step

When implementing new systems or adapting existing plants, competent authorities need to consider different **CRITERIA:**

- Location criteria (prioritization of the expansion of *existing infrastructures*; for *new infrastructures*: sufficient distance from inhabited areas; minimum distance between the main generation points and facilities)
- Priority investment in adaptation or expansion of existing facilities
- Technical prescriptions
- Flexibility of the scheme to deal with future scenarios
- Flexibility and synergies with other MSW fractions
- Social acceptance and compatibility with the environment (Odour control- Low atmospheric impact)
- Contribution to resource recovery and climate change mitigation

The use of a DST based on multicriteria analysis and able to assess the performance of biowaste collection and treatment schemes can support competent authorities in the decision-making steps

Centralized vs decentralized

DST can support in identifying in which context and local conditions decentralizing could be an interesting solution compared to a centralized system.

Waste management planning is mainly focus on **centralized systems** (regional or even supra-regional level) to take advantage of scale and occupy the minimum surface.

Decentralized and centralized systems are in most of the cases complementary not antagonist.

Decentralized could be suitable if:

- Location in dispersed or rural areas, with low population density and high quality of the organic fraction collected selectively.
- Difficulties of access or large distances to centralized plants.
- Great quality of biowaste that can avoid or reduce pre-treatment and related costs.
- Synergies with other local services or activities.
- Direct use of quality compost in local activities. Circular economy.

Conclusions

The DST may have different applications that can be of great interest for local and regional authorities:

- DST use by planning Managers:
 - to visualize the current biowaste management system and identify deficits that can be approached by using different alternative scenarios
 - to have a holistic view about the performance of the current waste management systems and comparing it with alternative scenarios
 - to be supported when defending proposed solutions
 - to support the decision when there are many parameters to consider
- DST use by local authorities or biowaste big generators:
 - to promote the development of local solutions in some specific contexts
 - to demonstrate that decentralized solutions are not confronted with centralized facilities, but they can be complementary systems

Dr. Rosaria Chifari
Fundació ENT
rchifari@ent.cat



Contact

www.decisive2020.eu

✉ info@decisive2020.eu

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THANK YOU FOR YOUR ATTENTION