

# Swiss comments on the Communication "Making a reality of the European Research Area: Guidelines for EU research activities"

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This paper is based on a broad consultation of Swiss researchers and scientific organisations on these *Guidelines for EU research activities*. After a summary and a general introduction on the ERA project, the comments basically follow the structure of these *Guidelines*.

## Summary

The following points are the most important for Switzerland:

- The main goal of ERA should be to increase the attractiveness of Europe for the best researchers, by keeping scientific quality as the first selection criteria and by improving scientific as well as social, cultural and economic framework conditions.
- Europe will not be able to compete (with USA and Japan) and solve major societal problems if long term objectives including the support of basic research as well as the sustainability principle are not taken into account as a first priority. Moreover, the high complexity of modern societies as well as of the problems they are faced with require a transdisciplinary approach to be able to bring useful results for policy makers.
- ERA - and FP6 as its main tool between 2002 and 2006 - will have to respect the principle of subsidiarity and of promoting or reinforcing links with the existing national and international co-operation mechanisms.
- Switzerland is convinced that the existing instruments of FP5 can be adapted for FP6 and the best ones reinforced. For access to and networking of national programmes Switzerland supports however the necessity of setting up new instruments.
- Science/society/citizen dialogue must become an integral part of science policy. This dialogue shall allow to create a climate of "critical confidence" between the scientific and societal actors in order to guarantee a democratic control of the newest scientific and technological developments.
- Gaining the best researchers – from the academic world as well as from the private sector- will be achieved only if user-friendliness and flexibility of the instruments and methods of intervention are permanently considered as a first priority. Attention should be focussed on avoiding unnecessary bureaucratic procedures and on ensuring continuity by a longer term than the 4-year life cycles.
- It is important that the associated countries are completely integrated in the European Research Area. Switzerland is involved in the setting up of ERA with the coming full participation to the Framework programme as well as with the full membership to all relevant European and international organisations and initiatives (ESA, ESO, CERN, Eureka, COST, ESF, EMBL, etc.).
- Switzerland is of the opinion that co-operation of mutual benefit between the European scientific community and the Developing and Transition Countries does not receive the appropriate attention and should obtain a higher priority.

## I. Introduction

**Switzerland welcomes the Commissions' vision and far-reaching objectives stressed in the "European Research Area" project which are paving the way to a true knowledge-based society and economy. The European scientific community as well as the industrial sector shall certainly benefit from the long term structuring approach of ERA which should be realised hand in hand with educational reforms as envisaged through the "Bologna Process". Switzerland supports especially the necessity to increase the co-ordination and joint implementation of the regional, national and international instruments to promote research activities in an efficient way and better solve societal problems and thus guarantee a sustainable competitiveness of Europe.**

Building on European strengths and setting up new co-operation mechanisms to overcome European weaknesses, as summarised in the communication "Towards a European Research Area", should definitely be one of the first priorities of the European Union. As stated in the *Guidelines* (p. 4), it is first of all necessary to help the European States "to remove the obstacles to the free movement of researchers, knowledge and technologies in Europe in different areas" (e.g. by supporting the harmonisation of social protection, educational, intellectual property and innovation systems as well as high density electronic networks, European scientific careers, etc.). By improving these framework conditions which are going well beyond research activities, the EU will greatly facilitate the access to existing research activities and infrastructure, thus increasing their output for the benefit of a more and more knowledge-based society and economy.

Switzerland belongs already to the wide geographical and cultural "European Research Area" project. The level of international collaboration of Switzerland in scientific domains is already very high and the multicultural Swiss society is reflected in the ratio of non-Swiss scientists (i.e. 37% of all professors and 17% of all students). As a small country where scientific activities of a high quality are strongly rooted, it is of a vital interest for Switzerland to share its experiences and to benefit from the international openness of the ERA project. The "best practice" mechanism of the current Framework Programme should be further promoted in the perspective of the stepwise establishment of the European Research Area.

**Switzerland thinks that the planned opening of national programmes as well as their co-ordinated implementation is likely to become the most important step towards the establishment of the ERA concept.**

Switzerland agrees to open its national programmes if the following conditions are fulfilled:

- the agreement between the concerned institutions and agencies of European States respects the "géométrie variable" principle
- the necessary funding is provided in priority scientific programmes and activities, possibly at national level, for the involved institutions and agencies
- a reasonable incentive is provided by the European Commission (e.g. co-ordination costs).

## II. Broad lines and objectives

About the three aspects to be taken into account (*p. 7 of the Guidelines*):

### European scientific and technological co-operation

Switzerland considers the overall coherence of European scientific and technological co-operation as a key issue. However, a better co-ordination of the activities of the various organisations and between those activities and EU activities necessarily requires a clear definition and delimitation of the role of each organisation and scheme involved. Furthermore, the autonomy of the national, intergovernmental and EC-instruments should be maintained in order to ensure a dynamic European co-ordination. Overlapping competencies and funding should be avoided.

Switzerland wants to participate in the setting up of European **benchmarking** system and is of the opinion that coherent mechanisms for an effective benchmarking of national and supranational policies should be elaborated and implemented. Benchmarking shall contribute to raise the overall quality as well as to enhance the international visibility and accessibility of national research facilities. However, political and bureaucratic biases must be avoided.

### Regional dimension

Being part of different European regions and especially of the Alpine Region, Switzerland strongly supports the idea of taking into account the regional dimension. In particular, cross-border collaboration networks should be developed. In the case of Switzerland, the following regions are the main cross-border co-operation partners: *Rhône-Alpes, Jura, Alsace, Baden-Wurtemberg, Bayern* and *Lombardia*. Key issues for the sustainable development of individual regions may require a large European consensus. Sustainable transport and mobility in the Alpine Region e.g. perfectly illustrate this need.

### International dimension

Switzerland welcomes the international dimension of an outward looking European Research Area. Europe should especially become more attractive to European scientists working abroad (esp. in key industrial areas) and - as a working place - to scientists from abroad. Europe has to improve its competitiveness, especially in comparison with the USA. Academia and industry have to jointly develop highly competitive innovation clusters that become a sink for highly skilled people and increased productivity. At all levels of government, the legal framework has to be adjusted in order to favour such developments. Furthermore, Europe must strengthen a largely recognised partnership in research with transition and developing countries on a basis of mutual interest and benefit.

## III. Selection criteria

**Switzerland agrees with the suggested criteria but is of the opinion that they must be complemented by the principles of precaution and sustainability as well as non main stream or high-risk research.** Precautionary and sustainability principles should not be limited to fields of present public concern like BSE or genetically engineered organisms and foodstuffs in general, but should apply to all fields of European research including the fields of postgenomics, nanotechnologies and the information society. **They should not be considered as a handicap for European Science and Industry - but rather be seen as a competitive advantage of tomorrow.**

Switzerland thinks that the selection criteria defined in the *Guidelines* are not all applicable to long term basic research.

#### **IV. Priorities**

With regard to the priorities defined as examples on page 10 of the *Guidelines*, the views of the Commission appear to be more precise on certain specific topics like post-genome or nano-technologies than on issues of fundamental importance for Humankind and with direct impact on the economic, social and environmental condition of the European citizen. Moreover long term basic research in all fields should clearly be one of the most important topics and a certain degree of flexibility should be embedded in FP6 for new, not foreseeable priorities.

**Science plays a key role in helping policy makers and the society at large to better understand the problem areas it is confronted with today and to provide and communicate the basis for adequate solutions.**

The following fields should be included as major priorities of the FP6:

- Environmental issues and syndromes related in particular to global change, including economic, social and ecological aspects
- Energy and transport related issues
- Research on public health and medicine, including post-genome
- Research in the field of agriculture, food and freshwater supply on a European and global scale including transition and developing countries
- Research in humanities, social sciences and economics as well as social policy (e.g. studies on migration and intercultural relation issues in order to reduce the conflict potential in a multiethnic Europe).

**Regarding research to support the European economy and industrial competitiveness, industrial technology, information and communication technologies, material sciences as well as biotechnology should also be mentioned besides nanotechnology and post-genomic research.**

With regard to *aeronautics*, it should be part of a wider programme on future, more sustainable, means of transportation. The support of space applications (navigation, earth observation etc.) is important in order to complement the very crucial activities of ESA in this sector.

#### **V. Analysis of past and current activities, Swiss experiences**

The conclusions of the Independent Expert Panel point out the weaknesses of the past and present Framework Programmes. Switzerland is of the opinion that these rather pessimistic conclusions could lead to underestimate their positive impact. As a Third country that has been participating to the Framework Programmes for many years, Switzerland can provide an "user oriented" outside view. Some positive and negative aspects of the Swiss experience are listed hereafter:

### **Positive aspects**

**The EU Framework Programmes represent a useful complementary tool in comparison of the existing national and international funding schemes. In particular:**

- They open new opportunities for industries and especially SMEs. Most Swiss participants from industry and SMEs have very limited access to national public RTD funding schemes
- They complement the national public instruments towards a more industry and problem oriented approach
- They generate a result oriented Europeanwide RTD-co-operation
- The peer review and its transparency was improved over the years.

### **Negative aspects**

**In the interest of the user, the need to ensure a certain continuity in the instruments as well as in the administrative procedures should be stressed.**

- Neither international RTD structures such as COST and EUREKA, nor national instruments are designed to be as short-lived as the Framework Programme's activities
- The procedures and administration are still considered a burden and confusing by most participants and intermediates. According to our experience, FP5 did not bring the expected simplification and speeding-up of the procedures. Drastic re-orientations, as from FP4 to FP5 generate a climate of confusion among the users.

## **VI. Instruments and methods of intervention**

The attention is focused on the proposed "instruments and methods of intervention" after some general comments.

1. Networking of national programmes
2. Networks of excellence
3. Large scale targeted projects
4. Research and innovation, Start-ups and SMEs
5. Research infrastructures
6. Human resources
7. Science, society and citizens
8. Cooperation with developing and transition countries

### **General comments**

**Improving user friendliness and attractiveness for the user has to remain a central prerequisite when introducing new instruments. Switzerland is of the opinion that the adaptation of the existing instruments of FP5 which to some extent have proven their efficiency and effectiveness — would be preferable to creating new ones e.g. by increasing their flexibility.**

In many cases, the proposed instruments and methods of intervention represent *de facto* an evolution of existing ones. Due to the great variety of instruments and of funding mechanisms the Framework Programme remains a complex programme, especially for newcomers. It requires a special marketing effort to make it user-friendly. When introducing new instruments, the disorientation of potential participants as well as the loss of time and money due to marketing campaign should not be underestimated. Wherever possible existing

instruments with new characteristics should be declared as such rather than presenting them as genuine new instruments.

Moreover, **existing international co-operation mechanisms should be used whenever possible** thus diminishing the need to set up new instruments. Switzerland considers for instance, that COST is a very good instrument to create European networks between national research teams and activities with a strong point in new research fields.

**FP6 instruments should be built on the strengths of FP5.** A balanced portfolio of big, medium and small projects should be maintained. Regarding the different instruments of the FP5, the portfolio of key actions, generic as well as basic research activities including horizontal measures like mobility schemes gives the users the opportunity to participate in a variety of actions corresponding to their specific interests. Besides being integrated parts of thematic programmes, like in FP5, basic research could be the core of a horizontal programme.

**The complexity of the problems modern society are faced with can only be properly understood and, therefore tackled, through a transdisciplinary approach.** Moreover, completely new and innovative ideas are often found on the cross-section of scientific domains. For these crucial reasons, **the socio-economic targeted approach of key actions is an example which must be further exploited.** Another important asset for the promotion of innovation is the mix of academic and industrial partnerships. But the slow and stiff management procedures of the Framework Programme need to be reassessed in order to gain the best researchers and teams.

Finally the instruments suggested show a tendency to favour a stronger support of research institutions rather than supporting individual scientists or teams. However, experience shows that scientific and technological breakthroughs are the creative act of individuals not institutions. Therefore, they should definitely remain the main focus of support of the Framework Programme.

## **1) Networking of national programmes**

**Switzerland is of the opinion that the mutual access to national programmes or activities combined with a financial incentive by the EU would be of benefit to European research.**

As the opening up of the national programmes may become a key instrument for the establishment of a European Research Area, manageable and well defined common rules for the mutual access to such programmes as well as criteria for the availability to EU-incentives will have to be defined.

The initiative and decision to open up national programmes must remain with the respective country. The bottom-up oriented interest of individual countries will be a key-factor for the success of this new co-operation mechanism.

## 2) Networks of excellence

Many "networks of excellence" already exist. Excellence depends on the scientific quality of researchers and research institutions and can not be imposed by a bureaucratic mechanism. The EU should concentrate its efforts on supporting European countries in their endeavour to improve the framework conditions which are conducive to researchers to give their best. (i.e. a single European patent, increased mobility of (young) researchers, access to and attractiveness of European research facilities, etc.)

The best research facilities are known by governments and industry as well as by the users. They are already supported by a variety of national and international programmes and organisations. "Networks of excellence" are not necessarily involving large facilities and do not necessarily imply a strong financial support. The networks established by COST in the fields of Chemistry or Meteorology are good examples of a high European added value with very reasonable extra-financing.

As stressed in the *Guidelines*, the idea of creating new networks of excellence by adopting a joint work programme between centres of competence contains positive aspects targeting at reinforcement of European best research teams. Nevertheless, in doing so, **special attention should be given to the loss of flexibility** which is introduced by a sort of guarantee of an increased funding for "networks of excellence" on the long term as well as to the **vulnerability to a stronger political pressure** to promote national own capabilities.

The "Collegium Helveticum" in Zurich should be closely integrated in the net of existing centres of advanced studies (in Berlin, Budapest and Bucarest).

## 3) Large scale targeted projects

Switzerland is of the opinion that large scale targeted projects are appropriate for some cases but it is sceptical about the idea of a strong focus on such projects. This complex co-operation mechanism is not well suited for a majority of users, especially for SMEs.

The current "shared cost projects funding" mechanism already allows to focus support on projects which are earmarked as high priority. This possibility - which has been used in the past, especially in the IST domain (i.e. the project EURO PRACTICE) – is more flexible.

The following drawbacks should be carefully examined when deciding to support such large scale targeted projects:

- Focusing on large projects may turn out to be detrimental to a flexible approach - and to the particular needs of SMEs. Technological and economic impact to the benefit of SMEs is certainly easier to achieve through a variety of normal size projects (shared cost or CRAFT) rather than through some mega projects
- Inadequate choices would have a much heavier negative impact, financial and otherwise than smaller projects would have (see the recent experiences of some Eureka mega projects or the European project on High definition television)
- The management of large-scale projects is difficult and the experience in shared cost projects shows that an efficient and really successful collaboration in such projects does rarely involve more than 7 partners

- Finally, the success, scope and innovative dimension of a single project are not related to the amount of funding. In many cases, an efficient networking as well as an important leverage effect has been achieved with a reasonable financing.

In summary, Switzerland thinks that the support of large-scale targeted research projects should rather be the exception than the rule (i.e. projects on post-genomic basic research or oriented on industrial applications if the industrial partners are ready to finance at least two thirds of the project costs). In areas where existing international programmes or organisations are active, these should be preferred (esp. Eureka).

#### **4) Research and Innovation, "Start-ups" and SMEs**

**Switzerland considers the existing SME-instruments of FP5 (like the CRAFT, the network of IRCs or the Economic and Technological Intelligence measures) suitable to the needs of SMEs regarding technology and knowledge transfer. Changing these instruments would be counterproductive because the confidence of SMEs is closely linked to a first success and the familiarity with them. This does not mean that they can not be adapted and improved.**

In the case of **CRAFT** activities, some measures to facilitate the access of SMEs and shorten the administrative steps should be taken. The following improvements can be suggested:

- possibility to start a project at one's own risk as soon as it has been submitted
- increased flexibility regarding the size of the involved firms and the contract
- increased autonomy of CRAFT activities
- less strict links to the thematic priorities and tempered application of the European added value criteria.

**In the case of the new "collective research" activities, Switzerland is reluctant for following reasons:**

- It is questionable that the individual needs of SMEs throughout Europe can be answered by large projects carried out by mostly public bodies. Very often, the solutions to SME problems are very practical and focussed, as illustrated by the success stories published by the Commission (Research results for SME)
- It is extremely important that the initiative for the projects remains in the hands of SMEs, that they keep the lead of the project and that results and exploitation of IPR belong to them
- There appears to be a serious discrepancy between the different countries regarding the number and size of the collective research centres. Instead of fostering European integration, these new activities may therefore accentuate disparities (especially true for Candidates countries)
- These activities would not match with the more successful free entrepreneurship approach.

Finally, there is a clear need for continuity concerning the support of initiatives to network researchers, entrepreneurs and financiers as well as the development of incubators for technology companies. The activities should be a continuation and improvement of the LIFT activity. The support for the creation of spin-offs from the universities should rather be considered a task at the national/local level.

**In this context, it is crucial that a true European patent, involving not only the EU and obtainable at reasonable costs comparable to US can soon be established. A true European wide patent is a necessity.**

## **5) Research infrastructures**

**Switzerland agrees with the proposal to increase the EU support for research infrastructures in a long term perspective according to the following principle - the host country together with the participating countries supports construction and operating costs whereas EU supports European project costs as well as other additional costs. Large-capacity electronic networks, databases and other "soft" infrastructures of a true international character are to be supported by the EU as well.**

The idea to conclude association agreements – as they already exist in the EURATOM nuclear fusion programme - appears to be a promising way to reinforce a long term collaboration.

However, existing facilities should be given priority because their development potential as a tool of education and research is in many cases not yet fully exploited (e.g. by increasing the number of visiting scientists).

The fundamental decision of establishing a new infrastructure has to remain a national responsibility and EU should encourage these new infrastructures only if a considerable number of countries request a support and the European added value with the support of benchmarking mechanisms can clearly be demonstrated.

## **6) Human resources**

**Switzerland is of the opinion that activities which favour the mobility of human resources should receive a much stronger support at the European level and new measures could be introduced. The attractiveness of Europe as a major scientific and cultural pole must be reinforced to cope with the strong global competition, especially with respect to the USA by exploiting unique European traditions and values which are of mutual benefit to our collaboration partners in Eastern Europe as well as the developing and transition countries.**

Because of cultural and administrative barriers by which the researchers are faced, the activities which are now mostly under IHP programme play an important catalytic role in helping the European States to establish better framework conditions. It is very important to continue to support the existing mechanisms (Marie Curie Fellowships, support of staff exchange between research infrastructures and dissemination programmes through thematic networks, etc.) but other mechanisms could be introduced as well. For example:

- support mobility schemes between universities and firms, which is a very important factor of technology transfer
- a programme to facilitate a scientific career in Europe
- a "return fellowship" system for young talented European researchers active in other continents to help them re-establishing themselves back in Europe
- a fellowship programme with special partnership conditions with Eastern Europe, Russia and with developing countries assuring the return of these scientists to their native country.

## 7) Science, society and citizens

**Switzerland considers it a very important initiative – complementary to the efforts in the individual countries - to support policymaking in view of an improved dialogue among all societal groups with respect to the strong impact of science and technology on society and economy. Basis is to ensure and reinforce a European environment of peace, security, freedom and democracy as well as a scientifically literate population. The support of European networking of studies in "ethics" is necessary but a broader support of research on humanities, social sciences and economics is also very important to reach the societal objectives of the European Research Area in a world-wide context.**

The complexity and diversity of the matter requires a continuous communication effort, an improved dialogue between politics, society, economy and the scientific community. The rather "top-down" approach of the *Guidelines* under "Science/society dialogue" to improve the scientific literacy of the European citizen is fundamental indeed, but it tends to neglect the other direction – "bottom-up" - of the communication link: the quality of life must be judged by the citizen. Fears and problems as they are perceived by the citizen are real and cannot simply be dismissed as a lack of information or education.

EU complementary measures – as proposed in the Guidelines - are welcomed even though the cultural environment in the individual countries generally plays a central role. i.e. promoting women scientists should be encouraged by the EU by encouraging and rewarding the efforts of the individual countries to set up appropriate economic, social and educational measures. The establishment of observatories - like the "European food Authority" – can also be very useful.

## 8) Cooperation with developing and transition countries

**Knowledge generation is an important and constantly growing pillar for the economic prosperity of a country. It also contributes to its general development and to responding to societal needs and issues. In this knowledge generating process research plays a crucial role. Whenever possible, developing countries should be encouraged to make large technology steps. However, the growing disparities in investments for research between industrial and developing countries are thus a major source of concern. Neglecting the potential negative direct and indirect effects of such a growing knowledge gap represents a major potential threat to the stability of the whole industrial world.**

Europe therefore has not only a moral responsibility but also a genuine interest to foster research and higher education capacities in developing and also transition countries. Besides contributing to the reduction of the knowledge gap by empowering these countries to tackle and solve problems on their own as well as in cooperation with the industrial countries, an increased scientific collaboration represents for Europe a huge potential source for innovative approaches as well as new market opportunities. Venturing into a more intensive scientific cooperation with the developing and transiting countries will put Europe into a position of comparative advantage with regard to its most competitive concurrent.

## VII. Means of implementation

**Whatever the structure is, scientific excellency must remain the most important selection criteria. Therefore, an improved "peer review" system must remain the fundamental pillar of the selection process.**

It is of paramount importance that the national experts involved in the selection procedures are among the best. Mechanisms and incentives to ensure a broader interest of high level European scientists to work as project evaluators for the Framework Programme must be improved. Excellency of experts being a central constraint, the current expert search through open public call for proposals should be abandoned in favour of alternative search mechanisms (e.g. lists of experts could be provided by national funding agencies).

**Switzerland considers that the role of Programme Committees should be reinforced as an important interface between the Commission and the national Authorities at a thematic level.** If their tasks are redefined in the spirit of ERA, they could be the right frame for enhancing closer co-operation between FP6 activities and national initiatives in the RTD field or in the policy domain concerned. Switzerland considers that the work of the national representatives in the Committees could be significantly enhanced, especially if the programmes are more closely focussed than in FP5 (easier to find more competent representatives).

**Switzerland considers it hardly possible to externalise the execution of tasks or the running of instruments without delegating competence as well. Some instruments may be suited for decentralisation, like mobility of researchers for instance.** But Switzerland is more sceptical about a decentralisation of the support to SMEs, as the European dimension of CRAFT is enhancing the European Market ("marché unique"). Also, it is not evident, why the decentralising the project evaluation or externalising it to any central European agency should be an advantage. The support of the European related policies (e.g. regarding industry, environment, energy or health) might become weaker.