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# Working Paper

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co-designing knowledge on  
impact assessment tools

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### Abstract

Impact Assessment (IA) intends to collect evidence on the likely impacts of new policies and thereby minimize unwanted side-effects and maximize the benefits to society. Although it is a requirement in the EC and all OECD countries, the scope and methods vary considerably. Governments have invested considerably in research to support the evidence basis of policy making for sustainable development. However, the general picture shows a gap between the proliferation of IA tools from the scientific community and their actual use in the policy process. The FP7 network of excellence LIAISE ([www.liaise-noe.eu](http://www.liaise-noe.eu)) is designed to identify the causes for non-use of IA tools and bridge the gaps between researchers with a generally strong orientation towards their (disciplinary) peers and practitioners who tend to focus on their policy domain and policy problems. LIAISE aims at: 1) understanding of the policy process and the resulting needs for IA knowledge and IA tools; 2) description of IA tools and scientific IA expertise in a standardised way; 3) a shared IA toolbox targeted at the needs of both researchers and practitioners; 4) a shared IA research agenda integrating scientific knowledge gaps and the priorities for the development of new IA knowledge that arise from the future policy agenda; and 5) safeguarding the project results beyond the period of project funding, by developing an institutional setting and a business plan that facilitate the extension of the present consortium towards a broad centre of IA expertise with a structural permanence. A lively interaction between the different communities involved, is essential to realize these objectives. The Berlin Conference is an important opportunity to inform external research groups about the LIAISE approach to bridging the gap between science and policy. Their feedback and views on possible next steps in the further integration of the IA research community are highly valued, as well as their interest to become involved in this process.

### Keywords

IA, models, tools, science-policy interface, research agenda

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# 1 Introduction

## 1.1 *The role and position of impact assessment in European policy making*

Policy making in the European Union follows a complex system of multilevel governance involving interaction between the European policy system and the member states. The overarching goals for policies at the European level are laid down in comprehensive strategy documents such as the Sustainable Development Strategy, the 'Lisbon Strategy' for Growth and Employment and more recently Europe 2020. These strategies recognise that policies aiming at the overarching goal of sustainable development should follow a three-pillar approach targeted at economic, social and environmental objectives. These three dimensions of sustainable development are recognised as equally crucial, interconnected, and urgent. All EU institutions (including the Commission, but also the Council and the Parliament) have committed themselves to base major policy proposals on a balanced assessment of the social, environmental and economic dimensions which takes into account the external dimensions of sustainable development.

The instrument of ex-ante impact assessment (IA) was developed to provide a framework for ensuring basic comparability while being adaptable to all policy sectors. It aims at collecting evidence on the likely impacts of policies and thereby maximize the benefits to society and minimize unwanted side-effects [COM 2002]. A first guideline was published by the Commission in 2005, and updated in 2006 and 2009 after a process of public consultation [European Commission 2009a]. It aims to replace and integrate all sectoral assessments of potential impacts of proposed measures into one global instrument with a balanced consideration of development targets against the three pillars of sustainability. The guidelines describe the organisational structure of the process and a basic procedure of six steps. Step 1 is an identification and analysis of the policy problem in order to examine if a policy intervention is justified. Step 2 aims at the definition of the policy objectives. In step 3 alternative policy options are developed for reaching these objectives and a baseline scenario is formulated to describe the development without policy intervention. Step 4 is targeted at the actual analysis of the impacts of the policy options with respect to the three dimensions of sustainable development. Step 5 focuses on the comparison of the analysed impacts of the various policy options and the baseline scenario. Finally in step 6 a set of recommendations for indicators, monitoring procedures and the ex-post evaluation of then policy implementation is outlined.

## 1.2 *Gaps between IA tool availability and actual use in the policy process*

The European Commission and a number of Member States made significant investments to support and drive forward the IA process. The development of guidelines was combined with the setup of support units in the directorates of the European Commission as well as in members states. Desk officers were trained and substantial investments were made in R&D efforts to develop and review IA tools, in particular models. At the EC level an IA Board was installed with the task to provide an independent and focused perspective on the quality of IAs. The Commission's IA system has undergone several reforms and an independent evaluation was commissioned by its Secretariat General [TEP 2007]. Furthermore, the European Court of Auditors has evaluated the performance of the EU IA [ECA 2010]. As a result the process of IA gained importance for the policy process and the quality of IAs has gradually improved. However, both research and the experience of practitioners (principally desk officers) demonstrates that in practice the broad range of potentially relevant tools to support IA is still not being used to its full potential. Compliance testing work on the reality of policy making revealed a gap between the aims of IA and its implementation. The application of IA is difficult and often at odds with the process of decision making [Turnpenny et al. 2009]. In the call text of topic ENV.2009.4.2.1.1 (Network of excellence for Impact Assessment Tools) the Commission [European Commission 2009b] specified the main shortcomings:

- *Policy orientation vs. research orientation.* Policy-makers tend to look for robust, simple and transparent tools with a proven record of effective use in policy. Policy relevance however is not yet a significant part of the researchers incentive system. From their point of view the development of new conceptual approaches and ever more complex tools is more rewarding than a focus on the usability of existing tools.
- *Complexity vs. transparency.* The tools used must be based - as far as possible - on rigorous

analysis while recognising explicitly where value judgements are included. However, many scientific models remain 'black boxes'. Differences in data sources used or simple misunderstandings about the terminology used may undermine trust.

- *Maintaining existing investments vs. preparing for the future*: promising or successful tools from a policy perspective are not always being maintained or further applied by the developers. Due to sometimes limited interactions with policy-makers, researchers do not properly recognise the loss of opportunity in not further maintaining or applying existing tools.
- *Accessibility vs. applicability*: the access to existing assessment tools is often poor. One of the reasons is the lack of structure to link the diverse and ever-changing needs of policy makers with the overwhelming abundance of existing tools on the supply side. Another important reason is the limited access to the data that are needed to apply the tool. Consequently, policy makers tend to fall back on 'common sense' rather than engage in the time-consuming process of understanding and applying the best tools on offer.

## 2 The LIAISE approach: general setup and progress so far

### 2.1 General setup

The FP7 network of excellence LIAISE ([www.liaise-noe.eu](http://www.liaise-noe.eu)) is designed to identify the causes for not using IA tools which have been developed in research projects and to bridge the gaps between researchers and practitioners. LIAISE aims at:

- 1) A better understanding of the policy process and the resulting needs for IA knowledge and IA tools;
- 2) Description of IA tools and scientific IA expertise in a standardised way;
- 3) A shared IA toolbox targeted at the needs of both researchers and practitioners;
- 4) The development of formats for an effective interaction between IA researchers and users based on an improved understanding of the needs for scientific IA knowledge in the policy process;
- 5) A shared IA research agenda - to be developed in an open process with inputs from partners within and outside LIAISE – that integrates scientific knowledge gaps and the priorities for the development of new IA knowledge arising from the future policy agenda.
- 6) Safeguarding the project results beyond the period of project funding, by developing an institutional setting and a business plan for the future extension towards a broad centre of IA expertise with researchers from the present consortium partners as well as additional members.

An effective dissemination of project activities and achievements is essential for the realization of all objectives mentioned above and is crucial to achieve objective 6 by broadening the network and getting new partners involved in new arrangements targeted at the building of a broad centre of IA expertise with a structural permanence.

The LIAISE consortium unites the multi-disciplinary competences of a core of 15 European institutes from 9 countries ([www.liaise-noe.eu/content/liaise-partnership](http://www.liaise-noe.eu/content/liaise-partnership)), that in turn consolidate the expertise from large FP6 projects on IA tool development such as SEAMLESS, SENSOR, MATISSE, Sustainability A Test, IQ Tools and EVIA. It includes expertise from the field of environmental sciences, economics and political sciences. This makes it possible to analyse current policy needs, to link them in innovative ways to the available reservoir of IA knowledge and to test these innovative solutions in targeted, co-designed and co-produced IA test cases. Three additional elements in the project setup complement the general approach:

- The formation of a Policy Board with policy makers and IA practitioners from the EC (policy DGs, DG Research and Innovation, SecGen), Member States, the OECD and NGOs. The Policy Board provides a platform for the interaction at the strategic level between IA researchers and IA users;
- The formation of focus groups with IA researchers and IA practitioners to discuss operational issues and user experiences;
- The on-going evaluation by Ecologic ([www.ecologic.eu](http://www.ecologic.eu)), a think tank for applied environmental research, policy analysis and consultancy. It was commissioned by LIAISE to assess the progress towards the general project objectives. This evaluation is based on the impact chain approach and is complementary to the standard FP7 project evaluation procedures by the Commission which focus on monitoring the project progress in terms of the realisation of the project objectives. The impact chain approach gives insights in the progress towards the envisaged impacts of the project (the ambitions beyond the realisation of the project

objectives, e.g. the contribution to evidence based policy development). The underlying logic model is described in [BIS 2011].

## **2.2 User needs and the role of IA in the policy process**

The LIAISE activities in the exploration of this topic are based on the hypothesis that in many cases there is a mismatch between the requirements and methods used by the two communities of IA researchers and IA practitioners. We made the most comprehensive survey yet of user needs and expectations with regard to Impact Assessment (IA) systems and tools in 17 European countries. Previous surveys of this kind have been either narrower in focus [Hertin et al. 2006] or conducted in less depth [EVIA 2008]. None have focused on the experience and insights of those people at national level who determine the strategic direction of IA. A broad picture of how IA is conducted in each country was constructed by an analysis of relevant IA literature and documents: IA reports, draft and final legal texts, policy documents by the ministry and relevant publications by external stakeholders. This information was compiled in a standardised template covering various aspects of the IA systems, including: the design and use of the IA system, the quality of IA, its role in the policy making process and issues related to tool use. This was followed by a series of interviews with c. 120 people who at a strategic level champion, oversee, guide, audit or write guidance for IA processes in these countries. The main conclusions are [Adelle et al. 2011]:

- The main tools used in IA across the different countries are scoping tools such as checklists and questionnaires, Cost Benefit and Effectiveness Analysis and administrative burden assessments with the Standard Cost Model. Examples of other tools which are advocated and/or used less frequently include scenarios, Multi-Criteria Analysis, and computer models. The majority of the Guidance documents at least mention tools and some Guidance documents give in-depth instructions and/or worked examples.
- Although there is some guidance on which tool to use and when, practice often does not match the expectations of the Guidance documents. Qualitative methods such as Multi-Criteria Analysis are advocated only in a few countries. This is despite the fact that many IAs developed by researchers involve qualitative analysis. In practice quantification is less common than the IA guidelines would suggest and when it is done, it is often incomplete or inadequate. This contributes to the mistrust felt by many policy officials towards quantitative tools. Tools can also be used in analysis preceding or in parallel with the IA, with the results feeding into the analysis later on. These tools are often used by consultants in commissioned reports, which require resources as the tools can be quite complex and the results hard to interpret.
- The context in which scientific inquiry and the development of IA tools occurs is quite different from the context of policy making. Researchers are primarily oriented at their disciplinary peers and interested in innovation of methods and models. Policy makers are primarily oriented at their policy domain and policy problems and need reliable tools and data.

These differences are also reflected in different attitudes towards uncertainty as was underlined in several presentations and discussions about the science-policy-interface during the info day in June 2012 for the FP7 call ENV2013. The drive to improve the understanding of the processes underlying a policy problem causes scientists to focus on the solution or clarification of uncertainties. Policy-makers are mainly interested in a good understanding of the policy problem and the options for action to solve it. To them, uncertainties in the understanding of the underlying processes are only relevant in case it could lead to an incorrect understanding of the policy problem, or if it affects the robustness of the policy measures. The latter applies when the uncertainties are such that policy-makers cannot sufficiently rely on the predicted outcomes of their policy measures. The logic of researchers results in an extensive and detailed description of the methods for their peers and in technical language, while policy makers are in need of reports focusing on the results and in non-technical language in order to be able to communicate with other policy domains, the hierarchies and the general public.

## **2.3 Standardized descriptions of IA tools and scientific IA expertise**

In order to provide useful and relevant results, IA tools need to fulfil quality standards. Incorrect, non-robust, insufficiently tested, or poorly described and documented tools are likely to produce unreliable or incorrect information for an IA. However, substantial quality criteria can hardly be agreed upon, since the purposes of their application vary considerably. Very much like a paper model of an airplane may serve certain purposes, it cannot be blamed for not having a turbine. While we cannot judge the technical quality and soundness of a tool without studying a tool in detail, a common reference frame

and guidance document on how tools should be *described and documented*, could facilitate a better tool selection and use. In [Roosenschoon et al. 2012] a description is given how, following best practices in software engineering, a reference model for Impact Assessment Tools (RM-IAT) has been developed. This can be seen as a meta model that gives (potential) users the information they need in order to make an informed decision about the applicability to their specific use case. The RM-IAT was developed in order to:

- Safeguard a minimum level of quality assurance for the description and selection of IA tools with respect to testing, modelling approaches, documentation, calibration and input data sets
- To collect meta information for the possible users (the stakeholders in the IA process) with respect to objectives and characteristics of IA tools, input and output data, sort of studies that can be performed, required investments to apply the tool, etc.
- Improve the performance of the tool from a software/technical viewpoint. The RM-IAT will integrate aspects related to requirements for engineering, development, distribution, interoperability, platform and technology independence and portability of IA tools. Topics like common terms (glossary, vocabularies), standards, basic guidelines regarding software improvement and quality control procedures will support developers and users in the improvement and improved use of the tools.

#### **2.4 Shared IA toolbox**

The toolbox [Roosenschoon et al. 2012] is the facility where IA users directly interact with the information and tools that support them in conducting their impact assessments. The Front Office Toolbox provides meta-information that facilitates the selection of IA tools for the purposes of a specific policy proposal and allows the user to judge whether and how different tools can be combined. The back office represents the framework in which users can interact with tools. The meta-descriptions of models have been developed following the RM-IAT. The content of the toolbox is constantly updated by Lead Editors for Impact Areas and for Families of Methods. The Lead Editors add new models, experts, cases of good practices, methods, datasets from their respective domain of expertise. With this content, we intend to support all steps of the IA process with an up to date knowledge base; the first version of the LIAISE Toolbox contains in total descriptions of 85 models.

For the different categories against which models are described, taxonomies have been developed: e.g. for Impact Areas, Modelling Techniques, Policy Areas and Policy Instruments. The models can be identified by means of faceted search strings: by applying multiple filters on the taxonomies, to narrow down the selection to those fulfilling the requirements of a specific IA. In addition to this, an open text search is available and can be combined with the faceted search. The taxonomies which are used to describe models are both from the sphere of research (e.g. modelling technique) as well as from the sphere of policy making (e.g. impact areas). Thereby, it is possible to query the models from different perspectives depending on the user needs. Furthermore, the same taxonomies are applied to describe other objects which are included in the toolbox, namely:

- A database with contact details for IA Experts;
- A database with examples of Good Practices of IA;
- Background information on the impact areas;
- Background information about generic methods which can be used in IA;
- Background information about the process steps and activities to be performed in an IA.

#### **2.5 Formats for an effective interaction between IA researchers and users**

The interaction between IA researchers and users is a key element throughout all LIAISE activities as is demonstrated in the preceding sections 2.2 - 2.4 and the sections 2.6 (Shared IA research agenda) and 2.7 (Future extension towards a broad centre of IA expertise). The expertise and experiences that results from all these activities are combined in the LIAISE test cases with the primary objective to develop processes through which IA researchers can interact more effectively with IA practitioners. We are doing this by applying IA tools in a number of concrete policy 'Test Cases' varying from EU level, national and regional level within an EU member state and one in in China. The specific objectives of test cases are to:

- Establish a more realistic understanding of the requirements of policymakers;
- Establish operating procedures and contacts for future researcher-policymaker interactions;
- Learn how different tools may be used in practice, hence improving existing IA tools;
- Facilitate conceptual learning and rethinking of the science-policy interface between policy makers and researchers in the field of IA tools.

In order to consolidate the test case framework, a set of 'support modules' has been developed: series of practical instructions, intended to be applied flexibly in individual test cases. Sometimes some of the steps overlap or are given more attention than others. Test cases are carried out by teams of LIAISE researchers and include both technical modellers and social scientists. The latter play the role of 'knowledge brokers' that facilitate interaction between the technical modellers and policy makers. They also monitor, evaluate and reflect on the interaction process with the objective to learn about the process of IA, how tools are part of this process and how researchers and their tools can interact with policymakers. The challenge for modellers is of course to translate policy questions into input for their models. Therefore it is vital to open up a dialogue with the policy makers before an IA study is carried out [Díez and McIntosh 2009].

## **2.6 Shared IA research agenda**

A shared IA research agenda integrating scientific knowledge gaps and the priorities for the development of new IA knowledge that arise from the future policy agenda is a second centrepiece of LIAISE (besides the shared IA toolbox). According to the IA Guidelines [European Commission 2009a] IAs should be based on scientific analysis derived from analytical tools, e.g. cost-benefit analysis, cost-effectiveness analysis, and multi-criteria analysis. In [de Ridder et al. 2007; Helming et al. 2011; and Bezlepkina et al. 2011] a wide variety of additional tools and tool types are described that can be used in IA. To assess the likely future impacts of new policies on the various dimensions of sustainable development, requires tools that are accurate, robust and legitimate [De Smedt 2010, Thiel 2009, Nilsson et al. 2008]. The tools can be both quantitative, e.g. models and indicators, and qualitative, e.g. participatory approaches and stakeholder and expert workshops. Through its framework programmes for research (FP6 and FP7) the European Commission invested in multidisciplinary research for policy support in general and in the development of a number of integrated tools for the entire IA process [Helming et al. 2012; Van Ittersum et al. 2008]. These developments contributed to closer links between the various research groups that are active in IA tool development. Other positive developments were conferences and special journal issues on the topic of IA tools (Bezlepkina et al. 2011; Helming & Perez-Soba 2011; Petit & Frederiksen 2011; Sieber et al. 2010). These efforts however were not sufficient to establish a well consolidated research community on IA tools. This makes it difficult for both IA researchers and practitioners to get a comprehensive overview of the available tools and the situation with regard to the development of new tools.

LIAISE conducted a comprehensive analysis of nine years of FP6 and FP7 programmes, to identify projects targeted at the design of IA tools [Podhora et al. 2012]. Despite the fact that the number of projects designing IA tools increased during this period, there still is a relatively low number of analytical tools directly meant to be applied in IA. Also the focus was mainly on policy areas related to agriculture, environment and transport. Considerable gaps seem to exist in the availability of IA tools for other policy areas and different jurisdictional levels. Additional gaps emerged when looking at the assessment of the full spectrum of environmental, social and economic impacts that should be included in a comprehensive approach of sustainable development. IA tools that can integrate the three pillars of sustainable development, can be seen as an emerging field of research.

LIAISE aims to stimulate excellent scientific research in support of IA with interdisciplinary approaches that are problem and user oriented. This requires different evaluation criteria compared to disciplinary and science oriented research. The Shared Research Agenda will provide cutting edge research questions to attract both researchers and funding agencies. It will be fed from scientists of different disciplines and practitioners and focuses on three main clusters: 1) Topics (policies and processes); 2) Tools (tools and data); 3) Transfer (science policy interface). The activities can be grouped into the following categories:

- Mapping and analysis of research groups/networks producing knowledge of relevancy for IA tools and processes;
- Mapping and analysis of research activities that are relevant for IA, e.g. the mapping of FP6/7 projects funded by the European Commission [Podhora et al. 2012];
- A series of expert workshops with a focus on specific impact areas or on their interaction with other policy areas, e.g. soil, ecosystem services and transport and innovation;
- A close interaction and dialogue with scientists involved in other LIAISE activities as well as with external research groups, networks and funding agencies. The LIAISE involvement in the Berlin Conference 2012 is an example;

- The design and implementation of the interaction processes between the communities of IA researchers, IA practitioners (producers of IAs) and IA users (policy makers, NGOs and the general public) that are needed for a well-balanced and integrated treatment of scientific knowledge gaps and priorities for the development of new IA knowledge that arise from the future policy agenda.

### **2.7 Safeguarding the project results beyond the period of project funding**

The objective to safeguard the project results beyond the period of project funding is an essential element in the LIAISE approach. It is needed to overcome the shortcomings (see section 1.2) that promising or successful tools from a policy perspective are not always being maintained or further applied by the developers. There are two main reasons for this:

- The research funding by the European Commission is primarily targeted at projects, which by definition are activities on a temporary basis (3-5 years). It is difficult for researchers to find structural funding for a continued use, maintenance and improvement of existing IA tools;
- IA researchers with their mainly peer oriented scientific perspective, find it more rewarding to develop and publish new conceptual approaches and ever more complex tools, than to focus on the usability, the collection of user experiences and improvement of existing tools.

## **3 Extension towards a broad centre of IA expertise**

To safeguard the project results beyond the period of project funding, LIAISE aims at building a virtual centre of IA excellence: an internationally visible, integrated and interdisciplinary scientific community, providing excellent and applicable research in support of IA. The present consortium is a starting point for this transition process and the objective is to broaden it with partners that can extend the scientific scope, as well as with partners that can strengthen the expertise in fields already covered by the present consortium. Priorities are: expertise in the fields of social IA (employment, health) and IA related to transport and energy issues.

Any future structure of LIAISE should include four basic elements: 1) A depository of knowledge with accessible storage of up to date tools and IA know-how; 2) A secure income to cover the costs of any infrastructure and services that it provides; 3) An association of supportive partners or members to provide knowledge exchange and networking opportunities; and 4) A governance structure that supports this association and provides the security and incentives to continue the strive for excellence. A route-map towards such a durable entity has been explored and is being elaborated in more detail. Several activities, e.g. the shared toolbox, the shared research agenda and the test cases, made links with external parties that could add value to the consortium. In March 2012, the annual meeting in Bilbao was used to discuss options for transition towards a broad centre of excellence with 12 invited external experts covering the above mentioned priority fields of expertise and other topics with a general relevance for LIAISE. In June 2012, in a special meeting of the general assembly of partners, the added value of collaboration in the field of IA tools was discussed to get an insight in how it is perceived by the individual LIAISE partners and how the LIAISE partners expect it will be appreciated by external stakeholders (Table 1).

Table 1: Perception of LIAISE partners how added value of collaboration will be appreciated by their own organisation and external stakeholders

With regard to IA, I want to ....	LIAISE partners	Research organisations	IA Practitioners	IA consultants
Exchange relevant information	X	X	X	X
Be involved/represented in contacts with the EC	X	X	X	X
Be involved in setting the IA research agenda	X	X	X	X
Make an informed selection of IA tools	X	X	X	X
Make my tools visible for potential users	X	X		X
Make my expertise visible for potential users	X	X		X
Have access to tools	X	X	X	X
Have access to a database of IAs and best practices	X	X	X	X
Give training courses	some	some		X
Give advice and consultancy	some	some		X
Execute research projects	X	X		



During this special meeting of the general assembly, action plans have been designed to use the remaining project period for developing business plans targeted at the realisation of these potential added values (Fig. 1). This will be done in interaction with the developments in the field of models and data that are currently taking place at the Joint Research Centre of the EC.

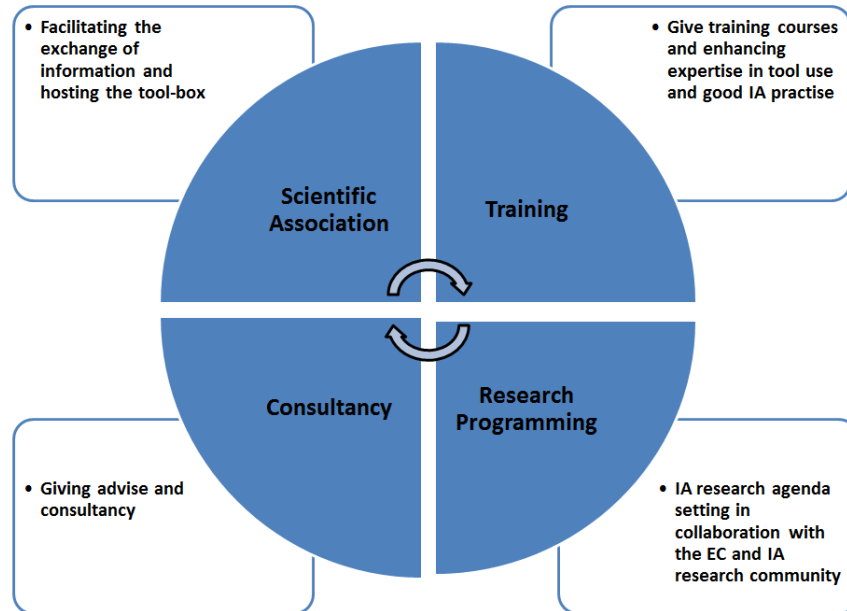


Figure 1: Main elements in the action plan for developing LIAISE towards a broad centre of excellence with relevance to the EC (European Commission) and member states (MS).

The LIAISE team hopes that the information exchange and contacts with the participants in the Berlin Conference 2012 will contribute to the long-term objective of developing a broad centre of excellence and the extension of the present consortium with many new partners with relevant IA expertise. Their feedback and views on possible next steps in the further integration of the IA research community are highly valued, as well as their interest to become involved in this process. A first step could be to advertise the relevant IA tools from your organisation to potential users, by including them in the front-office toolbox (contact: Klaus Jacob, jacob@zedat.fu-berlin.de).

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