

## The Integrated Appraisal Methodology – Environment, Competitiveness and Innovation

by Jens Hemmelskamp, Fabio Leone and Nathalie Vercruysse

The Directorate General for Industry (DG III) of the European Commission has started a pan-European project "Integrated Appraisal Methodology (IA<sup>Plus</sup>)" whose objective is to allow mutual integration of competitiveness and environmental requirements into the definition and implementation of all Community policies and activities.

### 1. Mutual integration of environmental and competitiveness requirements into DG III policies

One key role of the Directorate General for Industry (DG III) of the European Commission is to promote the competitiveness of industry and to provide a favourable environment for business by acting as the main interface between industry and the Commission through Community policies and by developing new policies and instruments concerning industrial competitiveness.

A need has been identified to develop an Integrated Appraisal Methodology for use by DG III of the European Commission, the primary role being to allow mutual integration of competitiveness and environmental requirements into the definition and implementation of all Community policies and activities.

The obligation for the integration of environmental concerns is stated in article 3c of the Amsterdam Treaty, and its concept also mentioned in one of the key actions of the 5<sup>th</sup> European Environmental Action Programme. Furthermore, a resolution from the European Parliament calls for clear guidelines and indicators for monitoring and evaluating the degree of integration of environmental requirements into Community policies and activities.

The IA<sup>Plus</sup> project was begun in January 1999 and will be concluded in March 2000. A follow-up project entitled "A Methodology for Appraising the Sustainability Implications of EC Initiatives: The Integration of Economic,

Societal and Environmental Aspects" is planned.

### 2. A complex and interrelated framework

The primary objective of the project "Integrated Appraisal Methodology (IA<sup>Plus</sup>)" is to produce a structured "checklist" of questions that enable the assessment of initiatives and policies in terms of environmental innovation and competitiveness issues. Thus, the appraisal methodology will consist of two parts, the environment tool and the competitiveness tool.

Specific objectives of the IA<sup>PLUS</sup> methodology include:

- Increasing support for measures that promote sustainable development;
- Ensuring consideration of alternative policy options at an early stage of development;
- Supporting transparency in the decision-making process and reduce conflicts related to environmental issues;
- Enabling diverse environmental impacts to be anticipated and as far as possible avoided or prevented;
- Drawing attention to win-win situations such as positive environmental impact and improved conditions for competitiveness and innovation;
- Increasing the awareness of the global and international dimensions of policy activity at all levels and complex interaction between the economy and the environment;
- Helping to identify trade-offs and interactions between environmental objectives and the need to foster competitiveness and innovation.

Whilst this checklist will only be able to achieve this in a broad-brush manner, it will nevertheless ensure that these issues are addressed in an integrated way and early on in the policy-making process.

The latter point is particularly important in ensuring that environmental issues are addressed at a time when more than one policy option may be available.

One intention of this method is that the checklist will be fairly straightforward and quick to complete, which is important if people

are to be encouraged to make good use of this tool.

Innovation and competitiveness are closely related because an innovative company is usually also able to be highly competitive. Thus, the checklist should help evaluate the impact of EU policies and projects on innovation behaviour as one of the key aspects of competitiveness.

**Fig.: Structure of the Integrated Appraisal Methodology**

It therefore has to consider a complex and inter-related framework that distinguishes between: firstly, different impact levels, which are the macro (national), meso (industry) and micro (firm) level; secondly, between different phases of the innovation process (invention, innovation and diffusion); and finally between product, process, organisational and institutional changes. In addition, indirect effects as well as direct ones will need to be considered, and that there are often un-intended, as well as intended, effects of many policy initiatives.

**3. Scope of the project**

The scope will be pan-European. IA<sup>PLUS</sup> contains a list of qualitative and quantitative questions. It comprises three main sections on Indexing, Screening and Scoping.

*3.1 Indexing*

The Indexing section asks for information about the user (e.g. name, date, etc.), details of the

nature of the initiative, identification of the main aims of the initiative.

The purpose is primarily to be able to categorise the initiative being assessed and to record the details of assessment such that it can be referenced and interpreted by others or at a different time in the policy-making process. Thus the boundaries around the assessment are then defined and understood.

*3.2 Screening*

The Screening section contains a list of fairly broad-based questions on innovation, competitiveness and environmental issues.

At this stage the potential linkages between a policy or a project and innovation, competitiveness and environmental issues are estimated at a general level. The results of this screening phase show which topics should be studied further. The screening questions may also indicate that the policy or project has no significant impacts, in which case the appraisal process naturally ends at the screening stage.

For example, in the environmental area this could be divided in terms of impact on:

- the use of natural resources
- pollution to air, land and water
- energy and transport usage.

The broad areas of impact of the competitiveness screening are the ones listed below:

- Costs and expenditures born by firms and institutions
- Technical, organisational and institutional innovation
- Internationalisation strategies and performances
- Level, composition and productivity of labour force

*3.3 Scoping*

This screening section forms the basis from which the scoping section can deal with impacts in each of these areas in greater detail. At the scoping level arise both beneficial and non-beneficial implications of the initiative being assessed. The scoping section is designed to follow-through from the screening section questions.

The main purpose of the scoping is to provide greater detail and clarification in the areas

of impact identified in the screening section. This is achieved by more specific questions in particular areas.

Each question in the scoping section is organised into a broader assessment and into more specific multiple choice sub-questions that aim at a more precise specification of the assessment. The user is assisted in replying to the first part of the question by means of background information that can be accessed ticking the more information needed box.

Further information and guidance may be needed by the user to complete these questions, and in some instances it may be necessary to obtain specialist expertise to complete a fuller assessment.

#### 4. The project team

*Dr. Per Sorup*, Head of Unit, European Commission DG JRC-IPTS, Seville, Spain.

The coordinator of the project is *Dr. Fabio Leone* (European Commission DG JRC-IPTS).

The other members of the project team are *Dr. Jens Hemmelskamp* (European Commission DG JRC-IPTS), *Nathalie Vercruyse* (European Commission DG Enterprise), *Diana Bradford* (Centre for Exploitation of Science and Technology), *Prof. Antonello Zanfei* (Chieti Urbino Siena Technology Organization Management), *Helena Valve* (Finnish Environment Institute) and *Prof. Bo Elling* (University Roskilde).

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## Mikrosystemtechnik – Wann kommt der Durchbruch?

von **Matthias Schünemann**, Fraunhofer-Institut für Produktionstechnik und Automatisierung, und **Volker Hüntrup**, Universität Karlsruhe

**Das Wirtschaftsministerium des Landes Baden-Württemberg hat eine Studie zur Untersuchung der wirtschaftlichen Potentiale der Mikrosystemtechnik aus industrieller Sicht in Auftrag gegeben. Beteiligte Institutionen waren das Fraunhofer-Institut für Systemtechnik und Innovationsforschung, Karlsruhe, das Institut für Werkzeugmaschinen-technik (wbk) der Universität Karlsruhe und das Fraunhofer-Institut für Produktionstechnik und Automatisierung, Stuttgart. Auf der Basis von empirischen Erhebungen in den USA, Japan und Deutschland sollte eine möglichst realitätsbezogene Einschätzung der industriellen Miniaturisierungspotentiale vorgenommen und die Strategien und Wettbewerbspositionen wichtiger Akteure aufgezeigt werden, Innovations- und Diffusionshemmnisse identifiziert und vergleichende Aussagen über Miniaturisierungspotentiale und damit verbundene Technologieentwicklungen gemacht werden. Der Abschlußbericht zu der Studie liegt jetzt vor.**

### Weltweite Förderung, aber keine Produkte?

Technologische Miniaturisierung wird seit den achtziger Jahren in einen engen Zusammenhang mit der Mikrosystemtechnik gebracht. Dies gilt insbesondere für das Land Baden-Württemberg, das durch die Mikromechanik eine konsequente Fortentwicklung seiner traditionellen Stärke in elektromechanischen Industrietechnologien erwartet. Die Mikrosystemtechnik wurde und wird als Schlüsseltechnologie mit einem der Mikroelektronik vergleichbaren Potential gesehen. In der Annahme, dass über technologische Vorsprünge in der Mikrosystemtechnik auch der verlorene Anschluss in der Mikroelektronik aufgeholt und sogar Technologieführung erreicht werden könnte, wurde die Mikrosystemtechnik in Deutschland, wie auch in Japan und den USA, bereits früh gefördert.

In Forschungslaboratorien wurden erhebliche Erfolge bei der Entwicklung von Mikro-