Research on Science Communication – The Swedish Case.
Paper to PCST-9

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Interest in research dissemination and utilization and in collaboration between universities and society at large has increased significantly in recent years. Many attempts have been made, and are still being made, to increase the range of contact between the universities and the rest of society. Nevertheless we have to acknowledge that comparatively little is known about this process. Is priority being given to the right things? Is there a mutual exchange of experience and problems? What effects are being achieved in the short and the long term? Are they worth the price? What form does the practice of knowledge, the learning process, take for different professions - and what are the motivating forces behind their search for knowledge? At present there are no firmly established theories on the communication of information between research and practice, and there is a need to develop satisfactory forms and methods.

Research on science communication and knowledge utilization is a growing field in Sweden. There are many researchers from different disciplines who are working in the area there is a scientific conference in the field with the name Universities and Society in Collaboration. The conference is held every second year and started in 1999. Research on the subject of the spreading of research information can be seen as a field of research on the way in which science and practice meet. It is a meeting that can vary in character depending on the field of knowledge in question, which groups of practitioners are involved, different cultural and social frames of reference and so on. Describing and trying to explain this complex encounter is a difficult task, which is presumably facilitated by researchers from within different disciplines approaching the question on the basis of their own set of theoretical and methodological instruments. In this paper we describe the state of the art on research on Science Communication in Sweden.

The formal status of the universities’ “third task”

The dissemination of knowledge among researchers is at present something that chiefly takes place within each discipline. Interdisciplinary transfer of knowledge is not so much a matter of course between researchers - there are forces working both against and in favor of such processes. Increased specialization within different fields of research has led to a multiplicity of scientific periodicals covering narrow areas, tending to isolate researchers from their colleagues in other professional fields. On the other hand there is a tendency for researchers to form ad hoc interdisciplinary groups to tackle various problems, and in this context interdisciplinary knowledge transfer is encouraged (Gullbenkiankommittéen 1999).

Contacts between researchers and people outside the scientific world are, however, more sporadic. Moreover, the forms of information exchange those scientists are trained for and accustomed to are seldom suited to people in non-academic professions. The scientific world has been criticized for living in an ivory tower, too little in touch with the outside world. This
has led during the past 30 years to Sweden developing legislation requiring universities to work actively in disseminating research results. The universities’ work in research dissemination is usually known as their “third task”. At the root of this term lies the fact that universities have traditionally had two objects: education and research. But since 1977 higher education legislation has formally assigned them a third task: to spread information on research. The provisions of this law have later been changed, first in 1992, then in 1996. Current legislation, dating from 1st January 1997, provides as follows:

Universities are also to interact with society in general and to provide information about their work. (SFS 1996:1392)

No proposed legislation on research policy has ever previously laid so much emphasis on the importance of spreading research information as the bill presented in September 1996 under the title of ”Research and Society” (Prop 1996/97:5, Forskning och samhälle). One good thing about the new legislation is its emphasis on a dialogue between practitioners and researchers - a dialogue for which many have argued for a long time. Another is that it indicates the importance that is nowadays placed on publicizing the research and development work done in universities and making it known outside the academic world. The political background to the legislation quoted above comprises both a democratic aspect and a utilitarian one, as the wording of another bill will show:

”To enable research results to be of practical use and benefit, contact between the academic world and the rest of society has to be intense and reciprocal. Information on the results and achievements of research must be publicized as widely as possible. Without an understanding of the value and potential of research on the part of citizens, companies, organizations, local government and state authorities, money spent on research will not bring the dividends we have reason to expect. Conversely, the potential of research cannot be fully realized without contact with realities and conditions obtaining outside academic institutions.” (Prop 1992/93:170 Forskning för kunskap och framsteg, ”Research for knowledge and progress”)

The dissemination of research information and interaction with society at large has gradually become more and more important. But there is still a lot to be done before the universities have organized their work in such a way that they live up to the provisions mentioned above - a fact that has been noted in a number of evaluations of this work.

Some concepts and their limitations
Fundamental concepts in this context are research dissemination and research utilization and these terms will be defined as follows.

Research dissemination
Research dissemination is to be defined as an activity intended to publicize the results of research both within and outside the scientific community (Rut Lönn 1993). This includes research dissemination in the form of written information (reports, articles etc), broadcast information (TV, radio) and verbal information (seminars, lectures, personal meetings).

Research utilization
Utilization of knowledge may in part be direct and instrumental, but several studies also indicate that research results are utilized after being changed to suit the needs of the user. Modification of research results need not necessarily be done by the user, it may have
happened in the course of communication from the one recipient to the other before the results reach the user in question (Tydén 1993). Similarly, a recipient of research results may use parts of the knowledge obtained, or decide not to use it - a so-called active non-utilization (J Larsen 1980).

A further aspect of studies of research result utilization is that it is often situation specific and is influenced by the various characteristics of the individuals involved. Individual utilization of knowledge comprises the whole complex of characteristics such as attitudes, values, and individual goals etc, all of which affect the extent to which the individual is receptive to the new information.

One conclusion that may be drawn from this is that it is very difficult to define the concept of research utilization, as there is no definition that is both exact and comprehensive. A tentative definition, which for the reasons given above will nevertheless be vague, is that research utilization is a form of mental activity in which the results of research are present as a component part and in certain cases are put to practical use. This definition of research utilization recalls Richard Stanciewicz (1979): "The process of incorporation scientific knowledge into intellectual perspectives of social actors".

The terms research dissemination and research utilization have, however, an obvious limitation. These concepts limit both dissemination and utilization to scientific knowledge. This is a limitation that seldom reflects the way in which an actual instance of decision-making or knowledge utilization takes place in either the practical or the scientific world. It is reasonable to assume that knowledge utilization entails a mixture of several sources of information, which in turn are based on everyday knowledge, familiarity, scientific knowledge etc. A number of studies in fact indicate that this is the case. There are studies that show that practitioners faced by a problem regard two issues above all as fundamental when knowledge is to acquired (Tydén 1993) One is that the knowledge reflects the nature of the problem - i.e. that the knowledge is relevant. The other is confidence in the person supplying the knowledge - i.e. legitimacy. Questions of relevancy and legitimacy are given higher priority than the question of where the knowledge emanates from.

From a user’s point of view this line of reasoning leads to the conclusion that services with names like science centers, science shops, science line, science museums and research dissemination are less relevant to both professional work and leisure interests, in that the knowledge ingredient is limited to science in the sense of research results. It can be argued that the term “science” reflects the research world’s belief that its own kind of knowledge is superior to other kinds - an attitude reinforced by other groups outside the research community.

**Research on Science and Practice Interplay**

The research approach may be briefly summarized like this: *What constitute the criteria for a good meeting place between people in possession of different kinds of knowledge - of which scientific knowledge may be one?* The approach may be subdivided according to the figure below.

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Intermediaries

Science Practice
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The word interplay includes both direct collaboration between research and practice and activities designed to facilitate such collaboration, for example in the form of intermediaries. Some examples of the possible content of the research will be given below.

**Focus on science**

*Incentives and appointment qualifications*

At present research dissemination is not a self-evident component of research training or of research carried out by universities. In an evaluation of the universities’ work on collaboration the National Agency for Higher Education has been highly critical, as the following except from its report shows:

"A long-term perspective, as well as personal contacts and networks amongst researchers, are of central importance in developing collaboration. However, the experience of this work that has been documented shows little evidence either of its breadth or of the two-way contacts required. What is more in evidence is a one-way flow of information from the university, often in the direction of industry. Cultural and organizational differences between the university and the outside world are discussed mainly as a problem - not as a reason for collaboration.” (Högskoleverket 2001)

One obstacle in the way of research dissemination that was noted at an early stage was the lack of powerful incentives for researchers to spend time informing other groups than their own colleagues in the same branch of science about the research being carried out. The system for acquiring qualifications in the academic world rewards publication in referee-judged periodicals within each science, and these are of considerable weight when application is being made for senior academic posts. This came to the attention of state authorities, which in the middle of the 1980’s brought in new legislation in an attempt to deal with this problem. The following except illustrates the wording of the legislation:

"Promotion of a candidate to the post of lecturer is to be based on the degree of scientific, educational or other skill that is relevant in relation to the content and general nature of the post. Another important factor to be considered is the ability to disseminate research and development work. (Higher education ordinance 1985, paragraph 30)

This legislation, however, was to be a product of the drawing board that was not put into practice. This was early in the 1990:es noted in two independent studies. According to these evaluations, research dissemination was not assigned any importance as a qualification for appointments (Richardsson 1992; Rut Lönn 1990). In a study from the Swedish Research Council the appointment of professors in the Swedish universities during the years 20002-2003 was studied (Tydén 2006 in press). It was concludes that in most of the written proclamations for the post there was a demand that in the applications merits in science communication should be included and also that these merits should ranked as well as their merits in science and in pedagogical skills, But in the peer review of the applications there was hardly anything mentioned about science communication also not in the decision motivations. So the law is still not enforced in Sweden.

However, it has to be stressed that the too few activities from the scientists concerning interplay with the surrounding society chiefly is due to the lack of economical incentives and the above described system assessment of qualifications. It is not the interested from the
Developing interdisciplinary and participatory research methods

Today’s society is often described as a knowledge- or information-based society. The ability to deal with knowledge and information, ability to learn, flexibility and adaptability to change are emphasized as central factors in development and growth. We speak of organizational learning and lifelong learning as prerequisites for being able to absorb the ever-increasing flow of information and put it to practical use. As a consequence of this, organizations both in industry and in public administration are evolving towards more network-like forms, both in their own internal work and in relation to other organizations (Castells 1996).

It has been noted in the parliamentary report *Forskning 2000* that there is now not only a demand for scientific results and knowledge, but that scientific methods, procedures and attitudes have gained greater importance now that work in an increasing number of areas is done in project or process form. (Forskningspolitik 1998). In *Utredning om vissa myndigheter* (Report on certain authorities) there is a more thorough discussion of the demands made by the new knowledge-based economy and industry on research and development, and how these demands are to be met (Utredning om vissa myndigheter 1999).

Thus it might be said that during recent years the social relevance of research has both increased, in terms of the greater demand for scientific knowledge, and broadened, in terms of the demand for broader cross-sections of the research process. At the same time, these developments mean that the traditional forms of knowledge production have begun to be questioned to an increasing extent. It is not a matter of replacing pure research with applied research or scientific relevance with relevance to some other area of activity. What has happened is rather that scientifically-relevant knowledge, instead of being produced within the framework of scientific disciplines, takes place in close integration with practical work. (Gibbons 1994, Jernelöf 1997, Utredning om vissa myndigheter 1999).

The various forms of knowledge production should be seen as complementary and interconnected rather than as rival concepts. To maintain a creative dialogue between scientific relevance and relevance to other kinds of work, it is important to keep up the flow of research results as well as researchers themselves between traditional university research and practically-orientated research (Gibbons 1994).

The need for a new type of scientific knowledge production that is better adapted to society’s greater and wider need for research and development places new demands on research policy (Nowotny et al 2001). On a general level Gibbons *et al* discuss an evolution during the post-war years from a stage at which research policy was mainly a matter of creating guidelines for and giving priority to different areas of research, to a situation in which it has increasingly been a matter of designating parts of society as particularly important objects for research support. As research and development has begun to play an increasingly important part in industrial development, the latter line has developed into a conscious innovation policy. One of the general aims of research policy is to link publicly financed research to industry’s research and development work and production in the form of clusters of concentrated knowledge. In these cluster formations, according to Gibbons *et al*, the new forms of practically orientated research have had an important part to play.

There are important actors who can promote this in many sectors of the modern university. Perhaps the most important group is the teachers and researchers who by their choice of
working approaches and research methods themselves influence the extent to which their work entails contact with various groups of practitioners in society. Impulses in the areas of methodology and science theory in the direction of this kind of participatory research need to be developed. The object of interactive research is not to give definitive answers based on general theories. Instead it seeks to develop strategies of action on the basis of already existing knowledge, in co-operation with the parties involved. This means that close proximity to the problems is important, as are continuity and long-term relationships with contacts. Participatory Research has a long and rather strong history in the Nordic countries with a peak in the seventies and at that time the method was labeled Action research. What we can see now when we use a perspective of 30 years, is a constant growing interest in action research. This increase is not linear. It goes up and down with peaks and dips but all put together the increase is there to be seen. But it can be difficult to detect as the name of the research method has changed during the years. Action research is nowadays not the most common name for this method that basically implies a meeting between science and practice; a meeting that is characterized of respect for your own knowledge and competence and at the same time a humble attitude towards the knowledge and competence of the other. This way of meeting between science and practice have many names as collaborative research, synthesis pedagogic, interactive research, participatory research, mode 2 etc. The development of this method to create new knowledge through the interplay of different actors has been described in many textbooks where “The new production of Knowledge” (Gibbons et. al., 1994) and “Rethinking Science” (Nowotny et al 2001) are the two most widely spread.

It is interesting to notice that e.g. in Sweden there is a growing interest from research financiers to contribute to this way of conducting research. It is foundations that have a practical interest in different public sectors in the society as infrastructure and communications, social care, energy production and use. But there are also financiers of research in the industrial sector that shows interest in these research methods. Behind this interest lies a very pragmatic view as they can see that the money spent in research that is conducted in this way seems to lead to a better use in the society. That means that they find they get better revenue of the money they invest in research.

A major part of the work of local and county authorities is ultimately concerned with encounters between people: between teacher and pupil, social worker and client, health care staff and patient. The success of such meetings depends to a high degree of professional skill, often based on years of professional experience. Professionalism is generally not something that can be taught through schools and training courses, but rather something that each person laboriously acquires in the course of day-to-day work, in which theories confront and complement practice and the individual’s own personal qualities. The secret of professionalism is to some extent hidden within the unique make-up of each individual, but certain generalizations are nevertheless possible. To understand these practitioners and the nature of their professional qualities, the skills they have acquired through experience must be brought to light and as far as possible put into words. And a greater degree of understanding is needed to make better use of these experiences and to give new colleagues the opportunity of putting these experiences to use in their own practical work. Ultimately it is a question of using limited resources to the best advantage. And the sums of money involved are huge, given that these professional groups account for what is by far the largest part of the public economy.

Research on the practical work of these professional groups requires special tools to get to the essence of their professional skills. One factor that complicates this is that the concept of
research is not discussed: instead it is used as if there was general agreement as to what it is.

But the issue is not as simple as that. There are a number of research traditions that may well, in varying degrees, play a part in the development of community work practice. Earlier studies clearly indicate the importance to active professionals of reflections based on practical experience, stories and examples given by colleagues (Tydén et al 2000). The more experienced among them call for a more systematic analysis of work experience, and they often expressed a need to provide this kind of reflection themselves. The academic world may not always be the obvious answer to their needs.

The above presentation gives an indication of the risk involved in the introduction within certain professions of a research approach traditionally found to work for others, before it has been made clear what the preconditions are for such an introduction. Erlingsdottir (1999) discusses this phenomenon in her thesis with the help of the story of Pandora’s box. According to one version of this myth, all that was good in the box was turned to evil when it was opened in the wrong place. Good intentions are transformed into negative consequences when put into practice in the wrong context. Erlingsdottir’s thesis dealt with ideas taken from industry being applied to health care, but the example may well be applied to the tendency to follow traditional academic thinking in attempting to make science of social work, teaching, care work etc.

However the picture is not a straightforward one, since we have seen an alternative research approach beginning to appear during recent years, with a clear practical orientation, in which the focus is on knowledge and practical work and the interplay between the experiences of researchers and practitioners is a central issue. Concepts such as participatory research and interactive research constitute attempts to define this research approach. Many of the researchers involved in this kind of research collaboration with active professionals in the public sector are not to be found within the traditional institutions at the universities in Sweden: instead they are attached to a rapidly growing flora of practically-orientated research institutes that are more or less independent of the university world (Möller 2005, Bergström et al 2000, Tydén 1997)

*How do the universities organize co-operation with the rest of society?*

A study has documented and analyzed the way in which the information departments of the new universities have organized their work in order to fulfill their third task (Björklund 1996). They have an important job in presenting the university’s work to the outside world as well as in relaying information to colleagues within the university. But the information departments are only one of several pieces in the puzzle as regards work with co-operation issues. Since the new legislation on co-operation came into force, the universities have developed various strategies to fulfill the task assigned to them. It would be interesting to see how the new universities have chosen to organize their co-operation work. Where in the organization are the people designated to work with this? What are their areas of responsibility? How much is budgeted? What is their status? What policy documents are dealing with information and dissemination issues? Does the university have any strategy for dissemination? Are there any documents discussing collaboration between science and practice? What responsibility does the university have for training in research dissemination?

The National Agency for Higher Education has elucidated the universities’ task of co-operation in five analyses. One report gives a historical review (Talerud 1999). Another gives an account of an interview study involving the university’s external actors (Frick & Seeger 1999). A third summarizes the Agency’s experience of work on the universities’ task of co-
operation. A fourth analyses and discusses the present situation (Högskoleverket 2001). All in all, it is observed that the documentation on the co-operation task published by universities shows little evidence either of the breadth of the task or of the demand for two-way communication. "What is more in evidence is a one-way flow of information from the university, often in the direction of industry. Cultural and organizational differences between the university and the outside world are discussed mainly as a problem - not as a reason for collaboration.” It is further noted that many questions concerning obstacles to and motivating forces for a greater degree of co-operation remain unanswered.

But in the last report on the subject from The National Agency for Higher Education the situation is reported to be a lot better and the agency states that they are impressed with all the activities that are taking place in the universities and that a lot have developed the last ten years (Lönn 2004). The also mean that the word “the third task” is misleading as the interplay with the surrounding society is beginning to be integrated in the other two tasks – education and research. As a result of that evaluation good examples about how universities interplay with the surrounding society were collected. These examples are compiled in a report from last autumn (Högskolverket, 2005).

**Focus on interplay**

*Evaluation of link organizations - a view from above*

During the last decades it has been evident that the importance of the relationship between producers and users of knowledge has steadily increased. The rapidity of this development has brought about a change in the nature of knowledge requirements, which places new demands on the flexibility of knowledge producers. Traditional research organizations may have difficulty in living up to these demands, as they are sometimes constrained by an element of rigidity in their organizational structures.

This suggests that there ought to be services or organizations on a regional level to which users can bring their questions, and in which there are reasonable conditions for evolving a dialogue. A number of experiments with piloting functions along these lines have been and are conducted in Sweden, such as TIPPS centers (Technology input in products, processes and systems), IUC (industrial development centers), regional research institutes and local knowledge centers. It is to be hoped that these new organizations have not yet developed hard and fast structures, and are therefore in a position to find alternative channels of contact in relation to user groups. The forms for such contact need to be developed, tested and documented, for example in studies if existing knowledge centers that take both form and content into consideration and some studies have been reported in the last decade and some are in process.

*Evaluation of link organizations - a view from below*

The studies and evaluations that have been done on the efforts of universities to organize co-operation are based mainly on questionnaires and interviews directed at businesses, which the universities had reported that they had been in contact with. The results obtained are therefore a measure of what the chosen firms thought and felt about the universities’ work. On the other hand, nothing was revealed of how other firms in the region regarded the universities’ ambitions to increase co-operation. In other words, the method has certain inherent limitations. Another approach is based on the aims of industrial politics given by the state for collaboration between industry and the universities - that is, among other things, increased productivity and greater business activity particularly on the part of smaller and average-sized
businesses - in short, the growth target. On this basis it may be interesting to concentrate on a number of budding industries and new business offshoots in a particular region, and to spotlight the factors that these firms consider important for their own genesis and development. It will then be clarified from a business perspective whether, and to what extent, research and development and the work of the regional university have played a part.

**Research financiers as promoters**

Those who finance research constitute an important group that can encourage researchers and intermediaries to work with research dissemination. Their function in providing subsidies gives them powerful economic leverage. There are various things they can do to encourage closer interplay between research and practice. At present some research financiers have strategies formulated in writing for work with the third task, whilst others are working to develop such strategies. An interesting line of development work is to think up, test, evaluate and document new methods for how financial contributors can work. The development of such methods may be exemplified by the trials using INFOPAC being run by the Knowledge Foundation and the Association of Local. INFOPAC entails the application of an information package to all projects receiving project grants (Tydén & Nordfors 2000). The package includes a training course for the project leader, or some other suitable person from the project group, in theories and methods of knowledge transfer. There is also an information expert attached to the project, whose job it is to assist at the beginning of the project in developing and refining the information plan which, to conform with the demands of these financiers, was already part of the original application. The information expert then keeps regularly in touch with the project and, if necessary, gives assistance so that the plan is carried out. These trials are followed up and evaluated in an ongoing research project.

Although financiers give priority to research dissemination in their directives, although an organization is created for this purpose, although there is appropriate competence in this area and money has been allocated, these things do not guarantee that the research dissemination will be as efficient as it should be. What is also necessary is that research dissemination is given high status in the organization. A study of subsidizers (Tydén 1992) reveals that everyday administrative routines tend to take over, and that information issues are the first to suffer when lack of time imposes constraints. Several of those interviewed gave lack of time as the reason why they were unable to put enough effort into research dissemination. These interviews show the low status accorded to questions of information and dissemination in comparison with other aspects of research projects. It may be of interest to compare this with a financial administrator’s assessment of a project’s scientific standard. It would not be acceptable these days to blame lack of time for not having got round to assessing the scientific quality of a project when a decision is to be made about the allocation of a grant. But by pleading shortage of time one may neglect to work out a research dissemination strategy for the project.

To give legitimacy and urgency to research dissemination issues within an organization, what is probably needed is for the leadership to underline its importance in the same way as the importance of a strict test of a project’s scientific relevance has now been established. This scientific assessment is at present a firmly established feature of the majority of research-funding organizations in Sweden at all levels, and in the same way the importance of research dissemination must be stamped on the consciousness of these organizations, from top management to each individual assessor. One demand that may be made is that no project application should be considered ready for final acceptance or rejection until a reasonable research dissemination strategy has been formulated.
At present it may be concluded that research dissemination in reality has comparatively low status among several research financiers but there are some interesting exceptions. One is the research program in the authority for the Swedish railways. The new R&D program for the time 2006 – 2011 has a volume of 10 M US-dollar yearly and consists of four parts. Three of them focus the railway system but the fourth deals with methods and theories aiming at an increase use of the research results that is coming from the other three parts of the program. A similar R&D program is this year launched by the foundation VÅRDAL – a major research funding organization in health care and allergy. The foundation decided last year to launch research and intervention programs to develop theories and methods to increase the possibilities to use research results. It is a five-year program that has a yearly budget of 15 Million US dollars.

**Focus on practice**

There is a need to develop and improve the opportunities for various professional groups to acquaint themselves with research results and put them to use. For this reason it is of interest that there are actively functioning channels to the research world. An apparently successful strategy is to develop competence within one’s own organization for seeking and evaluating knowledge from the scientific world. This can be done by employing, whenever possible, people with research training or other academic qualifications. Another way of developing the requisite competence is to encourage one’s own staff to extend their training. If an employer has a generous attitude to further education, the necessary competence can be built up successively and research disseminators can be created within the framework of the organization. The organization should be structured in such a way that this can really be done in practice. It must be flexible enough to permit personnel in different positions to participate in further education and related activities, and above all to ensure that the form and content of such training is adapted to the work place in question. What may be called an organization of learning is built up. It is important that a permissive climate is created within the organization, a climate in which issues relating to development and the future become an integral part of its ordinary work. Research, development and training are linked to everyday work, which makes sense as there is good reason not to regard these as separate units; research / theory is one side of the coin and practice is the other (Forsén 1995).

The argument set out above is to be seen as a background to the initiative taken by the Dalarna Association of Local Authorities in conducting a number of introductory courses in research and evaluation methodology for various professional groups employed by local authorities, such as school and child care personnel and social workers involved in individual and family care within the county. It is interesting to see what effects such a training course have on those who have undergone it, and on their places of work. A general study published by Ellström & Kock (1993) is characterized by quite a high degree of pessimism about traditional competence development in the public sector. As the authors note, there is a significant gap between rhetoric and practice as regards competence development in working life. The question remains whether the training has had the desired effect, i.e. that of facilitating the achievement of the aims outlined earlier - a learning organization. To find an answer to this general question, a number of other questions have to be answered. How are the participants’ lives affected by their training? What effect does it have on their situation at work? How is their new knowledge received at work? How do their colleagues react? What is the leadership’s view if their new competence? How does leadership organize the work in order to make use of the new competence? Is there any change in attitudes to further education and continued training evident at the work place?
The example given above indicates the importance for studies on competence and organization for the encounter with research from the practitioners perspective.

Studies of various professional groups
Another interesting question is in what way and under what circumstances staff from various professions encounters research. What are the channels for information exchange between them and the research community? What obstacles can be identified? Previous studies (for a survey see Tydén 1993) indicate that different professional groups have a wide variety of information channels and utilize research results in a large number of different ways. Variations occur both between professional groups and between different individuals within these groups. Factors that may be important are training, personality, professional experience, age etc. There are also variations within professional groups according to whereabouts in the country and in what social environment they operate. Apart from these things, the number of employees at a given place of work may also be a significant factor.

The relevance of different factors in influencing the way in which research results are utilized in working life varies significantly between individuals, between professions and organizations. The importance of different factors for certain individuals and groups also varies chronologically, as the individual, the group or the organization develops. This suggests that it is important for studies of the above issue to be carried out over an extended period of time and to consider several different groups. There are several studies presently under way in this field trying to develop methods and forms for a constructive encounter between different groups of practitioners and the research world so that each party can put the other’s sources of knowledge to use.

Discussion
Although legislation about the so-called third task has been on the books for a quarter of a century, it was not until the middle of the 1990’s that interest in the issue began to grow. It was as if the cork came out of the bottle in 1997 (because of the research policy bill, among other things), and the subject began to take a prominent place in public debate. Since then it has been difficult to find anyone in a leading position in the research community who does not mention dissemination or co-operation with society at large when questions of research policy are discussed. Suddenly it became politically correct to promote the third task. Universities, public authorities, organizations representing special interests, research financiers and many others arrange conferences on the subject. Several of these conferences have been fairly one-sided attempts at equating the third task with contacts with industry alone, and many activities are aimed in that direction - activities for which considerable sums of money are available on application, both from the national system and the EU. The higher education system and funding organizations are often well represented at these conferences. The intended target groups, though, are usually feebly represented. Proposed solutions to problems are therefore characterized by a kind of aidism whereby the country’s small and medium-sized businesses are regarded as a group needing help - and it is the Swedish public sector that is to organize this aid work.

Experiences of similar efforts in the 1980’s leave no room for doubt. A dialogue has to be started with the groups involved - a dialogue which may lead to some kind of knowledge exchange being deemed necessary. But the dialogue may also lead to the conclusion that nothing needs to be done. It is important to accept that the dialogue may take different forms and indicate a wide variety of solutions. Such an acceptance is based on the (obvious) fact that
questions and needs may take very different forms for different lines of business, groups of companies etc. The dialogue must start with various groups of companies within the area of each university. The problems that may come to light must be identified and put into words by both parties acting together. Only then is it time to discuss together possible forms of organization. There is at present a tendency, partly encouraged by the economic funds that are available, for form to take precedence over content, so that the organizations are created first. It is also worth underlining that the third task is not just a matter of collaboration with industry but also entails co-operation with all sections of society, and that information and an exchange of views with the public is a very important part of this.

Lack of dialogue with the various groups in society with which the universities wish to collaborate is, however, not the whole story. During the past decade the country’s universities have put a great deal of effort into developing contacts with the rest of society. Several universities have appointed people whose job it is to work with the third task. At some universities these people constitute part of the leadership with titles such as vice-chancellor, a fact that may be seen as recognition on the university’s part of the importance of the third task. At other universities, work on the third task is assigned to the information department. Regardless of what organizational forms have been chosen, it is fair to assert that the country’s universities, in their various ways, have addressed themselves to the task. A number of policy documents and strategic plans relating to the third task have been written, and many universities have collaboration plans and co-operation agreements with other parties in their own areas, such as local councils, county councils, county government boards and industrial organizations.

A similar development has taken place amongst the various organizations whose job it is to arrange the distribution of state funding for research. For most of these the question of research dissemination is spelled out in the regulations imposed on them by the state. Many of these research financiers are required by the government to ensure that work is done to disseminate information on the research to which funds are being contributed. These research financiers have adopted information policies in this regard, and it is usually demanded of researchers applying for grants that they must append a properly thought-out information plan to their application. The trouble is that these financiers do not always live up to their own plans in this matter. Questions involving research dissemination tend to been given low priority and to disappear from the agenda when other issues demand attention.

The picture of how the so-called third task is being tackled in Sweden is a fairly unambiguous one. There is a very clear set of rules in the form of legislation requiring universities to work with these questions. There are also major research financiers required by their remits from the state to address these issues. At individual universities there are plans, co-operation agreements and so on, which also point in this direction. All in all the ground may be said to be thoroughly prepared for active co-operation between universities and the rest of society. But in spite of this a number of evaluations have noted that little is actually happening – or perhaps is it more correct to to define it as a slow process as measures eventually are taking place as described above. There seems to be a wide gap between rhetoric and practice, a lack of contact between levels of leadership at universities and amongst research financiers and those who are to carry out the actual work. This is a challenging question for research. How does it come about that the superstructure in the form of laws, ordinances, remits and agreements is so diametrically opposite to what happens in practice? It is this general question that the research in science and practice interplay wish to address The method is to carry out
studies on a number of concrete issues similar to those highlighted in this article, and at the same time be well aware that there can be many other interesting questions that may help to shed light on the central one. It is to be hoped that this article will encourage colleagues to participate in further dialogue on these.

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