Evaluation of systems and portfolios: using existing evaluation to make sense at systems level
A concept development

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Structure of the Presentation

– Need for systems evaluation

– Evolution of evaluation

– The challenge of the full package:
  • issues to tackle – challenges faced
  • methods to be mobilised

– A second best approach: using existing evaluations (secondary analysis)

– Conclusions
The need for portfolio and system evaluation

- Policy has become more complex:
  - complex cause and effect relationship
  - multitude of variables, agents, interactions
  - policy wants to cure system failures
  - …tackling actors simultaneously
  - instruments to be seen as inter-linked, one instrument cannot cure system failure ills

- We need to be able to assess the overall combined effects and the remaining bottlenecks and existing redundancies of
  - measures (for a policy)
  - and policies (for a system)

- We need to be able to better compare and understand
  - individual measures and their effects within given policies
  - Individual policies within innovation systems

- Consequence for evaluation:
  - simple cost-benefit ratio of individual measures does not deliver
  - more instruments to assess and stakeholders to inform
  - more fragmentation in evaluation: **re-integration or holistic approaches**
The evolution of evaluating Policy and Systems in STI

Evaluation approaches tend to co-evolve with policy development

- 1980s interest began in collaborative R&D programmes
- 1990s rise of:
  - performance indicators
  - emphasis on knowledge transfer indicators
  - commercialisation of research
- 2000s interest in
  - evaluation of system capabilities (national or regional systems)
  - aggregate or interactive effects of policies ("policy mix")
  - effect of "soft" policy tools such as foresight
  - strategic and persistent effects on firms of public support ("behavioural additionality")
- Recently: attempts for full fledged systems evaluation based on combination of evaluation synthesis, formative elements and cross-cutting economic analysis (e.g. currently Austria, East Germany)
Issues to tackle on systems level – illustration*

- Against what **foreseeable challenges** must the RDTI funding system be robust (coming 10-20 years?)
- Do the **framework conditions** support good innovation systems performance and the use of the RTDI funding instruments?
- How well does **portfolio** of interventions address innovation *systems* performance?
  - Direct and indirect funding mechanisms (including block grants) of public research
  - Do they collectively implement the **intervention logic(s)** for RTDI funding?
  - Do they **interact** with each other, mutually supportive/ contradictions?
  - Do the interventions **adequately cover all the target areas** of the innovation system?
  - How well do existing policies cover the market and system failures identified?
- What **desirable and undesirable behaviours** do instruments induce?
- Is RTDI system **responsive to societal needs** and sectoral policy goals?

*inspired by common conceptualisation of systems evaluation by Joanneum, Technopolis, ZEW, MIOIR
Issues to tackle on **systems** level – illustration: the gaps

- Are there market (or system) failures that are not covered by existing policies - and, *can* they be identified?
  - Are there deficiencies that hold back innovation and growth?
  - Are there (identified) problems that markets can not solve?

- Are the **governance structures and processes** in the RTDI policymaking system adequate? (horizontal coordination, joint ‘vision’)

- Has the policy maker *competence & ability* to solve or mitigate the problem?
  - Can it, in general, be solved by public intervention?
  - Should the policy makers improve their competencies to solve the problem?
For a full fledged analysis: some **key approaches** to be used

- Analyse policy **rationales** and targets (and conflicts!)
- Understand interests, challenges perceptions of all key stakeholders
  - based on existing research and a strong theory base
  - Prospective elements – foresight
  - Interaction (workshops, interviews)
- Analyse the **status quo** of the (sub-)system addressed with policy:
  - scientific, technological, economical strengths (bibliometric, technometrics etc.)
  - International system comparison: with caution – learn for your own system
  - Based on existing studies, international (OECD, EU, World Bank, UN data)/national
- Analysis of **polity** and **politics**: political science approach
- Analyse how public and private interventions / support measures (expert consulting and financing) are **used** and which **effects** they have:
  - Survey, focus groups, interview programme, project databases, fiscal/tax information
- If relevant: Understand **network performance** within policy implementation:
  - interview / survey based / project databases
- **Huge conceptual and institutional coordination needed**
A second best approach

Using existing evaluations to tackle systems and portfolio issues
Secondary analysis - clarification

• **Meta-Evaluation**

• **Meta-Analysis**
  - The term refers to the statistical and quantitative analysis of a large collection of analyses, which document the results of individual studies (Glass 1976, p.3)
  
  Meta-analysis is a collection of conceptual and methodological approaches to summarize the empirical evidence for a given research question (Beelmann & Biesner 1994, p. 211) to achieve quantitative integration

• **Evaluation Synthesis**
  - A combination of the results from more than one study in order to come to general statements about an intervention (Cooksy / Caracelli 2005, GOA 1992), a content synthesis of multiple evaluation reports on similar programmes or projects (Beywl & Associates 2004).
  
  – Our focus: content analysis, combination of evaluation on programmes in policy-mix / systems
The overall concept

Design and preparation
- Definition: purpose/leading questions
- Checklist for selection of policy measures (scope, level)
- Checklist for quality assessment of evaluations

First Collection of policy measures

Collection of all relevant related evaluations (depends on system's question)

Meta-Evaluation
Description/Quality check of Evaluation
Evaluations and related policy measure included if of sound quality

Characterisation of Evaluations and Remaining Policy Measures; Eval. Culture

Policy measures with no sound evaluation conducted
Short characterisation of policy measures to inform about measures not evaluated

Secondary analyses

Meta-Analysis
Comparisons and in depth understanding of individual types of measures

Evaluation Synthesis
Understanding of (a) policy performance/policy mix and (b) evaluation culture at systems level
Meta-Evaluation as first step to secondary analysis
Assessment / Quality Check

Basis:
• Use Standards Existing standards of evaluation, certain sub-group and own compilation
• Check quality to select for evaluation synthesis

Basic dimensions:
• utility, feasibility, propriety (legally, ethically correct), accuracy

Assessment, selection:
• Scoring model, expert assessment, knock out criteria

But: Decision rules also dependent on goals of secondary analysis
Evaluation Synthesis

• **Idea:** Understand policy-mix / policy performance in innovation systems through combining findings on a clear set of individual programmes, "system's world needs system's policy and system's evaluation“ (E. Arnold 2002)

• **Objective:** Identify gaps, redundancies, interplay, contradictions of policy mix

• **Broad range of possible research questions:**
  
  – system performance in general to assess policy impact on a certain region/nation..
  
  – interplay (complementary, contradictions?) of instruments for a certain area (Koschatzky/Lo 2005, East Germany)

• **Focus on qualitative** rather than quantitative data and interpretation because of idiosyncracies and interplay of **diverse** instruments
Evaluation Synthesis: Process - flow

- Start (of course!): Research question (very precise)
- Identification and selection of relevant policy measures
  - **Basis**: Characterisation of policy measures in meta-evaluation (feedback loops)
- Target tree / matrix:
  - Relation of **synthesis objective** to objective(s) of set of instruments
  - Identification of overall “**objective framework**” (contradictions, coherence)
  - **Vertical fit of objectives**: fit between objective levels
  - **Horizontal fit of objectives**: relation between **rationales/ targets** of the various selected policy instruments
- Differentiating **incentives for** and **effects on** target groups, aggregation
Evaluation Synthesis: Principles and process - flow

- Context analysis (of evaluations and systemic)
- Integration of quantitative data: if set of evaluation allows (using methods of meta-analysis)
- Include – if needed – analysis on evaluation culture (based on Meta-Evaluation)
- Complementary own analysis (set of interviews, case studies, expert panel) to assess specific findings on systems / mix – level.
- Sound reporting (transparency!!)
Evaluation Synthesis: a first example

Koschatzky / Lo (2005): Assessing the impact of all support measures aiming at improving technological competitiveness in Eastern German States

- Time and budget constraints: taking advantage of existing evaluations
- Check: quick check of quality of evaluations
- Huge variety of different measures, by different stakeholders
- Clear definition of major targets against which the policy measures have to be evaluated (top down): industrial R&D, networking industry; science; start ups
- Clear contextualisation (again using existing studies)
- Complemented by case studies (to better understand the combined effects)
Evaluation Synthesis: a first example, contd.

Koschatzky / Lo (2005): Assessing the impact of all support measures aiming at improving technological competitiveness in Eastern German States

- Stock taking of relevant measures (and their objectives) and all their evaluations
- For all policies and the major analytical dimensions (the synthesis objectives): Matrix of targets, major support mechanisms, target groups, and goal attainment
- Major results:
  - ambivalent achievements
  - definition of future focus: e.g. more market orientation, more competition, more efficiency across the board
- Lessons for the evaluators: better check of evaluations needed, pooling of data (meta-analysis) extremely challenging.
Evaluation Synthesis: benefits and limits

• **Benefit**
  – Cost efficient analysis of system / mix perspective (using what is there)
  – Answering questions that one evaluation overburden
  – More robustness in findings through combining various evaluation approaches
  – De facto system sensible policy benchmark

• **Limits**
  – You can only synthesis what you have (number of evaluations, questions asked therein)
  – Potential lack of crucial information (on interfaces etc.)
  – Institutional opposition
Conclusions

- Portfolio and systems analysis increasingly in demand
- Decision: full fledged and tailored – or secondary?
  - Full fledged:
    - Huge effort, multi-method, time consuming, cross cutting
    - More targeted, including governance aspects
  - Secondary:
    - Quicker, basic ideas
    - Conditions complex: is evaluation culture sufficient, data and analyses sound?
- Most realistic: intelligent mix
- Demands on evaluators
  - Dig deep into policy rationales and governance, interplay, contradictions
  - Be able to translate rationales into concrete practice
  - Use international benchmarking with caution (system’s conditions)
  - Boundary conditions: going beyond the realm of one ministry
  - Activate full mix of methods
  - Take advantage of diverse data sources and inputs
- Demands on sponsors: responsibility, coordination, open ended approach?
- The fourth generation: consequent target oriented- transnational dimension
Thanks for your attention

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References

References


