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Evaluating the Effects of Innovation Measures in the Structural Funds

WHAT'S NEW AND WHAT WORKS IN THE EU COHESION POLICY 2007–2013: DISCOVERIES AND LESSONS FOR 2014–2020
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Outline

- Basic principles and concepts of evaluating innovation policy measures – the importance of time and triangulating methods
- Methods for evaluating innovation measures – taking into account 'behavioural additionality'
- Examples of different types of innovation measure evaluations – single measures versus portfolio or system evaluations
- Setting up an evaluation framework for the evaluation of innovation measures financed by the Structural Funds

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Evaluating public support for innovation : breaking into the black box of innovation ?

- 2007-13 €86b investment into 'R&D and innovation' represents six-fold increased over previous period
- Structural Fund management authorities will increasingly be required to appraise performance of innovation measures
- Few mid-term evaluations (MTE) for the 2000-2006 period provided real insights that contributed to significantly improved management of RTDI interventions.
- However:
  - *Wealth of information on R&D programme evaluations and increasing know-how on innovation evaluation methods*
  - *Networks (e.g. Austria) and guides/training on evaluation of R&D & innovation exist that can inform improved an evaluation process*

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…since we expect that innovation measures create a few exceptional results and 'behavioural changes'.

- Innovation is risky and unpredictable: which particular activity/ intervention will work or prove useful or not, who will benefit, when exactly, under which particular set of circumstances
- Firms rarely innovate in isolation - a system of networks and co-operation with customers/users, etc.
- Make appraising direct cause-effect of measures difficult
- Need to take account of:
  - *Time-lag between intervention and impact (particularly long for innovation projects)*
  - *Attribution problem and project fallacy*
  - *Skew - only a few public funded innovation projects from a portfolio of project will produce significant socio-economic impact (particularly true for R&D projects)*

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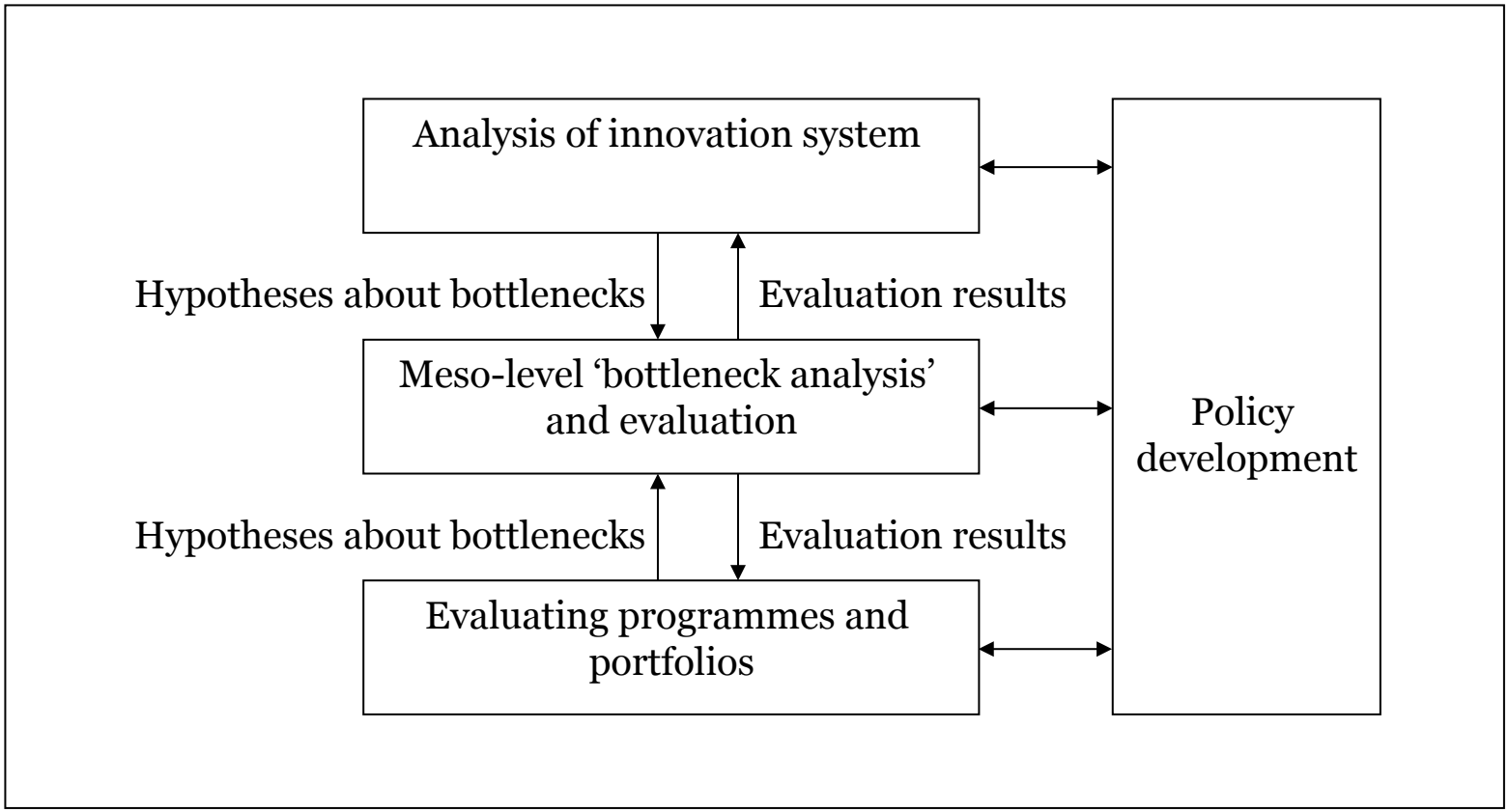
Implies need to evaluate at different levels



What sorts of tools and methods should be used ?

- Broad agreement in the R&D and innovation policy evaluation community that individual techniques have important limitations;
- Evaluations should use multiple techniques (triangulation of methods):
  - *If innovation is a longer-term process:*
    - Need to plan impact assessments on a five yearly+ timescale - using mix of quantitative (statistical analysis of trends in innovation indicators, etc.) and qualitative (interviews, case studies, etc.)
  - *If innovation measures aim to create new capabilities and co-operation patterns of firms:*
    - Need to understand how a number of interventions may (or may not) have contributed to changed behaviour of enterprises.
  - *If performance of organisations is dependent on the wider innovation system:*
    - Need to analyse 'bottlenecks' in the system (regulatory, financial, etc.).

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Need to consider 'behavioural additionality'

- Additionality is a deceptively simple idea: refers to the change that can be attributed to the measure.
- What would have happened in the absence of the measure ?
  - *Would the technologies have diffused to SMEs anyway ?*
  - *Would the innovation management practices have been adopted ?*
  - *Were universities and firms already on the way to establishing closer linkages ?*
- The term "behavioural additionality" describes the – hopefully enduring – changes in practices that participation in innovation measure has induced.
  - *Recognises that it is the ways in which the innovation process has been transformed that is most significant.*
- Innovations based, for example, on
  - *intelligence about emerging market requirements;*
  - *more collaborative work*
  - *New skills, procedures or standards adopted.*

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Possible impacts of innovation policy measures

- Innovation measures should improve innovation performance/ behaviour in firms in a lasting way:
- Measuring impact:
  - *Longer-term view: innovation surveys and econometric analysis of impact of innovation on competitiveness, etc. ;*
  - *Medium-term view: observed changes in co-operation patterns, modes of innovation, innovation expenditure, etc.*
  - *Short-term view: direct results of projects financed (people trained, new technologies adopted, spin-offs created, etc).*

Objectives	Objects of Evaluation		
Programme Aims	Immediate Impacts	Medium-Term Impacts	Longer-Term consequences
Increase awareness of a set of new technologies	Attendance at meetings, uptake of literature, hits on websites	Adoption of technologies	Improved business performance; continuing awareness and adoption of related technologies.
Improve the skills base of a set of industries	Training sessions, staff exchanges	Improved technical competences of staff, increase in effectiveness of in-house R&D	Improved innovation performance, increased technological absorptive capacity, greater technical awareness
To increase HEI-industry links	Student placements, increased academic-industry dialogue	Introduction of new knowledge and skills	Improved skills, technical competence and knowledge base
Stimulate the start-up of new-technology based companies	Finance and information for company start-up for would-be entrepreneurs	Creation of new high-tech companies	Long-term growth and sustained development of new high-tech industrial sectors

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Example 1: ex-ante (feasibility study) for an SME technology investment programme in Estonia

- Year: 2007
- Commissioned by: Ministry of Economic Affairs and Communications, Republic of Estonia
- Authors: Technopolis Group (Estonia)
- Methods applied:
  - *Statistical analysis of Estonian manufacturing sector.*
  - *Benchmarking of similar schemes (Ireland, UK, Netherlands, Belgium)*
  - *Process evaluation through structured interviews with financial sector, business advisors, etc:*
- Key findings:
  - *Concluded that intervention was warranted but that 'cash alone' would not lead to significant shift in enterprise performance in terms of productivity or export potential - need for accompanying manufacturing advisory service.*
  - *Government launched ERDF co-financed 'grant-only' scheme that has proved highly popular.*

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Example 2 : 'Thin markets' - evaluation study of UK Government support for early stage venture capital

- Year: 2009
- Commissioned by : NESTA and the BVCA
- Authors: Nightingale, Murray *et al*
- Methods applied:
  - *Impact analysis of six UK government backed VC schemes on 782 funded firms over the period 1995-2008.*
- Key findings:
  - *Positive impact on firm performance when compared to a matched control sample - but size of impact remains small to date*
  - *Effective policy solutions have to address more than just the provision of a greater supply of capital*
  - *Need for early-stage VC funds to be substantially larger, hence, rationale for 'a fund in every region' is not substantiated*

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Example 3 : R&D Grant Evaluation

- Year: 2009
- Commissioned by: Scottish Enterprise
- Authors: Frontline
- Methods applied:
  - *Specific analysis of 55 large R&D awards (to 36 companies) - 2004-2009*
  - *Stakeholder survey on market failures (rationale), key S&W of support, etc.*
  - *Detailed questionnaire based interviews with companies - analysis of outputs, process/additionality effects, economic impact assessment/value for money.*
- Key findings:
  - *Strong direct effects on companies (patents 69%, new products 83%), revenues 97%),*
  - *Plus high levels of additionality: ability to plan, manage and deliver R&D.*
  - *Economic impacts: over 2009-19 strong effects on jobs 28519 and gross value added £640.7m (NPV) plus "'time additionality for 2007 for both indicators.*
  - *Strong case for continued and increased support - recommended to explore potential for greater co-operation amongst firms conducting R&D.*

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Example 4 : innovation systems evaluation in Finland

- Year: 2009
- Commissioned by: Ministries of Education and Employment and Economy.
- Authors: large team of international & national experts
- Methods applied:
  - *Six cross-cutting themes: e.g. geography & innovative activity*
  - *10+ supporting studies, 100+ interview/hearings, 2000 survey responses, qualitative and quantitative hearings.*
- Key findings (a few selected "headline statements"):
  - *"Companies have been primary object of innovation policy, but as they become "footloose", focus may have to shift to nurturing and attracting creative individuals".*
  - *"unspoken regional bias in national innovation policy is contributing to the misallocation of resources that drives the recent divergence in competitiveness between Finnish regions".*

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Setting up an evaluation framework for Innovation Measures for 2007-13 – an outline approach

- 1) Rather than adopting a measure-by-measure approach, an 'ideal' evaluation method framework should assess the combined impact of the set of innovation measures.
  - *Optimal approach may be to track impact of various measures on selected group of enterprises over time (using a control group)*
- 2) 'Possible' impact of innovation measures need to be placed in wider context of enterprise, higher education, etc. policies and of non-subsidy and regulatory frameworks !
- 3) Need to assess the optimality of the whole policy portfolio (coverage of market and system failures, number of measures, influence of programme management / procedures).

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Setting up an evaluation framework for Innovation Measures for 2007-13 – key questions (1)

- Can related strategies be evaluated jointly to appraise overall impact (e.g. innovation and enterprise (SME) policy measures)?
- Can the policy impact be assessed through one evaluation study or should selected measures be evaluated separately as well?
- Should there be a link with other policy initiatives in related areas e.g. launched by ministries of education, research, etc.?
- How do agencies identify client groups and to what extent are measures focused on specific client groups ?
- Should the evaluation approach be based on distinguishing excepted results and impacts by certain client groups?
- Is it relevant to focus the evaluation on certain sectors/priority areas (e.g. impact on 'smart specialisation') ?

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Setting up an evaluation framework for Innovation Measures for 2007-13 – key questions (2)

- How in depth should the evaluation of the strategy and programme evaluation be (in terms of indicators, activities, etc)?
- What are the key indicators to focus on during the evaluation?
- Is it possible to distinguish the cost-efficiency (e.g. with a view to public budgetary resources), effectiveness and impact when comparing grants and other financial instruments?
- What is the most cost-effective way (for the SF management authorities, agencies and the firms receiving support) to collect a minimum set of representative data for the impact analysis?
- Which data are presently available for an impact analysis (e.g. collected by agencies via the process of selecting and funding projects) and which need to prepared additionally before the start or during the evaluation?

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Evaluation methods for innovation measures – study to develop new guidelines for DG REGIO

- Study being implemented by Technopolis Group & Manchester Institute of Innovation Research
- January-December 2011
- Phase 1 :
  - *Literature review and identification of good practice evaluations*
  - *Survey of 300 Structural Fund management authorities –what evaluations are being done on innovation measures, what are needs ?*
  - *Telephone interviews with 30 MA to deepen analysis.*
- Phase 2 : Case studies of good practice
  - *In-depth analysis of 15 good practice cases*
- Phase 3 : Development of a new guidance document and updating Evalsed website
  - *Including workshop with practitioners.*

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Summing up: key do's and don't's for evaluating innovation measures

Do

- Set up an evaluation process that takes account of time lag, complexity and risky nature of innovation;
- Apply multiple techniques including qualitative analysis based on case studies, social network analysis, etc.
- Do look for behavioural additionality by observing changing co-operation patterns & capabilities of firms to innovate.

Don't

- Forget to take account of external factors that may be bottlenecks to improved innovation performance of supported organisations
- Expect to prove significant short-term (2-3 year) quantitative impacts of innovation measures;
- Limit indicators to those that count direct 'outcomes' of individual projects.

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Useful sources of materials on innovation evaluations:

- EVALSED : http://ec.europa.eu/regional_policy/sources/docgener/evaluation/evalsed/index_en.htm
- Smart Innovation: Guide to Evaluation of Innovation Programmes http://www.mbs.ac.uk/research/engineeringpolicy/researchprojects/documents/SMARTInnovation.pdf
- http://www.fteval.at/ - Austrian research & technology evaluation platform
- http://www.proinno-europe.eu/ Inno-Appraisal
- http://www.rim-europa.eu/ Regional Innovation Monitor
- http://www.evaluationsonline.org.uk - select innovation theme
- Technopolis: http://www.technopolis-group.com/cms.cgi/site/downloads/index.htm

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Thank you

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