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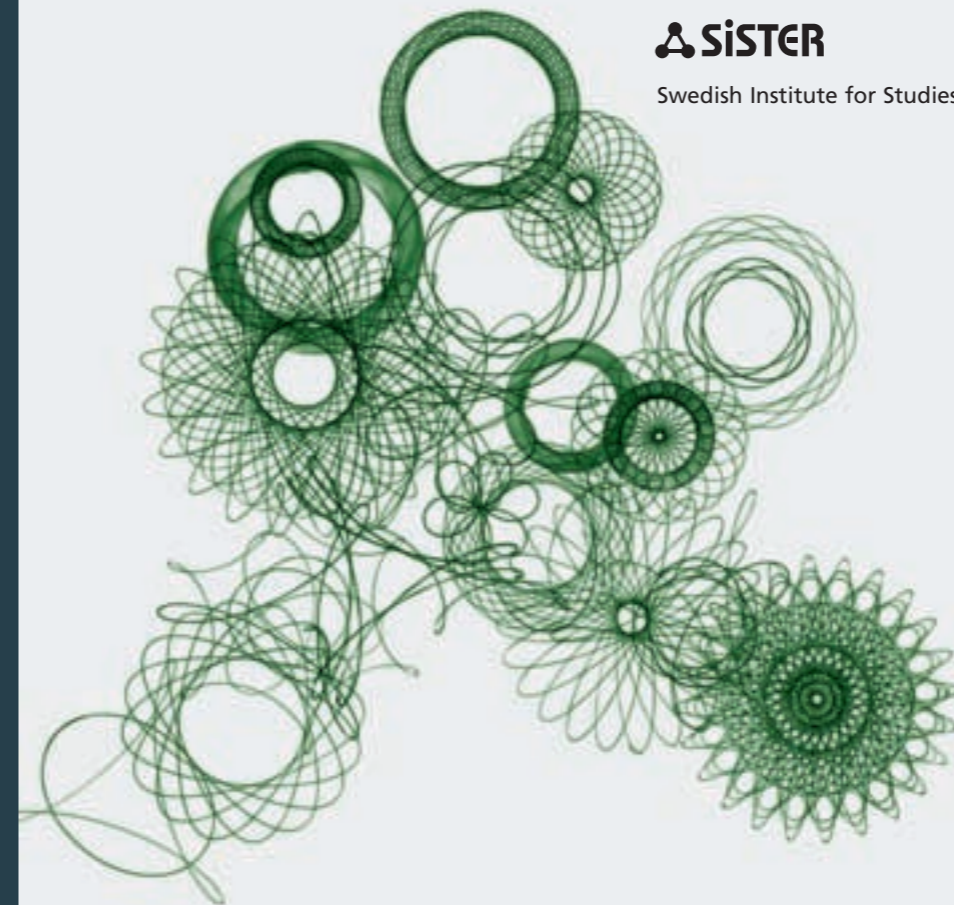
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# ANNUAL REPORT 2005 & STRATEGIC INSTITUTE PROGRAMME



Swedish Institute for Studies in Education and Research



## ARTICLES:

### **SISTER—A BRIDGE IN THE LANDSCAPE OF KNOWLEDGE POLICY**

Enrico Deiacò

### **WHERE ARE UNIVERSITIES GOING?**

Mats Benner

### **INDUSTRY—UNIVERSITY COOPERATION IN NEW LIGHT**

Anders Broström

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# SISTER—A BRIDGE IN THE LANDSCAPE OF KNOWLEDGE POLICY

by Enrico Deiacco *Managing Director of SISTER*

The year 2005 was SISTER's fifth year since it was established in the year 2000. The new strategy that was developed in 2004 with a stronger focus on policy issues in the Swedish and Nordic research landscape has been well received. The institute has been able to grow, hiring new researchers, and expanding the customer base considerably. Below are a few snapshots of some of the major projects carried out throughout the year and a discussion about the way forward.

In 2005 SISTER together with RIDE at Chalmers and Research Policy Institute (FPI) at the University of Lund initiated a new three year programme with the title: *The Knowledge Environments of Tomorrow* (Uni-Know). Some 15 different subprojects have started and three books are envisaged to be published in 2006/07 as well as several articles, working papers and interaction with policy makers (see separate fact sheet in the annual report). Mats Benner at FPI and Anders Broström at SISTER present some early results in two short articles in the annual report.

There is a trend in the Swedish research landscape towards a larger degree of profiling among research financiers and universities. *Mats Benner* discusses this interesting shift and some of the likely effects on the research system. During 2005 several initiatives have been taken towards concentration of resources for research in strategic research centres or large research groups. This will have several consequences for resource planning at universities. In the Uni-Know project we follow the formation and start-up of some of these strategic

research centres in a two-year project. This is a unique opportunity for SISTER, which is being described elsewhere in the annual report.

*Anders Broström* presents some early results on the motives behind collaboration between companies and universities. The chosen perspective is to ask why small and large firms cooperate with universities, which is a less studied question. The preliminary results indicate that we can observe heterogeneous motives that transcend simple classification between for instance small and large firms. Another important research theme in the project is to view universities as strategic actors. A case study of Blekinge Technical University examines the interplay between the strategy of the university and the financing regime and finds that, despite intentions, the financing regime encouraged opportunistic rather than strategic behaviour at the university level.

In June a major study was published examining the first 10 years of the large Swedish research foundations. It was presented at a well-visited conference held at the Royal Academy of Sciences. Several scholars from different disciplines and institutions looked at each of the foundations in isolation as well as different cross-themes. What has been the outcome of the new research foundations in the Swedish research landscape and what has been the match between original motives and results were the central questions asked. A central conclusion is that research systems are difficult to change and the foundations had less impact on the structure of the system

than envisaged when the foundations were initiated in 1995.

The year also saw the conclusion of several other projects. SISTER finished a large EU-study on the measurement of Intellectual Capital in the Region of Mälardalen. Together with several other research institutes in Europe a proposal for a monitoring system for career paths and mobility flows for the Institute of Prospective Studies in Seville was developed. SISTER was also active in the transformation of universities in Sweden. We continued to study models for collaboration between universities looking at the pro and cons of a proposed merger between Örebro University and Mälardalen University. SISTER also collaborated with the Royal Institute of Technology in Stockholm to inspire the faculty to build a culture that promotes the universities organization and efforts in developing their third stream activities.

SISTER is increasingly serving as a source for changes in the Swedish knowledge system in an international perspective. The major motive behind the establishment of SISTER was to create a free-standing voice in the Swedish research and policy scene. The many new projects, and the new customers that SISTER has got, show that we are increasingly filling the role of a true bridging institution in the Swedish research system. And I can only conclude that this central function grows in importance as knowledge and its exploitation have become key issues in the public debate.

During 2006 we will together with the owners, members of SISTER and interested people discuss the next phase in

SISTER's development and its funding. Thus, during the year a new strategic plan will be developed outlining the major research and policy questions to be addressed.

Please, join in to this discussion.

# WHERE ARE UNIVERSITIES GOING?

Reflections from the research programme: Knowledge Environments of Tomorrow

by Mats Benner *Head of Research Policy Institute, Lund University*

Are Swedish knowledge environments prepared for the future? How well do they compete with those of other countries? How should universities be governed in the future? These are the issues that are being studied in the Strategic Institute Programme at SISTER: The Knowledge Environments of Tomorrow. The programme has been running slightly more than a year and in the jargon parlance of the research team it has become the Uni-Know project. Why? Because the universities are both nexus and the crux of the most important challenges the knowledge sector face.

Even though programme activities are running, some patterns can be discerned. The picture that is often conveyed in policy discussions, i.e. that Sweden has a strong science base, that Swedish researchers publish a lot and that Sweden has a vibrant collaboration between academia and industry, can to some extent be verified. However, this picture needs to be balanced. The Swedish research system is large and incoherent – in some areas, duplications abound and many small environments compete in similar areas. Other areas, which are large and important in international research, are more or less invisible in Sweden. In a country which so decisively has put the emphasis on the diversity of higher education and research – with no less than 40 universities and university colleges receiving funding from the state – these issues are particularly pressing.

What is lacking is an element of resource planning, first of all among universities, but also among funding agencies – and,

in the last instance, the state. Universities have traditionally been rather passive with regard to their internal developments, and expansions and contractions of research engagements have taken place as a result of highly decentralized decisions. Arguably, it is individual researchers that are the strategic planners within the university system, which leads to flexibility but also to some structural imbalances. Funders, on their side, have never considered organizing long-term research environments as their primary goals. Funders have instead been prone to search and select the most promising projects. However, new initiatives such as the strategic research centres, funded by the Foundation for Strategic Research, and the Linneus grants, funded by the Swedish Research Councils, point in a different direction. It will be an important task for the Uni-Know project to follow the effects of these funding schemes in the future and analyze if the large centres will improve the long-term planning of research resources, and contribute to a more distinct profile among Swedish universities.

Another pressing issue concerns the match between research specialization and the growing demand for undergraduate teaching. The old tradition of maintaining a research infrastructure for each and every area of teaching is bound to collapse due to the growing concentration of research resources – and in many ways, it already has. A large number of academic units, also within the old universities, do not perform any research at all. Universities are being forced by changes in

research funding to reconsider their research portfolios, and areas and environments with limited ability to attract funding are gradually being starved out. However, few areas of undergraduate teaching go through a similar process. This means that research and teaching are being separated – the long-term consequences of this development is still unknown and remains an important study area. We will study this through in-depth analyses of two of the core areas of universities, the arts and sciences, and the balance between research activities and teaching in them.

To sum up, we have already been able to identify several pressing issues for the governance of the Swedish “knowledge sector”. The aforementioned are just examples, and there are many others, not least concerning academy-industry collaboration and the imbalances between public and private sector research and development. The coming decade should be marked by the rise of an informed and dedicated research policy to alleviate some of the structural difficulties that face Swedish research. The Uni-Know project will certainly make its contribution in highlighting the tensions but it will also point to possible solutions.



# INDUSTRY–UNIVERSITY CO-OPERATION IN NEW LIGHT

by Anders Broström *Researcher at SISTER*

Universities play an important role in innovation networks. From the point of view of regional or national economies, direct cooperation between industry and academe has several potential benefits. The contact with industry may allow university researchers to access industry resources, such as data and research facilities. Perhaps more importantly, it may indirectly influence the university's research agenda in favour of problems with clear economic long-term potential; the type of "fundamental yet use-inspired" research for which Donald Stokes sees chemist and microbiologist Louis Pasteur as a prominent typecast. Insofar as cooperation helps firms to increase their competitiveness, a region or a nation may also benefit from a boost of regionally/nationally active firms and increased international attractiveness for investments and new establishments of foreign firms.

## **EFFECTS FROM COOPERATION ARE POTENTIALLY IMPORTANT ... BUT VERY HARD TO MEASURE**

Studying cooperation, it is natural to take a starting point in motives and rationales of the respective partners. How can we understand the cooperation motives of firms? On the one hand, firms seek more or less 'direct' innovation effects. Exploratory international studies from the 1990s have indicated that industrial innovations could not have been developed without a delay of a year or more in the absence of academic research. All in all it accounted for approximately five

percent of total sales in major firms. On the other hand, an increasing body of evidence indicates that the major benefits for industry from university research probably emerges from indirect and hard-to-measure processes.

While the latter type of effects may be of great importance to firms, there is still a focus on outcomes from research cooperation that can be captured by indicators such as patents, volume of funding from industry and co-authorship of scientific articles. For some sectors, and for some purposes of study, such choices are clearly well motivated, but one must ask in what ways the discussion about university-industry links suffers from biases arising from the choice of indicators? The situation is partly remedied by existing surveys on firms' innovation activities and networks. Through such methods, we have increased our quantitative understanding about how cooperation with universities and the effects of cooperation are distributed among firms of different sizes, sectors and business logics.

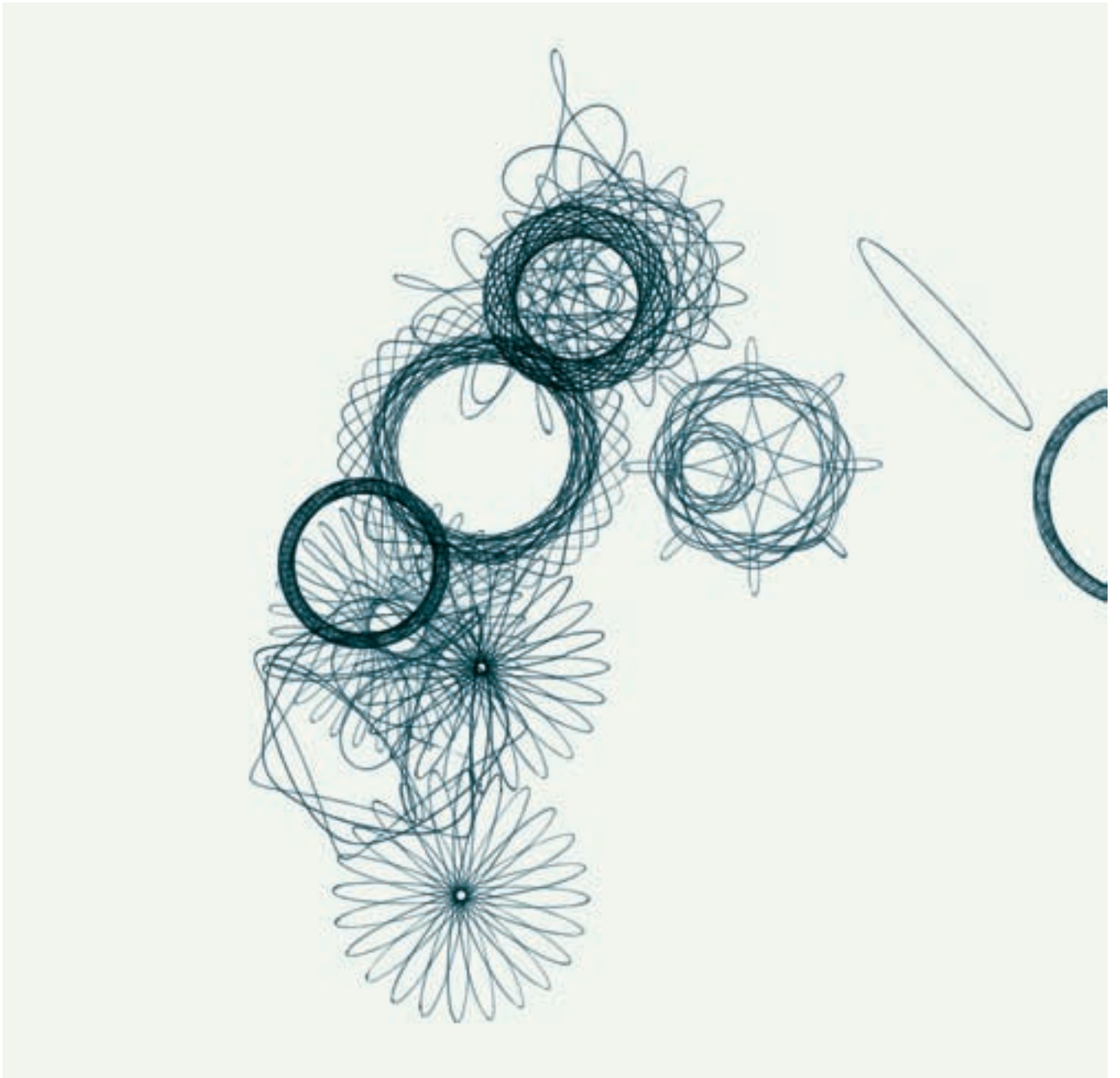
## **FIELD RESEARCH TO FILL IN GAPS**

In the current project, SISTER is studying the motives for cooperation of 60 Swedish firms through interviews with R&D decision makers. Through this approach, we hope to capture some of the aspects of cooperation that are invisible to indicators such as patents and publications. We also believe that the interviews will provide a deeper understanding of the

situation for each firm – compared to what is possible through survey studies. The study should enable us to venture into some of the blanks of the map of university-industry relations and provide a strong empirical base for continued studies of the roles of universities' in innovation networks.

#### **SOME PRELIMINARY RESULTS**

A particular finding is that it is generally easier to find support for indirect benefits for innovation than for effects of the more concrete kind among respondents. Our results suggest that for some firms, cooperation with universities is a way to increase a firm's ability to translate market opportunities into technical or organizational problems, maximizing the utilization of knowledge flows from inside the firm, its customers, clients and (to some degree) from competitors. Thus, many firms enter cooperation with universities in order to create internal capabilities to recognize the value of external knowledge, assimilate it, and apply it to commercial ends (a capability often referred to as absorptive capacity), rather than to achieve formal innovation effects.



# STRATEGIC INSTITUTE PROGRAMME

Knowledge Environments of Tomorrow – new conditions for universities  
and their effect on innovation and industry

## INTRODUCTION

Powerful international forces of change are forcing Swedish and European universities to consider new strategic choices. A new approach is needed to the future positioning of the universities and to the way in which courses, research and forms of cooperation are financed and organised. The need among players for information and analysis on which to base strategic decisions is likely to grow considerably in the future, especially within academia, but also among research funding players, ministries and government agencies. The Strategic Institute Programme focuses on fundamental issues and aims to meet high expectations with respect to timing and relevance. It will contribute to an increased understanding of the universities' importance to Sweden and the development of Swedish society and provide a better foundation for discussion about strategic choices and solutions within the Swedish university system. The programme is focusing on the future; on 2010 and well into the decade thereafter. The international perspective is a crucial aspect. The principal funders are *Bank of Sweden Tercentenary Foundation, The Knowledge Foundation, Swedish Foundation for Strategic Research* and *Swedish Foundation for International Cooperation in Research and Higher Education*.

The aim is to be able to conduct a qualified and well-substantiated discussion on the necessary conditions and prerequisites to conduct research in Sweden in the future. Can the Swedish seats of learning hold their own in the international arena? Can they compete with the big name

universities in the United States and Europe? There also needs to be a discussion about the requirements for providing higher education. Today there is tough competition for students, at least in some areas.

The anticipated results of the studies will provide input for analysis and interpretation of the structure of Swedish policy. New empirical data will shed new light on the interplay between the Swedish players that conduct research and provide education, research foundations and other players. The programme is measuring and evaluating the effects of current processes of change and also provides a platform for debate on alternative courses and choices for development.

## BACKGROUND

During the 1900s there emerged what has been called the “three-hump model” for conducting research (universities-institutes-companies). Although universities had been involved in research activities for quite some time, it was not until the beginning of the last century that research was actually considered to be a natural part of the university concept. In Sweden it became a legal obligation – “the second mission” – with the same importance as teaching from 1909. Research conducted by companies was still very limited, but companies such as MoDo, LKAB and the young Astra (which was almost entirely built on research) started to conduct research at about the same time. And, as if by coincidence, the first industry research institutes were formed at the same time, during the

years just prior to WWI. These three types of research players emerged in varying proportions in almost every country.

The three types of research players and the institutions have actually been in the process of drawing closer to each other for quite some time. This has been happening in different ways,

i.e. through specialisation and differentiation, but also by an exchange of functions among the various players, and in some cases, they have entered into mergers and strategic alliances.

One point of departure for *Knowledge Environments of Tomorrow* is the actual dynamics in the system of research

## GLOBAL TRENDS AND CONDITIONS SPECIFIC TO SWEDEN THAT ARE AFFECTING THE UNIVERSITY SYSTEM

### GLOBAL TRENDS

- Decreasing financial resources from governments
- Higher education is losing its intellectual independence
- Higher education is exposed to competition
- Higher education is being steered towards applied sciences, towards research applications
- Mass education and even universal admission to higher education
- Differentiation of functions among institutions as a response to the trend from elite to mass education to universal admission functions
- Fees as a source of income
- The "brain drain" phenomenon (or mobility of highly competent individuals) is intensifying within and between nations
- People in higher education are becoming increasingly concerned about their future prosperity and even their survival – which can no longer be taken for granted
- There is an internal decline in civic responsibility and an increase in the fragmentation of interests

### CONDITIONS IN THE SWEDISH SYSTEM

- External sources of research funding at 65–75% (1990 around 50%)
- Government research funding, KTH around 90% (incl. research foundations + EU, 75% excl.)
- Doubling of "HÅS" (=full-year student equivalent)
- Numerous new programmes
- Rapid increase in research volume
- Significant increase in publications (about double)
- Very rapid increase in postgraduate studies
- Functional overload
- "Academification"
- Multiplicity, diversity
- The "third mission"
- Internationalisation
- Fragmented labour market
- A more diverse universe of users – collapse of development pairings, government monopolies etc.

**SOURCE:** Kerr, C, 1994, *Troubled Times for American Higher Education*. University of the New York Press. Broström, A, Deiaco, E, Sörlin, S, 2004, *Universities of Technology in the Global Market: reasons and potential for a strategic alliance between the Royal Institute of Technology (KTH) and Chalmers University of Technology*. Working paper 32:2004, SISTER.

execution. In a system like the Swedish one where there is a strong emphasis on research at universities and development by companies, this process has special characteristics, both within knowledge environments and at the policy level.

Another point of departure is the strong international and European influence we are seeing on the functions, focus and structure of the knowledge environments. The Lisbon Strategy, for example, is likely to lead to increased differentiation between knowledge environments and an emphasis on more vigorous research milieus in order to be competitive in Europe. The EU's research policies are also a contributory factor, through the Seventh Framework Programme and deliberations on a European research council and technology platforms to strengthen innovation systems.

The place of science in politics, the economy and media will grow in importance, but as yet we know little about the structures and driving forces behind this. A good deal of analysis still needs to be done on both the structures and the forces of change. The lists below summarise a few of the aspects of the processes of changes that we are seeing in full swing.

There is little analysis, however, that sheds light on the current processes and looks into the future at 2010 and the decade thereafter. Nor are there very many studies or papers internationally that deal with these issues. Although we seem to have reached something of a plateau right now with respect to paradigmatic interpretations, such situations do not usually last very long.

One of the issues that is raised more and more in the public debate is the effects of the development described above at the systemic level within individual universities and on administrators, educators, researchers and students. Different hypotheses have been put forward on how the university system is responding to the changes in the world. Some argue that the development trend is towards increased stratification and differentiation of the Swedish university system, a greater emphasis on hierarchy, growing competition and differences in status, a growing dependence (particularly financially) on international market forces. At the same time, people are drawing attention to education's increased dependence on the

local social/geographic/economic surroundings, the fact that academics working in the university system have less influence, the need for new leadership etc. As part of the programme, some of these ideas (which occasionally border on myth) will be subject to empirical analysis and examination.

### **A THREE-PART PROJECT**

SISTER's work with the *Knowledge Environments of Tomorrow* strategic institute programme is organised as three sub-projects:

Sub-project 1: New Forms of Funding and Effects on Research and Education

Sub-project 2: From Public Service University to Global Player-differentiation and work distribution in the Swedish university system

Sub-project 3: The Interface of Research and Enterprise-from technology transfer to co-production

#### **SUB-PROJECT 1:**

##### **New Forms of Funding and Effects on Research and Education**

Over the past few years the research funding debate has been intense. There has been heated discussion about the relative increase in R&D funding and its distribution between basic research, targeted research and demand-motivated research. The question of how much has gone to this or that expenditure item has, in our opinion, detracted from the issue of the major structural challenges that are being faced in the funding of higher education. The issues at hand include the amounts, focus, mix and effects of funding on research and education. Clearly the discussion on the funding of university research and the various circumstances that steer and affect universities needs to go into greater depth, and the issue of the focus and size of cash flows must also involve analysis of the significance of the resources – for education, for academic freedom, for the development of society – and the impact on, for example, economic growth and regional development.

There are many signs indicating that the Swedish university system today is under great financial pressure. Although there are a number of explanations as to why this is the case, there are of course no simple causal connections. The fact is that the number of players funding research has grown over the past 30 years and as a result, new and different research assignments and goals have entered the system. An important point of departure is the fact that the political economics of the funding system have changed drastically. The purpose of this sub-project is to analyse the new funding landscape and analyse the effects to better meet the future resource requirements and develop instruments to steer and give focus to research and education. This sub-project will deal with three main issues:

- New resources are available as a result of the emergence of new research funding players and the fact that universities now have a stronger role in society. Examples of new resources include centres of excellence, consortiums, competence centres and research schools, as well as “profiles,” “platforms” and “idea support.” What are the risks and opportunities that accompany the new ways of working with research? What are the effects?
- Although discipline-oriented research will continue to be important, the knowledge boundaries between different disciplines will become increasingly fluid. What are the most effective means of supporting these kinds of interdisciplinary areas and the emergence of new knowledge fields?
- A new area for research and analysis that is beginning to emerge is the link between funding and the effects on the quantity and quality of research. How does the size of a university, institution or research group effect scientific productivity and scientific excellence? Does external funding contribute to or reduce productivity and scientific quality? And what qualities are we talking about in this context?

Due to the pluralistic and heterogeneous funding structure that has emerged in Sweden over the few past decades, it is possible to study the issues from both a micro and macro perspective.

#### **SUB-PROJECT 2:**

##### **From Public Service University to Global Player– differentiation and work distribution in the Swedish university system**

One of the most important factors affecting the universities of tomorrow is their growing role as an engine for social progress. For a number of years in succession the universities have typically been accepting a growing portfolio of assignments. They are now also starting to act selectively and more strategically. While it is true that they have enjoyed a great deal of self determination for quite some time and that this is increasing, it appears that they have only very recently realised what they can actually do with it. Words such as profiling, alliances and strategy are no longer merely education policy rhetoric; they are a reality.

The force behind this development is well known. Competition is on the increase – for students, researchers and resources, and it is increasing internationally as well; Lisbon and Bologna are representative of initiatives in Europe. In addition to discussion about a European research council and European technology platforms, we can look forward to a situation where the competitive climate strengthens the process that is tentatively taking shape in Sweden. We are already beginning to see the results through new types of formations in the field. Alliances are being forged between universities and between universities and institutes, and new partnerships are being established between universities and companies. National boundaries have been breached by Öresund University, across the Baltic and between Gothenburg and Oslo. In Europe where alliances between universities have been emerging since the beginning of the 1990s, the process has progressed even further.

The purpose of this sub-project is to analyse the universities’ strategic choices and the ramifications for administration, governance and organisation. How should the system become specialised (differentiated) to make clearer

choices regarding focus and direction and to compete with other countries for students, educators, researchers and patents?

Some fundamental issues that need to be discussed include to what extent universities are exposed to competition and what effect this is having. What will the seats of learning look like when profiling and strong research become words with substance? What do the processes of change look like on the demand side? What are the implications for the regional role of universities?

### **SUB-PROJECT 3:**

#### **The Interface of Research and Enterprise – from technology transfer to co-production?**

University-based research is considered to be of crucial importance for socio-economic growth and the ability to deal with society's problems and risk situations. The Swedish paradox has been hotly debated over the past few years. The question of how to promote and increase the commercialisation of research is therefore an inevitable one. It is understandable that research and innovation policies in the 1990s dealt with creating instruments to get more out of the university system. Politicians have implemented a number of measures and created instruments so that research can generate a better yield. A few examples include the introduction of research foundations, the third mission, the EU's framework programmes, strengthened research councils and a general mustering of strength, as well as ideas regarding abolishing the system whereby professors/teachers own the intellectual property rights for their research (*lärarundantaget*).

The various policy instruments that have been introduced in the Swedish system over the past fifteen years have probably contributed to an increased understanding of cooperation and knowledge flows between research and enterprise. However, it is less clear what the economic and societal effects of the various measures have been.

One hypothesis is that the established policies are based on a mistaken assumption about how research is applied in industry. The instruments that have been implemented are

based on an assumption that there is a gap between knowledge supply and demand and that this gap can be filled by different types of policy instruments such as licensing offices, incubators, contact secretariats, industry centres, technology parks etc. New research, however, challenges this way of thinking by asserting that the interplay between research, innovation and industrial dynamics is more complicated than that. The new research indicates for example that:

- the interplay between research and the commercial application of knowledge is more varied than was previously thought to be the case and differs from technology field to technology field. There is also a fundamental difference between science and technology, something that is often understated in debates and when policies are formulated;
- the effective commercial application of knowledge requires a) a strong receptive capacity, b) a well-developed knowledge seeking capacity, and c) an ability by businesses to integrate new and old fields of science;
- knowledge flows are often individual due, for example, to the mobility of researchers and innovators. Thus "intertwined systems" are needed for knowledge transfer based on social and cultural factors such as trust and long-term relationships, rather than the establishment by universities of licensing offices etc.

One could make a long list of the questions that need to be answered by the sub-projects: What effects does research have on companies' innovative activities? What is the importance of different kinds of knowledge when businesses obtain knowledge? What types of collaboration generate innovation? What is the future role of research institutes in the knowledge transfer processes? What is the importance of partnership programmes or strategic research initiatives on the innovative abilities of companies? What is the role of individual top researchers in the establishment of new technological fields? How does knowledge transfer vary between different



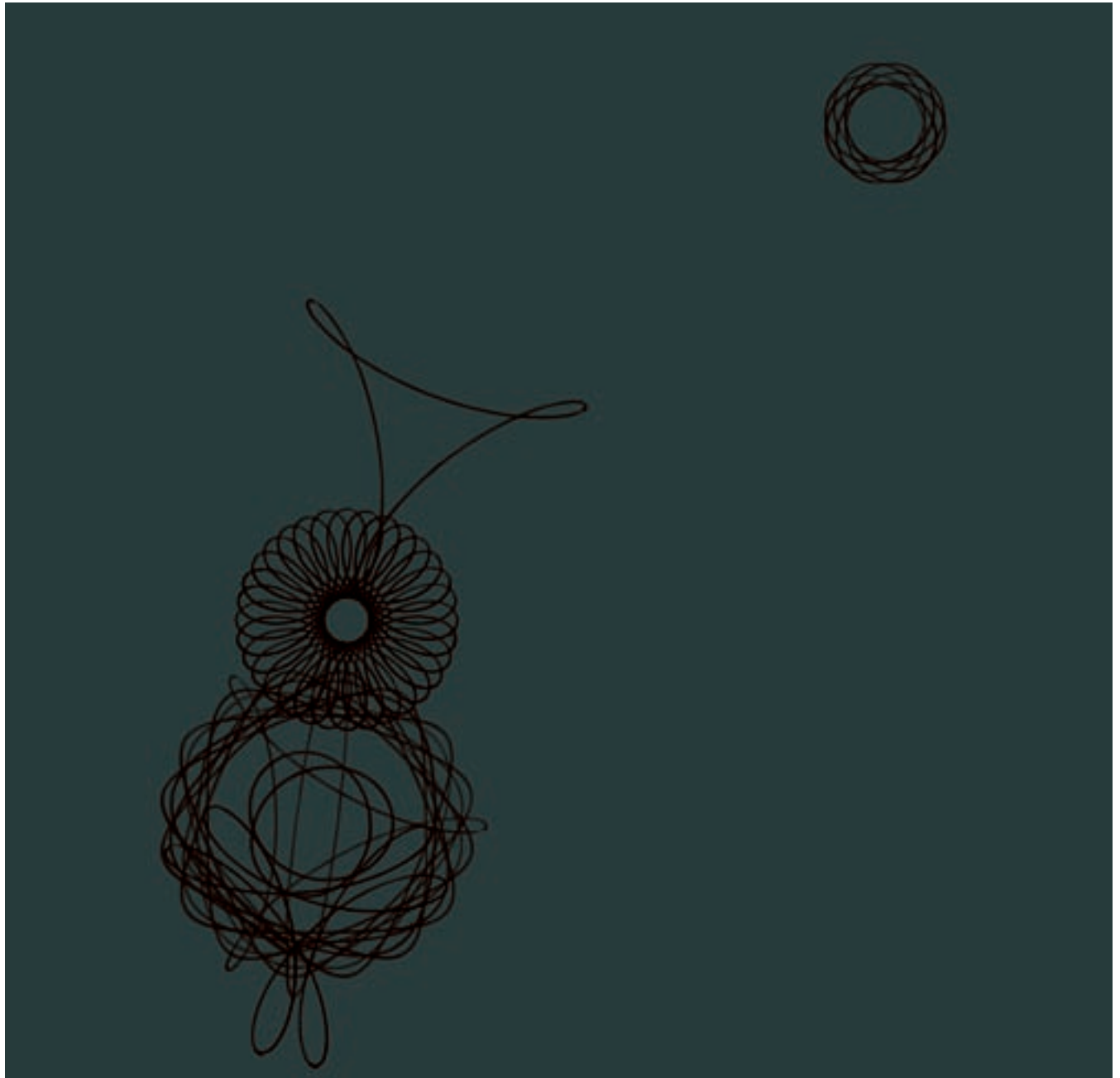
technological fields? How are small and large companies conducting their R&D, and how this it changing?

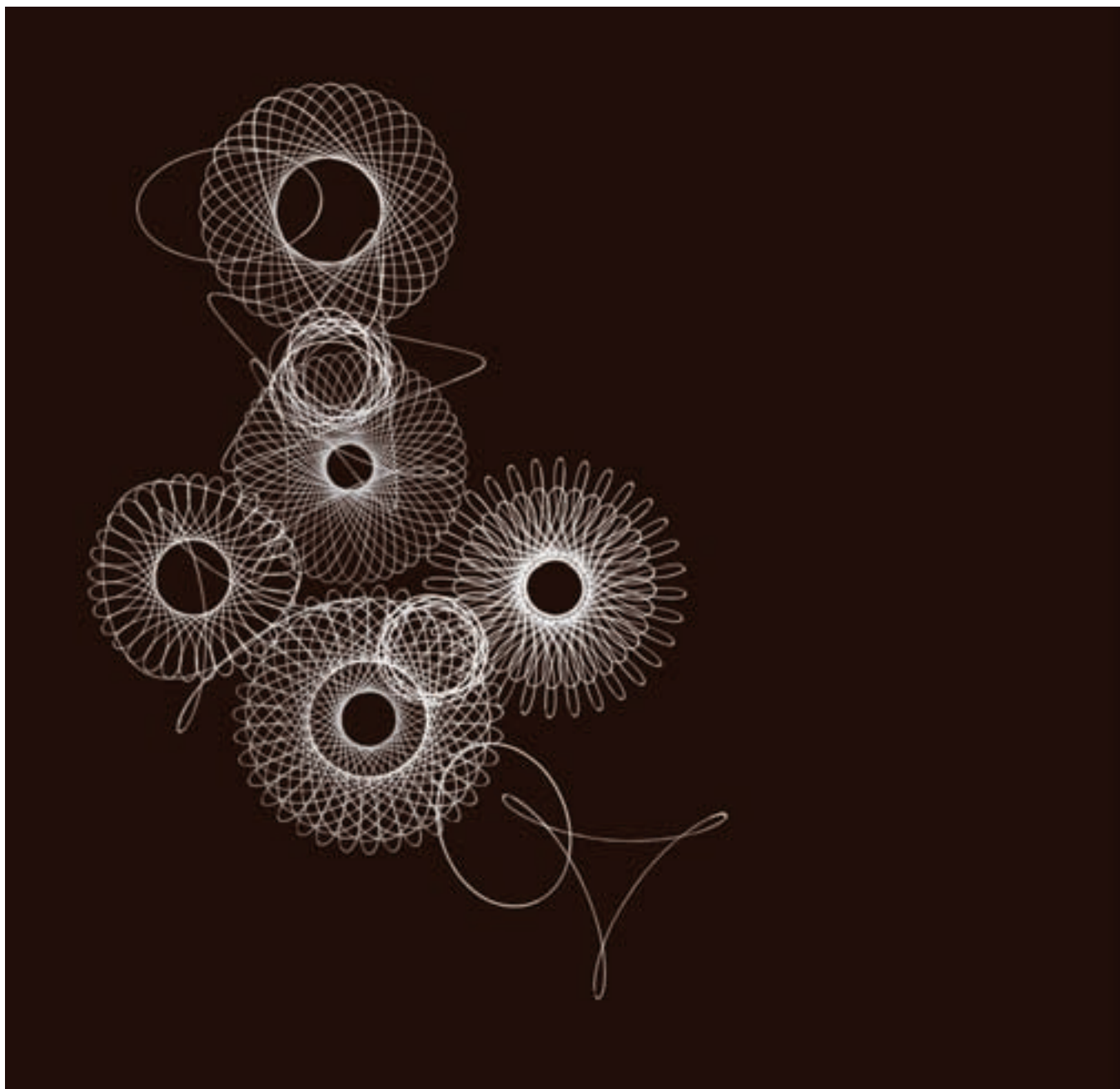
### ON-GOING PROGRAMME ACTIVITIES

In the programme SISTER is collaborating with The Research Policy Institute at Lund University and two centres of excellence for innovation studies: RIDE at Chalmers in Gothenburg and CESIS at KTH in Stockholm. Maureen McKelvey, Professor of Innovation Economics at Chalmers University of Technology, is the Project Manager, Mats Benner, head of the Research Policy Institute at Lund University and Enrico Deiacco together with Peter Schilling at SISTER, are three of the project's directors of research. A total of around ten researchers and analysts are working with the project and the results will be reported in stages up to 2007. Activities that focus outwards will be arranged as part of the programme alongside the research and analysis work. These will consist of reports, short articles and seminars and debates.

Currently a number of specific studies are undertaken, e.g: "The Swedish Policy Debate 2005" by *Lillemor Kim* (SISTER); "Swedish Big Science Relations" by *Olof Hallonsten* (FPI, Lund University); "Excellence Through Collaboration" by *Anders Broström* (SISTER) and *Andreas Högberg* (SISTER); "Understanding Change at Regional Colleges – Research and Education" by *Maria Johansson* (SISTER); "University – Industry Collaboration in Sweden" by *Mattias Johansson* (RIDE, Chalmers); "Strategic Research Centra–Implications on Finance, Management and Profile of the University" by *Enrico Deiacco* (SISTER), *Peter Schilling* (SISTER), *Åsa Smedberg* (SISTER) and *Mats Benner* (FPI, Lund University), "Modularization of the University Industry", by *Mats Magnusson* (RIDE, Chalmers), "Understanding Firm's

Rationale for Cooperation with Universities" by *Anders Broström* (SISTER), *Maria Johansson* (SISTER) and *Andreas Högberg* (SISTER) among other studies. Three different book-projects are in preparation: A debate book edited by *Mats Benner* (FPI, Lund University) and *Sverker Sörlin* (KTH/SISTER/CESIS) dealing with the policies and practices of the Swedish research system in the coming decade, an international publication on the Swedish university system and its global challenges edited by *Maureen McKelvey* (RIDE, Chalmers) and a final synthesis report written by *Enrico Deiacco* (SISTER).





# ANNUAL REPORT 2005

## Research & assignments

Since January 2004 the Institute has been working according to a three-year programme of activities. Several of the major research programmes and assignments we conducted during the year are in their final phases or have recently been concluded. Clients who commissioned the projects carried out in 2005 include the EU, VINNOVA (Swedish Agency for Innovative Systems), STINT (Swedish Foundation for International Cooperation in Research and Higher Education), the Swedish Research Council, the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Formas), the Östergötland County Council etc. (see the complete list below).

Research activities and assignments in 2005 included developing projects already in progress and establishing new ones. A few projects were concluded in 2005. Several of the projects are being run by networks and with research groups with links to universities and other research environments.

Research into innovation and renewal of the economy is a highly prioritised area, but in Sweden it is characterised by the fairly large number of already active research environments, several of which have not yet reached their critical mass. SISTER has established CESIS in cooperation with KTH and Jönköping International Business School. CESIS stands for Centre of Excellence for Science and Innovation Studies.

## Projects 2005

### **The International Aspects of the Swedish Public Research System since World War II** *(in progress)*

The purpose of this research project is to analyse and describe the international aspects of the Swedish public research system over the past fifty years. This includes Swedish research carried out abroad (expeditions etc), research collaboration with units and at facilities abroad, but also international funding of Swedish research and other important international influences as a part of the total Swedish public research system. Swedish public research policy is dominated by national needs and concerns, and is largely based on traditional patterns. This is no longer a valid model and the present research policy and research funding do not constitute an appropriate response to the current and foreseeable challenges. Internationally organised, funded and executed research and concomitant politics will play increasingly important roles for science.

Funding: SSF (Swedish Foundation for Strategic Research), Bank of Sweden Tercentenary Foundation, STINT (Swedish Foundation for International Cooperation in Research and Higher Education), VINNOVA (Swedish Agency for Innovative Systems)

### **Follow-up Research on Strategic Research Centres** **– An Initiative of the Swedish Foundation for Strategic Research** *(in progress)*

The Swedish Foundation for Strategic Research (SSF) is creating Strategic Research Centres to promote innovation and internationally competitive research in line with developments in Europe. SISTER has been assigned to conduct follow-up research on a number of these centres. The intension is to understand how the goals relating to patents, enterprise and scientific publications, will be reached and to examine the mechanisms for management and governance of a Strategic Research Centre.

The Foundation's initiative raises a number of questions on the connection between financing, the development of strong research environments and the utilisation of research results. The follow-up research project is, therefore, placing particular emphasis on the important governance issues. These issues should be studied both from the SSF's perspective and from the perspective of the Centres. There is always a risk that there will be a confidence gap between the activity level and the policy level, and it is in these situations that follow-up research can be a valuable method of ensuring both a horizontal and vertical learning process for the Foundation, the Centres and possibly even for the universities.

Funding: Swedish Foundation for Strategic Research

**Interact–Innovation in the Public Sector  
and Public-Private Interaction**  
*(in progress)*

Interact is a Nordic project for the purpose of studying innovations in the public sector. The project group consists of one or two researchers from Norway, Sweden, Finland, Denmark, the Faeroe Islands and Iceland and it is being run by NIFU/STEP. The main focus of the project is innovation in healthcare, but it will also study changes in innovation policy, which, in many respects, impact both the restrictions and opportunities for innovation (methods, techniques, processes etc.) within the public sector. The project will study both the political aspects with respect to innovation and the innovation work being carried out by various organisations, such as hospitals. The methods are comparative and, above all, qualitative, since statistics and indicators on innovation in the public sector are scarce.

Funding: NICE (Nordic Innovation Centre), EU

**Evaluation of the Knowledge Foundation's  
Expert Competence Programme**  
*(in progress)*

The Knowledge Foundation (KK-stiftelsen) is currently implementing a renewal process after more than ten years in operation. One of the most important issues is which new, long-term initiatives the Foundation should get involved in. Evaluation and analysis is an important and natural part of this process – both in terms of the Foundation as an organisation and the various programmes it is engaged in. The Expert Competence Programme has therefore, on a number of occasions, evaluated different parts of its activities, but what is lacking is an overview with foresight based on knowledge. The assignment upon which this analysis is based could be described as a study by SISTER of the Expert Competence Programme's development with a focus on the results and effects it has had for the participating companies and universities. The study will also relate its conclusions to the Knowledge Foundation's own development work.

Funding: The Knowledge Foundation

### **Evaluation of Danish Postgraduate Research Programmes (in progress)**

Postgraduate research is a central theme in both Nordic and European research policy. It has become a topical issue within Nordic university collaboration and at the European level through the Lisbon and Bologna objectives. Denmark is facing a significant expansion of its postgraduate research programmes and, before this happens, wants to evaluate the situation so far. Some of the main questions to be addressed are:

- Is Danish postgraduate research competitive in an international perspective?
- How is the interaction between degree-awarding institutions and other players?
- What are the differences between research programmes at graduate schools and at departments within universities?
- Are research programme environments reaching “critical mass”?

Funding: Danish Ministry of Science

### **Excellens Through Cooperation (in progress)**

Higher education and R&D have become some of the most important factors for the development of society and the viability of the economic system. Most studies on industry-university cooperation are done from the macro-oriented point of view of regions or nations. This study is a micro-level study, focusing upon practical models for university-industry interaction and examining the evolving collaboration needs of a set of companies. And it aims to make a contribution to the understanding of university-industry relationships by combining insights into two worlds: the commercial context of a firm and the academic rationale of a university. A main part of the project is a benchmarking study of third mission at universities in other countries. Visited universities include Surrey and Cambridge in the UK, Twente and Delft in the Netherlands, Tufts and MIT in the US Boston region and EPF Lausanne and ETH Zürich in Switzerland.

Funding: Stockholm County Administrative Board

### **Analysis of Seed Financing in the Stockholm Region (in progress)**

The project is an analysis of ALMI’s clients (consultation and lending) and recipients of innovation funding from ALMI and SIC. The analysis is based on data that sheds light on developments from 1993 to 2003.

Funding: ALMI

**Stockholm's Intellectual Capital**  
*(in progress)*

Stockholm's most important competitive advantage by far is its dominance in Sweden, which has grown over time, in recruiting and supplying well-educated individuals. However, the level of awareness of the importance of intellectual capital is extremely low, particularly considering the growing regional competition in Sweden and in an integrated Europe. This project aims to document the mobility of intellectual capital, particularly of human capital, and to develop indicators to measure this.

Funding: EU

**Developing Stockholm as a "Knowledge City"**  
*(in progress)*

This research project, which is in the development phase, will focus on the development of scientific facilities and their impact on Stockholm's urban landscape. The project will highlight and contribute to the debate on how to continue to develop the various science regions in Sweden. The project also addresses the significance of scientific facilities, of a rather recent origin, from a cultural heritage and cultural environment point of view – an area where there has been little research.

Funding: Formas

**Centre of Excellence – Stockholm Centre of Innovation Studies, KTH CESIS**  
*(in progress)*

CESIS is a long-term venture involving scientific studies of the connections between, driving forces behind, and effects of basic academic research, corporate research initiatives and development activities, technology development and innovations. The innovation initiatives of Swedish companies are a main focus of the research being carried within the framework of CESIS. CESIS is established in co-operation with The Royal Institute of Technology (KTH), Jönköping International Business School (JIBS) and SISTER.

Funding: VINNOVA

**R&D for Change – A Study of the R&D Strategies of Swedish County Authorities**  
*(in progress)*

The healthcare authorities' clinical research and development responsibilities are defined in the Swedish Health and Medical Services Act. Funding is in the form of public funds, so-called ALF funds (at present around SEK 1.5 billion/year). Reorganisation is currently under way within several counties for the purpose of creating a cohesive regional healthcare structure, and this will involve a change in the role of university hospitals. This study is focusing on the Östergötland County Council, its R&D activities and the challenges it faces in the healthcare sector.

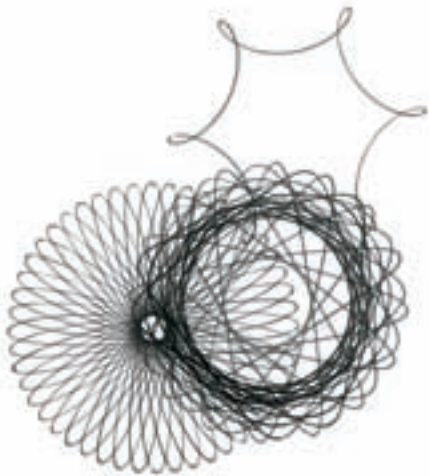
Funding: Östergötland County Council



### **The Entrepreneurial Faculty (concluded)**

KTH has a number of entities that support and work with the third mission. These include the incubator KTH Starthus, KTH Seed Capital, the alumni organization, KTH Holding etc. The project's intension is to attract members from the various faculties to build a culture that promotes the university's third mission. Through visits to other institutions and comparisons with universities in other countries and how they organize their third mission, the project aims to inspire and identify best practice. During the spring of 2005 the project will develop a number of concrete measures to bring about a process of change under the leadership of Clas Wahlbin, former President of Jönköping University.

Funding: KTH (Royal Institute of Technology),  
Teknikbrostiftelsen



### **Evaluation of the Commission for Regional Cooperation on Higher Education (concluded)**

In 2002 the Swedish Government set up the Commission for Regional Cooperation on Higher Education with the mission to stimulate regional collaboration between universities and municipalities, county boards and the like (U2001/4780/UH). According to a government decision at the setting up of the Commission for Regional Cooperation on Higher Education the work of the delegation should be evaluated after being concluded. The government commissioned ITPS (The Swedish Institute for Growth Policy Studies) to make the evaluation, in collaboration with SISTER.

The evaluation was decided to contain:

- an evaluation of the process,
- an evaluation of the different results different projects and efforts has produced,
- an assessment of the match between resources and results,
- an assessment of the effects on a regional level,
- an analysis on the relation between results and effects.

Funding: Swedish Government Commission for Regional Cooperation on Higher Education (Samverkansdelegationen)

**Preliminary Study of the Knowledge Foundation's Profiling Initiative at the Blekinge Institute of Technology  
(concluded)**

SISTER was assigned by the Knowledge Foundation (KK-stiftelsen) to conduct a case study of the Blekinge Institute of Technology (BTH). The focus of this preliminary study was the Knowledge Foundation's first platform and profiling initiative at BTH and was part of the Foundation's renewal initiative. The idea was also for the study to act as a first step towards a more comprehensive study, where all of the Knowledge Foundation's projects and profiles would be studied. At the same time as this study was initiated, the platforms and profiles were being evaluated with respect to both the research focus (through peer review) and other activities. The aim of the preliminary study was to use the evaluations and interviews, to understand the significance of the profiles for the players involved based on the following questions:

- What role does the Knowledge Foundation have in relation to other research financiers at BTH?
- How is BTH applying the Knowledge Foundation's initiatives in its day-to-day work?
- Which mechanisms can help to explain the relationship between BTH and the Knowledge Foundation?

Funding: The Knowledge Foundation

**Evaluation of Brandforsk at the Swedish Rescue Services Agency (SRV)  
(concluded)**

The role of research at the SRV is based on the agency's role as an expert agency and in disseminating knowledge and information. Research plays a strategic role in the development of an expert agency in an increasingly complex world where the direct cost of accidents alone amounts to close to SEK 40 billion per year. The focus document, Research for a Safer Society, states that the SRV shall "itself or through others, conduct research, development and testing activity." SISTER's evaluation covered the activities of Brandforsk (the Swedish Fire Research Board) and the so-called Miljöstödet (environmental support)

Four questions were identified as being of special interest to SRV:

- Did the initiatives match up to the goals and objectives?
- Has scientific excellence and relevance been achieved?
- What effects were identified with respect to the various players (research environment and users)?
- How have the results been re-directed to and used within agency?

Funding: Swedish Rescue Services Agency

**Evaluation of the AES Research Programme at  
the Swedish Energy Agency  
(concluded)**

The current general energy system study (AES) programme covers the period from 1 July 2003 until 30 June 2005. The objective of the programme is to provide information and data as a basis for decisions on long-term energy policy. The specific role of the AES programme is to “establish an overall system perspective and describe the interaction between people, technology, economics and the environment. This will make it possible to prioritise a genuine interdisciplinary initiative and to promote alliances and other system research.”

Some important issues examined in the evaluation were:

- Has the programme succeeded in reaching the objectives and goals that were set?
- Has society been provided with the required information according to the programme reports?
- Whose future knowledge needs would a new AES programme satisfy?
- How can the results of the AES research be disseminated and quickly put to use?

Funding: Swedish Energy Agency

**Models for Collaboration between Örebro University and  
Mälardalen University  
(concluded)**

On 21 January 2005 the governing boards of Örebro University (ÖU) and Mälardalen University (MdH) decided to appoint a joint committee to develop and examine, during the spring of 2005, a proposed merger between the two universities. The work of the committee was to culminate in a final report presented to the governing boards at a meeting on 3 June 2005. A special reference group was attached to the committee consisting of individuals representing regional and local interests. SISTER’s assignment was to produce documentation as a basis for discussion during the planning process. The task involved supplementing existing evaluation materials with a more in-depth analysis of the benefits, drawbacks, risks and opportunities associated with various forms of collaboration and a discussion of alternative solutions for the proposed merger.

Funding: Västerås City and the Eskilstuna Municipality

**Evaluation of the Swedish Foundation for Strategic Research  
Programme for Future Research Leaders  
(concluded)**

The Swedish Foundation of Strategic Research decided in 1999 to initiate and announce an Individual Grant for the Advancement of Research Leaders, INGVAR. The purpose of the programme was to support young researchers who are expected to be the future science leaders within academia or industry. The programme is aimed at outstanding researchers at the highest levels in their field who have also demonstrated leadership qualities and initiative, drive, organisational skills and the ability to motivate their colleagues. As part of the programme, specific funds were allocated for leadership training. The Foundation required both an overall evaluation of the INGVAR programme's progress, selection criteria, grant recipients and, in particular, the work carried out by the Foundation's office and drafting function, and an evaluation of the design and implementation of the specific leadership training programme within the overall programme.

Funding: Swedish Foundation for Strategic Research

**Widening Participation in Higher Education  
(concluded)**

Sweden and the UK are two countries that have recently been actively pursuing policy initiatives to widen participation in higher education. Both countries share a common participation target of a 50 per cent participation rate by 2010. Through a country-comparative study, this project is aiming to identify policies and practices to find effective means of widening participation in higher education.

The four core objectives are:

- To reflect on and analyse Swedish policy for widening participation.
- To make an international comparison of widening participation policy and practice in the UK and Sweden.
- To develop recommendations for building on existing work and developing new approaches to effectively widen participation.
- To produce a final and comprehensive report for the Special Committee on Recruitment to Higher Education.

Funding: Swedish Government Special Committee on Recruitment to Higher Education (Rekryteringsdelegationen)

**Human Resources in Research & Development:  
Monitoring System for Career Paths and Mobility Flows  
(concluded)**

The objective of the project is the collection and analysis of data sources and data banks in selected countries of the European Union on migration flows and career paths of academics and private sector R&D personnel. This relates, on the one hand to international mobility and, on the other, to mobility within and across sectors and regions, i.e. job-to-job mobility and career paths. The priority is less to compile and evaluate valid statements about particular migration quotas of the academic communities described, but rather to examine official data sources, academic surveys, studies etc. for the purpose of establishing:

- methodological and methodical approaches to a comprehensive and continuous inventory of migration movements among EU countries and between EU and non-EU countries;
- the identification of gaps in data (and availability), which impedes the establishment of a comprehensive inventory of migratory flows of researchers at all levels and dimensions. Some of the gaps are impossible to cover in the short and medium term. The project will document these gaps systematically and propose measures to overcome and limit them.
- the conditions necessary to harmonize future data registration within the EU from which it is possible to derive statements on a regular basis about inner-European migration of academics and R&D personnel and migration between EU and Third World countries.

Funding: EU

**Research Foundations and the Swedish Research System  
(concluded)**

The government bill 1991/92:92, which deals with the distribution of the assets in employee investment funds (Löntagarfonderna), states that “About half of the assets [in employee investment funds] are to be used for research that is important for Sweden’s future competitiveness.” A number of other objectives were included, i.e. to strengthen regional universities and their postgraduate research programmes, to improve the environment and to breathe life into the research system. However, the goal of improving competitiveness was considered so important that it was written into the mission statements of SSF and MISTRA, and through the focus of underlying studies, it became a goal of essentially the entire foundation family. This is why it is important to ask questions about the foundations and competitiveness. How are the foundations working towards this goal? How have they implemented the objectives of their charters with respect to competitiveness? How have they defined the concept? Should the results be measured in financial terms alone, or can competitiveness be related to other characteristics of research? Have the foundations been successful? How will they approach the next decade?

SISTER’s project on the foundation aims to problematize and analyse the role of research foundations in influencing the Swedish system of education, research and innovation.

Funding: SSF (Swedish Foundation for Strategic Research), The Knowledge Foundation, MISTRA (Foundation for Strategic Environmental Research), Vårdal Foundation, Bank of Sweden Tercentenary Foundation

**Strategic Planning for STINT**  
*(concluded)*

STINT (Swedish Foundation for International Cooperation in Research and Higher Education) supports the internationalisation of research and higher education through numerous different programmes. In 2004 the foundation commissioned SISTER to plan and coordinate the production of documentation on new ways of promoting internationalisation. A work group has been formed consisting of Michael Gibbons, Yehuda Elkana and Said Irandoust. The group's work is focusing on describing the necessary conditions and prerequisites for internationalisation in the future and to suggest alternative action based on this information.

Funding: STINT

**How can We Raise the Level of Competence in the Care Sciences?**  
*(concluded)*

Care sciences is usually defined as an interdisciplinary and inter-professional research area based on knowledge and experience from a number of different fields such as medicine, care, social and behavioural sciences and technology etc. This study focuses on two fundamental challenges for the Vårdal Foundation (Vårdalstiftelsen) ventures: the issue of the effects of development initiatives on established research environments and the issue of how interdisciplinary research within new areas can best be organised to achieve the necessary effects.

Funding: Vårdal Foundation

**Analysis of the Content of Applications Submitted to the Committee for Educational Science**  
*(concluded)*

During the period 2001-2003 the government allocated specific funds to support research in the field of education through the Swedish Research Council's Committee for Educational Science (Utbildningsvetenskapliga kommittén – UVK). The project includes analysis of both announcement texts and documentation of the applications received and granted during the period. The project also includes studying the effects of the establishment of UVK in relation to other players in related areas, and making educational science a separate area for research funding.

Funding: Swedish Research Council



## Communication 2005

In 2005 SISTER employees published articles in international and Swedish journals and contributed policy reports and other materials to the Swedish debate. The Institute's staff members have summarized results and policy implications in articles, in interviews in the press and through the broadcasting media. They have also published books and participated in studies. Below is a list of publications published by SISTER.

In 2005 SISTER published one issue of its series called *Skrifter* (Booklets) in cooperation with the Nya Doxa publishing firm. In 2005 SISTER also published nine reports/working papers. These are also available on the website. Through the SISTER Alert newsletter, which is published in both paper and electronic format four times a year, SISTER provides information about these publications as well as the Institute's other activities. SISTER Alert is based on current events and provides links to the Institute's website which is regularly updated. SISTER continued to develop its seminar series in 2005 into an appreciated discussion forum and an open meeting place for researchers, publicists, government officials and politicians working within this area.

### **PUBLICATIONS 2005**

#### **Newsletter**

SISTER Alert – a newsletter from the Swedish Institute for Studies in Education and Research is published four times a year with a paper distribution to around 1,200 subscribers and via e-mail to around 2,200 subscriber. The newsletter provides information on current publications, seminars and other activities with which the Institute's staff members are involved. Each time the newsletter is sent out the activity on the website is greatly intensified in the form of more report orders, applications to attend seminars and new subscribers. SISTER Alert works with various art and museum institutions to produce the cover pictures. In 2005 the cover pictures were of art exhibited by Nationalmuseum. The themed editorial section dealt with the following topics during 2005: February: Structural Shifts in the Knowledge Sector, May: The Messy Complexity of University-Society Links, September: International Competitiveness of Swedish Research and December: Commissioned Research at SISTER.

#### **Books** (in Swedish)

2005:12

”I den absoluta frontlinjen”. En bok om forskningsstiftelserna, konkurrenskraften och politikens möjligheter  
*Sverker Sörlin* (red)

**Reports** (*mostly in Swedish*)

2005:41

**Energisystemforskning – till vad och hur mycket?  
Utvärdering av programmet för Allmänna energisystemstudier**  
*Enrico Deiacio, Fredrik Lagergren & Åsa Smedberg*

2005:40

**Ju mer vi är tillsammans ...  
Utvärdering av Delegationen för regional samverkan  
om högre utbildning**  
*Enrico Deiacio, Maria Johansson & Hans Westlund (ITPS)*  
(Also published by ITPS, A2005:014)

2005:39

**Bridging the Gap – Comparing Actions for Widening  
Participation in Higher Education in Sweden and England**  
*Lillemor Kim, Maria Johansson, Sverker Sörlin & John Storan*

2005:38

**Vägal för Örebro universitet och Mälardalens högskola –  
utredning av förutsättningarna för fusion, allians eller annan  
samverkan**  
*Anders Broström, Enrico Deiacio & Göran Melin*

2005:37

**Does Knowledge Diffusion between University and Industry  
Increase Innovativeness?**  
*Hans Lööf & Anders Broström*

2005:36

**Kompetens för evidens – om Vårdalstiftelsens särskilda  
kompetenssatsningar**  
*Lillemor Kim & Per Janson*

2005:35

**De nya kulturutbildningarna – en undersökning av nya typer av  
högskoleutbildningar på kulturområdet**  
*Göran Melin*

2005:34

**Kunskapsregion Stockholm på världsmarknaden? – möjligheter  
och utmaningar för det regionala tillväxtprogrammet**  
*Enrico Deiacio & Anders Broström*  
(Also published by VINNOVA, Visanu 2005:3)

2005:33

**Utbildningsvetenskapliga kommittén – en ny aktör i  
forskningslandskapet**  
*Lillemor Kim & Ewa Olstedt*

**Other publisher**

**The Dark Side of Mobility. Negative experiences of doing a  
postdoc abroad** in *Research Evaluation*, Volume 14, Number 3,  
1 December 2005  
*Göran Melin*

**The KTH Entrepreneurial Faculty Project,**  
VINNOVA Report 2005:13.  
*Folke Snickars* (ed) with contributions of *Anders Broström*  
(SISTER), *Emma Källblad* (KTH), *Dag Lindbo* (KTH) and  
*Lisa Ericsson* (KTH)



## SEMINARS 2005

In 2005 the Institute arranged/co-arranged the following conferences/seminars with external participation:

### **The Contract and the Gift: Formal and informal departments at Swedish universities**

Time: 15 November, 10 a.m.–noon

Venue: SISTER, Drottning Kristinas väg 33D

*Ylva Hasselberg* of the Department of Economic History at Uppsala University was a guest at SISTER's seminar for a discussion on what impact reforms within postgraduate research may have on scientific quality and the status of research professionals. Who will have authority over the universities of the future? How will they be governed? What changes are in store?

Commentator: *Peter Schilling*, SISTER

Moderator: *Pehr Mårtens*, Communication and Programme Coordinator at SISTER

### **Internationalisation of Swedish Research: Seven case studies**

Time: Tuesday, 11 October 10 a.m.–noon

Venue: SISTER, Drottning Kristinas väg 33 D

*Olle Edqvist* of SISTER presented initial materials from a research project on the internationalisation of Swedish research. Through seven case studies that are following the processes of internationalisation, we will learn, among other things, about a research project on baroque organs at Göteborg University, a project on explosives at the Swedish Defence Research Agency (FOI), a project on intelligent roads at Linköping University and the major European telescope collaborative project within the ESO (European Southern Observatory).

Commentator: *Anders Karlqvist*, Director of the Swedish Polar Research Secretariat

Moderator: *Pehr Mårtens*, Communication and Programme Coordinator at SISTER

### **Widening Participation in Higher Education – A comparison between Sweden and England**

Time: Friday, 9 September 1–4 p.m.

Venue: SISTER, Drottning Kristinas väg 33 D

At this seminar a report was presented entitled Bridging the Gap – Comparing actions for widening participation in higher education in Sweden and England. This was prepared at the request of Special Committee on Recruitment to Higher Education (Rekryteringsdelegationen). The report was authored by SISTER employees *Lillemor Kim*, *Maria Johansson* and *Sverker Sörlin* in cooperation with Professor *John Storan* of the University of East London. John Storan, who was also present at the seminar, is the Director of Continuum, a centre for widening participation policy studies at the University of East London.

Moderator: *Enrico Deiaco*, Managing Director of SISTER

### **Trends in Canadian Higher Education: Between State and Market**

Time: Tuesday, 30 August, 10 a.m.–noon

Venue: SISTER, Drottning Kristinas väg 33 D

*Kjell Rubenson*, Professor of Education at University of British Columbia and co-director of the Centre for Policy Studies in Higher Education and Training (CHET), was a guest at SISTER's seminar with co-director and professor *Donald Fisher* from the same institution. *Kjell Rubenson* was formerly Professor of Adult Education at Linköping University and has studied reforms in Swedish higher and adult education since the end of the 1960s. The seminar shed light on current developments in the area of higher education in Canada.

Moderator: *Lillemor Kim*, Researcher at SISTER.

### **The Government, Chalmers and Science**

Time: Tuesday, 17 May, 1–3 p.m.

Venue: SISTER, Drottning Kristinas väg 33D

*Henrik Björck* was a guest at SISTER's seminar for a discussion on the history of research policy based on a book he published in cooperation with SISTER entitled: *The Government, Chalmers and Science*. The book places the transformation of Chalmers University of Technology, from a school of arts and crafts into a university, in a broad historical context. Higher education in technology and sciences, with research on the agenda, is a crucial aspect of the history of knowledge management in the industrial society and sheds light on how the Government and the scientific community have come closer together in the area of research policy.

Commentator: *Göran Blomqvist*, Director of SULF

Moderator: *Pehr Mårtens*, Communication and Programme Coordinator at SISTER

### **Research and Commercial Benefits**

Time: Tuesday, 19 April, 10 a.m.–noon

Venue: SISTER, Drottning Kristinas väg 33D

Senior lecturer *Alexandra Waluszewski*, from Uppsala University Department of Business Studies and Director of Centre for Science and Technology Studies and researcher at CIND (Centre for Research on Innovation and Industrial Dynamics) was a guest at SISTER's seminar for a discussion and presentation of the programme entitled *Science and Technology Studies* at Uppsala University. The programme and the seminar raised the issue of how we can benefit commercially from research. This is an issue that is increasingly on the minds of politicians, policy actors and researchers – at the local, regional, national and transnational levels. The main issue seems to be how we can get “science” to generate “innovation,” and how innovation can be matched with venture capitalists and entrepreneurs. One question that is

conspicuous by its absence, however, is how existing financial structures can utilise new knowledge. How are we handling the fact that the academic world and the business world work according to different logic? Value in the academic world is created by that which is genuinely new, while economic value is generated by that which can be built in to previous investment frameworks.

Moderator: *Pehr Mårtens*, Communication and Programme Coordinator at SISTER

### **The Economics of Culture in the Knowledge Society**

Time: Friday, 11 February, 10 a.m.–noon

Venue: SISTER, Drottning Kristinas väg 33D

Professor *Åke E. Andersson* discussed his upcoming book with the working title *The Economics of Arts and Entertainment. The Spread of the Internet and growing tourism* are two of the many reasons why studying the economics of culture is becoming increasingly important. This book is the result of studies conducted within the framework of SISTER's research programme *Culture in the Knowledge Society*.

Moderator: *Pehr Mårtens*, Communication and Programme Coordinator at SISTER

**Research and Competitiveness – A Multifaceted Relationship?  
Seminar on a new book on research foundations**

Time: 2 June 2005, 1–8 p.m.

Venue: Royal Swedish Academy of Sciences, Frescati

A new book published by SISTER entitled, “I den absoluta frontlinjen”: En bok om forskningsstiftelserna, konkurrenskraften och politikens möjligheter (At the absolute forefront: A book about research foundations, competitiveness and the possibilities of politics), tells the story of the first ten years of the Government’s independent research foundations. Five foundations were discussed: the Vardal Foundation, The Knowledge Foundation, Swedish Foundation for Strategic Research (SSF), Bank of Sweden Tercentenary Foundation’s The Humanities and Social Sciences Donation and MISTRA (Foundation for Strategic Environmental Research).

The government bill 1991/92:92, which deals with the distribution of the assets in employee investment funds, states that “About half of the assets [in employee investment funds] are to be used for research that is important for Sweden’s future competitiveness.” A number of other objectives were included, i.e. to strengthen regional universities and their postgraduate research programmes, to improve the environment and to breathe life into the research system. However, the goal of improving competitiveness was considered so important that it was written into the mission statements of SSF and MISTRA, and through the focus of underlying studies, it became a goal of essentially the entire foundation family.

This is why it is extremely important to ask questions about the foundations and competitiveness. How are the foundations working towards this goal? How have they implemented the objectives of their charters with respect to competitiveness? How have they defined the concept? Should the results be measured in financial terms alone, or can competitiveness be related to other characteristics of research?

Have the foundations been successful? How will they approach the next decade?

The foundations were formed by the Swedish parliament – they are a political creation. What can the past decade teach us about the impact of research policy?

Participants at the conference:

*Enrico Deiacò*, Managing Director SISTER

From the research programme:

*Sverker Sörlin*, Professor SISTER & KTH

*Mats Benner*, senior lecturer, Research Policy Institute, Lund University

*Ingrid Schild*, PhD, Umeå University

*Susan Marton*, PhD, Göteborg University

Representatives from research foundations:

*Måns Lönnroth*, Managing Director, MISTRA

*Dan Brändström*, Managing Director, Bank of Sweden Tercentenary Foundation

*Staffan Normark*, Managing Director, Swedish Foundation for Strategic Research

Representatives from research councils:

*Lisa Sennerby Forsse*, Head secretary, Formas

*Bengt Westerberg*, Chairman, Swedish Research Council

Representatives from universities:

*Gunilla Jönson*, Dean, Faculty of Engineering (LTH), Lund university

*Kåre Bremer*, President, Stockholm University

Representatives from institutes and industry:

*Thomas Johannesson*, Managing Director, STFI-Packforsk

*Köysti Tuutti*, Director of R&D, SKANSKA

Final reflections and perspectives from:

*Bjarne Kirsebom*, Research Counsellor, Sweden’s Permanent Representative to the EU

*David Samulesson*, Director of Planning, Ministry of Education, Research and Culture

Commentator: *Magnus Gulbrandsen*, NIFU

Moderator *Ulf Wickbom*

# Administration 2005

## FINANCIAL POSITION

Core grants from the founders in 2005 amounted to SEK 2.6 million. Annual fees from the 14 members amounted to SEK 0.7 million. The Institute's activities were also financed by project funds and other external contributions. In 2005 the Institute's costs excluding depreciation amounted to around SEK 10,2 million. Projects from 2004 that were extended were funded by research councils, research foundations etc. New projects are being funded by the Foundation for Strategic Research, the Bank of Sweden Tercentenary Foundation, the Knowledge Foundation, STINT, Stockholm County Administrative Board, EU Structural Funds, the Royal Institute of Technology, Danish Ministry of Science and the Ministry of Education's Recruitment Delegation. External funding – commissioned assignments and research projects combined – accounted for almost 65 per cent of the income reported in 2005.

The core grants of SEK 2.6 million covered the cost of salaries for the administrative staff (a producer/public relations officer and an administrator), rent, depreciation and operating costs for telephones, postal services, datacommunication and office supplies. Salaries for all other staff members and other operating costs were covered by project grants, membership fees and commissioned assignments.

From the beginning of 2002, the Board decided that SISTER will apply academia's customary supplement of 35 per cent to research funding players to cover joint costs. This does not apply, however, to EU projects and certain research funding players. Prices for commissioned assignments are adjusted according to the nature of the assignment, its duration and market prices for similar services, ensuring that the Institute's costs are fully covered.

Funds are distributed over the period in which they are to be used. The reason for this is that SISTER is the recipient of

large research grants that span several years and are for work carried out by collaborating research groups. One project in particular should be mentioned in this context, namely, "Knowledge Environments of Tomorrow" of which 66 per cent of the total amount is budgeted for work by collaborating research groups at various Swedish universities. Funds for these partners were deposited in a special clearing account and do not affect the Institute's result in the balance sheet.

## STAFF

As of 31 December 2005 the Institute had ten members of staff: Managing Director Enrico Deiaco, Scientific Director Sverker Sörlin, three post-doc researchers, five research assistants, one public relations officer and one administrator. (On the same date in 2004 and 2003 the number was 9 respectively 14). Other researchers and doctoral candidates who are employed elsewhere, mainly within academia, also work with the Institute's projects.

## ADMINISTRATIVE OFFICE

The administrative office includes management, accounting and other administrative functions. The office also handles communication, seminar and conference arrangements, the publication of reports and booklets, as well as network building and contacts.

## FOUR-YEAR REVIEW

	2005	2004	2003	2002
Turnover in SEK 000 in relation to the number of employees	1,052	1,031	828	768
Turnover in SEK 000	10,523	9,282	11,589	10,575
Profit/loss from operations in SEK 000	-62	45	-1,346	-521
Average number of employees	10	9	14	14

Proposed treatment of the Institute's losses for 2005

The Board of Directors and the Managing Director propose that the 2005 losses of SEK 51,000 be carried forward.

For information about the Institute's results and financial position, please refer to the income statement and balance sheet below and the notes that accompany them.

**INCOME STATEMENT**

	Note	2005	2004
<i>Operating income</i>			
Membership income		700	700
Operating subsidies and grants		7,321	8,043
Other operating income		2,503	539
		<b>10,524</b>	<b>9,282</b>
<i>Operating costs</i>			
Other external costs	1	-2,782	-2,672
Personnel costs	1	-7,441	-6,172
Depreciation of tangible fixed assets	2	-363	-393
		<b>-10,586</b>	<b>-9,237</b>
<b>Operating profit/loss</b>		<b>-62</b>	<b>45</b>
<i>Profit/loss from financial investments</i>			
Interest income		27	31
Interest expense		-16	-1
<b>Profit/loss from financial items</b>		<b>-51</b>	<b>75</b>
<b>Profit/loss before tax</b>		<b>-51</b>	<b>75</b>
Tax on profit for the year		0	-3
<b>Profit/loss for the year</b>		<b>-51</b>	<b>72</b>

**BALANCE SHEET**

	Note	31 Dec. 2005	31 Dec. 2004
<b>ASSETS</b>			
<b>Fixed assets</b>			
<i>Tangible fixed assets</i>	3		
Equipment, furniture & fittings		517	718
		<b>517</b>	<b>718</b>
<b>Total fixed assets</b>		<b>517</b>	<b>718</b>
<b>Current assets</b>			
<i>Current receivables</i>			
Accounts receivable		671	10
Other receivables	4	222	69
Prepaid expenses and accrued income		975	639
		<b>1,868</b>	<b>718</b>
<i>Cash and bank balances</i>		2,565	2,131
<b>Total current assets</b>		<b>4,433</b>	<b>2,849</b>
<b>TOTAL ASSETS</b>		<b>4,950</b>	<b>3,567</b>

**BALANCE SHEET**

	Note	31 Dec. 2005	31 Dec. 2004
<b>EQUITY AND LIABILITIES</b>			
<b>Equity</b>	5		
<i>Non-restricted equity</i>			
Profit/loss brought forward		225	153
Profit/loss for the year		-51	72
		<b>174</b>	<b>225</b>
<b>Total equity</b>		<b>174</b>	<b>225</b>
<b>Current liabilities</b>			
Advance payments from customers		936	1 272
Accounts payable		126	395
Current tax liabilities		0	3
Other liabilities		2,237	650
Accrued expenses and deferred income		1,477	1,022
<b>Total current liabilities</b>		<b>4,776</b>	<b>3,342</b>
<b>TOTAL EQUITY AND LIABILITIES</b>		<b>4,950</b>	<b>3,567</b>
<b>MEMORANDUM ITEMS</b>			
Pledged assets		None	None
Contingent liabilities		None	None



## ACCOUNTING AND VALUATION PRINCIPLES

### General information

The annual report was prepared in accordance with the Swedish Annual Accounts Act and the Swedish Accounting Standards Board's general guidelines.

### Income

Income is entered in the accounts at the actual amounts received or that will be received.

### Tangible fixed assets

Tangible fixed assets are entered in the accounts at their acquisition value less accumulated depreciation and possible write-down.

Depreciation is carried out on a straight-line basis on the depreciable amount (acquisition value less the estimated residual value) over the useful life of the asset as follows:

Equipment, furniture & fittings 3–5 years

### Receivables

Receivables are entered in the accounts at the lowest of the nominal value and the amount that is expected to be received.

### Note

	2005	2004
<b>Note 1 Personnel costs, remuneration and fees</b>		
<i>Average number of employees</i>		
Men	6	6
Women	4	3
	<b>10</b>	<b>9</b>
<i>Salaries and other remuneration</i>		
Managing Director	916	829
Other employees	3,850	3,069
	<b>4,766</b>	<b>3,898</b>

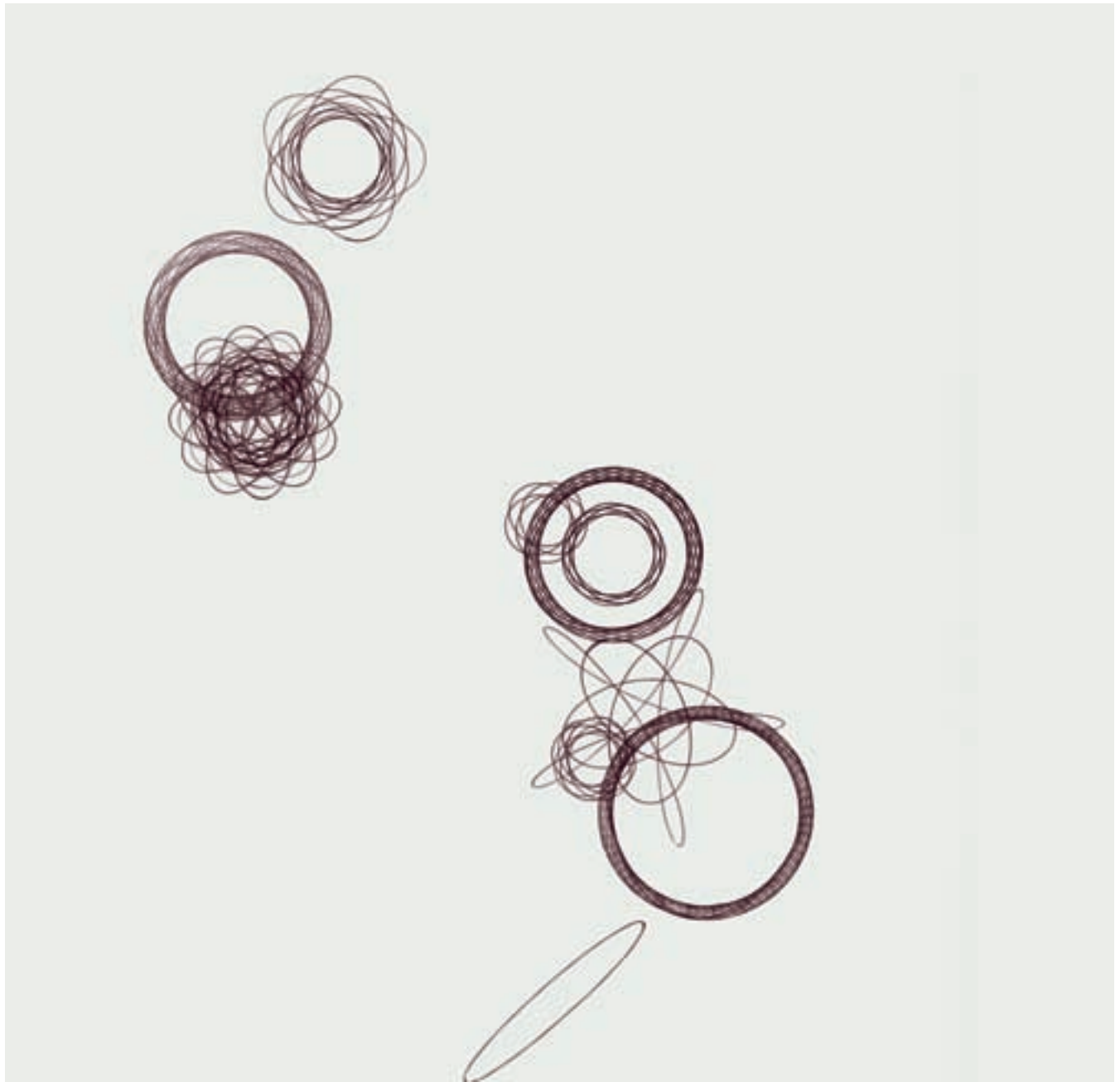
<i>Social security costs</i>		
Pension costs, Managing Director	321	305
Pension costs, other employees	538	431
Statutory and contractual social fees	1,739	1,418
	<b>2,598</b>	<b>2,154</b>
No fees were paid to the members of the Board.		
<i>Gender distribution in executive management</i>	31 Dec. 2005	31 Dec. 2004
Number of men and women on the company's Board:		
Women	2	2
Men	4	4
<i>Fees to auditors</i>	2005	2004
Ernst & Young AB		
Audit assignments	47	45
Other assignments	15	5
Total	62	50
<b>Note 2 Depreciation</b>		
	2005	2004
<i>Depreciation</i>		
Equipment, furniture & fittings	363	393
<b>Total</b>	<b>363</b>	<b>393</b>
<b>Note 3 Tangible fixed assets</b>		
	31 Dec. 2005	31 Dec. 2004
<b>Equipment, furniture &amp; fittings</b>		
Opening accumulated acquisition value	2,344	2,750
Acquisitions	162	4
Sales/disposals	-1	-410
<b>Closing accumulated acquisition value</b>	<b>2,505</b>	<b>2,344</b>
Opening accumulated depreciation	-1,626	-1,350
Sales/disposals	1	117
Depreciation for the year	-363	-393
<b>Closing accumulated depreciation</b>	<b>-1,988</b>	<b>-1,626</b>
<b>Book value</b>	<b>517</b>	<b>718</b>

**Note 4 Other receivables**

	31 Dec. 2005	31 Dec. 2004
Current tax receivable	168	6
Other	54	63
<b>Total other receivables</b>	<b>222</b>	<b>69</b>

**Note 5 Equity**

	Retained earnings	Profit for the year	Total
Amount at beginning of year	153	72	225
Transfer of previous year's profit	72	-72	0
Loss for the year		-51	-51
<b>Amount at year-end</b>	<b>225</b>	<b>-51</b>	<b>174</b>



## FUNDING FOR SISTER IN 2005 PROVIDED BY:

Center of Excellence for Science and Innovation Studies  
(CESIS)  
Swedish Research Council for Environment, Agricultural  
Sciences and Spatial Planning (Formas)  
Royal Institute of Technology (KTH)  
Stockholm County Administrative Board  
Bank of Sweden Tercentenary Foundation  
The Knowledge Foundation  
Swedish Foundation for Strategic Research (SSF)  
Swedish Foundation for International Cooperation in Research  
and Higher Education (STINT)  
Swedish Research Council  
Swedish Agency for Innovative Systems (VINNOVA)  
Vårdal Foundation  
Swedish Government Commission for Regional Cooperation  
on Higher Education (Samverkansdelegationen)  
Västerås City and the Eskilstuna Municipality  
Swedish Energy Agency  
Swedish Rescue Services Agency  
Danish Ministry of Science  
Nordic Innovation Centre (NICE)  
The Swedish Institute for Growth Policy Studies (ITPS)  
Swedish Government Special Committee on Recruitment to  
Higher Education (Rekryteringsdelegationen)  
European Union (EU)  
ALMI -group (ALMI Företagspartner AB)

## STAFF

SISTER is a research and analysis institute that recruits researchers and analysts with well-established research expertise and an interest in policy-related issues. We also recruit analysts and assistants with a high level of professional competence and an interest in research, education and innovation.

The individuals listed below were employed in 2005 at the Institute in Stockholm. The academic qualifications are also indicated for SISTER employees.

### **Managing Director**

*Enrico Deiacò*, M. A., Economics, Stockholm and Göteborg Universities

### **Research and Scientific Director**

*Sverker Sörlin*, Professor, Ph. D., History of Ideas, Umeå University

### **Financial Manager and Assistant to the Managing Director**

*Inger Lindbäck*

### **Programme and Communication Coordinator**

*Pehr Mårtens*, M. A., Social Anthropology, Uppsala and Stockholm Universities

### **Researchers**

*Anders Broström*, M. Sc. Engineering, Royal Institute of Technology (KTH) and Linköping University

*Olle Edqvist*, Ph. D., Physics, Royal Institute of Technology (KTH)

*Per Elfner*, M. Pol. Sc., Stockholm University

*Andreas Högberg*, M. Sc., Economics, Jönköpings University College

*Maria Johansson*, M. SSc., Comparative International Education, Stockholm University

*Lillemor Kim*, Ph. D. Pedagogy, Uppsala University

*Julia Lindkvist*, M. A., Art History, Stockholm University

*Göran Melin*, Ph. D. Sociology, Umeå University

*Peter Schilling*, Ph. D. History of Economics, Umeå University

*Åsa Smedberg*, B. A., Literature/Religion, Stockholm and Umeå Universities

### **Associate Researchers**

*Mats Benner*, Ph. D., Head of Research Policy Institute, Lund University

*Hans Lööf*, Ph. D., Economics, Royal Institute of Technology (KTH)

*Olof Hallonsten*, Ph. D. student, Research Policy Institute, Lund University

*Mattias Johansson*, Ph. D. student, Technology Management and Economics, RIDE, Chalmers

*Mats Magnusson*, Ph. D., Innovation Engineering and Management, RIDE, Chalmers

*Maureen McKelvey*, Professor, Ph. D., Innovation Economics, RIDE, Chalmers

*Göran Reitberger*, senior consultant

*Mikael Sandberg*, Ph. D., Pol. Sc., Göteborg University

## SISTER's MEMBERS

*Akademiska Hus*

[www.akademiskahus.se](http://www.akademiskahus.se)

*Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Formas)*

[www.formas.se](http://www.formas.se)

*Royal Swedish Academy of Engineering Sciences (IVA)*

[www.iva.se](http://www.iva.se)

*Royal Swedish Academy of Agriculture and Forestry (KSLA)*

[www.ksla.se](http://www.ksla.se)

*Royal Swedish Academy of Sciences (KVA)*

[www.kva.se](http://www.kva.se)

*Royal Swedish Academy of Letters, History and Antiquities (KVHAA)*

[www.vitterhetsakad.se](http://www.vitterhetsakad.se)

*Swedish Municipalities and County Councils*

[www.skL.se](http://www.skL.se)

*Bank of Sweden Tercentenary Foundation*

[www.rj.se](http://www.rj.se)

*Swedish Foundation for International Cooperation in Research and Higher Education (STINT)*

[www.stint.se](http://www.stint.se)

*The Knowledge Foundation*

[www.kks.se](http://www.kks.se)

*Foundation for Strategic Environmental Research (MISTRA)*

[www.mistra-research.se](http://www.mistra-research.se)

*Foundation for Strategic Research (SSF)*

[www.stratresearch.se](http://www.stratresearch.se)

*Swedish Association of University Teachers (SULF)*

[www.sulf.se](http://www.sulf.se)

*Vårdal Foundation*

[www.vardal.se](http://www.vardal.se)

## SISTER's BOARD OF DIRECTOR

*Dan Brändström*, Chairman, Executive Director of the Bank of Sweden Tercentenary Foundation

*Henrik Blomgren*, Head of Programme, IVA

*Björn Brandt*, Deputy Executive Director of the Foundation for Strategic Research

*Madeleine Caesar*, Executive Director of the Knowledge Foundation

*Christina Rogestam*, Senior consultant and former President of Akademiska Hus

*Per Storm*, Secretary to the Academy, IVA, resigned at Annual Meeting 2005

*Roger Svensson*, Executive Director of STINT

Deputy for Christina Rogestam:

*Göran Blomquist*, President of Swedish Association of University Teachers (SULF)

## WHAT IS SISTER?

SISTER is an acronym for Swedish Institute for Studies in Education and Research.

In May 1999 a number of academies and research-funding foundations in Sweden established the Association for Studies in Research and Education for the purpose of conducting and promoting studies in research and education and to foster debate in this area. These activities are being carried out by the Institute for Studies in Education and Research, SISTER.

The Institute for Studies in Research and Education was launched on 1 January 2000. Its creation can be seen as a response to a need that had been discussed for some time for independent analysis and studies on the state of Swedish education and R&D systems. Initially the Institute was established for a period of five years, but this has been extended for an additional three years. The Institute is independent of political interests and its activities are funded by core grants from the Association, research-financing funds, research councils and foundations etc. as well as through commissioned research assignments.

The Institute's work focuses on studies of research, education and innovation processes throughout society, i.e. covering the business community and industry as well as various types of organisations and the public sector. The Institute works with self-initiated research and analysis, commissioned studies and outward-oriented activities.

The Institute's purpose is to study education, research and innovation processes in a comparative international perspective and to foster debate in this area. The Institute's self-initiated research is characterised by high scientific quality and relevance to higher education and R&D systems. A central objective of the Institute is to create an overview and a cohesive source of information on the rapidly growing R&D sector.

Government agencies, organisations and companies that can be expected to support and advance the Association's objectives can become members of the Association. Membership is granted by the Association's Board of Directors following a review of a written application. At the Association's annual meetings, where each member has one vote, decisions are taken on annual fees and members of the Association's Board of Directors are elected.





## *Spirographs*

### *– a few words about the publication’s images and illustrator*

Martin Ljungqvist is a young artist in his final year at the University College of Arts, Crafts and Design (Konstfack) in Stockholm. He is an artist who works with many different genres and media; from pure graphics to happenings and works that resemble social experiments. “Artist and disc jockey,” is how Martin introduces himself as I gather information for this text. A large audience witnessed his work for the first time at the art show Liljevalchs vårsalong 2004 where he exhibited a series of lengths of wallpaper with precise but irregular patterns on drafting film. The work was entitled *Nebulae*. The decorative pattern consisted of drawings made with a Spirograph with a scale of 1:1.

The Spirograph was originally invented as a popular science tool to attract young people to the mathematics of graphs. In Ljungqvist’s hand and works, the designs bring to mind many different things: scientific nuclear physics diagrams, DNA chromosomes, spiral galaxies and the religious Mandorla symbol. An encounter that can set a whole world rocking. Transferring the language of science – whether in popularised form or not – into the language of art has unexpected consequences and leads to multiple interpretations. What is fascinating about these images is the tension that occurs between the precise abstractions of science and the sensuous capacity of art, between calculated order and the whims of fate. Another way to approach Ljungqvist’s Spirograph drawings is to see in them the fragmented inner workings of a clock. Spirals, springs and cogs have broken away and then regrouped in unexpected constellations. They dance defiantly, playfully and rhythmically before our eyes.

Unforeseen alliances, new combinations of knowledge and art and the meeting of popular and high culture can sometimes generate innovation and creative solutions. Martin Ljungqvist’s art works show that this is not just an interesting opportunity, but also something wonderfully exciting and beautiful.



*Illustrations are recolored and cropped.*