



**Analyseinstitut for Forskning**

**Science meeting Society –  
Society meeting Science**

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# ***Science meeting Society – Society meeting Science***

Discussion paper prepared for the third meeting of the  
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## **What do we talk about?**

- What is science?
- How is society defined?
- What is meant by “meeting”?
- Who are the stakeholders?
- Who is responsible for the meeting to take place?
- Who shall take the initiative to arrange the meeting between science and society?

There are many definitions of science, since the exact definitions depends on the science in focus (Vestergaard, 2001). And in this case the concept is left open.

Society can be defined as the totality of the individuals within a given structure and the network among them (Siune and Vinther, 2000). The issue here is whether Society primarily refers to citizens or to groups of interests in society.

Meeting can take the form of:

- physical exposure
- interaction like communication face to face
- exposure to information from “the other side”
- virtual meeting

## **Why this issue?**

“Recent developments in the position of science and research in emerging knowledge-based societies, where the role of academia has become significant and the demands for accountability from public institutions are increasing, reshape the institutional arrangements among universities, research institutes, industries, governmental agencies and the public.” (Schmidt, 2003).

One of the questions raised by Evanthia K. Schmidt is whether it is possible to orchestrate the triple helix interaction. And the same questions goes for the wider interplay (the quadra helix) we have on the agenda: “Science meeting Society – Society meeting Science.” Is it possible to orchestrate this interplay?

In a way we can say that we in this expert group are the conductors or better we are hopefully according to the agenda “the composers” of a new road-map between science and society! Can we build a new road-map between public research, industry, government and citizens?

The question related especially to the Science and Society Action Plan is how actors within the research community reach beyond the research community and how they reach the public as a whole and finally how that helps spreading awareness and knowledge (text to item 5 of the agenda for the Meeting of the Expert Advisory Group. May 2003). Scientists are in this item defined as the actors! Albeit they are not the only ones.

- How much are scientists aware of the problems associated to bridging the gap between science and society?
- How much do scientists show their awareness and their plans with respect to the demand of this embedding in their applications for funding of research projects?
- How can we establish criteria for measuring the degree of imbedding in the research applications to FP6, and later on in the outcome of projects (item 6 on the agenda: monitoring the embedding (input and output)?

## **Knowledge about interplay between science and society**

Before we try to answer all these question it is relevant to look at some of the experiences we have gained from different research projects.

On the basis of former studies (several such studies have been undertaken in Denmark) we know that the society, operationalised in form as citizens, meet science primarily via:

- Media, where citizens are aware of that it is science, that is where science is presented and treated as such (Siune and Vinther 1998/4).
- News, where science is just referred to.
- Products, where citizens not always think of it as results of R&D fx in medicine..
- Services, where the awareness of R&D behind development of new services seldom is very clear among citizens, albeit ICT is a clear example of products and services developed through R&D.
- Personal contact with activities within R&D.
- Contacts to individuals directly involved in R&D.
- Exposure to science via lectures/meetings/conferences/seminar.

Media content is mostly produced by journalists as mediators of science (Siune and Vinther, 1998/3), and content analyses of the news show that the media are aware of science, but science is seldom the hottest issue on the agenda, albeit an epidemic like SARS can put it on the media agenda.

Journalists are trained to disseminate different forms of activities, and some journalists are, in Denmark at least, trained already at the School of Journalism specifically in dissemination of science.

Different alternative forms for media coverage of science were presented at an European Seminar in Copenhagen, December 2002, where some new ideas about science series were presented. Ongoing series in form of the mixture of facts and fiction was just one example among many.

Scientists are seldom trained in dissemination to wider audiences. University professors are “trained” in lecturing not in public presentation. The qualifications required for becoming a university professor do generally not include documentation of abilities within dissemination to the public nor documentation of abilities to communicate with citizens.

Ability to disseminate is one issue; interest in dissemination of science is another and the perception of dissemination as a duty or “sinn” is another extremely relevant issue.

Some scientists do want to disseminate their research activities to a wider audience than colleagues and readers of refereed journals, but it has generally not been perceived as a duty for a researcher to communicate with society. Changes are maybe underway! In some member states it has become an issue, in others the message included in FP6 is new and provoking.

A great number do not want to be involved in this form for activity, the Ivory Tower syndrome is well known.

And for private companies they usually have no intention neither to publish research findings nor even talk about their research activities until it has resulted in new products. R&D for new products is the most often given reason for private companies to be engaged in research activities (Graversen et. al. 2003), but the same project also shows that companies are worried about opening to potential competitors about their R&D-activity and in this way this fear is an obstacle to a fruitful interplay.

Recently we nevertheless see increased dissemination activity at the abstract level from many small biotech companies across Europe, since several of them are in great need for new investments and they are seeking new investors and see dissemination of research or a little more than just references to their research activity as means for new investments.

At some universities attitudes have changed and willingness to present research activities in the media has increased, seen as means to economic or other form for support from public as well as private investors.

Due to some uneasiness concerning the ethical aspect of specific forms for research activity some scientists prefer silence to openness. The establishment of ethical boards or ethical councils at national or European level will increase the exposure of such research activity. And the demand for embedding the ethical aspects in all FP6 projects will definitely put a pressure on European researchers.

Allegations from purifying scientists versus those scientists who has shown that they are willing to disseminate to wider audiences and willing to interact with society, have played a great role, and still do. The label “butterfly” has in some groups of colleagues within scientific circles been used for those of their colleagues who were willing to participate in dissemination outside the traditional channels, the refereed journals. But also this attitude is expected to be under change, but still it is prevalent at many universities in Europe.

## **What has been done and what can be done to increase the meeting between science and society?**

Traditional channels of dissemination:

- Lectures
- Seminars
- Journals
- Books

Broader channels of dissemination:

- Mass media, like radio, television, newspapers
- Internet

Person to person / face to face dissemination

- Conferences
- Open lectures
- Hearings like consensus conferences

From studies looking at sources of information about science we know that the most used source of information for the public defined as citizens is the media, and especially television. (Siune and Vinther, 1998/4). Follow up studies comparing Danish survey data from 1997 and 2000 have shown that we in Denmark have experienced an increased use of active media compared to the passive (Mejlgaard, 2001) but still the traditional mass media dominate.

The awareness of science is high among Danish citizens (Siune and Vinther 1998/5) and the awareness of science among policy makers is high too as illustrated in the Lisbon declaration and later in the Barcelona declaration.

Attitudes to science among citizens are generally positive (Siune and Vinther 2000/6), and trust in scientist is relative high among Danes albeit not increasing but showing greater concern when the respondents primarily think of biotechnology as the main area of research (Mejlgaard and Siune, 2001). The public generally respects scientists but there is also a sense that scientific knowledge is somehow threatening.

Support of science is stable, and citizens (defined as a representative sample of citizens) are willing to give more money to science (Siune and Vinther, 2000/6). The actual amount of spending varies across Europe as described in "Building European Research Capacity" report from MUSCIPOLI workshop Three (Siune in Tsipouri (ed.), 2003).

The role of science discussed at a European seminar in 2000 showed that science is under pressure in most of Europe, if not globally (Siune (ed.), 2001/1). Research and development is expected to better the economy (Siune (ed.), 2000/1), that is an attitude also reflected in the Lisbon and the Barcelona declarations.

One of the issues in this discussion seen as an instrument to increase the cost benefit of investments in science is the use of knowledge established at the universities; how to bring it to be used by the private sector, for production, for services etc. Awareness of this issue is also lying behind recent initiatives taken by the Danish government with respect to new laws for universities (draft 2002; expected to pass Folketinget in 2003). The Danish Minister of Science, Technology and Innovation states such ideas in connection with the plans for changes regarding Danish Universities.

In a recent paper, produced at The Danish Institute for Studies of Research and Research Policy, related to research collaboration between universities and enterprises there is a theory based discussion about building bridges of excellence, - how can the excellence located within universities be used by society. Evanthia Schmidt (Schmidt, 2003) gives a presentation of relevant theories and here she describes the change from Mode 1 to Mode 2.

## **Strenghts and weaknesses of Science meeting Society**

The weaknesses of increased awareness of science in society and the increased awareness of citizens in science must not be forgotten, albeit it is the strengths that dominate the initiative!

- Increased interest
- Increased awareness
- Increased understanding
- Increased willingness for economic support to science
- Legitimacy of the actual spending
- Increased use of science in society
- Increased democracy

All these aspect are considered positive outcomes of increased contact between science and society.

The weaknesses or the risks are not so often on the agenda, but

- Increased willingness to adapt to issues where the research funding is easy to get
- Increased short term orientation in research activity
- Lack of long term stability in basic research, not “understood” by the society

These aspects have to be remembered as potential risks!

## **What can be identified as good practices?**

Will the group be able to identify good practices on the basis of their national and or European experiences?

- Consensus conferences (known to be efficient in Denmark)
- Responsive universities (Finnish universities have proved to have an impact at the regional level (Dahllöf et al. 1998)
- The Karolinska Model (Sweden)

The group will have to add their national experiences.

## **What can the group recommend?**

- It is necessary to be aware of different norms and values not to say different traditions in science and aware of how these differences influence behaviour.
- The expert group can recommend institutional changes in order to implement good practices; the appointment system at universities does not promote the intensification of interaction between science and society, but as known from Denmark the recently introduced contracts between universities and the Ministry of Science has the issue as a demand for universities.
- The expert group can't demand but only recommend the creation of infrastructures at research institutes that promote the interaction between science and society.

- The ability to gain societal recognition is important for appointments at some laboratories with external funding; this mechanism is known more from US than from Europe, where the universities are publicly funded more than in US.
- Identification of incentive structures might be an issue for the group to discuss.
- Greater absorption capacity in society would facilitate the interplay between science and society. Science is complex and the ability to understand science and the interest depends on level of education of citizens (Mejlgaard and Siune, 2001) but also at company level the absorptive capacity is a problem. If companies are not fit and that means very often educated or trained to understand science reports then we see a blocking in the exchange of science to society (Graversen, 2002).
- Scientist can be better trained to communicate their scientific activities, so formation of capabilities could be a recommendation.
- Legitimation of use of resources on the activities emphasised in “Science meeting Society-Society meeting Science” is done in the requests of imbedding science and society in projects funded by FP6, but the national level must support it in general.

Evaluations have until recently all over Europe been oriented towards academic criteria, but criteria referring to “societal significance” have shown to gain prominence in European evaluations, what is recently demonstrated in a European survey of the use of evaluations (Schmidt and Siune, 2003).

## Conclusions

There are several recommendations to be made, but it is only possible to make requests to researchers and research institutions. It is not possible to make requests to citizens, but it is possible to make policies not only for Science meeting Society but also for Society meeting Science!

The intention behind the Science and Society initiative is also to make Society able to speak back to Science? But what is the issue:

- How to create societal expectations and demands with respect to science contribution to socio-economic development?
- To encourage scientists to gain and maintain public trust by making their work more accessible.
- Greater transparency. Open discussions on ethics and science between scientists and non-governmental organisations, industry, religious and cultural communities.

or

- How to spread awareness and knowledge and to explore the wider societal implications of scientific work?

All these issues are invited when I named this paper prepared for discussion “Science meeting Society – Society meeting Science”!

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