

"Preparing for the next programming period (2021-27):
Strengthening RIS3 Governance and the Entrepreneurial Discovery Process"
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Economic Impact Evaluation of RIS3

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Motivation

- Smart specialization policy (S3) targets industrial restructuring and economic growth
- Therefore understanding the economic impacts of S3 is crucial for policy design and evaluation
- Despite its key importance **economic impact estimation is not yet part of the smart specialization policy framework**
- This presentation introduces and applies an S3 economic impact estimation modeling framework which can be used in
 - ex-ante impact assessments (prioritization)
 - monitoring and
 - ex-post impact evaluation

Economic impact estimation: why and how?

- Economic impact estimation: the estimation of the impacts of policy interventions (e.g., infrastructure investments) on economic variables like GDP or employment
- Therefore economic impact estimation targets impacts beyond the single project level
- Consideration of input-output linkages, income multipliers, technological spillovers, etc.
- Geographical levels: regional, national, EU levels
- Types of economic impact estimation: ex-ante impact assessment and ex-post impact evaluation

Economic impact estimation: why and how?

- Impact estimation with economic models:
 - Baseline results (no intervention)
 - Policy scenario results (with policy intervention)
 - Comparison of the baseline and scenario results (in relative terms)

GMR: Geographic Macro and Regional policy impact models

- GMR-models: EcoRET model (Varga, Schalk 2004), GMR-Hungary (Varga 2007, Varga, Járosi, Sebestyén 2013), GMR-Europe (Varga 2017, Varga, Sebestyén, Szabó, Szerb 2018), GMR-Turkey (Varga, Baypinar 2016)
- Selected applications:
 - Cohesion Policy impact assessment for the Hungarian government (since 2004 continuously)
 - Cohesion Policy impact assessment for the European Commission (DG Regio, 2011)
 - FP6 impact assessment (2010)
 - Policy impact assessments for Turkish regions (2014)
 - S3-related model developments (entrepreneurship and knowledge network policies, industry selection, impacts of individual discoveries) (since 2012 continuously)

1. Economic impact assessment in prioritization

- Foray (2015) highlights the following dimensions in the selection among the activities:
 - The activity's regional spillover capacity to generate firm concentration (industrial restructuring)
 - The economic significance of the new activity

Estimating economic significance

- The introduction of a new activity will result in various, mutually interconnected changes in the economy of the region as well as the economies of other regions:
 - additional employment, investments
 - production of intermediate goods
 - income multipliers
 - labor and capital migration
- **Economic impact models should be applied to estimate these effects**

1.1. Selecting industrial sectors in prioritization with GMR-Hungary

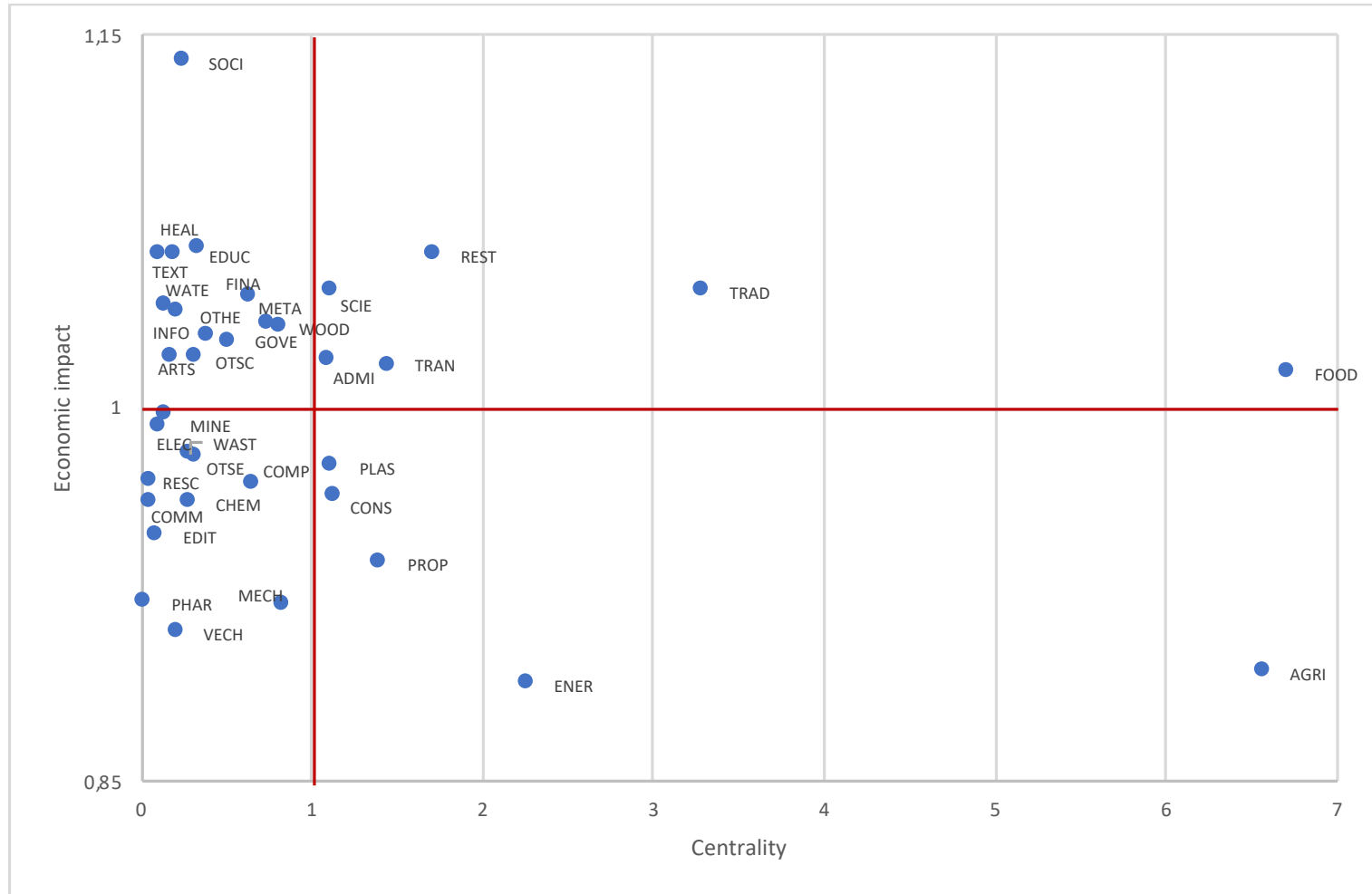
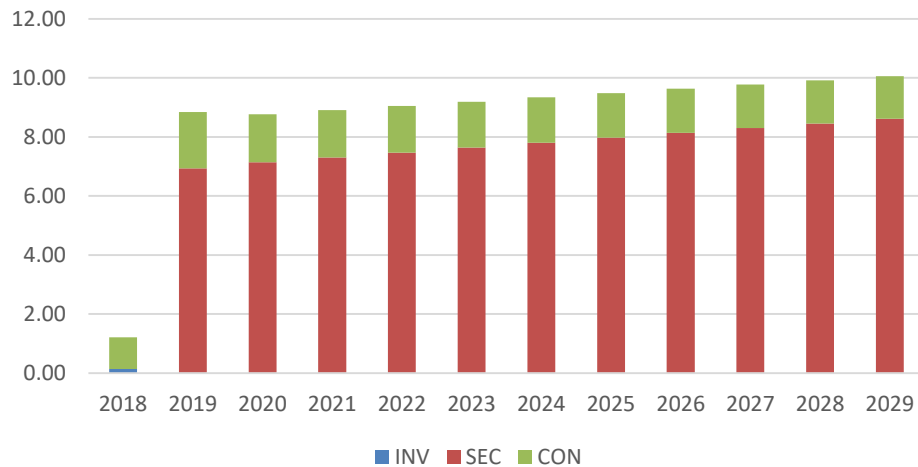


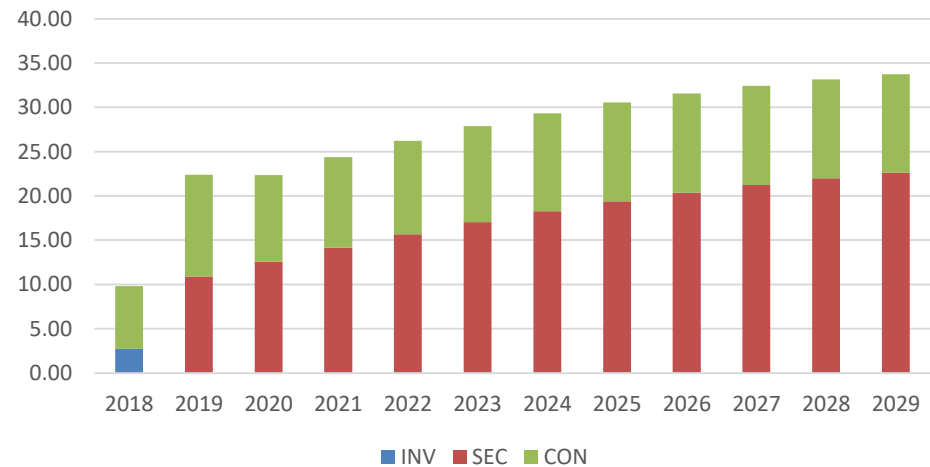
Figure 5: Economic impacts and centrality in Baranya county

1.2. Impact assessment of particular activities: the 3D Bioprinting example (GMR Hungary)

The impact on regional gross output (M EUR)

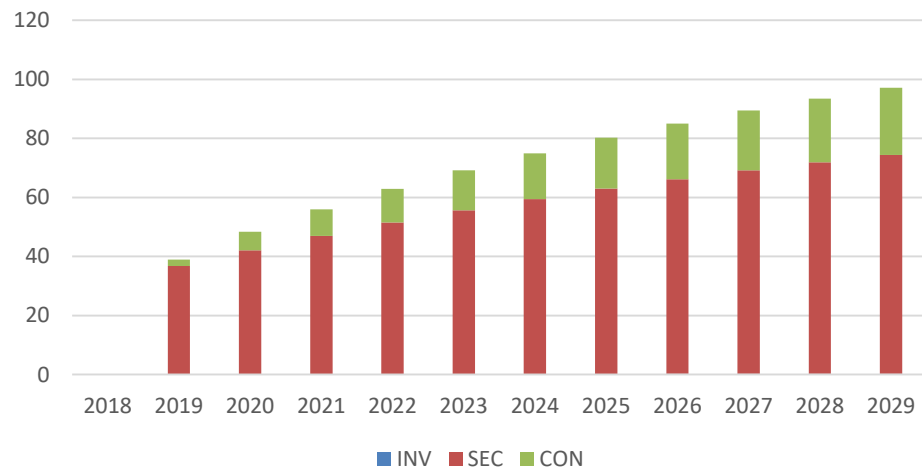


The impact on national gross output (M EUR)

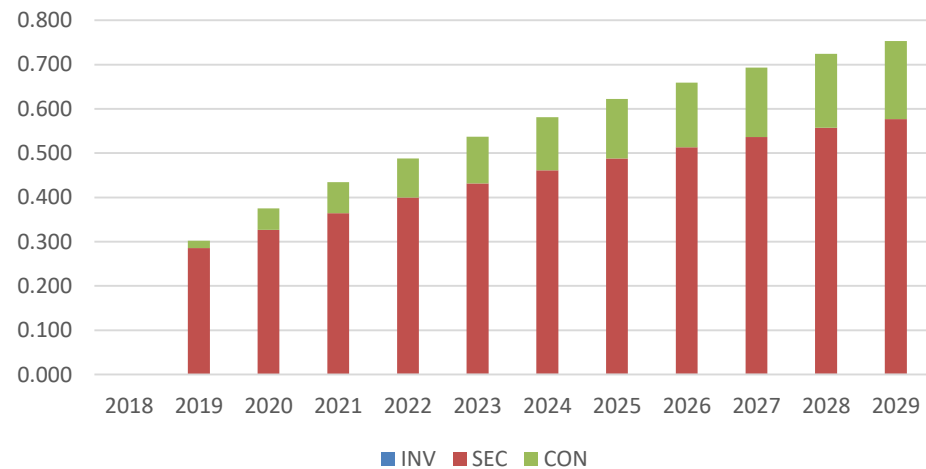


1.2. Impact assessment of particular activities: the 3D Bioprinting example (GMR Hungary)

The impact on regional employment (employees)



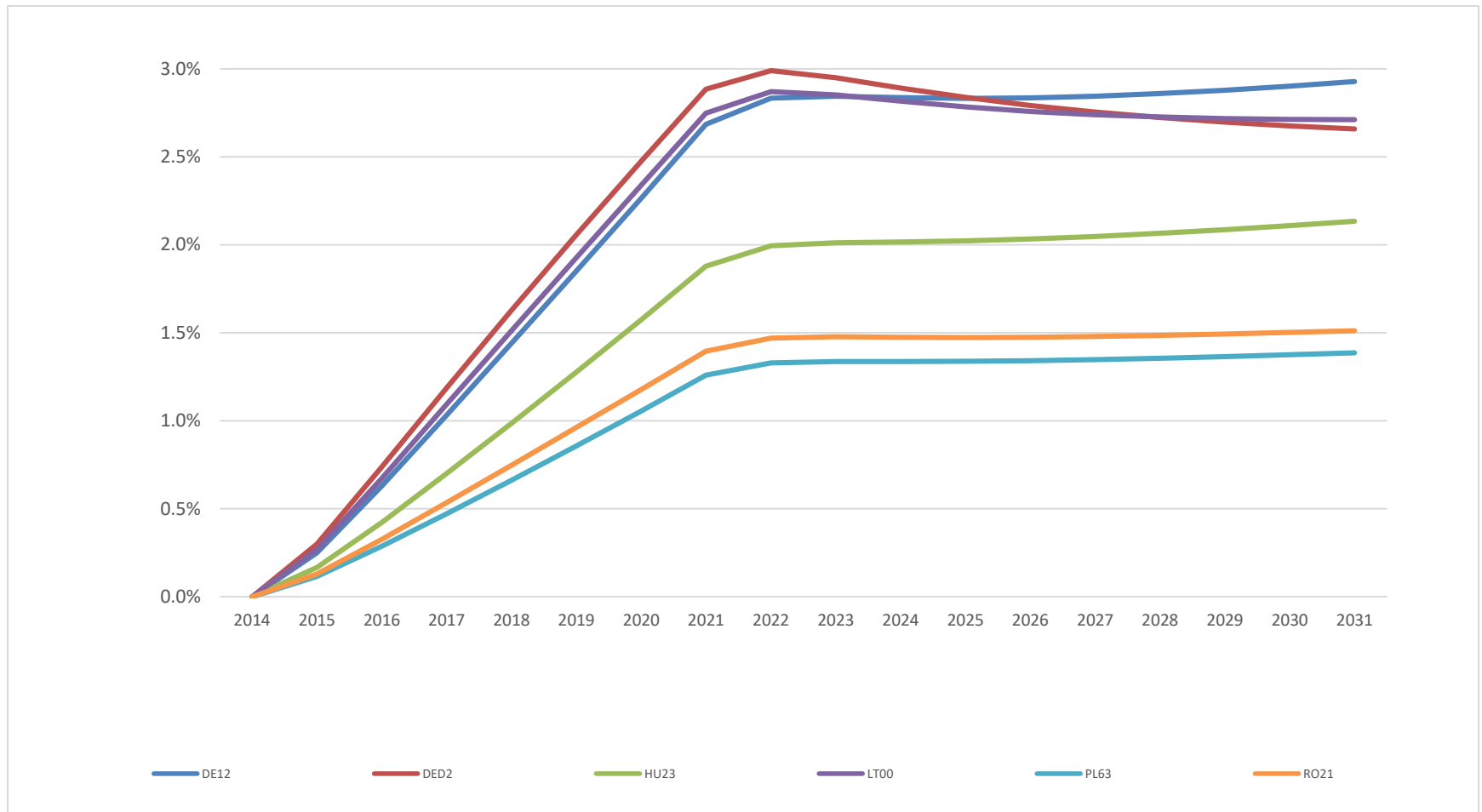
The impact on regional labour income (M EUR)



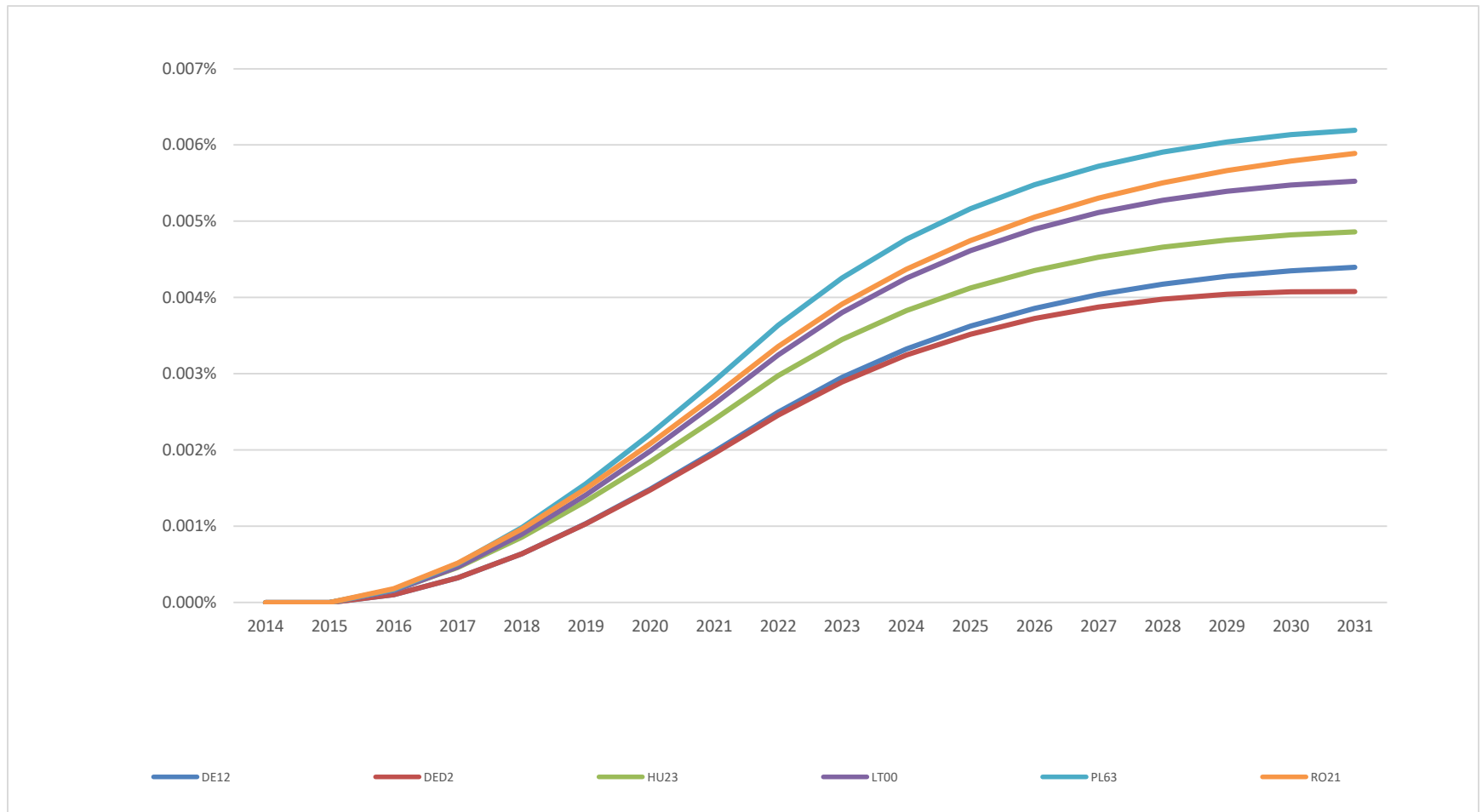
2. Monitoring and ex-post evaluation of the impacts of S3-specific interventions

- With the GMR model we estimate the impacts of the policies targeting the development of the new activities:
 - R&D supports
 - human capital supports
 - investment supports
 - infrastructure investment supports
 - entrepreneurship development
 - innovation network development

The relative GVA impacts of entrepreneurship policies (GMR Europe)



The relative GVA impacts of knowledge network policies (GMR Europe)



Dimensions of S3 economic impact estimation

- Ex-ante impact assessment in the prioritization phase
 - Selection from industries
 - Selection from concrete activities
- Modeling support in the monitoring phase: impact evaluations of S3 support interventions (R&D, entrepreneurship, investments, etc.)
- Modeling support in the ex-post evaluation phase: impact evaluations of S3 support interventions (R&D, entrepreneurship, investments, etc.)

Thank you for your attention!

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