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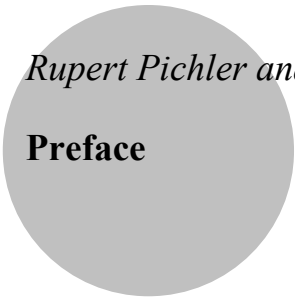

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Rupert Pichler and Klaus Schnitzer

Preface

The separation of policy making and policy implementation represents a mainstream approach to RTD policy in many countries, and a wide range of different institutional traditions has developed accordingly. RTD funding counts among the core responsibilities of the public, yet public institutions need the expertise of those addressed by RTD policy in order to gain the maximum benefit from the spending of taxpayers' money. This is the key rationale for establishing specialized agencies for the implementation and administration of RTD funding programmes.

However, while this system remains more or less unchallenged – and even the European Commission embarks on “agencyfication” – there are still some problems associated with that model. Among the most prominent of these are what principal-agent relationships account for. Policy makers – the principals – struggle for control over their agents as they need to justify the efficiency of the system.

By and large, the competence of agencies which operate in close cooperation with the science and innovation community is accepted as one has become used to regular evaluation exercises and an ever increasing set of methods aimed at evaluating the funding measures themselves. In turn, for long it has been assumed that a positive effect of funding is, at the same time, evidence for an agency's efficiency itself.

Such an assumption does not hold true necessarily and pressure from policy makers increases in order to determine indicators for the quality of an agency's work. This is not an easy target as, obviously, few of the indicators used by private enterprises produce satisfying results. Therefore, it is even more ambitious that the TAFTIE agencies started a co-ordinated effort to find an answer to the question: How do we know that we do the right thing right?

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At the annual TAFTIE meeting in Vienna (The Association of Technology Implementation in Europe, www.taftie.org), November 2003, it was decided to have a task force devoted to the concept of additionality.

The task force initiative was motivated by the fact that additionality had become a key component in measuring the effectiveness of policy instruments for stimulating improvements in research, technology, development and innovation (RTDI). Consequently, the agencies of TAFTIE were interested in investigating how additionality could become a strategic issue and source of improvement in the planning, implementation and evaluation of policy measures.

Based on these needs, a task force was established 2004. The work during 2004 was focused on creating a common conceptual platform. During 2005 the work continued with the objective to operationalise the ideas developed in 2004 by establishing a self-assessment process that could be used by agencies to raise the awareness of their possibilities to create added value through their RTDI programme activities. In 2006 a first full version of this self-assessment tool will be finalised, tested and fine-tuned in two pilot assessments.

On September 26, 2006, an international workshop co-organised by fteval and TAFTIE took place at FFG in Vienna with the objective to further advance the subject. The theme was “Programme Management and Evaluation – New Forms of Cooperation Needed?”, and the discussions went from in which areas the TAFTIE task force “white box” approach could help a public funding agency become more effective to higher level arguments about the proper role of a funding agency in the innovation system (see workshop meeting notes in this issue).

This edition of the fteval newsletter summarises the ideas, concepts and tools that have been developed by the task force (“the white box approach to agency effectiveness”) and also presents the workshop keynote of Connie Chang (Office of Technology Policy, US) as well as the workshop position statements of Leonhard Jörg (Technopolis) and Jari Romanainen (Tekes).

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The White Box Approach to Agency Effectiveness

Part I – Setting the Scene: From Additionality towards Effectiveness

This article summarises the ideas, concepts and tools that have been developed by the TAFTIE task force on additionality and develops further a paper presented at the “New Frontiers in Evaluation” Conference, Vienna April 24-25, 2006.

Additionality as an Evaluation Concept

The concept of additionality has been widely used by government policy makers and administrators in justifying and rationalising public support for RTDI. In this context, additionality measures to which extent the public support makes a difference in stimulating new RTDI initiatives at the funding recipients and in the economy as a whole. Following Buisseret et al. (1995), typical additionality measures comprise added/new investments in RTDI (*input additionality*), new patents, publications, innovations etc (*output additionality*) and improved development processes, collaboration patterns etc (*behavioural additionality*).

Hence, additionality is a key concept in measuring the effectiveness of policy instruments for stimulating RTDI. As such, it has emerged as an important evaluation concept both in assessing individual policy measures (e.g. research funding programmes), project proposals and project outcomes.

With the emergence of the innovation systems approach and a focus on systemic failures, non-linear innovation processes have received the attention of policy makers, researchers and government agencies (e.g. Nelson 1993, Edquist 1997, 2004, Lundvall 1992). Due to the interest in the non-linear interaction model as a foundation for innovations, behavioural additionality has received a lot of interest as a proxy for innovation actor performance and thus as a justification of government interventions (e.g. Georghiou et al. 2004, Georghiou and Clarysse 2006). New evaluation schemes for innovation systems are therefore required among which system-based evaluation practices of additionality are of great interest.

The “Black Box Fallacy” and the Need to Make Additionality Operational

Evaluations traditionally treat agencies as pure distribution channels of government money, thereby abstracting any contribution (negative or positive) that the agency or the government activities might have had on the performance measured at the firm or system level. This seems to be the result of market failure theory where government activities were treated as not being

part of the system to be evaluated. In real life, agencies are highly present in the system and they interact with the actors of the system during many phases of a policy intervention: during programme planning and design, e.g. while deciding on focus areas based on technology foresights; during call announcements, selection of funding recipients, contract negotiation, monitoring and evaluation etc. The actions of agencies can increase the programme funding (co-financing, syndication); they can stimulate new collaboration patterns, direct companies how to write commercially oriented applications (e.g. when business plans are requested as part of the application) etc. In an innovation system-based evaluation practice this value-add of agencies has to be considered.

To have additionality as a justification criterion during the design and implementation of policy measures at the agencies seems attractive and desirable. However, instead of using additionality merely as a measurement concept, the agencies are recommended to make additionality a strategic issue by which the effectiveness of the agency is planned, implemented and measured. Hence, additionality is considered as the outcome of the value-add strategies of agencies.

Inside the White Box: Added Value Created by an Agency

Additionality is Core

The *raison d'être* of industrial research councils and innovation agencies has traditionally been the 'underinvestment in R&D' hypothesis of mainstream economics. Governments have to put in place subsidies to encourage firms to carry out more R&D and innovate more than market forces alone will allow them to. Agencies are the implementing arms of the ministries' in administering these subsidies.

In most countries agencies are separate (government owned) bodies. However, in some countries these tasks are handled within ministry departments (e.g. in UK) and in some other countries outsourced to private organisations (e.g. in Germany). In many countries there may also be different, sometimes competing, agencies involved.

From a ministry's point of view the choice of an implementing body (internal division or government agency or private organisation) is basically to select the most efficient and most effective channel, i.e. compared to other channels, the agency will have to provide some additional value.

A value-add strategy of an agency should identify and exploit the comparative advantages (specific for agencies) in performing this particular type of task. Recent developments in innovation theory stress the complex, multifactor and context-dependent nature of innovation processes (e.g. Edquist 2004). This may strengthen the particular advantages of agencies as delivery mechanisms - if agencies become capable of developing adequate value-add strategies. Such strategies stem from a deepened understanding of which options systemic or market failures present for agencies to act upon.

Sources of Agency Added Value

A funding agency can add value by effectively designing and executing an RTDI programme. By an RTDI programme, we understand a set of one or several instruments (including non-financial instruments!) targeting one or several actors in the innovation system.

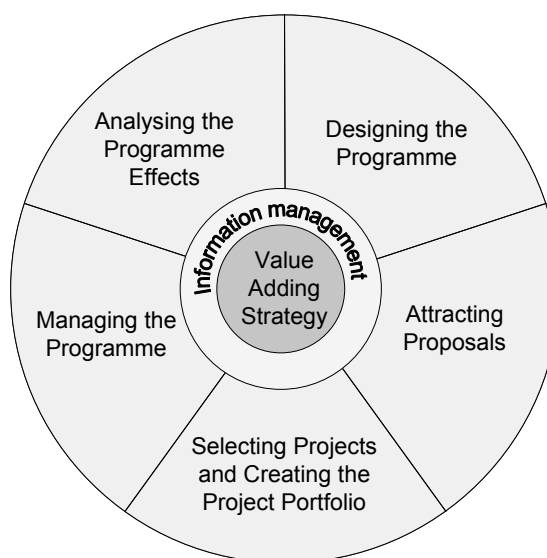


Figure 1: The programme cycle: sources of agency added value

The fundamental phases of an RTDI programme may be grouped as follows:

- **Designing the Programme** – i.e. prospect for new needs of RTDI support and mobilise public and private resources towards exploration and exploitation (setting up programmes or other types of actions aiming at making innovation environments or systems more effective)
- **Attracting Proposals** – i.e. create awareness about, and interest in support opportunities among potential clients and run competitive calls addressing them.
- **Selecting Projects and Creating the Project Portfolio** – i.e. appraisal and funding - assessing the potential value of public support to individual projects and by that create a portfolio of funded projects which together best support the objectives of the policy measure (e.g. a RTDI programme).
- **Managing the Programme** – i.e. value adding follow-up of the portfolio, aiming at strengthening performance of some, correcting the development of others and terminating support of those failing to contribute to the objectives of the policy measure

- **Analysing the Programme Effects** – i.e. measure and communicate outcomes and effects of the support delivered in order to provide an improved knowledge base for the next cycle of the above described phases.

Even though figure 1 implies a circular process, the phases of the model should be looked upon as five parallel processes by which an agency can channel out its value-add strategy by performing activities that adds value to its clients and the innovation system as a whole. An example to illustrate this parallelism is to consider a programme with two calls: While running the second call (Attracting Proposals), projects from the first call are managed (Managing the Programme).

Value is added by the way these phases are managed by the agency. Below are some examples of ways to improve each phase through value-add strategies:

- Agencies, with an ability to select appropriate system bottlenecks, mobilise adequate resources and design effective actions, create a better strategic position for policy implementations than agencies which do not have that ability.
- Agencies, with an ability to effectively market funding opportunities, activate the best target actors and run competitive calls effectively, ensure a better set of proposals to select from and a more effective actor engagement for the identified system bottlenecks. It also means that agencies with the ability to ensure proper consortia configurations may leverage the return on its funding greatly.
- An agency, with a better ability to assess the value of proposals submitted, is better positioned to create a portfolio of projects which together in the best way support the objectives of the policy measure
- An agency, with an ability to provide the best value-adding follow-up functions, is better positioned to accelerate the growth and value of the project portfolio
- An agency, which is better in measuring and communicating the outcomes and effects of policy measures, is better positioned to create a learning process among the innovation system actors and thereby an improved design and realization of ongoing and future policy measures.

Classifying the Outcomes of Value Adding Strategies: the Effect Triangle

Similar to the above framework of a funding agency's activities throughout the programme cycle, the objectives of a RTDI programme can to be classified according to a effect framework.

This classification of effects helps to establish the link between the value added by an agency's activities and the strategic programme objectives.

The self-assessment described in Part II assists in classifying a programme's objectives and in translating activities to effects, i.e. outcomes of the added value agencies provide to its clients. In the programme cycle, these effects are considered on three dimensions:

System effects - This covers the aggregated outcomes on a systems level, i.e. aggregated outcomes that are not confined to a single actor, rather this class comprise outcomes that involve and are common to several actors of the system. Two sub-classes can be distinguished:

- *Resource allocation*, which cover all economic, human capital, technology, etc allocations/acquisitions which are influenced by the activities of an agency and involve several actors in a given innovation system. (e.g. new or additional investments in an area, skill acquisitions or investments in an area)
- *Networking* that covers the networks or relations created directly or indirectly by agency activities. (e.g. new relations/networks, new collaboration, joint commitments by organisations to a certain technology area)

Organisational effects - This class covers value adding outcomes that are confined to a certain actor. The actor or organisation could be a funded client, a rejected client or any organisation that is influenced by the activities of the agency. Nevertheless, regardless of type of actor, the following classes of organisational sub-classes can be found:

- *Capability* effects, which cover access to new technologies, new competences, capital, strengthened internal networks, improved human resources, management skills
- *Range-of-activity* effects, which cover the kind of RDTI activities (more risky, new market, new technological domain, increase in scale and/or scope of projects) of the organisation as a whole

Project effects - For those projects that an agency selects to fund, the potential possibilities to influence the clients become much richer. Being part of the portfolio of projects, the agency can create the following value adding outcomes (sub-classes):

- *Acceleration* effects, which cover the outcome that the project is able to finish faster and/or with less resources than if no support had been received
- *Scale* effects, which means more of the same, higher risk
- *Scope* effects which means more diversity, awareness of value chain, higher risk
- *Result* effects, i.e. the project produces new or additional results due to the support by the agency

There are relations between the different classes of value-added outcomes, see figure 2 below. (e.g. if system effects exist there should also be effects at organisational level) The approach taken in this self-assessment is to use these effects types to analyse the agency's activities with the aim of identifying the value-add strategy and to find ways of improvements.

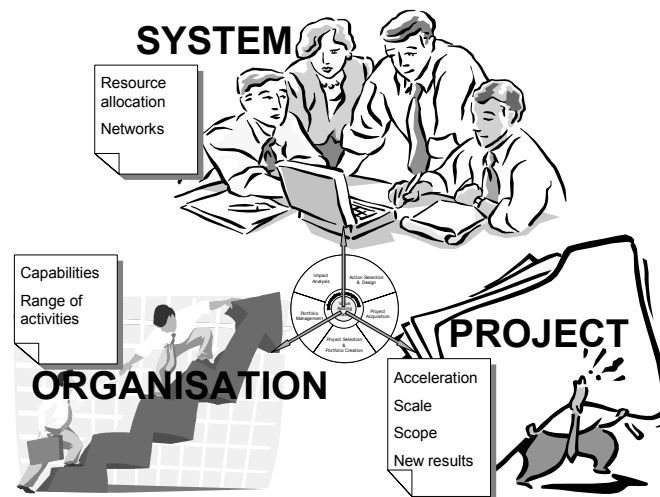


Figure 2: The effect triangle

For the system and organisational effects *the level of impact can differ*:

- **Awareness:** preparing for action which might influence strategy, capability development;
- **Strategy:** prioritization/setting objectives which takes an actor into real operational planning and resource allocation decisions;
- **Operations:** when plans are set in action.

The activities contributing to a certain value adding outcome are rated according to the following *quality levels*:

- **Tacit:** This denotes a level where the skills of a programme manager are tacit and therefore not explicitly stated or shared among colleagues at the agency
- **Explicit:** the additionality is recognised by the organisation and some activities are performed to spread the experience and knowledge to others, but it is not proactively managed and made an official part of the “programme culture” of the agency.
- **Managed:** The additionality is proactively managed by the agency; included in “handbooks”, methods, tool, educations, evaluations, etc.

Part II – Transforming the Funding Agency: The TAFTIE Self Assessment Approach

The development of innovation theory where the agency is an active actor of the innovation system makes the traditional ‘black-box R&D-funding’ and ‘hands-off public administration’ innovation agency inadequate. However, differences among agencies and the demanding contexts they are working in constitute the main challenge in moving forward with the realisation of the ideas presented above. Depending on the individual situation and context, strategy development has to be unique for each agency. Thus, it was not viable to develop a common TAFTIE based value-add strategy.

Moreover, currently most agencies focus their strategies and evaluation efforts on the growth effects and innovation outcomes of their financing efforts. This is important; but due to the attribution problem and time lag between effort and effect, growth effects are not very useful for guiding the improvement of near-term agency operations and for providing existential evidence on the agency’s value in the innovation system.

Self-Assessment of Value-Adding Strategies

To overcome these challenges, the idea of self-assessments of value-adding strategies was introduced as a way

- to adapt the results to the needs and contexts of each agency,
- to make each agency aware of its own individual situation with respect to value-add strategies, and
- to make each agency aware of the potential ability to improve the value added and thereby improve the performance and effectiveness of the agency.

However, even though strategy development has to pursue individual paths, the TAFTIE agencies could benefit from a common framework and common assessment guidelines and tools. By having a common framework and common tools, the TAFTIE agencies can in parallel with their individual efforts make use of the collective learning of the member group, share experiences and knowledge, and make coordinated pilot efforts in order to continuously add value to the development programs of each member.

Hence, it was decided to base the self-assessment tool on a common framework covering a common unit of analysis – an RTDI programme, a common process for carrying out the self-assessment, and common reference models used to describe agency activities and value adding outcomes in a common way.

The common framework for the self-assessment is documented in an assessment manual. However, the assessment manual is not a self-contained description of how the assessment is carried out. Instead, in order to improve and ease the adaptation of the tool to the characteristics

of each agency, the self-assessment is designed as a dialogue facilitated by a person – the facilitator - knowledgeable in the approach described in the assessment manual.

Hence, the assessment manual covers

- the conceptual model that the self-assessment approach is based on. This includes reference models for
 - the activities or sub-processes of each phase of programme cycle (see figure 1)
 - the value adding outcomes of an agency's activities (see figure 2).
- an outline of a dialogue by which different types of value adding outcomes are “filtered out” and assessed during the assessment procedure, and
- a description of the self-assessment procedure

The reference models denote a “Universe of Discourse” for the people involved in the assessment process – the programme and line management, the facilitator and the review panel. The review panel is a group of experts used to give advice based on the assessment results. The reference model actually consists of five sub-reference models, each describing one phase of the programme cycle (see figure 1): designing the programme, attracting proposals, selecting proposals and creating the project portfolio, managing the programme and analysing the effects of the programme.

Each of the phases of the programme cycle (see figure 1) is structured in a flowchart of reference activities. The flowchart of reference activities represents a canonical description of a given phase. During the self assessment, the actual activities of an agency within a phase of the programme cycle are described in terms of the reference activities. This is done in order to create a common understanding of how different agencies or different programmes are carried out before the assessment of value adding outcomes takes place. Figure 3 illustrates reference activities of a phase.

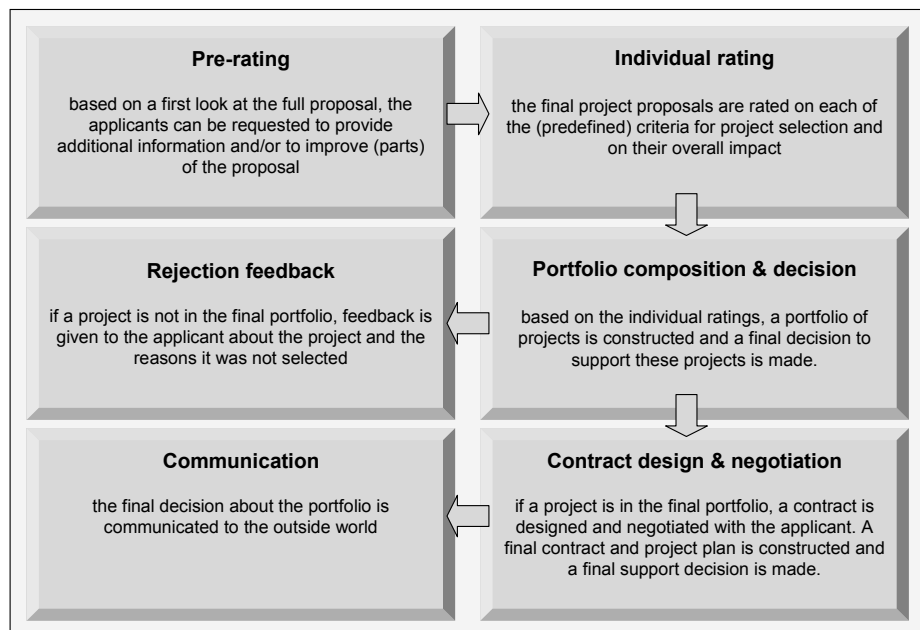


Figure 3: Example reference activities for the phase: Selecting projects and creating the programme portfolio

Raising Awareness at the Agencies through a Dialogue Process

Even though the self-assessment is confined to the design, implementation and evaluation of RTDI programmes, its real impact requires that the assessment is fully integrated in the operational improvement processes of the assessed agency. That is, the result of a self-assessment suggests how an agency can improve its effectiveness. If the assessment process and its outcome in terms of improvements are not understood and accepted by the management of the assessed agency, then little is won: The agency will in these cases probably continue as usual. Hence, the self-assessment process comprises the involvement of the line management – it is their process and their results – the self-assessment tool and the facilitator are merely helping hands in assessing the operations of an agency.

Nevertheless, it is important to understand that even though the assessment results have an implication on the operations of an agency, the assessment itself is not assessing the agency as a whole; the self-assessment is focused on either a specific programme or on the process, by which an agency selects, designs, implements, manages and evaluates RTDI programmes. The dialogue is therefore adapted to the circumstances and needs of a specific programme or programme process.

Given the above, the self-assessment process itself consists of the following steps:

1. A *Preparatory step* when the facilitator in a dialogue with the line and programme management decides on the objectives of the assessment and its scope. The preparation

also covers the concerns that the management would like to have elaborated during the assessment. During the preparation, the balance between benefits and costs are also determined. The preparation is ended when the facilitator has made a work plan for the assessment covering people involved, their roles, the activity plan and its milestones for the assessment process and how the results of the assessment is planned to be utilised.

2. An *introductory step* where the facilitator introduces the assessment tool, its rationale, objective and implementation to the programme and line management that are subject to the assessment. The objective of this step is to make programme and line management familiar with the process and give them the necessary pre-requisites for assessment preparation.
3. The *assessment dialogue*, where the facilitator, by using the reference models, interviews the programme management in order to
 - translate the programme objectives into the value adding outcomes of the reference model. This is perhaps the most important step of the dialogue since all value adding activities performed during a programmes life cycle should contribute to one or several of these objectives; i.e. this dialogue step addresses the question “What are you trying to achieve in terms of value adding outcomes?”
 - understand how the agency performs a certain phase in order to meet the programme objectives
 - determine in which way the activities influences the clients or the innovation system addressed by the programme (e.g. the effect level)
 - determine the quality level of the activities or phase activities generating the added value
 - identify areas of improvement, e.g. “blind spots” where there is no or weak contribution to value adding outcomes, or linkages that contribute to synergetic outcomes or negative/counteracting outcomes etc.
4. The *assessment summary* step where the facilitator analyses, structures and summarises the assessment results. The objective is to create a format that the review panel can digest and reflect upon. The results are discussed with the programme and line management in order to create a joint input for the review panel meeting.

5. *The review panel meeting* where an expert panel gets a presentation of the assessed programme and the assessment results. The objective of the review is to make the assessed agency aware of areas for improvement (in a broad sense), and ideas on how improvements could be achieved given the broad experience of the review panel. The review panel could be composed in many different ways depending on the aim of the assessment: the panel is e.g. in many cases internal (with possible external “guest” reviewers) or in other cases composed of an international expert panel if a broader international view is needed or required.
6. *The feedback to the programme and line management.* The report from the review panel meeting is discussed with the objective of putting the results into action.

Extending the Quality Systems Approach

The presented assessment approach provides a powerful link between the concept of additionality and the operational development supported by a Total Quality Management (TQM) approach (e.g. EFQM: www.efqm.org). Viewing additionality as the outcome of an agency’s value-add strategies extends the quality systems of an agency to its market. The approach views agencies as innovation system investors’ that look for return in terms of outcomes and impacts on society, industry and research. Starting with the issue “Does the agency bring any added value with the funding?” (i.e. how “smart” is the agency’s money) and extending that issue to the strategies, operations and processes of an agency, the self-assessment approach complements and improves the traditional business and customer oriented approaches of quality systems to the contexts of government funding. Utilising the customer and competitiveness oriented approaches of TQM systems at agencies is not straightforward due to the non-existence of real customers and – in most contexts – the non-existence of real competitors. Hence, additionality not only becomes an evaluation concept for government efficiency, but also an important input for developing the quality systems of agencies.

To summarise the links between different performance concepts, one can say that while the self assessment is based on the question how *effective* an agency is, quality systems cover the necessary *efficiency* perspective. However, it seems crucial to also implement an *evaluation and monitoring system* that gives feedback on value-adding strategies based on evidence. And ultimately, of course, an agency and its stakeholders will be interested in the effect-side of an RTDI programme, i.e., an analysis that gives some indication on the “Return-on-Investment” of the particular policy measure.

Conclusions

Literature has been postulating for some time now that the system-perspective on innovation processes calls for “measures to stimulate RTDI designed as public-private partnerships rather than as support mechanisms” (e.g. Georghiou 2002). So the idea, that in order to foster

innovation, there should be more than a simple distribution function of public money is not new. Neither is the fact that in constructing rationales for public intervention, recognition of behavioural effects means the argument that a simple fiscal incentive (or cut in tax) achieves the same effects as grants in a more efficient manner is not sustainable (Georghiou and Clarysse 2006).

However, the role of an agency as system-internal actor actively seeking to add value at company and innovation system level has not yet found sufficient attention in the evaluation context.

As the pilot exercises within TAFTIE have shown additionality as the outcome of value-add a strategy, i.e., creating value for the innovation system in the daily operations of an agency, seems to work in practice. The “final touches” regarding the self-assessment process will be focused on providing funding agencies a comprehensive “hands-on” manual to introduce the effectiveness and added value perspective and therefore transform and improve the way RTDI programmes are designed and implemented for the good of the targeted innovation system actors.

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Connie K.N. Chang

"Thoughts on the TAFTIE Self-Assessment Tool on Value-Added Behavior" Keynote Address - Joint fteval and Taftie Task Force on Additionality Workshop (September 26, 2006 - Vienna, Austria)

Good afternoon. Before I begin, I would like to extend a warm thank you to Kjell-Håkan Närfelt and VINNOVA for inviting me here today and to Andreas Wildberger for graciously allowing me to use his laptop to make some last minute changes to my presentation slides. I am looking forward to the discussion and learning more from each of you.

The objective of this workshop, as Kjell-Håkan put it, is to provide guidelines and ideas on how the assessment tool that the task force has produced should be complemented by a monitoring and evaluation system/process and implications this could have on methods, tools, processes, and organization of evaluations. Some questions workshop participants have been asked to consider are:

- How should the operational processes support the evaluation of added value of the agency? Implications on the design and monitoring of RTDI programs?
- How can evaluators become facilitators of these learning processes? Do evaluators have to “run along” the program execution? Implications on the evaluation of added agency value?

In short, we are asked today to examine how we can integrate value-added strategies and activities of government agencies into our everyday work. I would like to share my reflections with you.

1. How do we see our jobs?

... beyond administering tax payer funds responsibly

... to “innovation enablers”?

How do you see your jobs? As merely administering program funds responsibly or do you see yourself as an “innovation enabler”? If you view your work as being connected to the innovation process and ultimately providing benefits to your fellow countrymen, then every transaction, every interaction is an opportunity to provide a service that will help make that happen—in addition to the provision of the funding.

Let me share with you a story that might help illustrate my point better. Pretend you work in a student loan office where you are told that your job is to process loans. You are reminded of your mission when you enter the doors of the main office with a hanging on the wall that reads, “We are here to process student loans efficiently.” Your daily routine is to collect information

from each student to address the items on the loan application and process the information so that the proper interest rate, monthly payment, term of the loan, etc., are calculated correctly for a loan to be issued. You are measured by the quantity of loan applications that you process each week. Pretty soon this mind-numbing activity seeps into your whole being and you start to see each student who comes in as merely connected to the processing of loans. You must work efficiently. You have a quota to meet. You do not have time to learn anything more about the student than the information required to fill out the application.

In contrast, imagine that you work in a student loan office where you are told that your job is to enable students to realize their dreams. You are reminded of your mission when you enter the doors of the main office with a hanging on the wall that reads, “We realize the dreams of those who walk through our doors.” You are responsible for processing loan applications. Your performance, like the example above, is measured by the quantity of loan applications that you process every week—the number of students whose dreams you are directly helping to realize. Pretty soon you start to see each student who comes in as another opportunity to help bring that student one step closer to realizing his/her dreams. You must work efficiently. You have a quota to meet. You are motivated to learn about the student’s aspirations and reasons for needing this loan as you record his/her information. You find out that the student would benefit from other services. You connect that student with the service provider. At the end of the day, you feel satisfied that your job is not merely the processing of loans—your job is to enable the next generation’s dreams.

I offer additional examples from my experience at the Advanced Technology Program. The ATP provides cost-shared funding to companies and their collaborators to develop enabling, market-driven technologies that can deliver broad-based economic benefits once high technical hurdles are overcome. ATP has provided over \$2.2 billion in funding, with industry contributing an additional \$2.1 billion, to 768 projects across a span of technologies since the program’s inception in 1990. These projects receive on average \$1 million per year of ATP funding over three years (and no longer than five years for joint ventures).

A majority of the companies that we fund—small firms participate in 75% of all projects—have fewer than 20 employees and about 80% of them have fewer than 100 employees. Not all of the small companies we fund are led by seasoned veterans who can speak the language of the venture capital community that is necessary to attract additional funds to further develop the technology and take it to market. By the fifth year of the program we realized that our success—the impact the program would make on the economy—would be tied to how well these firms performed in the post-ATP period.

This realization led us to work on connecting our companies directly to the venture capital community by organizing a commercialization showcase in 1995, where ATP-funded companies could choose to work with a contractor to develop their “pitch” that would be delivered in front of an audience of venture capitalists three months later. Not all of the presenters were able to “get out of the technical weeds” so to speak, but some were remarkably

able to speak to investors about their plans for bringing the technologies to market and the revenues and benefits that the technologies are projected to create. Overall, the commercialization showcase was a success. A few companies raised several millions of dollars.

Since then we have retained two contractors, one who wrote a booklet on “The Art of Telling Your Story” (see <http://www.atp.nist.gov/eao/gcr02-831/contents.htm>) to train ATP companies to tell their story in front of the investor community. We consider these activities to be part of the value-added contribution that we make to help ensure our investment in the post-basic research stage turns into commercially viable innovations and economic benefits.

Similarly, for applicants whose project proposals do not meet our criteria and are not selected for an ATP award, which is roughly 88% of all proposals received, we offer a telephone debriefing. The purpose of the debriefing is to convey to the applicant how well the written proposal responded to the selection criteria, to ensure that the ATP selection criteria are well understood, and to make sure the ATP funding vehicle is an appropriate one for the proposed research. Over the years, the issue of whether or not a written debriefing would be better periodically surfaces and receives fierce internal debate.

One side typically argues that a written debrief eases the burden on staff and might offer clearer explanations for the selection board’s decision. The other side typically argues that a telephone debriefing, which requires the technical and business sponsors of the project proposal to represent the committee’s review and remain on the phone until all questions raised have been answered, provides the applicant a chance to talk to a human being and voice his/her concerns directly. The telephone debriefing also gives ATP staff many chances to explain and articulate verbally the strengths and weaknesses of the proposal in addressing the criteria.

Both sides share the underlying belief that the debriefing provides useful information (i.e., a service) to applicants to help them refine their ideas by receiving objective feedback and either look elsewhere for funding or to re-apply with a greater chance of success. The main difference between these two sides is whether or not the goal of the debriefing is it to educate or merely to inform. If it is the former, then staff should be encouraged and motivated to ensure that the failed applicant is educated about the process.

An ATP customer satisfaction report includes seventeen questions from a survey of all applicants (awardees and non-awardees) to the 2002 competition that dealt with customer satisfaction and included questions on various aspects of the telephone debriefing (see pp. 21-23 <http://www.atp.nist.gov/eao/gcr05-873/gcr05-873.pdf>). I encourage you to take a look.

2. How do we strengthen integration of evaluation?

... beyond discrete evaluations

... to creating in-house evaluators or intermediaries?

How do you strengthen the integration of evaluation into your program activities? If you rely only on discrete evaluations performed by outside experts your evaluation reports may be deemed independent and objective, but may fall short of receiving serious internal attention or acceptance that can cripple the proper functioning of the feedback loop process as intended in evaluation logic models and thereby, thwart real change. How can we prevent this from happening? I believe a more successful outcome can be achieved by having evaluators in-house or intermediaries who are trusted professionals, peers, and on par, organizationally, with technical and business program managers to help shape the design of evaluation studies and help interpret and apply evaluation results. In-house evaluators serve an important function in bringing results into practice.

ATP demonstrated the seriousness of its intent to evaluate performance by its early commitment to evaluation—organizationally and financially. ATP’s Economic Assessment Office has line authority which puts it on par with the two technical divisions. ATP has a dedicated and steady budget for evaluation that provides for a permanent staff with appropriate background, capabilities, and experience to perform evaluation activities using internal and external resources. Evaluation is treated as a core activity and is pursued within a framework that measures the program against its stated objectives.

Just as the agency or program that funds technological development serves an important role in the “system” of innovation, evaluators should play an integral role in the agency or program that provides funding to industry to develop new technologies. ATP economists are not only responsible for conducting evaluation studies and/or managing contractor studies, but also participate in outreach events, serve as voting members of project selection panels, function as the business manager on the project management team that includes a technical manager and grants specialist to monitor the performance of funded projects—albeit these additional responsibilities are at reduced levels than their business counterparts in the technical offices.

The involvement of ATP economists/evaluators in all of the main activities of the program provides them with a unique perspective and an appreciation for the nuances of the funding process and the projects funded that outside experts do not have. However, in-house evaluators must learn to not only gain buy-in from the technical staff to ensure their work products are not rejected, but also preserve their independence and objectivity to maintain integrity. As for the latter point, ATP’s Economic Assessment Office proactively involves the technical offices from the design-to-results stages of evaluation studies (e.g., organizing meetings to gather input during the design phase and holding seminars to unveil mid-term and final evaluation results for comments), and periodically surveys the technical offices on the quality of the evaluation staff and work products.

I submit that dedicating a portion of a program’s operating budget to support an in-house evaluation staff and inviting the participation of evaluators into a program’s core activities helps to strengthen, in an organic fashion, the integration of evaluation into the program.

3. What “abilities” are we looking for?

- ... beyond administrators
- ... to hiring and cross-training
- qualified “innovation enablers”?

People matter when we look inside the black box of what an agency does. Government agencies are not mere passive vessels through which funding pours. Program staff matter. What abilities are you looking for in your program staff? How do you measure ability? What kind of ability? Who should you hire? What degrees should they possess at a minimum—an economics degree? a technical degree? both? What about an MBA degree? Should there be a checklist of qualifications? What on-the-job training is required? The answers to these questions will fundamentally shape how you are able to meet your mission.

If the goal is to get money out the door to fund new technologies, then it may be the case that you need only staff with technical degrees. If the aim of your program is to foster economic growth through the development of new technologies, then project selection criteria should be aligned with that objective (technical merit and business/economic merit) and program staff should have the ability to judge the proposals against those merits. In this case, technical degrees are not enough. At a minimum, a mix of staff with technical, business, and economics degrees or hybrid hires (staff with both technical and business degrees, staff with economics degrees) is required.

Let’s assume we want our staff to behave as if they are innovation enablers. How do we encourage entrepreneurial behavior in our staff? How do we motivate staff to become more entrepreneurial in their thinking and in their actions so that they are able to identify, and stand ready to pursue, opportunities as they arise to add appropriate value? What organizational encouragements are needed and how do we reinforce positive behavior? One thing we know we must do is to measure staff performance against the results we expect and to reflect in their performance plans the behavior and actions that we expect to be taken.

4. How do we use strategic planning more effectively?

- ... beyond discrete exercise
- ... to integrating agency added value?

Leadership matters. It is leaders who provide vision and direction. And it is with leadership that evaluation results can either lay fallow or can be acted on and used to stimulate discussion. Evaluation results can shine some light on whether the approach that the program is taking to meet its mission is effective. Evaluation results provide data that can help shape a program’s strategic direction for how to accomplish program objectives more effectively.

Evaluation strategy, methods, tools, processes, and its organization should be a part of the program’s strategic plan. A strategic plan establishes guideposts for staff to follow in carrying

out their responsibilities. It should be a living document that involves the input of staff at all levels for periodic review so that it is not a one-time document. A strategic plan is an appropriate place to highlight the importance of value-added activities and of integrating these activities into our everyday work. It is one way to turn agency value added from a tacit activity to an explicit activity to a managed activity—to have a good reason to open and examine the black box.

5. Fundamentally ...

what is the role of government in a knowledge-based economy?

I conclude my remarks by leaving you with this thought. The question posed to us today of how do we integrate value-added strategies into our everyday work life is fundamentally about the role of government in a knowledge-based economy.

There are those who strongly believe that the government should engage in minimal intervention and that the private sector knows best what it needs and how to meet those needs. This view regards the government agency and its staff as a black box and unimportant. There are others who disagree with this view and argue that the particular ability, leadership, and experience of government staff can affect outcomes. They argue that the government has a unique perspective and can identify general needs across firms that are unfulfilled. Agency value-added activities, under this view, matter because the agency is an integral part of the innovation process. No matter which side you stand on, the black box must be unveiled and examined so that we understand what is occurring inside.

In debating the role of government in a knowledge-based economy, we should be asking ourselves: What should we be doing? How much more should we be doing on top of our fiduciary responsibility of administering budgetary funds? Can we do more? What line would we be crossing if we do? What services are we currently providing? Should we continue to provide them or are other services more valuable? How do we know that what we are doing is enough to deliver the kinds of impact on which we will be assessed? I hope in our respective organizations these questions are raised and debated.

Thank you for inviting me to participate in this workshop. I look forward to an engaging discussion.

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*Leonhard Jörg***Realising Additionality - some Comments from an Evaluator's Perspective on “Value Added Strategies” of Funding Agencies**

Among others RTD-policy is about the allocation of public funds to firms. This is no easy task as public funding is expected to alter individual investment decisions. The rationale for public intervention in this context is based on the belief, that individual investment decisions lead to underinvestment or do not fully exploit the economical potential of research and development. The final goal of public funding is to set incentives for a new allocation of financial resources that is believed to further enhance the performance of an innovation system.

The challenge of allocating public funds to private entities is to create additional effects that go beyond what can be expected when firms decide independently on R&D-activities. In practice public funds should be the carrot luring firms into new themes, new forms of collaboration, and last but not least to higher levels of R&D-spending.

In most countries the task of allocating public funds has been handed over to dedicated funding agencies. Consequently, public administration has more and more withdrawn itself from the operational level of R&D-funding. To close the feedback loop, monitoring and evaluation procedures have been introduced. In the last decade external evaluation has become an integral part of this policy cycle.

Within this intervention model we still find many variations and national peculiarities with respect to division of labour between different levels (policy and funding agency) as well as established evaluation routines.

What seems to be a wide spread discomfort among funding agencies all over Europe, is the perception that the evaluation community tends to overlook funding agencies as a new actor on its own right.

In this context the association for Technology Implementation in Europe (TAFTIE) has established a task force. The task is twofold: Firstly, the task force should elaborate the role of funding agencies within the intervention model. This should lead to a more precise understanding of the value funding agencies can create during the funding process. Secondly, new ways of enhancing the impact of public funding should be explored. As the first tangible result the task force has come up with a self assessment tool that is expected to help funding agencies create customer value, with main customer being RTD-policy.

The author was invited to comment on the presented approach. Apart from giving feedback to the presented tool as such, the organizers of the TAFTIE meeting highlighted one specific

question: What role can and should evaluators play in such self assessment exercises? Should evaluators remain outside or “run along”?

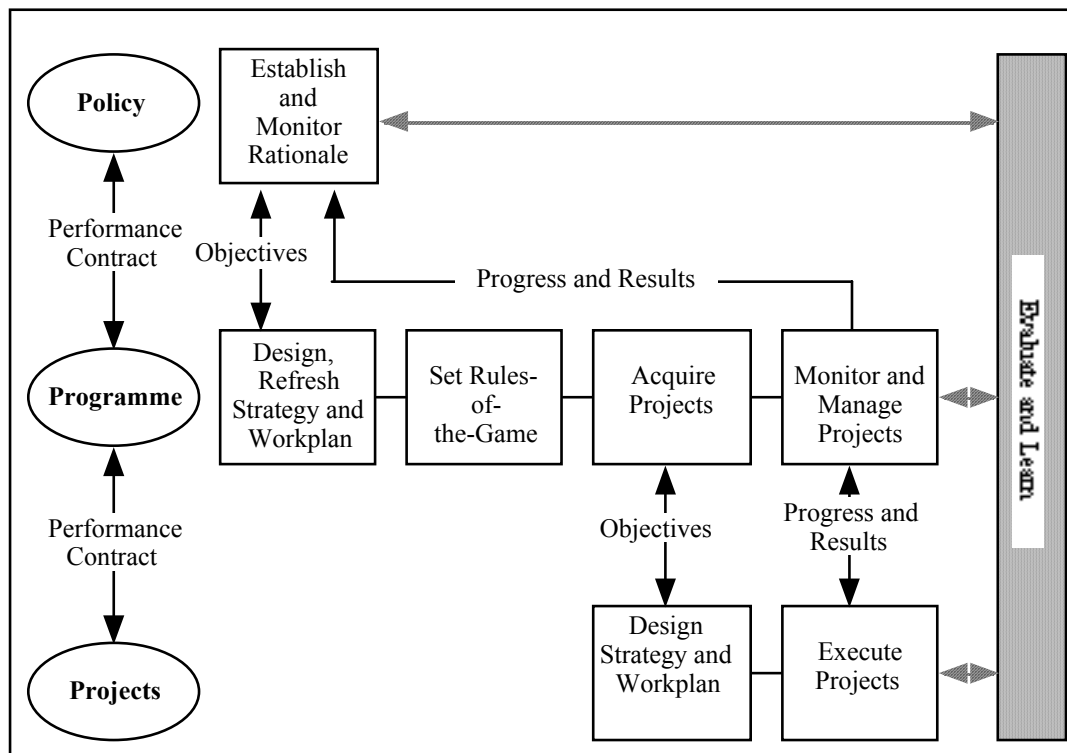
Below the position statement presented at the respective TAFTIE-meeting is summarized. It is to highlight that the presented position reflects the personal view of the author. Even if it is based on a range of evaluations the author was involved in, the views and opinions expressed in this paper do not claim to represent the official position of the fteval-platform.

The paper is organized as follows: First, we discuss the motivation on which the development of a self assessment tool by the TAFTIE task force is based on. Next, we elaborate basic functions and expected outcomes of the presented self assessment tool. In the last part, we discuss the role evaluators can or should take during the self assessment exercise.

Is the funding process a black box? The TAFTIE task force outlined the conceptual framework of the self assessment tool in a paper presented at the “New Frontiers in Evaluation” conference¹. The authors reflect on an important perception: Evaluators tend to treat funding agencies primarily as “distribution channels of government money” and not as actors of their own right within the innovation system. It is, furthermore, pointed out that in this context evaluators systematically fail to reveal what the contribution funding agencies make in order to realize additionality. They treat funding agencies as a black box and thus miss potentially important lessons for program design and management. Thus, the presented self assessment tool should help to open the “black box” and allow to directly link additionality to the activities of funding agencies. The final goal is to establish an information base that allows developing “value added strategies” for funding agencies.

We were somehow surprised at the concept that funding agencies are regarded as black boxes. Looking back to the recent developments in public RTD-funding, one can observe an increasing degree of “rationality” in how public funds are allocated. Nowadays, along with the evolvement of evaluation standards, public funding in many cases is only available in programs. Those programs are designed to follow an intervention model that lays out goals, strategies, and task schedules. Exhibit 1 illustrates the intervention logic used by most programs.

¹ Kjell-Håkan Närfelt, Andreas Wildberger: Additionality and Funding Agencies: Opening the Black Box. Paper presented at the “New Frontiers in Evaluation” Conference, Vienna April 24-25, 2006

Exhibit 1 Value added activities within the intervention logic

- Source Erik Arnold, Patries Boekholt and Patrick Keen, *Good Ideas in Programme Management for Research and Technical Development Programmes, Report HS-2, Report to the VALUE programme of the EC, Brighton: Technopolis, 1994*

Funding agencies operate within the program framework which is laid out in program documents. In theory this should secure enough transparency for policy makers and evaluators to trace back observed outputs, outcomes, and impacts to concrete activities during program implementation. According to this, the “black box” does not look that black after all. We believe that as long as programs are designed carefully and are based on real problems or options, there is no need for setting a new layer of strategic intelligence. At first sight this is what the TAFTIE taskforce seems to be up to do.

Who should decide on value-added strategies? Regardless of the opinion that evaluators often fail to make sensible judgments on how concrete actions are taken by funding agencies, their translation into program performance has to be taken seriously. To some extent program design has its limits as it is based on assumptions and hypothesis on how innovation systems might react on the intervention. However, eventually program management is not as smooth and predictable as one might hope. In practice, strategies and work plans have to be continuously adjusted to changing environments or in light of wrong assumptions. At best, program design provides ingredients and recipes. However, as we already know from another context, even a good recipe does not guarantee a good meal. The cook can make a difference. So can funding agencies. Tacit knowledge plays an important role in program management. In

this context we see that the self assessment tool developed by the TATFIE task force can become a powerful learning tool.

At this stage, however, we are not sure whether the task force is not overshooting with respect to strategic goals. The presented paper motivates the need for “value added strategies” by three main challenges (page 6) funding agencies are facing:

- (i) develop the (internal) capabilities according to the value-add opportunities identified
- (ii) enter into strategic alliances with other partners in the system; i.e. embed itself as a part of (partner in) the innovation system – share the risks and responsibilities on an ‘equal’ basis with the others
- (iii) at the same time develop a ‘birds-eye’ intelligence function (‘above the system’) and thus a capability to assess the performance of the system itself and its players on an independent basis.

In our understanding the program design phase is the exact time and place for setting out the strategies for achieving expected impacts at acceptable levels of additionality². We recommend that funding agencies should play an active role in this process. The stated challenges, however, point to a different role of funding agencies. As perceived by us, the agency is rather seen as an independent player having the task to develop “value-added” strategies along the program implementation and also parallel to the program design. There might be national differences with respect of the mandates of agencies. If we regarded the Austrian system as point of reference, we would expect that the principal (ministries) assumed that their agencies offer them feedback on the functionality of the agreed program design, as well as keep them informed on new opportunities or the need for adjustments. The point here is: There is only one master plan and one arena for strategy setting. Developing and deploying in-house “value-added” strategies at the same time might confuse policy makers and evaluators.

Referring back to the challenges quoted above, we would support the first one (“develop the (internal) capabilities according to the value-add opportunities identified”). The first and as we think only objective of a self assessment tool is to further develop the agencies’ competence to manage funding programs. This is not to say that agencies should not play an active role when it comes to designing new programs or developing management capabilities at the level of program portfolios. The responsibility for the strategic orientation of RTD-policy, however, has to remain in the realm of policy makers, who are accountable in the end.

In our understanding, the second and third challenge mentioned above would overstrain the role of funding agencies. Apart from this general remark, they also contradict each other. To “*share*

² We do not believe that public funding of private R&D-activities can and should strive for 100% additionality. In practice there is a trade off between additionality and relevance of funded R&D. To expect firms to spend more on R&D (input additionality) as a result of public funding is only realistic as long as firms are able to conduct projects with some strategic relevance. It is a realistic assumption that at least some of those projects would have been undertaken even without public funding. The same holds for other dimensions of additionality.

the risks and responsibilities on an 'equal' basis with the others" within the system (challenge ii) means to establish specific incentives and priorities for the funding agency which would clearly undermine its *"capability to assess the performance of the system itself and its players on an independent basis"* (challenge iii).

Recapitulating, we see the development of strategies for enhancing the impact of public funding and reaching higher levels of additionality ("value add strategies") as an integral part of the program design phase. It is good practice to involve more stakeholders in this process, policy makers being the most obvious ones. Hence, we see the approach put forward by the TAFTIE task force, primarily as a tool to enhance the internal programme management competence, rather than a starting point for putting agencies into the role of the innovation system's mastermind. Consequently, we suggest narrowing down the strategic objective for the development of the self assessment tool. The point is not to develop in-house "value added strategies" but to strengthen the management competence at an operational level.

Should evaluators "run along"? The proposed self assessment tool is designed to support program managers to reflect on program performances at various implementation stages. At first, we see it as an internal communication tool that allows sharing experiences between programs and between agencies in a more systematic matter. It creates a body of knowledge for continuous improvement of tools and routines. Finally, the self assessment tool can help to anchor learning experiences within the agency. What role can and should evaluators play in the proposed self assessment exercises? From the evaluators perspective the self assessment tool can definitely contain valuable information and give new insights. Since evaluators usually hesitate to build a comprehensive information base and often loose track of what has actually happened during the program implementation, the self assessment tool can become an important additional information source.

The degree of involvement of external evaluators, nevertheless, depends on how the course of the self assessment would change when the spot lights are switched on. At first sight, self assessment is an internal process which derives its strength from open communication. In this context external evaluators might not be the best partners to call in.

However, we see that it can help to include the external perspective at well defined points in the process. In most cases ex-ante, interim, and ex-post evaluations should provide enough opportunities for interaction and feedback for the agency. Our concluding suggestion here is that evaluators do not need to "run along" but a visit once in a while might be sufficient.

Altogether we see the initiative of TAFTIE as a valuable contribution and real innovation that has the potential to substantially improve programme implementation and programme development in the future. We would however suggest to align the strategic level of aspiration.

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Increasing and Assessing the Agency's Added-Value - Are there any Limits?

This paper discusses the added-value of government agencies that have been set up as part of policy delivery systems. Added-value – or additionality as it is also often called – is a concept which tries to capture the difference between what has been achieved by an agency as opposed to what would have happened in the absence of the agency. Added-value can therefore also be negative, in which case an agency is doing more damage than good.

The main problem with this concept lies in identifying a reasonable counterfactual, i.e. what would have happened without the agency. First of all, what is a reasonable counterfactual? No agency at all? A different kind of agency? Secondly, are we really assessing the added-value of an agency or an added-value of a set of policy measures delivered in a specific way? Thirdly, there is no real evidence of the counterfactual. Even with a cruel experiment of randomly selecting those who are targeted with the policy measure and those who are not, those who are not targeted would eventually be affected indirectly through the targeted ones.

So, why use such a difficult concept to measure what is so fundamental for any agency's survival? For the simple reason, that there is no valid alternative. Even though value-added or additionality is a difficult concept, it is the only concept that actually tries to assess the value that is created by an agency as opposed to some alternative way of delivering a set of policy measures.

Let's assume that we are somehow able to measure the added-value of an agency. This brings us to the following questions: how can an agency increase its added-value and are there any limits to increasing an agency's added-value? In order to find the answers to these questions, added-value should first be divided into two different parts. The first of these is called efficiency, i.e. how much more efficiently can the same policy impact be achieved by delivering the set of policy measures via an agency as opposed to alternative means of policy delivery? The second one is effectiveness, i.e. how much bigger is the impact of the set of policy measures when delivered via an agency as opposed to alternative means of policy delivery? In practice it is often difficult to differentiate between these two types of added-value, but for the sake of this discussion we will make this theoretical distinction.

Increasing the added-value of an agency – Are there any limits?

The main role of agencies is to implement policies, although in a number of cases, they can also have a role in policy design, evaluation and/or strategic intelligence such as foresight, assessment and/or science and technology watch. Agencies are typically assigned with the responsibility of implementing selected policy measures. Most typical of these are various funding programmes or schemes.

The underlying policy rationale plays a major role in agency's added-value, especially in terms of effectiveness. Even if the agency would be performing excellently, if the underlying policy rationale is wrong the agency's added-value might be low or even negative. This would indicate that agencies should have reasonable access to policy design (and in strategic intelligence) processes in order to have an impact on the underlying policy rationale.

Is it more important to do the right things or do things right? Naturally both are important, but what is the message given to the agency by the steering ministry? Is the emphasis on the measurement of added-value of an agency on efficiency or on effectiveness? The focus should obviously be on effectiveness, but as it is much more difficult to measure than efficiency, more emphasis is typically put on easily measurable efficiency objectives. Too much emphasis on efficiency at the cost of effectiveness may in many cases lead to lower overall added-value of an agency.

Let's look at an example, overall R&D tax incentives. Policy maker's interest in fiscal measures can often be explained with two main reasons. One is the fact, that introducing new fiscal schemes makes already existing R&D and innovation visible in statistics, thus making it look like the policy measure is providing quick results. The other is the fact that fiscal measures are typically more efficient, i.e. they have lower administrative costs. Unfortunately, most studies looking into the input additionality of various public funding schemes have revealed that fiscal schemes are typically much less effective than direct schemes.

A policy delivery system typically consists of many agencies and actors. There are two systemic features that deserve our attention in this context. First of all, like any system, this also performs as well as its weakest link. Secondly, optimising the performance of an agency does not necessarily optimise the performance of the whole system. What does this mean in practice? It means that optimising the performance of an agency, i.e. increasing the added-value of an agency, especially one that is already performing well does not necessarily improve the performance of the whole policy delivery system. In fact, attempting to increase the added-value of a single agency by enlarging its mandate to cover tasks already covered by other well performing agencies or private actors, might lead to overlaps and competition and therefore even reduce the performance of the policy delivery system. On the other hand, if the agency whose added-value is increased is one of those currently performing poorly and/or the mandate

is enlarged to cover failures not previously addressed, the performance of the policy delivery system is likely to improve.

What the previous tries to highlight is the fact that increasing the added-value of an agency is not a simple straight forward issue. The true added-value should be addressed at the level of the whole policy delivery system, not at the level of single agencies.

As the importance of innovation policy is increasing, so is the interest towards it among politicians. On one hand, this is obviously a good thing. The more politicians are interested in a topic, the more they discuss it which typically increases the awareness. More discussion can also mean more commitment and more informed political decisions. Unfortunately, increasing political interest can also lead to less desirable outcomes such as overlapping and/or competing agencies and schemes, failure to kill ineffective and inefficient agencies and schemes, etc. Although a certain amount of competition within a system might even be desirable, too much is likely to enhance opportunistic behaviour, conflicts, mistrust, inefficiency, etc. among agencies and lead to less than optimal performance of the policy delivery system.

How about empowering the agencies, i.e. giving the agencies more power to decide how to design the implementation? Whether this improves the performance of a policy delivery system depends on a number of other things, such as independence from political influences, competition within the policy delivery system, agencies ability and motivation to collaborate, etc. What can be said, though, is that a system consisting of a large number of small dedicated and competing agencies is more likely to experience governance failures and inefficiencies than a system consisting of a small number of collaborating larger agencies.

Finally, there are two major challenges related to understanding the appropriate role of government. Both of these are closely related to the underlying policy rationale and the issue of doing too much. First of these is crowding out private actors by assigning too many activities to public agencies. The second one is the failure to kill old and ineffective schemes and agencies. What makes this especially problematic is the fact that these can be enhanced by adopting the innovation systems approach. The innovation systems approach emphasises the need to identify systemic failures or bottle-necks, which call for targeted policy action. This is all very well, but linked to the unfortunate facts that (a) most policy measures are designed and set up without an exit-plan or other longer term withdrawal strategy and (b) it is much more difficult to kill policy measures or agencies than it is to set new ones up, this approach tends to lead into (a) a rather fragmented set of overlapping and competing, and therefore often ineffective and inefficient mix of schemes and agencies, and (b) assigning to public agencies or semi-public organisations various tasks, that could and should at least in time be taken over by private actors. This is quite typical especially in the area of technology transfer and other intermediary services. A good sign of these types of failures is the need to establish specific services to make sense of the available public schemes and services.

So, what is the answer to the question – are there any limits to increasing the added-value of an agency? The answer would have to be yes. It should be about increasing the added-value of the whole policy delivery system, not just a single agency. Furthermore, attempting to increase the added-value of an agency must be based on a solid and appropriate policy rationale.

Some thoughts about methodological challenges in evaluation when moving towards truly systemic multi-actor and multi-action implementation

Most evaluations as well as methodological development related to evaluation have been focusing on individual schemes or organisations. There are good reasons for this. First of all, governance of most policy delivery systems is based on a hierarchical structure of individual agencies and schemes. This originates typically from the structure and division of labour within central government among its departments and ministries. Very few governments have truly horizontal policies that span across a wide range of government sectors. Therefore, it is quite understandable that most evaluations are focusing on agencies or schemes under one department or ministry.

Secondly, it is much easier to do a limited evaluation of a single organisation or a single scheme as opposed to a mix of schemes or a network of organisations. The amount of data is reasonable and the focused approach allows ignoring a lot of difficult factors from the analysis.

Thirdly, evaluations are typically resource limited, which means that they must focus on the most important issues perceived by those commissioning the evaluation. Because limited resources seldom allow in-depth analysis of underlying interactions and mechanisms, they are frequently focusing on the more easily measurable issues. This means that efficiency rather than effectiveness and impact play a dominant role in many evaluations. Even if attempts are made to assess the impact, typically only some indirect indication of impact can be obtained. Because of resource limitations, evaluations are also typically methodologically restricted to a single methodology or approach.

There are probably also other reasons why evaluations focus mostly on single schemes or organisations, such as lack of appropriate methodologies, analytical difficulties related to the simultaneous use of various methodologies, lack of competencies among those commissioning evaluations, etc.

While there is still need for evaluations of individual schemes and organisations, it is becoming increasingly obvious that these types of evaluations have serious limitations and that they are not able to provide sufficient understanding of the innovation system and its dynamics for policy makers. One of the most severe limitations of these traditional evaluations is that they are not able to account for the complex interaction between schemes and organisations. Thus they often fail to recognise the importance of complementary schemes and actions. Another

limitation is the fact that it is often difficult or even impossible to combine the results of individual evaluations, because of methodological, data, etc. inconsistencies.

There is a need for more systemic evaluations, which focus on target groups, networks, systems, mixes of schemes and processes. These are much more demanding than traditional evaluations, since there is a need to use new methods and combinations of methodologies. They also require more resources and capabilities among those commissioning them.

There is also a need to be faster and on-line. The innovation environments and innovation processes keep changing and policies should change accordingly. The pace of change is sometimes so fast that there is no longer the possibility to wait for several years before the schemes and organisations have been in operation long enough to provide a sufficient data of completed cases. Evaluations must be integrated into the design and implementation of mix of schemes and systems to provide early indication of likely outcomes and validity of the underlying policy rationale.

Rather than specific organisations, systemic evaluations should recognise the core processes and identify the respective roles different actors play or should play in them. In the case of individual agencies it is more about the added-value they are able to produce to the processes than “counting the beans”, i.e. analysing the output/outcome of individual activities. Focusing on processes is also likely to reveal the importance of specific interactions, informal processes and roles specific actors play in the system. Systemic evaluations can provide answers to questions such as who, what and how actually makes the system or mix of policies a success or a failure – questions that are way more important for policy makers than the knowledge of which agency or scheme is the most efficient.

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**Meeting notes from the joint fteval-TAFTIE workshop
“Programme Management and Evaluation – New Forms of
Cooperation Needed?” Vienna, 26 September 2006**

On the 26th of September the Platform for Research and Technology Evaluation arranged a workshop with the purpose to present and get feedback from people with large experiences from evaluations on the work done by the TAFTIE task force on additionality.

The following panellists were invited to give their views:

- Connie Chang, Office of Technology Policy, US (Keynote speaker)
- Leonard Jörg, Technopolis, Austria
- Jari Romanainen, TEKES, Finland
- Michael Stampfer, WWTF, Austria

The position statements of all speakers are printed in this volume. Unfortunately Jari Romanainen was unable to attend the seminar, but has been able to provide a written statement, which is included in this issue.

After a short introduction by Dr. Rupert Pichler, the chairman of the task force, Kjell-Håkan Närfelt, VINNOVA, made a presentation of the work done so far based on the article by Närfelt & Wildberger (see updated and abridged version in this issue). After the position statements from the panel members a vivid discussion commenced. The discussion focused on two interrelated topics.

What does an RDTI agency actually do?

Michael Stampfer, who moderated the work shop, opened up the discussion by making an introductory remark that agencies are not market actors with competitors. As a result, the question of how to measure the performance of an agency is inevitable and reoccurring. A couple of ways in which the self assessment tools could be used to address this complex issue were suggested during the discussion.

One positive feature of the self assessment tool is that it provides a common framework for a discussion of the range of activities performed by an agency and the way these activities are carried out. Using a common language opens up for comparisons between different agencies domestically and internationally. However, it should be stressed that since the basis for such

comparisons is a self assessment it is a loose ground to stand on if you would like to perform a benchmarking exercise.

Another important feature of the self assessment tool that was stressed during the workshop was that it helps to make tacit activities and associated effects explicit. Revealing that kind of information in a structured manner could help an agency in a number of ways.

1. Communication. The information could be used to let the world know what kind of added value an agency provides to different actors in the innovation system. Besides using it as argument in the constant debate over the allocation of public resources it might also assist in a more general discussion concerning the interface between ministries and public funding agencies. If you know the kind of activities the different actors perform, the odds of performing real evidenced based policy making increases.
2. Strategy. The self-assessment approach makes the value adding activities explicit to the agency and its stakeholders, especially ministries financing the operations of the agency. By using this information the agencies can sharpen their strategies with respect to the allocation of resources. Phases and activities where the effectiveness of an agency is higher might receive more attention and resources. Besides this internal strategy design, this can also be used in the dialogue with ministries regarding budgets and budget allocations – the allocation of resources becomes subject to cost-benefit dialogues based on the added value that an agency is planning or able to deliver to the innovation system and its actors.
3. Managing important activities. If you are not aware of certain effects of the work of the agency it is not possible to manage these activities. The importance of capturing and understanding effects that were not foreseen from the start were brought up from the US and Sweden.

Connie Chang gave an example from the work with the Advanced Technology Programme (ATP). During the course of the programme they noticed that private sector investors actively scanned the projects receiving ATP funding. This was labelled the “halo effect” and indicated that the staff of ATP were providing added value by performing a quality assurance check of R&D projects. Kjell-Håkan Närfelt cited the case of VINNVÄXT in Sweden where the selection process included an education in triple helix management of the top level stakeholders in the regional clusters that sent in an application. An unexpected effect of this design was that a large number of the applicants that in the end did not receive any support still decided to carry out their project financed by other sources.

These important side effects were identified by experienced programme managers in an ad hoc manner. The question is how many other side effects an agency deals with

without the knowledge being spread in the organisation and the activity being properly managed.

4. Learning and improving. A third way that the self assessment tool could be used that was discussed during the workshop was as a basis for internal and external processes. It was stressed that programme managers often lacked time and forums to exchange experiences between them. This is a sharp contrast to the fact that the work of programme managers is often assessed by external evaluators as part of programme evaluations. Using the framework and the conceptual models provided by the self assessment tool the approach might be used to facilitate such learning processes and make value adding a strategic issue.

What is the proper role of RTDI agencies in the innovation system?

The discussions on the importance of agencies to providing added value made some commentators stress that there is a risk of taking the business analogy too far. First, there is no observable rate of return on public investment in R&D in a strict sense, and hence, we need some other scale of measurements. Second, it is important to understand the limitations of public intervention in the innovation system. Just because an agency has identified a potential to add value does not necessarily mean that the agency should pursue this opportunity. Kjell-Håkan Närfelt agreed to these remarks, but said that within the limits of the agencies activities it is important to think of a funding agency as a system internal investor focusing on proving value add instead of just focusing on distributing funds.

As a concluding remark, chairman dr. Michael Stampfer reminded the audience that, just like behavioural additionality, added value is a provocative term, which opens up new possibilities, but might also raise some resistance.

End of workshop

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Alexander Damianisch

Science Impact - Rethinking the Impact of Basic Research on Society and the Economy – Conference Announcement

May 10th – 11th 2007, Alte Aula, Vienna, Austria

The Austrian Science Fund (FWF), in cooperation with the European Science Foundation (ESF), will be holding an international conference on the impact of basic research from 10–11 May 2007 in the Alte Aula, Vienna, Austria. We cordially invite researchers, funding institutions and policy makers worldwide to participate.

The goal of the event is to explore how and when the reciprocal interactions between basic research, society and the economy take place. The conference will also examine methods for evaluating and reinforcing the impact of basic research, addressing these topics from a theoretical and historical viewpoint. In addition, the conference is aimed at stimulating public discussion and promoting awareness of the issues.

The planned programme will include presentations from representatives of major research organizations and high-level policy makers as well as from researchers engaged in the study of the impact of basic research. Several internationally renowned speakers have already agreed to contribute, such as Erik Arnold, Technopolis; Benoit Godin, INRS (Montreal); Herbert Gottweis, University of Vienna and FWF; Ian Halliday, ESF; Stefan Kuhlmann, University of Twente; Ben Martin, University of Sussex; Joel Mokyr, Northwestern University; Helga Nowotny, ERC; Sheila Jasanoff, Harvard University; Wolfgang Polt, Joanneum Research; Luc Soete, Maastricht University; Andrew Webster, University of York.

Theoretical background

The conference will discuss relevant aspects of the theory of science, starting from a historical overview. It is generally agreed that basic research drives economic and societal progress, yet the processes through which science evolves into knowledge need further discussion. As an example, the descriptive accuracy of the linear and dynamic model needs careful examination. In addition to efforts to understand the status quo, the conference will offer opportunities to address the expectations for the impact of basic research. Existing rules and mechanisms will be challenged. What part does chance play in scientific investigation? And can serendipity be systematically exploited? What influences can and should the expectations of industry and society exert on the search for knowledge?

Implications

Anyone seeking to benchmark the effectiveness of research funding will encounter a wide variety of established models. Cases of best practice will be presented in terms of maximization of the social and economic impact of basic research. New approaches are growing in importance, aimed at the productive use of the divide between science and society. As an example, researchers from different disciplines are forming new teams working at the interfaces between traditional structures. The funding schemes, both project-based and institutional, that make such work possible will be illustrated by success stories and the principles behind them will be discussed. The conference will also investigate how to allocate the responsibility for research funding among the different levels of local, regional and national government and the European Union (EU) for maximum impact.

Impact evaluation

A further section of the programme will be devoted to the question of whether there are any scientifically sound methods for evaluating basic research impact and, if so, what tools should be used. The aim will be to develop indicators and methods of evaluation for use in assessing research funding models. Practical examples and cases will be presented.

Call for papers and call for conference attendance grant applications (for early-stage researchers)

We would also like to give an opportunity to young researchers to present their work at the conference. We invite them to submit a proposal for contributions for the sessions, each concluded by panel discussions.

For details on registration and information concerning the call and the conference programme please visit our website: www.science-impact.ac.at

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Julia Prikoszovits

Book Review:

Carayannis/Campbell: „Knowledge Creation, Diffusion and Use in Innovation Networks and Knowledge Clusters”

A book by Elias G. Carayannis and David F. J. Campbell (eds.): “Knowledge Creation, Diffusion and Use in Innovation Networks and Knowledge Clusters: A Comparative Systems Approach Across the United States, Europe and Asia”, 2006, Westport, Connecticut: Praeger (347 pages, ISBN 1-56720-486-4)

The Austrian David F. J. Campbell, of the Faculty for Interdisciplinary Studies (IFF) at the University of Klagenfurt, and Elias G. Carayannis, Professor for “Management Science” at George Washington University (Washington, D.C.), present in this anthology contributions to science studies and innovation research. They especially address the question, how knowledge is generated, diffused, and used at the level of networks and clusters, in which clusters are the elements of networks. The real innovation of this book is the attempt to arrange in order the newest developments and trends and put them into a standard examination, which leads to the introduction of a “Mode 3” hypothesis.

This anthology is intended not only for the “academic community” and its students, but also for decision makers in the world of business, academia, as well as politics and public administrations. The publication of this book is directed to the objective of firstly, to contribute to the further development of the scientific discourse by the introduction of the concept of “Mode 3”, and secondly, to equip the decision makers at the level of business and academia as well as politics with a differentiated understanding of knowledge production.

The articles extend from contributions in the field of sociology of science (Helga Nowotny et al.) to contributions that could be categorized as topics in innovation management. The chapters range from theoretical reflections to practical applications. In addition, they concern three continents: the U.S. and Europe as well as Japan and even Israel. The book can be read as a colorful mix and illustrates not only case studies of specific disciplines (e.g., the case of biotechnology in Germany), but also describes the developments and trends at an institutional level (e.g., research-intensive universities).

The book published by Carayannis and Campbell should be read for at least three reasons: firstly, the current book is a successful transdisciplinary work, that once again not only demonstrates the diversity of science studies and knowledge and innovation research, but also reveals the internationality, which this pulsating research field displays. Secondly, it connects theoretical analyses with practical examples in an innovative way. This illustrates to the readers, who are new to the field, the multiple applications of this subject, and provides even experts in this area an accomplished overview of the ramifications of this policy field. Thirdly, Carayannis and Campbell risk a further step in the scientific discourse and introduce the concept of “Mode 3”.

In this respect, they attempt the application of concepts from systems theory to “knowledge”. The authors denote this knowledge systems perspective as “Mode 3”. The authors use knowledge creation and knowledge production as interchangeable concepts. “Mode 3” is the extension of the concepts of Mode 1 and Mode 2 (Gibbons et al., 1994), Triple Helix (Etzkowitz and Leydesdorff, 2000), and Technology Life Cycles (e.g., Tasse, 2001). “Mode 3” arises through the connection of systems theory and knowledge analysis with consideration of the concept of *multilevel systems of knowledge and innovation*. The present dynamics in knowledge production requires that the knowledge system should be visualized as a multilevel system of knowledge and innovation. National as well as supranational systems are being continually challenged by global innovation systems. The combination of systems theory and knowledge as well as the use of a multilevel system for knowledge and innovation is denoted as “Mode 3”.

The authors identify the key characteristics of “Mode 3” as: (1) *Conceptually linking systems theory and systemic approaches with knowledge, thus fully leveraging the tools of systems theory for the analysis of knowledge.* (2) *Emphasizing the conceptual value of concepts of multilevel systems of knowledge and innovation for a comprehensive understanding of knowledge – particularly recognizing the increasingly global embeddedness of national innovation systems and the involved ramifications.* (3) *Bridging specifically a multisystems-based designing of knowledge with innovation clusters and innovation networks, and the networking of innovation networks.*

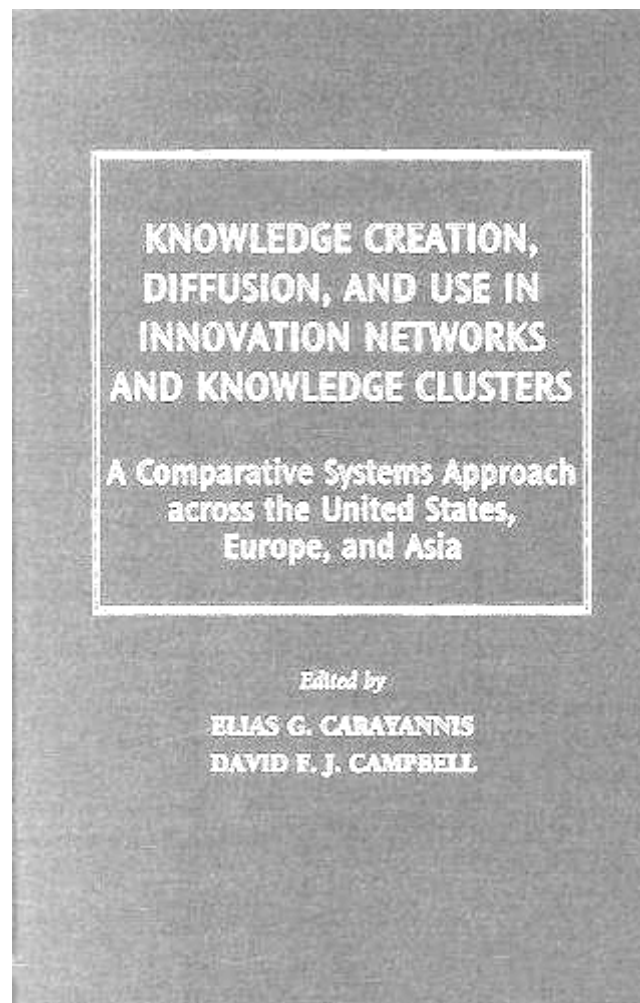
Articles from well-known as well as lesser-known scientists from the disciplines of economics and social sciences follow. The contribution of Wolfgang H. Güttel “*Knowledge Production – Competence Development and Innovation – Between Invention and Routine*” is of specific interest since it provides the explanation of the necessary corporate culture which allows innovation to occur.

However, the editors clearly have difficulty at the end to classify their eclectic choices, especially concerning the empirical articles. They try to solve this problem by indicating that it remains an “open test”, whether these articles conform to the “Mode 3” concept. This problem of a supplementary summary is not unusual for anthologies.

After reading this anthology one has a good overview concerning the ramifications of applications of global, supranational and national innovation policy at the institutional level as well as at the level of networks and clusters. Depending on which area is of concern to the decision maker (academia, politics, business), one always tends to one direction, overlooks the rest, and loses the total overview. For this reason this book is to be especially recommended. The successful *Tour d’horizon* for knowledge production leads to a further erudition of this research area. It remains interesting to await the echo this sketch of “Mode 3” will find in the scientific community.

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Fraunhofer Institut
System- und
Innovationsforschung

Das Fraunhofer-Institut für System- und Innovationsforschung in Karlsruhe sucht für seine Abteilung »Innovationssysteme und Politik« ab 1. Februar 2007 eine/n erfahrene/n

Sozial- oder Wirtschaftswissenschaftler/in

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als Projektleiter/in eines interdisziplinären Forschungsteams im Bereich interdisziplinärer Policy-Analyse, insbesondere der Konzeption, Analyse und Evaluation von Innovations- und Forschungspolitik.

Sie verfügen über ausgezeichnete qualitative und quantitative Methodenkenntnisse der Sozial- und Wirtschaftswissenschaften sowie Interesse an der Anwendung und Weiterentwicklung von Methoden, insbesondere der Evaluation.

Wir erwarten von Ihnen eine qualifizierte Promotion vorzugsweise in Politikwissenschaften oder Soziologie sowie Potenzial und Interesse für eine weitere wissenschaftliche Entwicklung und Profilbildung. Weiterhin sollten Sie an interdisziplinären Fragestellungen interessiert sein und über eine große Bereitschaft zur internen und externen Teamarbeit verfügen. Sehr gute Englischkenntnisse und Erfahrung mit der gängigen PC-Software setzen wir voraus.

Es erwarten Sie interessante Projekte im Spannungsfeld von Politik, Wirtschaft und Technik mit engen Kontakten zu Entscheidungsträgern in Politik und Wirtschaft, eine gut ausgestattete technische Infrastruktur sowie ein aufgeschlossenes und kollegiales Team.

Wir bieten Ihnen die Möglichkeit zur strategischen Weiterentwicklung zentraler Themen.

Anstellung, Vergütung und Sozialleistungen richten sich nach dem Tarifvertrag für den öffentlichen Dienst (TVöD). Die Stelle ist zunächst auf fünf Jahre befristet. Bitte richten Sie Ihre Bewerbung mit allen wichtigen Unterlagen bis zum 15. Dezember 2006 unter Angabe der Kennziffer ISI-427 an:
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Der Newsletter der Plattform Forschungs- und Technologieevaluierung ist ein unregelmäßig erscheinendes offenes Forum zur Diskussion methodischer und inhaltlicher Evaluierungsfragen in der Forschungs- und Technologiepolitik.

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PLATTFORM 
Forschungs- und Technologieevaluierung

PLATTFORM FORSCHUNGS- UND TECHNOLOGIEEVALUIERUNG

Die Plattform Forschungs- und Technologieevaluierung ist eine Initiative der folgenden Organisationen: Österreichisches Bundesministerium für Bildung, Wissenschaft und Kultur (bmbwk), Bundesministerium für Verkehr, Innovation und Technologie (bm:vit), Bundesministerium für Wirtschaft und Arbeit (bmwa), Österreichische Forschungsförderungsgesellschaft mbH (FFG), Fonds zur Förderung der wissenschaftlichen Forschung (FWF), Joanneum Research, KMU Forschung Austria, ARC Systems Research, Technopolis Austria GmbH, Österreichisches Institut für Wirtschaftsforschung (WIFO), Wiener Wissenschafts-, Forschungs- und Technologiefonds (WWTF) und dem Zentrum für Innovation und Technologie GmbH (ZIT), Rat für Forschung und Technologieentwicklung, AQA – Österreichische Qualitätssicherungsagentur, Christian Doppler Gesellschaft (CDG), Austria Wirtschaftsservice (awsg). Im Rahmen der Plattform werden Themenstellungen zur Forschungs- und Technologieevaluierung erarbeitet und – z.T. unter Einbeziehung namhafter ExpertInnen – in einem Fachkreis diskutiert. Der Newsletter beinhaltet Fachbeiträge zu Fragen der forschungs- und technologiepolitischen Evaluierung. Die Herausgabe erfolgt in zeitlicher als auch inhaltlicher Abstimmung mit Plattform-Veranstaltungen, um die Synergiewirkungen eines breiten Austauschforums zu nutzen.

