# Positioning competence centres via monitoring data

## Towards a systematic approach based upon the evidence from the evaluation of the Austrian Competence Centre Programme

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# Objectives

- Derive principles for setting up **framework for monitoring systems** in order to...
  - characterise and assess functions and purpose of competence centres/networks for **evaluative purposes** (centre and programme level): link of structural patters and performance
  - make use of accompanying monitoring systems to **manage** their development (e.g. for centre owners, centre management)
- Developed through one example:
  - Position competence centres with each other and within the national innovation system
  - Use distinct typologies for comparing different types of competence centre programmes

# Approach: Methods and sources

- Review commonalities and variations of competence centre programmes
- Review concerning procedures for evaluation and monitoring of competence centre programmes
  - Literature review and case studies conducted in the course of a benchmarking exercise of the SHOK centres of excellence programmes
- Testing systematic specifications of competence centres in the course of an ex post evaluation (evidence from evaluation of Austrian Competence Centre Programmes)
  - Analysis of monitoring data from programme management
  - Analysis of interim evaluations of individual competence centres
  - Merger with existing data of participating firms and higher education institutions
  - Case studies reflecting objectives and performance of competence centre programmes
  - Development a typology of competence centres
- Deduction of requirments for useful monitoring systems for evaluation purposes

# Key characteristics and variations of competence centre programmes: Evidence from literature

## Core features:

- Certain degree of autonomy, physical focus, and critical mass
- Market-relevant strategic research agendas through close engagement with industry
- No extensive contract research but focus on truly collaborative research
- Build core competences over time in the Centre in the area of technology focus
- Develop strong linkages between researchers and industry
- Bridgehead for international collaboration
- Achieve increased industrial activity, by the training and transfer of researchers and commercialisation of IP.

## Variations in implementation

- **Focus:** Industrial Focus vs. Academic Focus (e.g. representation in boards and industry, co-funding)
- **Location**: Physical centres vs. virtual centres
- **Characterisation of networks:** regional, national, and international network partners
- **Funding structures:** Variations in requirements concerning degree of contract research, core funding, participation in other national/international programmes (e.g. FPs)
- **Governance of networks:** representation of actors of higher education institutions, industry, policy stakeholders

# The Competence Centre Programme(s) Kplus

- **Focus**
  - Precompetitive, collaborative R&D jointly run by enterprises and R&D institutions. Individual projects should involve multiple partners. At least 5 companies have to be involved.

- **Target groups**
  - Industrial enterprises and research institutions carrying out high-quality research in fields with high potential for application.

- **Duration**
  - 7 years, mid-term evaluation after 4 years with option fro discontinuing activities: No center closed after 4 years of operation

- All Kplus-Centres have been transferred to the new competence centre programme COMET

# Key characteristics of evaluation and monitoring requirements

## Selection Procedures

- Top down selection
- Competitive calls for tender
- Two staged processes
- National expert panels
- International expert panels

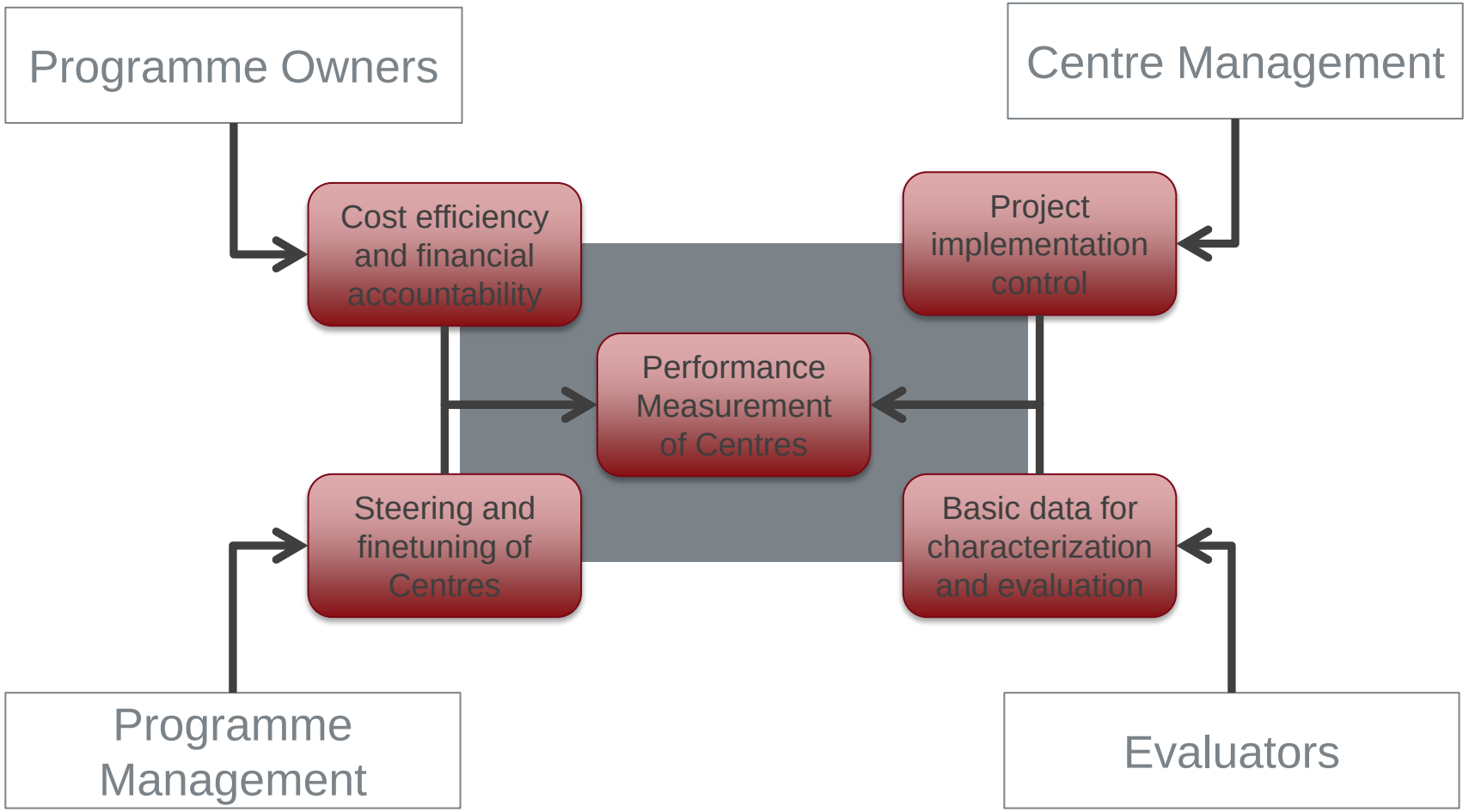
## Monitoring

- Autonomous, but subject to thight monitoring procedures
- Ownership structures, reporting duties and accountabilities exist
- Funding organisations set rules and ensure data gathering standards
- Centres/networks report monitoring data to the funding agencies
- However, strong variations concerning requirements and data gathered

## Interim and ex post Evaluation

- Interim Assessments of centres and programme (Kplus, Kind/Net SHOK, JTIs …)
- Final centre assessment at end of duration of CCs (Kplus)
- Accompanying Evaluations (German Spitzencluster)

# Customers and Use of Competence Centre Monitoring Data



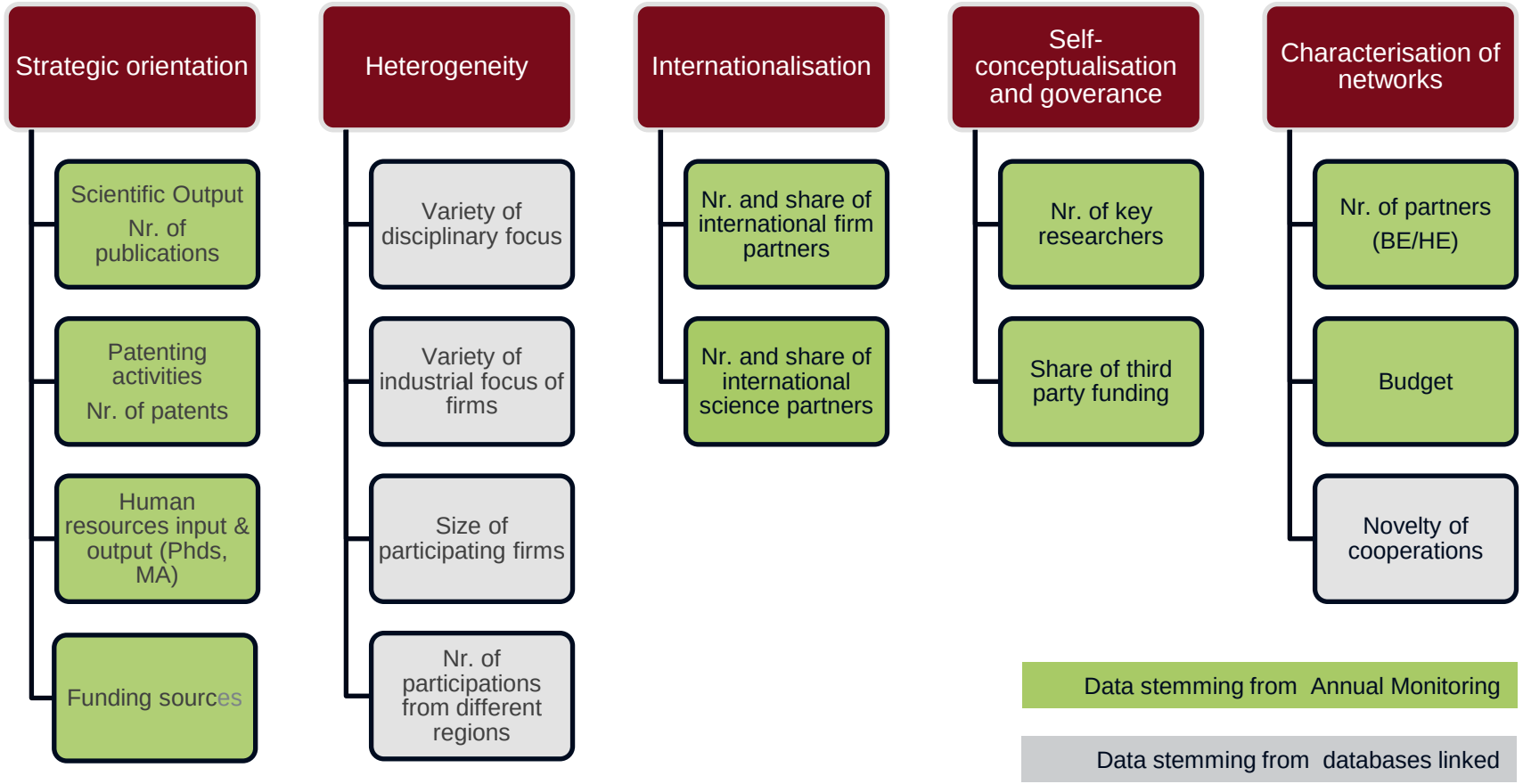
# Useful dimensions for characterization of competence centre programmes: monitoring data

- **Funding and expenditures**
  - Budget, share of public funding, type of public funding (core/project), contract research activities
- **Actor Constellations**
  - Nr. of partners, type of partners (academia, industry), sectorial localisation of partners, size of partners
- **Research activities**
  - Type of research activities with partners
  - Disciplinary focus of research activities
- **Governance systems**
  - Degree of autonomy, composition of boards, decision making processes
- **Results/Outcomes**
  - Knowledge, IPR and commercialisation, Human Resources, Networks

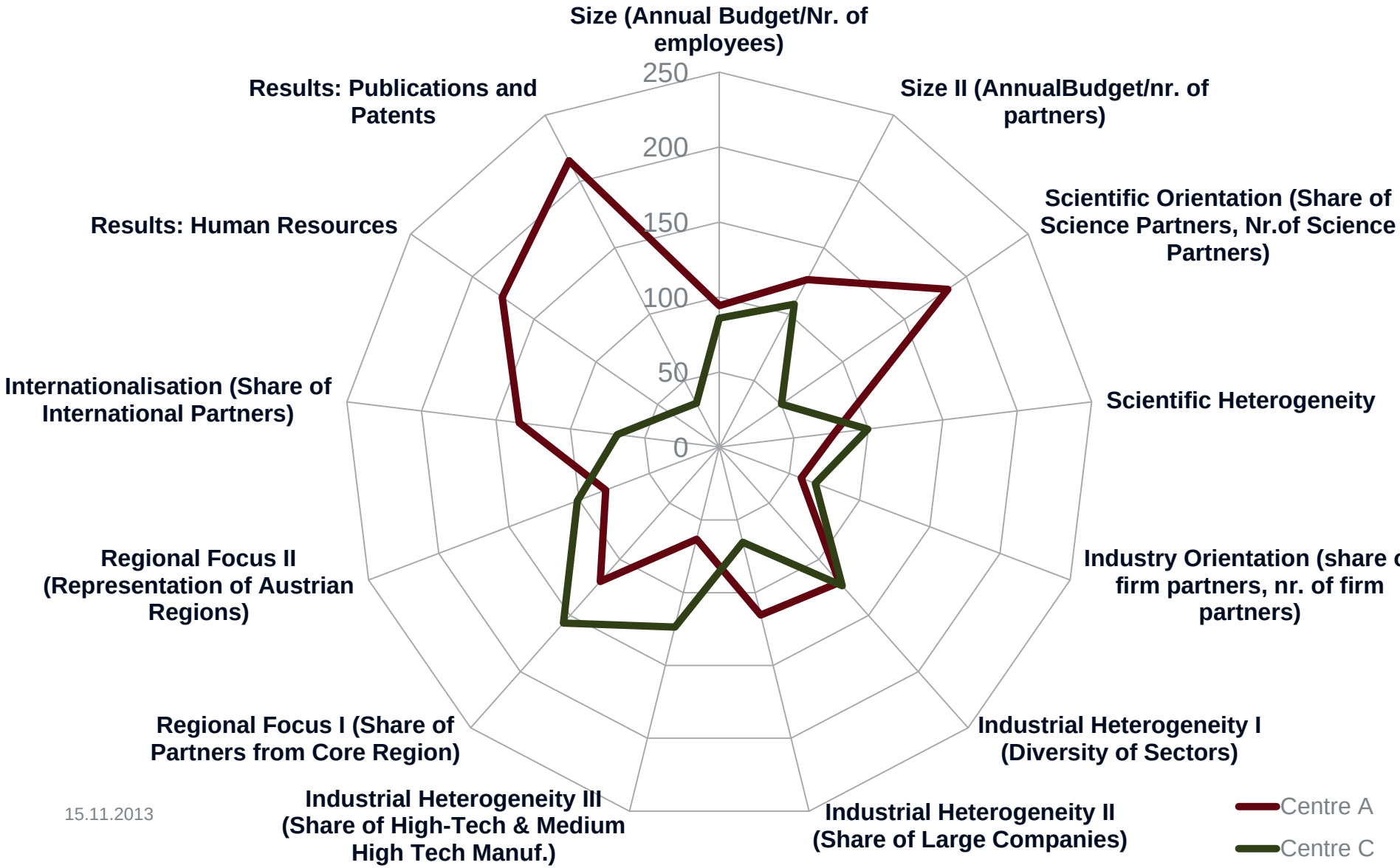
# Available data sources for evaluation of Kplus

- Evaluation and monitoring systems have been in-built in the programme design of Kplus:
  - Annual reports of the Competence Centres: Internal Reporting to Management Authority (FFG): Monitoring of partners, results, funding
  - 4 Year assessment of the Competence Centres (Self-Evaluation Report and External Peer Review Assessment)
  - (Final assessment of the Competence Centres (Peer Review Assessment))
- In addition to the centre based monitoring and evaluation, also programme evaluations have been set up:
  - Mid-Term Assessment on the future of the Competence Centre Programme (By large qualitative analysis, interviews with key stakeholders and programme participants)
  - Monitoring of Behavioral Additionality (survey based questionnaire among programme participants)
  - Ex post Evaluation (Control Group Approaches, Case Studies, Surveys, Interviews)

# Towards a typology of of competence centres: dimensions and available indicators for characterisation (Kplus)



# Profiles of Kplus Competence Centres



# Correlations between structural patterns and performance

| | Human Resources (PhD, MAs) | Research Outputs (Pub, Patents) |
|---|---|---|
| **Industrial Heterogeneity: Company Size** | + | ++ |
| **Industrial Heterogeneity: Representation of HMHTM** | | + |
| | **Scientific Orientation** | |
| **Internationalisation** | + | |
| | **Research Outputs** | |
| **Human Resources Output** | + | |

# A Typology of Competence Centres (Kplus)

- **Regional Platforms:** have an important function for the regional economy. Applied in their scientific orientation, they build upon existing co-operations and strengthen these.

- **New Networks:** Bundle competences in several Austrian regions, develop new science industry cooperations. Activities are primarily geared at direct needs of industrial partners, which sometimes require strengthening of scientific competences.

- **Lighthouses:** Build upon well established cooperations between science and industry, accordingly to industrial and scientific specialisation profiles. Scientific profilation and creation of new quality of cooperation are core objectives of these centres. As strong corporate actors, they seek to establish access to international top research and international cooperations.

- **Centres of the future:** Seek to establish new cooperations and bundle competencies in less established fields. Aim at development to be a corporate actor in the innovation system, with various actors seeking to achieve synergies and international visibility.

# Lessons learned

- Programme with clear, homogenous objectives, delivered competence centres exhibiting huge diversity in terms of partner structures and performance patterns
  - Use of monitoring data can provide/could have provided a baseline for developing and steering competence centres and a daption of competence centre programmes

- Monitoring data allowed to...
  - Serve as a basis for clustering competence centres into different types and highlight their  different functions and profiles
  - Deliver profiles of competence centres
  - Reduce complexity for evaluators

- Monitoring data did NOT provide information on...
  - Type of projects conducted and partners therein
  - Patterns of R&D projects and their results
  - Benefits for participating organisations
  - Performance of competence centres going beyond publications and patents
  - Indications for linkages between centre structures and performance

# Strengthening efforts to increase usability of monitoring data I

- **Establish preconditions for maximise usability of monitoring systems**
  - Monitoring data concentrate on inputs, while processes and outputs and outcomes are fairly neglected
  - Little self-set/external targets for centres which are monitored systematically
  - Reporting systems do not provide linkages between main objectives, activities and results
  - Reporting systems do not synthesize qualitative information at hand
  - Reporting systems do not provide linkages/interfaces to external data bases/sources

- **Guiding principles/considerations to be taken into account**
  - Purpose: What are the objectives/purposes of the monitoring system?
  - Feasibility: What burden do I pose on programme managers/participants?
  - Timeliness: Allow for real time monitoring and continous learning
  - Comparability: Can you  contextualise the information gathered (e.g. with indicators from similar programmes, other EU funding mechanisms etc.)

# Strengthening efforts to increase usability of monitoring data II

## Key input indicators: portfolio of projects and actors therein

- Involvement of relevant industrial actors and research organisations (key economic and innovation data)
- Portfolio of projects (new coordinators, new collaboration, frequency of participation)
- Portray portfolio of projects and actors therein (duration, fields, type of R&D etc.)

## Key output indicators: progressing towards objectives set

- Satisfaction with the project progress/results
- Project results in relation to the funding objectives
- Evidence on contribution to tangible knowledge outputs and intangible knowledge outputs
- Qualifications obtained in the course of the project.

## Key outcome indicators: final estimates concerning achievements of objectives set

- Innovation impacts at the level of participants and non-participants
- Ability to develop different types of product/processes innovations
- Capability to introduce organisational innovations, increased creativity and skills
- Tangible economic results at the level of participants and the economy at large.

Thank you for your attention!

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