Outline

1. Brief introduction

2. Key model features and model principles

3. Short CO_2MPARE model tour

4. Conclusion / Questions and discussion

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Brief introduction

The CO2MPARE tool in one slide

- 'Carbon management' of OPs

- Simple excel spread sheet easy to get trained on and then to use

- Turns financial allocations into CO2 emissions (estimates)

- Enables to compare different scenarios / alternatives of programme content and the resulting carbon impact

- Successful test in 5 'test regions' with different OPs

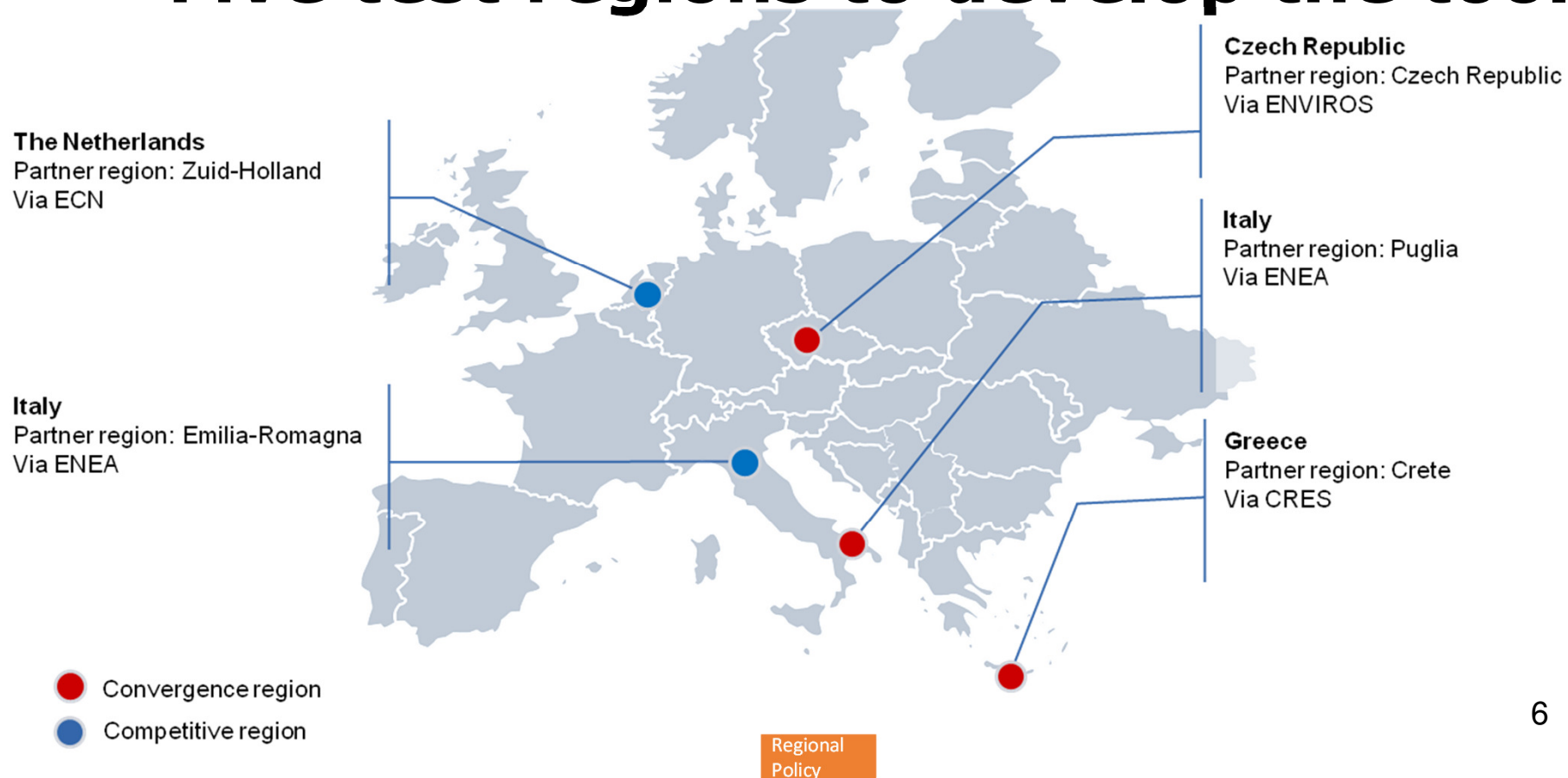- MS & MAs encouraged to take this up for 2014-2020 programmes!

Project Regional CO$_2$ Modeling

Consortium of 6 project partners:

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Five test regions to develop the tool

The Netherlands
Partner region: Zuid-Holland
Via ECN

Czech Republic
Partner region: Czech Republic
Via ENVIROS

Italy
Partner region: Puglia
Via ENEA

Italy
Partner region: Emilia-Romagna
Via ENEA

Greece
Partner region: Crete
Via CRES

- Convergence region
- Competitive region

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Aim of the tool

- EU target: reduce GHG emissions by 20% by 2020
- Beyond ring-fencing of the ERDF on low-carbon and other climate requirements in cohesion policy:
  - Provide practical tool customised to cohesion policy programmes
  - Supporting MAs & stakeholders in informed decision making related to climate change (inform on carbon impact of programmes)
  - Compare different options for budget allocations
  - Develop more climate friendly OPs
  - Enable a 'carbon culture'

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Key model features and model principles

CO$_2$MPARE's key features

- A **generic approach** on carbon impacts of programmes taking into account both construction and operation phase of funded projects.
- A **regionalised approach**: the model is able to integrate regional characteristics in its outputs as defined by users.
- A model **developed and tested in partnership** with five European **test regions** and various types of regional users
- A model designed for **different level of expertise** and responsibility:
  - **From novice to expert**
  - **From managing authority to environmental authority**
- A **transparent and flexible approach**: parameters, ratios, algorithms are visible and customisable
- A model able to **manage various levels of information** about a programme
- An Excel-based model and **open source**

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Preparing for first use of CO$_2$MPARE

- For a similar investment, **emission impact may differ** significantly between regions in Europe. The model uses **regionally specific data**, so that results optimally correspond to regional circumstances.

- The generic model is provided with default values, which partially need to be **adjusted** to represent the regional situation **before first use in a new region**.

- Data collection and subsequent regionalisation of the model require certain **effort and resources**, estimated at some 2-3 months for a model developer.

- However, the model allows the user to **optimise the balance between effort put in and the level of customisation of result** according to needs.

- Regionalisation of the model **only needs to be performed once** for each region.

- Once the regionalisation process is completed, the **model can be used by all policy makers throughout the region**, and provides result that relate to the specific regional circumstances.

- It might be useful to foresee some **training** also for these 'non-expert' users.

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CO$_2$MPARE's main functionalities

- Ex-ante evaluation of OPs based on budget allocations
- Identification of the most significant carbon contributors of the programmes (either with a positive or negative impact):
  - Per programme theme or sub-theme
  - Per type of project
- Comparison of scenarios of programmes:
  - Funds reallocation between programme themes or sub-themes
  - Characterisation of specific types of projects to minimise carbon impacts
- Extendable to other programmes that cover the same kind of funded project as the cohesion policy ones

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General model principle

Carbon impact based on budget allocation

1. **Divide budget into 'tangible' activities**

2. **Calculate carbon impact per euro invested in activity**

3. **Multiply budget x impact per Standardised Investment Component (group of similar activities)**

4. **Add all impacts of SICs per theme**

5. **Add all impact themes in programme**
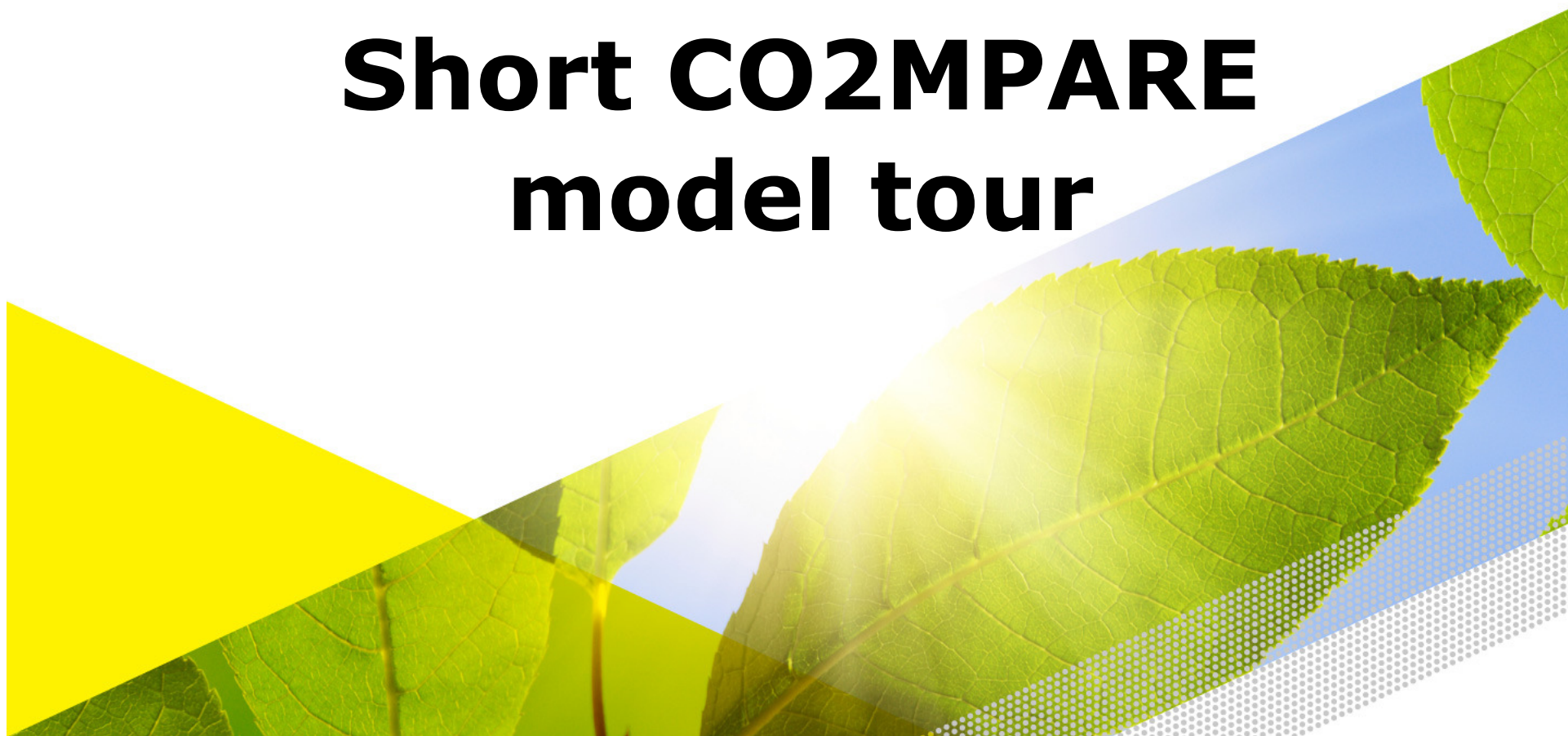
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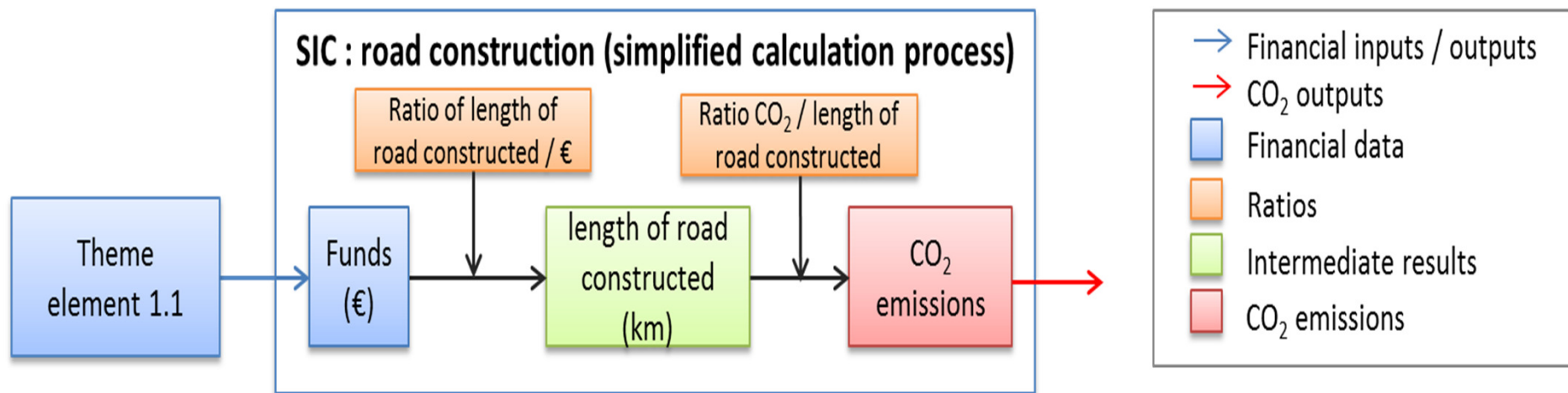
Key success factors CO$_2$MPARE

1. It provides information on emission impact of a programme at various levels of detail
2. It requires only financial input from users, which makes it quick and easy to use
3. It can compare emission impacts of alternative investment options
4. It provides outputs in graphical as well as table formats
5. It uses regionally specific data for regionally relevant results
6. It is flexible towards user needs on specification of outputs
7. It comes with a practical user tutorial and developer guidance

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Short CO2MPARE model tour

Calculation sequence

SIC : road construction (simplified calculation process)

Theme element 1.1 → Funds (€) → length of road constructed (km) → CO_2 emissions

Ratio of length of road constructed / €

Ratio CO_2 / length of road constructed

Legend:
- → Financial inputs / outputs
- → CO_2 outputs
- Financial data
- Ratios
- Intermediate results
- CO_2 emissions

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General model principle

OP's financial model

ID	Programme theme	Allocation of funds
...	...	...
16	Railways	121 000 k€
17	Railways (TEN-T)	0 k€
18	Mobile rail asset	0 k€
...	...	...
37	Petroleum products	0 k€
38	Petroleum products (TEN-E)	0 k€
39	Renewable energy: wind	32 000 k€
40	Renewable energy: solar	5 000 k€
41	Renewable energy: biomass	12 000 k€
42	Renewable energy: hydroelectric, geothermal and other	6 000 k€
...	...	...
55	Promotion of natural assets	1 000 k€
56	Protection and development of natural heritage	12 000 k€
57	Other assistance to improve tourist services	0 k€
...	Etc.	
58	Protection and preservation of the cultural heritage	0 k€
59	Development of cultural infrastructure	32 000 k€
60	Other assistance to improve cultural services	0 k€
...	Etc.	

Breaking down into SICs

50%: 16,000k€ → Building construction

20%: 6,400k€ → Building refurbishment

5%: 1,600k€ → Other public work

25%: 8,000k€ → Equipment

0%: 0k€ → Intangible services

Determinant calculation

- Constructed surface (m²)
- Rehabilitated surface (m²)
- Number of FTE
- Weight of equipment
- Number of FTE

CO_2 Calculation

- CO_2
- CO_2
- CO_2
- CO_2
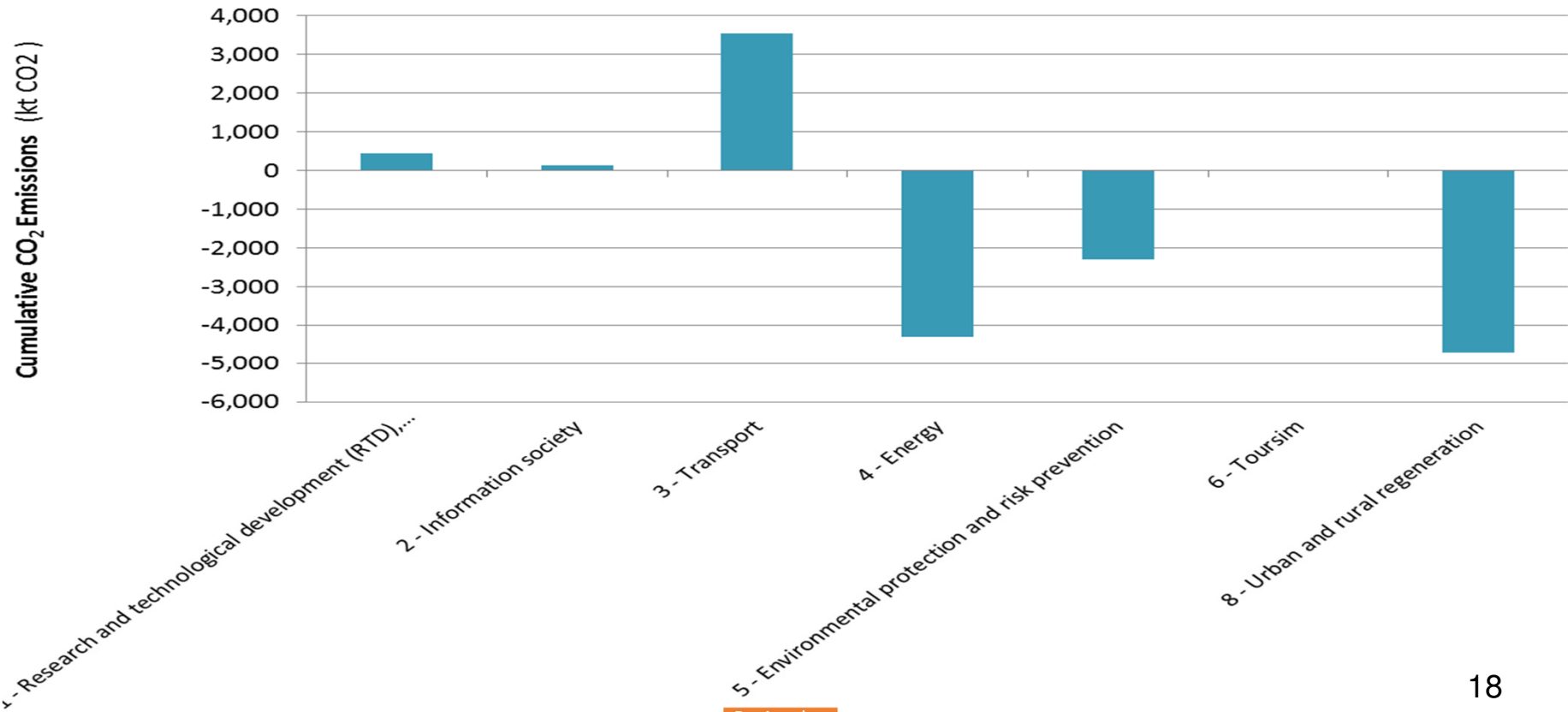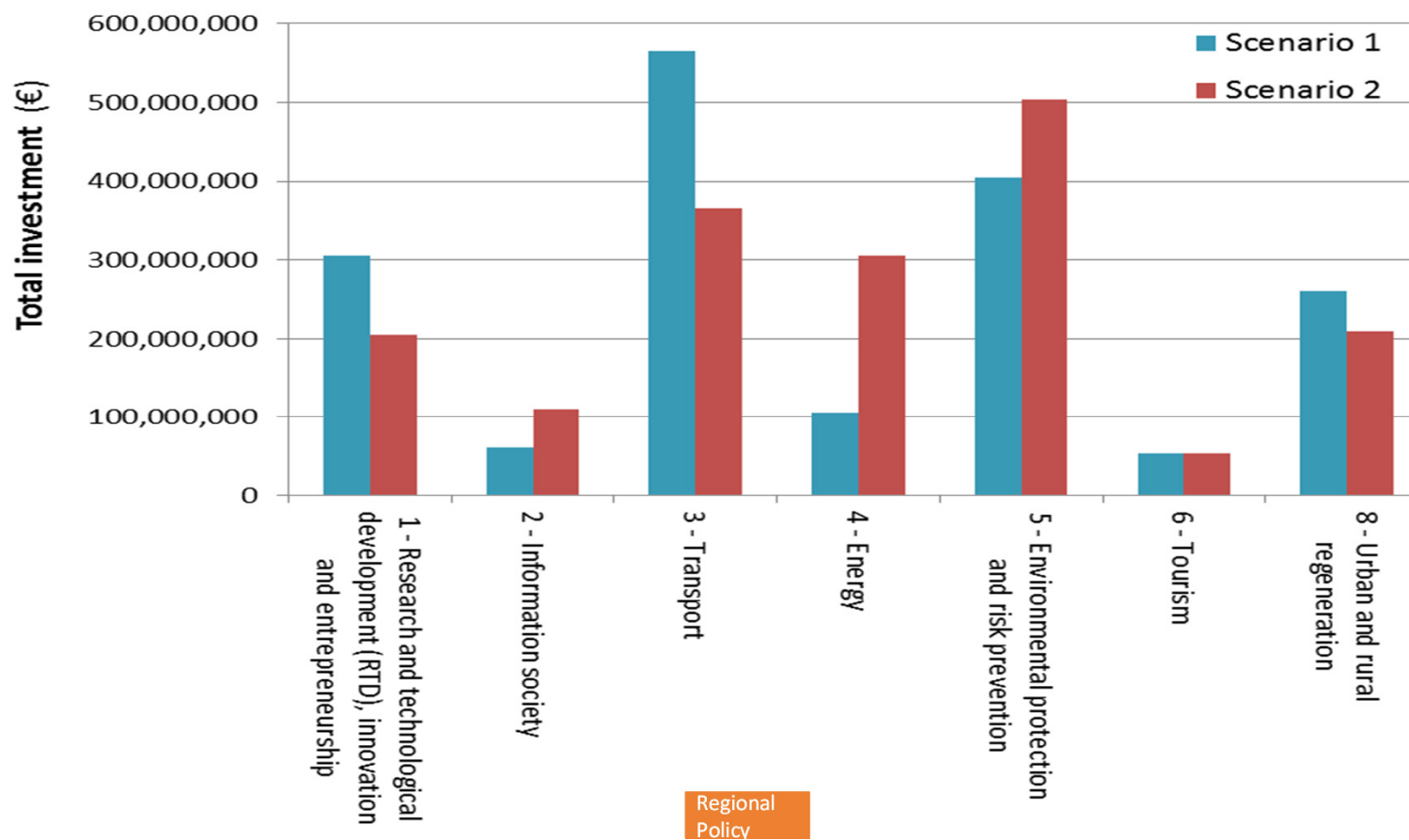- CO_2

Output

Output
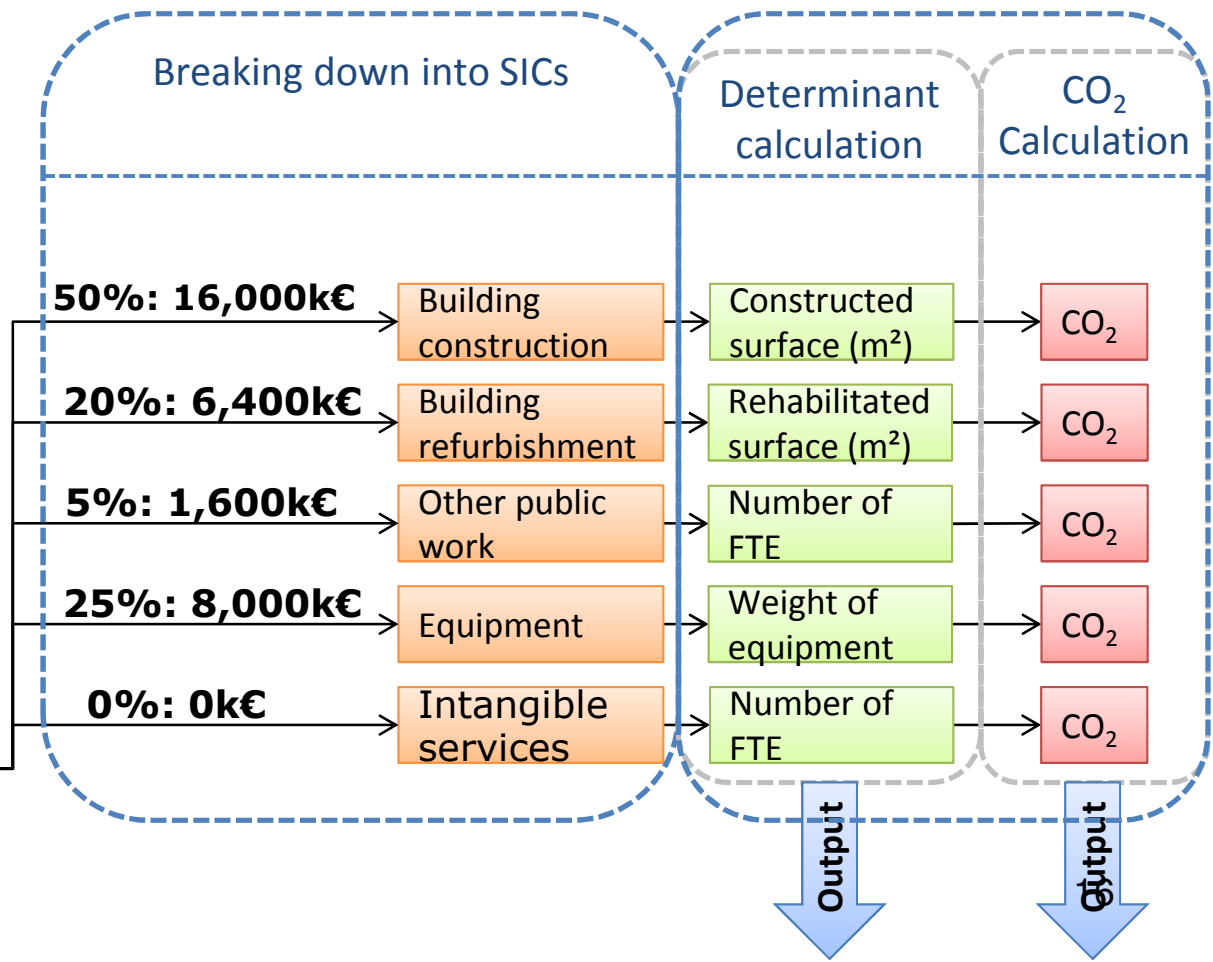
Results

- Emissions of total programme (estimate!)
- Emissions per main programme theme
- Emissions per Standardised Investment Component
- Results for construction and operation phases
- Adjustable for temporal scope of evaluation
- Graphical and in tables
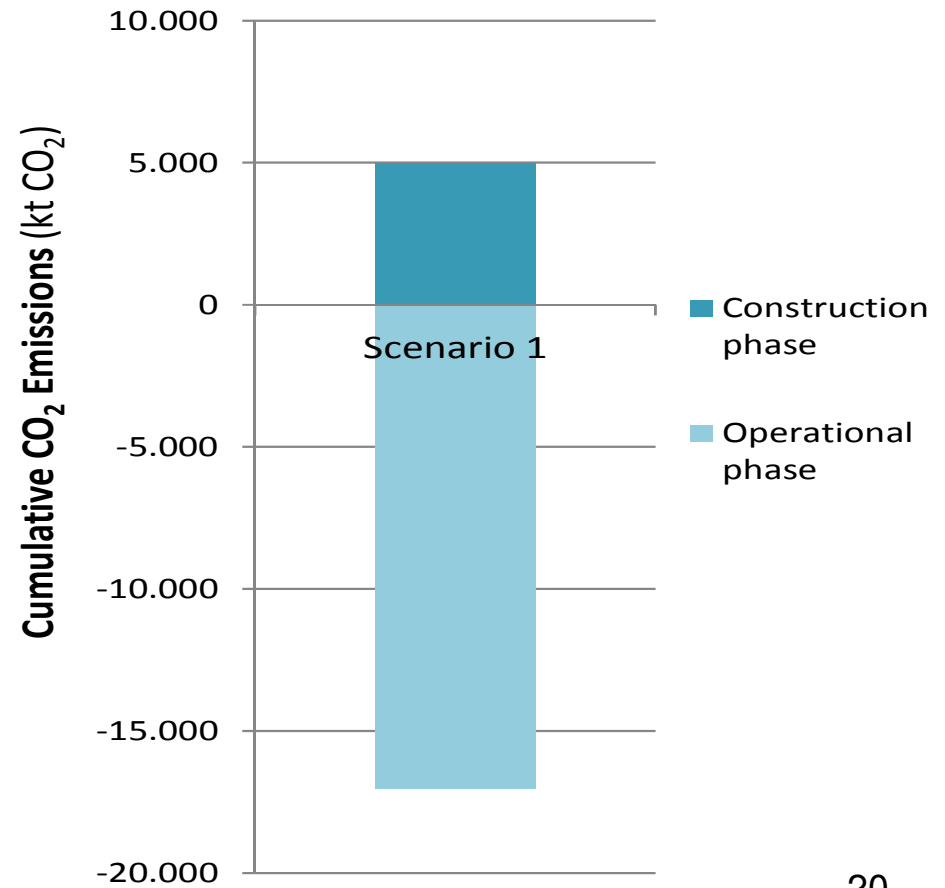- Comparison of multiple programmes

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Emissions per programme theme

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Scenario comparison

Construction vs. operation phase

Cumulative CO$_2$ Emissions (kt CO$_2$)

10.000

5.000

0

Scenario 1

-5.000

-10.000

-15.000

-20.000

■ Construction phase

■ Operational phase

Conclusion

CO$_2$MPARE in a nutshell

- An **innovative tool**: the only model available at European scale able to evaluate the carbon impact of cohesion policy/regional programmes.

- A tool designed for **decision support** and **raising awareness of decision makers** about the carbon impact of their programmes.

- A **user friendly, non-expert oriented** tool for carbon evaluation.

- A **transparent, flexible and regionalised approach**: all parameters are customisable and the model is thus able to integrate regional characteristics in its outputs as defined by users.

- A **valuable tool for the 2014-2020 programming period** as a strong focus will be set on carbon mitigation.

- **Free** and available to each European region without needed feedback to the EC.

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Thank you for your attention

Further information:

http://ec.europa.eu/regional_policy/newsroom/detail.cfm?LAN=en&id=673&lang=en

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