

The Impact Cycle Model as an Analytical Tool for Assessing the Societal Relevance and Impacts of Science

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Impact Evaluation of R&D: When Did It All Start and Where Are We Now? 1(3)

- Evaluation of R&D and science is not a newcomer
 - Evaluation of science dates back to 20th century
 - The history of impact evaluation is shorter → two projects are usually conceived as being the pioneering ones (Evaluation of the Alvey programme and evaluation of the EUREKA initiative carried out in 60s and 70s)
- At first most of the effort was devoted to find out and assess the *quality* of research
- At the same time, however, attempts were made to determine the benefits and impacts of research and technology initiatives
 - A dominant framework has evolved which assesses the *additionality* of public R&D intervention

How Did It All Start and Where Are We Now? 2(3)

- Especially since the 1990s there has been a growing interest in and demand for evaluating the public R&D&I in a more comprehensive manner
 - The overall discussion on the public governance to meet the needs of its citizens has been intensified placing expectations upon public R&D&I as well
 - There is a growing interest in such questions as what is the effectiveness and relevance of R&D interventions; how do they contribute to achieving the larger societal aims and targets and by which mechanisms
 - There is a need to get with the grips with such questions which go beyond the scope of the traditional goal achievement model

How Did It All Start and Where Are We Now? 3(3)

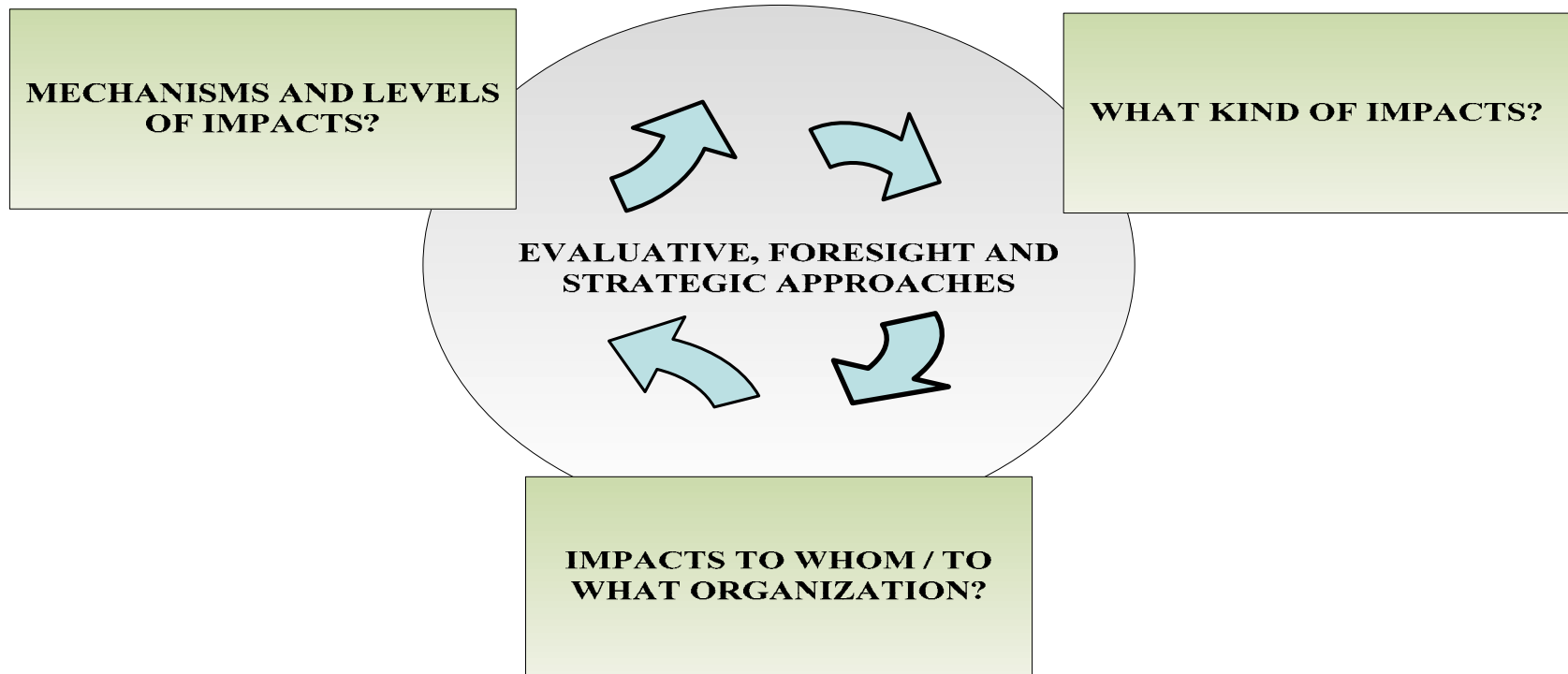
Two major conclusions:

1. The societal rationale of R&D&I (including science) has been strengthening
2. There is a need for revising the "static approach" focusing on evaluation of impacts and benefits and integrating more dynamic aspects in it (identification of mechanisms conditioning the emergence of impacts, integration of strategic, evaluative and foresight approaches etc.)

Towards a More Dynamic Model: the Major Idea Behind the Impact Cycle Model

- It can be claimed that a vast majority of evaluation studies has not looked at the impacts – the focus has been on assessing more concrete outputs and outcomes
- Impacts are the final outcomes in a long chain or cycle
 - It is not sufficient to focus exclusively either on outputs or on impacts
 - Both should be taken into account due to the fact that these are dependent on each other
- Impacts come into existence as a result of collaboration between various actors and factors → it is neither easy to identify nor isolate the impact of single actor
- The Impact Cycle Model recognises the formation of impacts through a cycle and collaborative nature of R&D&I

Impact Cycle



There is a need to Integrate Evaluative, Foresight and Strategic approaches

Strategic approach

- Key question: “Why is R&D&I conducted?”
- Impact assessment: e.g. What kinds of impacts are anticipated to emerge which are in accordance with the strategic goals? What must be done in order to produce (positive) impacts and benefits?

Evaluative approach

- Key question: “What has been achieved and how have we ended up at the prevalent situation?”
- Impact assessment: e.g. What are the impacts so far (beneficial, detrimental, inside and outside the target area etc.)?

Foresight approach

- Key question: “How is the development likely to proceed?”
- Impact assessment: e.g. What are the most probable impacts in the future?

Major Features of the Impact Cycle Model



The aim is to recognize the impacts, the mechanisms enabling/hindering the emergence of impacts and the impact levels by using the Impact Map (as shown in Fig. below)

1. Impacts

- Differentiation between results, outputs and impacts
- Result: *e.g.* result of the research
- Output: a concrete product (*e.g.* scientific publication, report etc.) which is based on the results
- Impact: indirect products and changes which are due to the direct end results (*e.g.* increased overall well-being, adoption of a new legislation, increased awareness of the policy issue)

2. Mechanisms conditioning the emergence of impacts

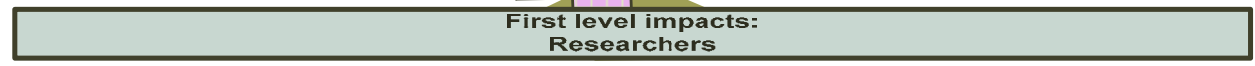
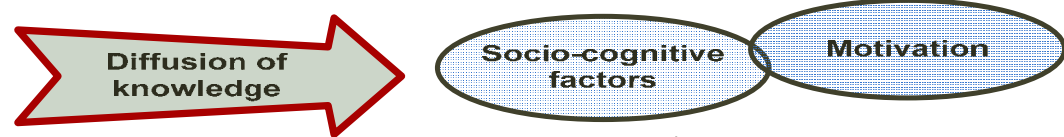
- Diffusion of knowledge
- Utilization of knowledge
- Socio-cognitive factors

3. Impact levels

- Researchers
- Research networks
- Technology and innovation policy research
- Decision-making in the innovation and technology policy domains
- Society at large

The Impact Map as a Cognitive Tool to Concretize the Cycle of Impacts

Illustration from an On-Going Evaluation on
Research Programme on Technology and
Innovation Policy



Research Programme on Technology and Innovation Policy