

ANNUAL REPORT 2006



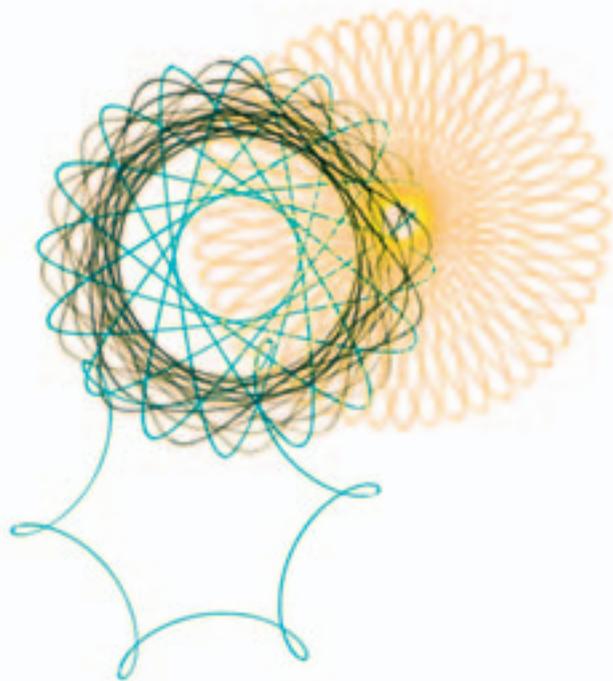
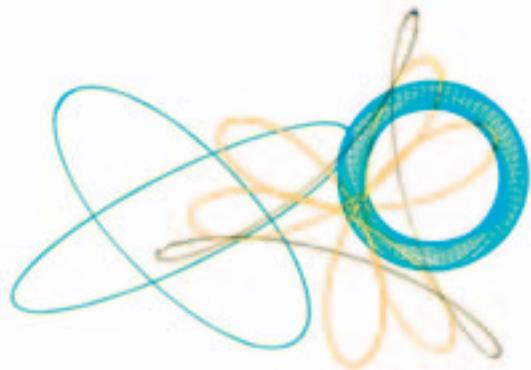
Swedish Institute for Studies in Education and Research



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TO OUR OWNERS, SUPPORTERS AND CUSTOMERS

By Enrico Deiacò *Director of SISTER*

Science and innovation policy is no longer only debated in academic environments or narrow policy circles. It has grown in importance and come to be debated in the public press as well, to a much greater extent than was the case a decade ago. Two studies that were published by SISTER during 2006 show this by examining the frequency of science and innovation policy-related key words in newspaper databases. Funding issues always receive a great deal of attention in the public press, but there are also a number of new issues that did not feature before, such as gender-related issues, issues about research fraud and research ethics, the financing of outstanding research environments, and a number of topics related to the quality of higher education. This vibrant knowledge landscape is the arena for SISTER, and 2006 has been an exciting and intensive year. Below are a few snapshots of some of the major projects carried out through the year and a brief look at the way forward.

The rationale and motivation for and the effects of collaboration between industry and academia have been high on the research agenda for some time. The article by *Peter Schilling*, which is based on a large research project described elsewhere in this annual report, tries to tackle this old question by looking at how programmatic research funding is reflected and managed on the workshop floor of modern academia. It is shown that collaboration is facilitated if the scientific and geographical distance between the collaborating parties is small, and if there exist a common understanding of the type

of problem that the collaborative efforts are based upon and a key player or a key function that acts as a translator rather than a broker between academia and industry. The case studies show, among other things, that industrial PhD students often take on this role of translator in collaborative R&D projects.

In the article by *Göran Melin* some results are presented from a study which looked at two groups of young researchers who applied for funding under a very prestigious Swedish programme for funding young researchers being run by the Swedish Foundation for Strategic Research (Stiftelsen för Strategisk Forskning, SSF)—those who were granted funding and those whose applications were rejected—and compared them in terms of scientific and commercial achievements before and after the grant was made. One would expect that this type of comparative methodology would have been used before, but to our surprise we have seen few similar studies. The evidence shows hardly any difference between the applicants in terms of their scientific performance before they made their application for funding, but in a number of variables, which measured both scientific performance and the ability to commercialize technology, the group whose applications were approved seemed to achieve more than the rejected group after the grant was made. Thus, it is tempting to suggest the existence of the old Matthew principle in the funding of young researchers.

The major collaborative project Knowledge Environments of Tomorrow, which is being run jointly with RIDE at

Chalmers and the Research Policy Institute at the University of Lund, is going into its final phase where the aim is to publish two books in 2007. The book *Mad as a Hatter: Universities in the Swedish Knowledge Society* will challenge the reader by asking how and why universities compete. We do this by concentrating on the Swedish case, albeit with many international comparisons. The book poses the questions what type of internal and external pressures Swedish and European universities have to respond to in the early 21st century, and how and to what extent they do so. The book will contain analyses of alternative future scenarios by analysing how universities and actors within universities adapt and behave. Three themes are addressed: Competing and Making Priorities: Historical Specializations or New Ones?; Strategizing in Swedish Universities; and New Insights into University and Industry Relations. The arguments what we put forward about competition and the argument that Swedish and European universities are just only beginning to learn about competing are rather simple. Taking advantage of opportunities for innovation which arise over time requires that the university can create value, access resources and appropriate the returns on their knowledge. We will therefore analyse universities using methods that have previously been applied to industrial sectors, especially those which use intangible resources and organizational competences to compete.

The year also saw the conclusion of several other projects. SISTER finished a major study on the quality of clinical research in the county of Östergötland. Together with different Nordic institutes we studied whether the public sector is a source of innovation. An international panel of scholars and representatives of industry was commissioned by the Danish Ministry of Science, Technology and Innovation as part of a forward-looking evaluation of the Danish PhD system. Professor Sverker Sörlin chaired the panel's work and in addition SISTER provided the secretary function. SISTER was also active in advancing the transformation of universities of Sweden. We continued to study why companies cooperate with universities and a report was presented at the Innovation Society conference in Stockholm, which brought together a

large number of international policymakers from different regions of the world. SISTER also conducted two major evaluations of the rationale for and effects of the funding of research and development by the Swedish International Development Cooperation Agency (SIDA). Many of the other projects conducted during 2006 are reported in detail elsewhere in the annual report.

Two major new projects will dominate in the year ahead. The first is a project on the challenges to and opportunities for the humanities in Sweden which is being financed by the Royal Swedish Academy of Letters, History and Antiquities, the Bank of Sweden Tercentenary Foundation (Stiftelsen Riksbankens Jubileumsfond) and the Swedish Foundation for International Cooperation in Research and Higher Education (STINT). The second project will study the role and effects of government seed-capital programmes and is being financed by the Swedish Governmental Agency for Innovation Systems (VINNOVA). Thus, both projects will describe the changing nature of knowledge production and the role of science and innovation policy in fostering change and innovation.

SISTER is thus increasingly serving as source for changes in the Swedish knowledge system. The many new projects and new customers we have gained show that we are increasingly filling the role of a true bridging institution on the Swedish research and policy scene. We will continue this role by hiring new researchers and expanding the customer base. High priorities for the forthcoming year are being more active in EU programmes and expanding our activities in areas related to the management and leadership of higher education.

As we close the book on 2006 and enter 2007, I can only look with excitement at the prospects for supplying the owners, supporters and customers of SISTER with more, well-grounded, research and analysis.

HOW DOES UNIVERSITY–INDUSTRY COLLABORATION AFFECT THE DAILY LIFE OF ACADEMIA?

by Peter Schilling *Senior Researcher at SISTER*

Collaboration between universities and industry has been researched by numerous scholars. Their work ranges from patent studies via policy studies to structural or systemic approaches (Prigge 2005). In this project we seek an alternative understanding of collaboration between universities and industry by moving the focus from structural- and output-oriented approaches to understanding how collaborative efforts affect higher education institutions.

Our problem is to understand how programmatic research funding is reflected on the workshop floors of modern academia and how it is managed. The main questions are: What kind of effect do collaboration schemes have on the development of new modes of operation? How are these expressed in the actual collaboration? Does collaboration as such bring change to teaching and research? If so, does it affect the understanding of what contemporary research is and how it should be led?

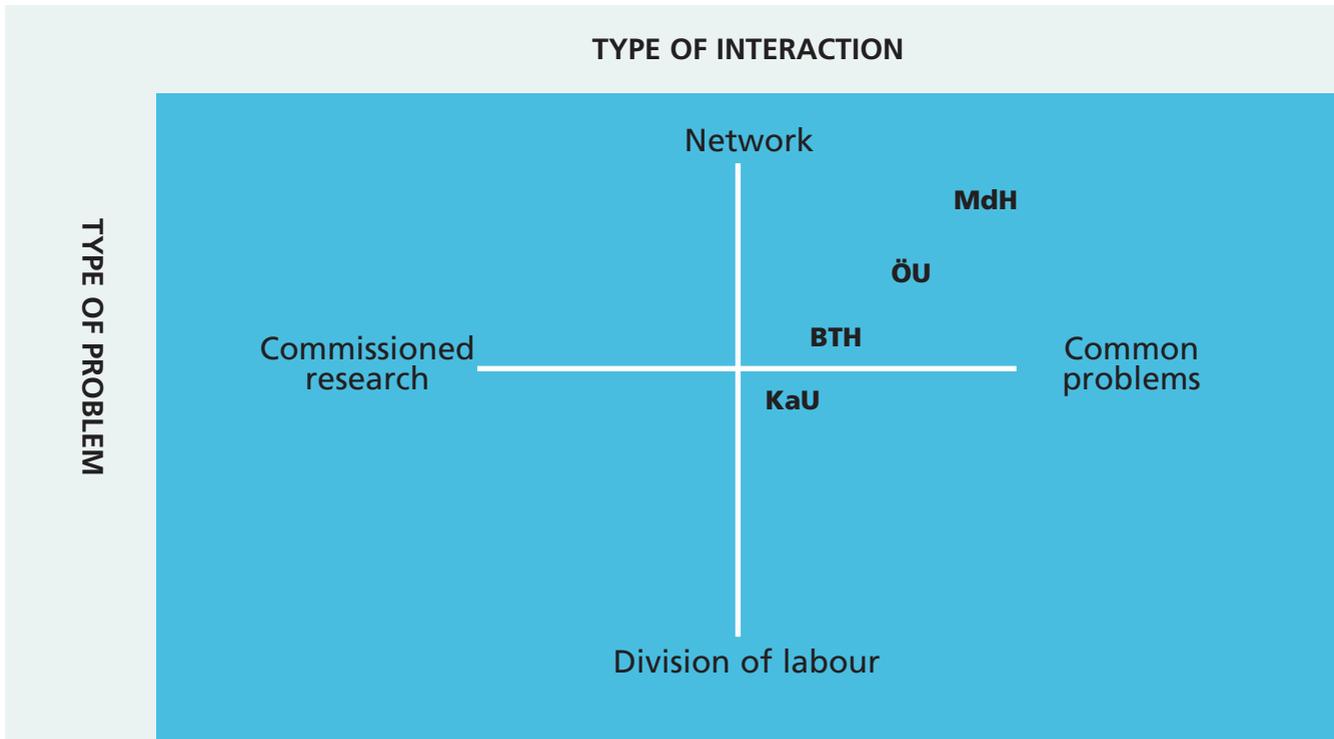
UNDERSTANDING COLLABORATION BETWEEN RESEARCHERS IN ACADEMIA AND INDUSTRY

According to our report *“Det gäller inte bara pengar, vi behöver även idéer”*: *En studie av samverkanspraktik vid fyra lärosäten* (“It is not only the money, we also need ideas”: A study of collaboration between researchers in academia and industry), collaboration can be conceptualised as variation along two continua: “type of interaction” and “type of problem”. When crossed, these continua form a “matrix of collaboration” on which we can plot our four cases in an approximate way (see

figure 1, next page). The rule of thumb in understanding the matrix can be formulated as follows: “The more joint the problem is, the less the division of labour between the interacting parties”. However, in all the cases research problems are co-defined, although to varying degrees depending on the type of interaction. The most elaborate form of collaboration in our study is discerned in a case where interaction is described in terms reminiscent of a network, continually, and dynamically, reconfigured around a truly joint research problem.

Having these different types of collaboration, we argue that the rate of change lies within depends on three variables. The first is *distance*: the scientific and geographical distances between the collaborating parties should preferably be small. *The type of problem* that collaborative efforts are based upon should be common; for collaboration to be really successful the problem, not the parties, should be at centre stage. In addition, *the role of a translator* is important. A translator could be functional or personalised. In the cases of deep collaboration the role of a functional translator, for instance industrial PhD students, is crucial since the problem moves with them across the boundaries of academia and industry. With these tentative results, in 2007 the SAMP (Samverkan i praktiken, Collaboration in practice) project will investigate whether the different types of collaboration have different impacts on the management and strategy of institutions of higher education, research management, and links between teaching and research.

Figure 1. "Collaboration matrix" by type of problem and interaction



Note: Mälardalen University (MdH). Örebro University (ÖU). Blekinge Institute of Technology (BTH). Karlstad University (Kau).

ARE THERE ANY DIFFERENCES BETWEEN APPROVED AND REJECTED APPLICANTS FOR GRANTS?

by Göran Melin *Senior Researcher at SISTER*

We have investigated a group of highly talented young scientists in the areas of the natural sciences, medicine and technology. All sent in grant applications to the Swedish Foundation for Strategic Research, SSF, which in 2000 had announced a very prestigious funding programme with 20 research grants of a scale and scope which is unique for Swedish circumstances. The grant was called *Individual Grant for the Advancement of Research Leaders, INGVAR*, and amounted to SEK 10 million over six years. For young and relatively non-established researchers, this may be the largest and most attractive research grant there is in Sweden. The group investigated—in all, 40 applicants out of a total of over 500—made it all the way to the final round in a careful selection process with full applications and an interview by a panel of appointed evaluators. Twenty of them received the grant and 20 did not.

This means that there were probably very small differences between them in terms of their merits, qualifications and future potential. Is it even possible to distinguish any differences between the last 40 applicants?

We have attempted to find out how the approved group and the rejected group of applicants differed at the time of the application, in 2000, and a few years later, in 2005. A few conclusions can be drawn from the empirical results.

1. There is no difference between the two groups in terms of number of articles published in scientific journals, either

during the period before the grant (1997–2000) or after (2001–2004). They published a good deal and they published more in the second period. The minor differences that can be seen actually favour the rejected group.

2. Both groups published in what are perceived as “good” journals, that is, journals with a high impact factor, but the approved group published in slightly better journals than the rejected group. The approved group furthermore improved their publication record in the second period by publishing in better journals than in the first period, while the rejected group remained on the same level.
3. The approved group seems to have slightly better international connections. The number of nationalities which are involved in the co-authorships are moreover higher for the approved group than for the rejected, and this difference remains in the second period.
4. From the time when the applications were processed in 2000 and up to 2005, the research groups that the applicants direct have grown to approximately twice the size in terms of individuals. [Is this true of both the approved and the rejected applicants?] At the same time, however, the approved applicants have been significantly more successful in securing funding for their groups. In 2005 the approved group had research budgets approximately four times as

large as they had in 2000, while the rejected group had budgets less than twice as large.

5. The approved group has on average generated over four patents while the rejected group has on average generated less than one. The number of spin-off firms is clearly higher for the approved groups, as is the number of spin-off research groups: the latter is almost twice the average for the rejected groups. This can be interpreted as indicating that the approved groups have a greater interest in industrial applications, and possibly better connections with industry.

All this taken together, the evidence indicates that there were no major differences between the 40 applicants in terms of scientific performance during the years before the application (1997-2000), but that there have been some significant differences in their development after the grant was given to half of them.



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 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.

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 is 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: CESIS at KTH in Stockholm and RIDE at Chalmers in Gothenburg. *Maureen McKelvey*, Professor of Innovation Economics at Chalmers University of Technology, is the Project Manager, *Mats Benner*, senior lecturer at 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 2006" 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); "Measuring Differentiation and Performance in European Universities" by *Andrea Bonaccorsi* (Chalmers); "Strategy to Join the Elite: Merger and the 2015 Agenda at the University of Manchester" by *Luke Georghiou* (University of Manchester); "Commercialization by Swedish Academics in Engineering" by *Mats Magnusson*, *Maureen McKelvey*, *Matteo Versiglioni* (Chalmers); "Patenting by Academics in France, Italy and Sweden: Impacts of Disciplines and Nations" by *Francesco Lissoni*, *Patric Llerena*, *Maureen McKelvey*, *Bulat Sanditov*; "The American Experience in University Technology Transfer" by *Maryann Feldman*.

Two 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*, *Magnus Holmén* (both at RIDE, Chalmers) and *Enrico Deiacco* (SISTER).



ANNUAL REPORT 2006

RESEARCH & ASSIGNMENTS 2006

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 2006 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 2006 included developing projects already in progress and establishing new ones. A few projects were concluded in 2006. 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 IN 2006

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)

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

**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 intention 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

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

**Knowledge Environments of Tomorrow
– new conditions for universities and their effect
on innovation and industry (UNI-KNOW)**
(in progress)

The project is SISTERS's strategic research program. It aims at understanding the impact of systemic changes in the research and education system in Sweden. Numerous papers and drafts have been produced during 2005 and 2006. In 2007 two edited books will be published, one more popular which aims at discussing the future of the Swedish research system, edited by Sverker Sörlin and Mats Benner. The other book is presenting the academic results of the UNI-KNOW project. Several international writers will contribute to the edited volume in addition to the members of the project. The book will be edited by Maureen McKelvey and Magnus Holmén of Chalmers.

These two perspectives, academic and popular, will be integrated at the UNI-KNOW conference in Stockholm, fall 2007. Both scholars and practitioners will be invited to participate in the discussion of Swedish academia. The conference will conclude the UNI-KNOW project.

Funding: The Knowledge foundation, The Bank of Sweden Tercentenary Foundation, Swedish Foundation for Strategic Research, Swedish Foundation for International Cooperation in Research and Higher education

**Evaluation of three environmental strategic
research programs**
(in progress)

The Foundation for Strategic Environmental Research (MISTRA) asked SISTER to analyse three different environmental strategic research programs effects. MISTRA suggested three programs of quite different character; KAM, Eco-cyclic Pulp Mill; SWECLIM, Swedish regional climate modelling programme; and RESE, remote sensing for the environment. The programs were all established in the middle of 1990's and finished 2003.

The aim of the evaluation was to partly perform an evaluation of the programs and partly to produce a framework for future evaluations' of strategic environmental research programs. This resulted in two different challenges, firstly to find and test a new method for strategic evaluation studies through an explorative process and secondly to grasp an understanding for how strategic environmental research is organised to bring concrete use to its program as well as evident effects.

Funding: MISTRA

Higher Education Institutions and Regions

– A Case Study of Västra Götaland

(in progress)

Europe is facing revived interest for regional governance. For Sweden, which for centuries has been a strongly centralised state, this emphasis of the regional level presents interesting challenges. The Ansvarskommittén has suggested fewer, larger and more influential Swedish regions. The aim of this project was to initiate a discussion on a particular aspect of these challenges: the relations between regions and higher education institutions (HEIs). Västra Götaland is one of two experiment regions, with bigger budgets and extended responsibilities. The study examines the consequences of the new regional organisation for HEIs in terms of interaction with each other as well as links with regional partners. It was conducted through documentary analysis, statistical information and interviews with key persons. The results show that the relationship between region and HEIs is tentative. Most interactive efforts have been constructed around the mission to build trustful relations. As for the interaction between HEIs, there are still many obstacles and challenges. They are all related to the fact that HEIs are multifaceted organisations, driven by different agendas and rationales, for instance market driven competition and state regulation.

Funding: Royal Swedish Academy of Engineering Sciences (IVA), Riksbankens Jubileumsfond, Västra Götalandsregionen

Does university industry collaboration affect academia? (SAMP)

(in progress)

Collaboration between university and industry has been researched by numerous scholars. Their work ranges from patent studies via policy studies to structural or systemic approaches (Prigge 2005). In this project we seek an alternative understanding of collaboration between universities and industry by moving the focus from structural and output oriented approaches to understanding how collaborative efforts affect HEI (Higher Education Institutions).

The projects consist of four different sub-studies. Peder Karlsson is analysing interaction between researchers in industry and at the HEI. Peter Schilling is focusing on the strategy and management perspectives of integrating collaboration as a mission for colleges and universities. The third subproject is studying the problems of research leadership at the research group level and is lead by Lars Geschwind. He and Maria Johansson are also analysing teaching-research links. The project will be concluded in late September 2007.

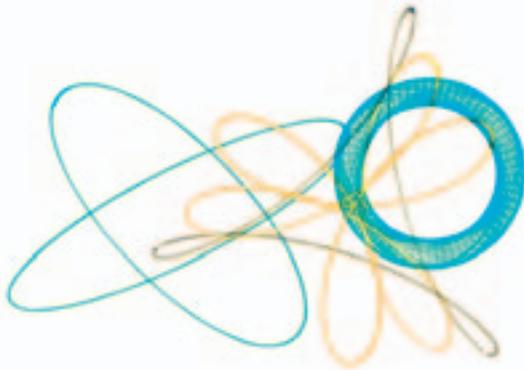
Funding: The Knowledge foundation

Evaluation of promotion and recruitment strategies at KTH

(in progress)

The promotion and recruitment strategies of staff at KTH has been evaluated through a survey among the staff as well as a number of interviews. In addition, some international comparisons were also carried out. Recruiting and keeping highly qualified key individuals is an increasingly important task and a future challenge for a university with ambitions to be at the front line of research and education. The evaluation shows that there is in general a good level of satisfaction with the promotion reform from 1998 as such, but there are occasional differences between those who hold lecture positions compared to already promoted professors. There are also signs of too much internal promotion to the professor level and too little external recruitment, which may lead to a state of “inbreed”. More careful recruitment of junior staff is recommended in order to provide good career opportunities and attract talented people to the university.

Funding: KTH



Evaluation of Research schools in GLIBS (Glykoconjugates in Biological Systems) and Neuroscience

(in progress)

The Swedish Foundation for Strategic Research (SSF) has supported several national research schools and research programmes. They have often been organised as national networks, although with some differences between them. Two of those research schools have been evaluated by SISTER during 2006.

In brief, the organisation in research schools have been very successful. The schools receive the highest appraisal from the participants, doctoral students as well as research leaders and coordinators. The networking part of the education is often mentioned as most rewarding and of great benefit for the future career of the young researchers. One component which have worked less well is participation from the industry; this has been one of the main goals with the research schools but although the interest was there from the start, this has not developed as smooth as planned. Most of the graduated participants have continued to work within academia rather than within industry.

Funding: Swedish Foundation for Strategic Research

Cooperation with NIFU-STEP in Oslo: Project about research careers (“Rekruttering til norsk forskning – status og framtidig behov”)

(in progress)

The Norwegian research institute NIFU-STEP conducted a study about research careers and recruitment patterns in the Norwegian science system. SISTER contributed to the project with comparative official Swedish statistics, primarily regarding graduate students and the subsequent postdoc period. Data were collected from various sources and the report presents a solid compilation of information with respect to Swedish graduate education and the postdoc period during the late 1990’s and early 2000’s. In addition was corresponding Danish data included in the report.

Funding: NIFU-STEP

Stockholm’s Intellectual Capital

(concluded)

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

R&D for Change – A study of the R&D Strategies of Swedish County Authorities

(concluded)

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

Evaluation of the Knowledge Foundation's Expert Competence Programme

(concluded)

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

(concluded)

An international panel of scholars and industrial representatives was commissioned by the Danish Ministry of Science, Technology and Innovation to evaluate the Danish PhD-system. Professor Sverker Sörlin chaired the panel's work and in addition did SISTER provide a secretary function. After a comprehensive survey to two full cohorts of PhD-students, numerous interviews and site visits to six universities, an outline for future organisation and financing of Danish postgraduate training was presented to the ministry.

Among the detailed suggestions from the panel can a few be mentioned: a three-folded funding with faculty funding or core grants based on 1) admittance and examination of PhD-students, 2) competitive funding on project basis and with support to research schools and 3) funding for applied PhD-education in cooperation with industry or the public sector. Increased attention to international exchange and international aspects of the education is also suggested, as well as increased support to postdoc programmes for continued advancement of the young researchers.

The evaluation concluded with a national hearing in Copenhagen with representatives from the whole academic sector and involved public and industrial organisations. The Danish government has expressed its intention to consider main parts of the recommendations from the evaluation panel.

Funding: Danish Ministry of Science, Technology and Innovation

Analysis of Seed Financing in the Stockholm Region

(concluded)

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

SURVEY OF UNIVERSITY HOLDING COMPANIES

(concluded)

SISTER has contributed to the investigation on university Holding companies ordered by the previous Ministry of trade and industry. The aim of the investigation, lead by Peter Nygårds, was to suggest improvements to regulations and structures of the companies. SISTER's survey of the fourteen companies shows that although they were originally created to facilitate the commercialisation of research results in the form of IPR-transfers and university spin-off companies, many holding companies are today filling a much broader purpose. The stated starting point for the investigation – to determine whether the number of holding companies could be reduced to ensure increased efficiency – was thus suggested to be reformulated as an enquiry into how resources for support of IPR-protection and spin-off foundation could be handled in a more efficient manner. These suggestions, as well as suggestions that other universities and university colleges may benefit in from the creation of associated holding companies, were put forward in the report to the Ministry.

Funding: Ministry of Enterprise, Energy and Communications (Näringsdepartementet)

STINT Visiting Professorship

(concluded)

In 1998 Professor Roy MacLeod, University of Sydney, was appointed to a STINT Visiting Professorship in Sweden. The grant recipient was Professor Sverker Sörlin, then at Umeå University, where Prof. MacLeod taught in the spring semester of 1998. For various reasons the second term of Prof. MacLeod's tenure could not be realized until the fall of 2006, when he was visiting Sörlin as guest of KTH and SISTER. Prof. MacLeod gave seminars in Stockholm, engaged in conversations with colleagues and students, and, principally, gave a 5 credits Ph.D. course at KTH entitled "Science, Society and CBW: The Past, Present and Future of Certain Weapons of Mass Destruction". The course of eight seminars examined the history of science, technology and policy concerning the development, use and prevention of chemical and biological warfare. It studied these issues in a national context -- drawing upon the experience of Britain, Germany, France, the Soviet Union and the United States -- and in an international context, drawing upon the work of agencies concerned with monitoring, verification, and arms control. Although its primary focus was historical, it gave close attention to recent developments in the Middle East, and to the dangers presented by terrorist groups. Overall, it considered which science and technology can clarify dangers and temper fear. It also surveyed the likely prospects for domestic politics and international diplomacy, as ways and means to a more hopeful future. Visiting speakers from FOI, SIPRI were included.

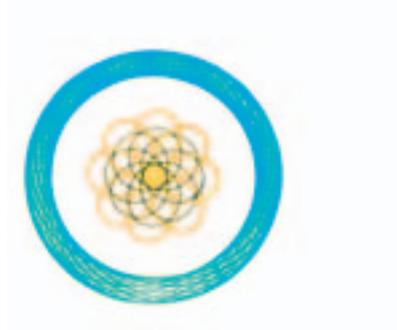
Funding: STINT

Evaluation of “Junior Individual Grants” and “Senior Individual Grants”

(concluded)

During the late 1990’s and early 2000’s did The Swedish Foundation for Strategic Research (SSF) initiate these two programmes for individual support to researchers of uttermost talent. The grants were unique with respect to the size and the lack of restrictions attached to their usage. Successful young researchers in the very beginning of their career was given a lump sum of SEK 500 000 per year during three years, while successful senior researchers in the highest international top layer was provided support on a multi-million scale (SEK). The two initiatives meet what was considered urgent needs in the Swedish system at the time with too few available sizable grants of free usage. The programmes have in part served as role models for other organisations which soon initiated similar grant programmes of excellence for individual support.

Funding: Swedish Foundation for Strategic Research



Evaluation of the Sida's Research Council for Development Research

(concluded)

SAREC, the Department for Research Cooperation (SAREC) funds Swedish research of relevance for development with about 100 Mill. SEK annually. The programme has been running over a long period and the board of SAREC therefore asked SISTER to review its programme as a part of its effort to raise the scientific quality and relevance of the programme. The study was based on a series of interviews, analysis of the research projects funded and a questionnaire to recipients of SAREC funding

The review concluded that the total impact of the programme on Swedish research is negligible as it only contributes with 0,4 % of the total university research costs. However, for some departments and units the programme is an important additional resource and it has contributed to create awareness of the problems in developing countries. It has been of great importance in mobilizing Swedish researchers for contributions to development research.

However, the review proposed that the programme would benefit from a clarification of the different objectives and by devising modes of funding which respond better to these different goals. The support to isolated PhD students was criticised as less effective.

It was proposed that SAREC together with other research funding organisations in Sweden support more fundamental and long-term research of importance for development.

Funding: SIDA / SAREC

A study on SAREC's contribution to Swedish Development Research

(concluded)

The Department for Research Cooperation (SAREC) is the major funding agency for Swedish development research. In 2006 SISTER was given an assignment by SIDA to study the goals and rationale of SAREC in a changing international development landscape. Three questions were addressed: 1) Are overall goals appropriate? 2) To what extent is overall funding levels suited to overall objectives? 3) Is programme management adequate to changes in the national and international development landscape?

The study was based on a series of interviews of key actors, statistical analysis of research projects and a detailed analysis of some research programmes funded by SAREC.

The study concluded that new overall strategic goals have to be formulated due to changes in national and international development policies. It was also proposed that funding of SAREC should target and include more research groups in Sweden than has been done in the past. There are also good reasons to increase research funding for more fundamental and long-term research of importance for development through more cooperation with other Swedish research funding agencies.

Funding: SIDA

New theories – New conditions for knowledge production?

(concluded)

Several researchers argue that Higher education and research are being transformed. Driving forces such as globalisation, demand for skilled labour and advanced knowledge in par with political needs for scientific knowledge in building knowledge societies changes the conditions for universities. These pressures have made universities on the one more interested in collaboration with others, on the other hand more competitive.

The aim of the report was to discuss a selection of recent theories on knowledge production and analyse them comparatively. This analysis was then put in the context of the university foresight (Framtidens universitet) made by IVA. The report concluded that university foresight exercises should perhaps be more theory oriented as a starting point. However, the results from the analysis also showed that such approach should be used with caution since it is difficult to understand what's "knowledge" and what's "policy advice" in some of the theories.

Funding: The Bank of Sweden Tercentenary Foundation and Vinnova

Interact – Innovation in the Public Sector and Public-Private Interaction

(concluded)

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 Island 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.

Interact has resulted in three reports:

Summary report, Interact report No. 1; Case studies, Interact report No. 2; The role of the public sector in innovation policy. A cross national comparison of innovation policy development in the Nordic countries, Interact report No. 3.

They are available at <http://www.step.no/interact/>.

Funding: NICE (Nordic Innovation Centre)

A study to the Swedish Forest Inquiry

(concluded)

The Forestry Inquiry started work on August 1, 2004 and reported its findings to the Swedish Government on December 31, 2005. Its remit from the Government aims to review and evaluate Swedish forestry policy. SISTER was given an assignment by the Inquiry to propose a methodology for a large scale evaluation of Swedish R&D in Forestry.

Funding: Ministry of Enterprise, Energy and Communications

Learning and memory

(concluded)

Learning at all levels has become an increasingly important issue for the Swedish educational system. Recent research in psychology, neuroscience and the cognitive sciences has given a new understanding of how children learn, how they are motivated, how they create concepts and how they remember. Against this background Riksbankens Jubileumsfond, the Knut and Alice Wallenberg Foundation and the Swedish Research Council decided to make a joint call for a research programme on learning and memory. The objective was to support the creation of a small number of centres of research of high international standard that will address fundamental challenges in the area of learning and memory in children.

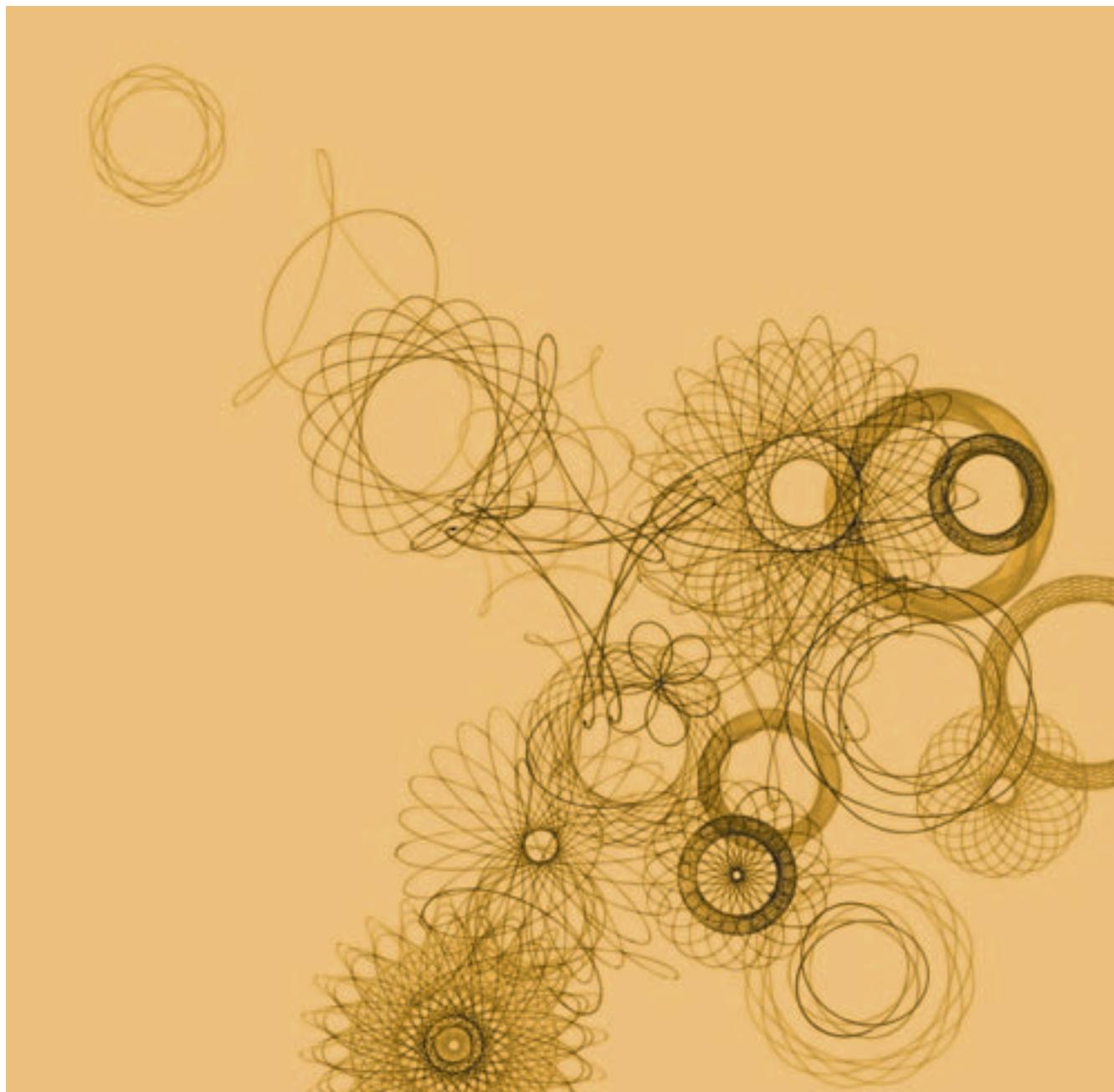
Three research themes were outlined:

- attention, motivation and emotions;
- conceptual development and change;
- interactive learning processes.

SISTER was engaged by the funding agencies to develop the programme and to administer the call and to run the international review process.

The work was concluded when a final selection of four research projects were made in October.

Funding: Riksbankens Jubileumsfond, the Knut and Alice Wallenberg Foundation and the Swedish Research Council



COMMUNICATION 2006

In 2006 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 2006 SISTER published sixteen reports/working papers. These are also available on the website. Through the SISTER Alert newsletter, which is published in both paper and electronic format, 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 2006 into an appreciated discussion forum and an open meeting place for researchers, publicists, government officials and politicians working within this area.

PUBLICATIONS 2006

Newsletter

SISTER Alert – a newsletter from the Swedish Institute for Studies in Education and Research is published approximately four times per year with a paper distribution to around 1,200 subscribers and via e-mail to around 2,200 subscribers. In 2006 SISTER published two paper- and three e-mail newsletters.

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 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 2006 the cover pictures were of art exhibited by Tekniska museet.

Reports (mostly in Swedish)

Working paper 2006:57

Utbildningsbranschen – drivkrafter, storlek och nya affärsmodeller

Enrico Deiacò

Working paper 2006:56

"Alla blir professor" En framåtblickande utvärdering av befodringsreformen vid KTH

Göran Melin & Andreas Högberg

Working paper 2006:55

Considerations on university alliances. Motives, risks and characteristics

Enrico Deiacò & Göran Melin

Working paper 2006:54

Effects of funding young, promising scientists

Göran Melin & Rickard Danell

(Also published in Science and Public Policy, vol 33, no. 10)

Working paper 2006:53

”Det gäller inte bara pengar, vi behöver även idéer” En studie av samverkanspraktik vid fyra lärosäten

Andreas Högberg, Peder Karlsson & Peter Schilling

Working paper 2006:52

Internationalisering av svensk forskning.

Reflektioner från ett antal fallstudier

Olle Edqvist

Working paper 2006:51

Forskarstuderande under och efter utbildningen.

Jämförande offentlig statistik från Sverige och Danmark

Linda Blomkvist & Göran Melin

Working paper 2006:50

Hur mår klinisk forskning? En studie av FoU-verksamheten i Landstinget i Östergötland

Enrico Deiacco & Göran Melin

Working paper 2006:49

Att möta kompetensbehov hos små och medelstora företag. En studie av KK-stiftelsens satsningar på Expertkompetensprogrammet

Enrico Deiacco, Peter Schilling & Åsa Smedberg

Working paper 2006:48

Utvärdering av SSF:s satsning på Junior Individual Grants

Andreas Högberg & Göran Melin

Working paper 2006:47

Utvärdering av SSF:s satsning på Senior Individual Grants

Åsa Smedberg & Göran Melin

Working paper 2006:46

Forskningsdebattens vad, vem, hur och varför

Ulf Sandström

Working paper 2006:45

Kvalitet kontra kvantitet: Högskoledebatten 2005 – 2006

Lillemor Kim

Working paper 2006:44

Nya teorier – Ny kunskapsproduktion? Några teoretiska perspektiv på IVA:s universitetsframsyn 2005/2006

Peder Karlsson & Peter Schilling

Working paper 2006:43

Utvärdering av INGVAR (Individual Grant for the Advancement of Research Leaders) – med avseende på utformning, urvalsprocess och ledarskapsprogram

Karin Caldwell, Ulf Johansson, Anders Liljas (Chairmen) & Göran Melin (Secretary):

Working paper 2006:42

Finansiering och strategi – En fallstudie över KK-stiftelsens profil- och plattformssatsning vid Blekinge Tekniska Högskola

Peter Schilling & Maria Johansson

Other publisher / publications (reports, articles, books)

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

NIFU-STEP 2006 (<http://www.step.no/interact>)
Peter Schilling (SISTER)

OECD: Thematic Review of Tertiary Education

Finland Country note. September 2006.

John Davies, Thomas Weko, Lillemor Kim (SISTER)
& *Erik Thulstrup*

Sida:s U-landsforskningsråd

Sida Evaluation 06/24

Olle Edqvist (SISTER)

SAREC:s stöd till svensk u-landsforskning

Sida Evaluation 06/27

Enrico Deiacco (SISTER), *Andreas Högberg* (SISTER)
& *Börje Svensson*

**What skills and knowledge should a PhD have? Changing
preconditions for PhD-education and postdoc work in Teichler**

U (ed): *The Formative Years of Scholars*, Wenner-Gren
International Series vol 83, Portland Press, London, 2006
Göran Melin (SISTER) & K Janson

**The top eight percent: development of approved and rejected
applicants for a prestigious grant in Sweden in Science and
Public Policy**

Volume 33, Number 10, Pages 702–712, 2006
Göran Melin (SISTER) & *Rickard Danell*

A Public Good. PhD Education in Denmark

Report from an International Evaluation Panel. Ministry of
Science, Technology and Innovation, Denmark.
Sverker Sörlin (SISTER), *Peder Andersen*, *Bodil Holst*, *Mads
Krogsgaard Thomsen*, *Morten Levin* & *Göran Melin* (SISTER)

SEMINARS 2006

In 2006 the Institute arranged/co-arranged the following
conferences/seminars with external participation:

**The Current University and Research Policy Debate:
Who, What, How and Why?**

Time: 5 September 2006, 10 a.m.–12 noon

Venue: SISTER, Drottning Kristinas väg 33D

The debate in the press reflects the changes that are going on
in the university and higher education sector, and has become
much more intense in recent years. But what are the issues, and
why and by whom are being debated? What points of view and
arguments are being put forward?

At this seminar two new reports—on the debates about
university policy and research policy, respectively—were
presented by their two authors, *Lillemor Kim*, SISTER, and *Ulf
Sandström*, Linköping University. The reports presented build
upon earlier studies, analyse the most important developments
in the sector, and offer a perspective on the education and
research policy issues that featured during the 2006 election
campaign.

Commentator: *Anders Björnsson*, formerly principal editor for
Dagens Forskning

Moderator: *Enrico Deiacco*, SISTER

**Towards a Market for Education without Frontiers? Ranking and
Accreditation as New Ways of Regulating Higher Education**

Time: 9 May 2006, 10 a.m.–12 noon

Venue: SISTER, Drottning Kristinas väg 33D

At this seminar, Professor *Kerstin Sahlin-Andersson*, the new
pro-vice-chancellor of Uppsala University, together with her
colleagues *Linda Wedin* and *Tina Hedmo*, researchers at the
Department of Business Studies (Företagsekonomiska
institutionen) at Uppsala University, presented a current
research project.

In recent years, higher education has become the subject of
a range of new regulations, methods for review and scrutiny,
and evaluations which aim to generate comparability,

consistency and quality in education and the production of research. These include different forms of ranking, and processes for accreditation and certification which to a great extent build on the ideas of the creation of a market and the principles for voluntary action and standardization. They are also often transnational and global in character. Our research focuses on how these mechanisms are created and promoted, and on their significance for the organization of higher education on an international and European level. The starting point for the discussion is our essay 'Is a global organizational field of higher education emerging?', in which we analyse the development of review and evaluation in higher education. The essay builds on our previous work on the accreditation and ranking of management studies and on the spread and institutionalization of MBA training in Europe. That research also led us further, to a project we have just begun on the changes to the regulation of higher education within the European Union, and the political objective of creating uniform markets for higher education and research by means of the current re-regulation and policy-making processes.

These include, for example, the Bologna Process and the ongoing work to set up a European Research Council. How is such market creation pursued, and how can political ambitions be integrated with the wish to create markets for knowledge and education?

Moderator: *Enrico Deiato*, SISTER

Broadening Recruitment to the Universities: Where Are the Obstacles and Who Is Responsible?

Time: 7 April 2006, 10 a.m. – 12 noon

Venue: SISTER, Drottning Kristinas väg 33D

This seminar discussed the topics implied in the title against the background of a comparative study of England and Sweden which SISTER has carried out in cooperation with the Centre for Widening Participation Policy Studies (Continuum) at the University of East London.

The aim of the seminar was to continue (in Swedish) the discussion of the problem of broadening student recruitment

against the background of the results presented in the report *Bridging the Gap*, which was presented at a SISTER seminar in September 2005, the most recent debate on the upper secondary school (gymnasie) system, and the new distribution of institutional responsibilities which are relevant to broadening recruitment.

In the 2005 seminar the focus was on the opportunities for and the role of the universities in this context. The aim of the 2006 seminar was to involve the Swedish National Agency for Education (Skolverket), the Swedish National Agency for School Improvement (Myndigheten för skolutveckling), the National Agency for Higher Education (Högskoleverket) and the newly created Swedish Agency for Networks and Cooperation in Higher Education (Myndigheten för nätverk och samarbete inom högre utbildning), as well as actors in further education.

Moderator: *Lillemor Kim*, SISTER

The Humanities/Social Sciences and Industry

Time: 22 March 2006, 10 a.m. – 12 noon

Venue: SISTER, Drottning Kristinas väg 33D

Danmarks ErhvervsforskningsAkademi, DEA, (Danish Business Research Institute) has done a survey of how exchange and cooperation between industry on the one hand, and scholars in the humanities and social sciences on the other, develops. The project was presented at the seminar by *Lars Fremerey* from DEA, and *Arne Jarrick* from the Swedish Research Council (Vetenskapsrådet), *Jean-Pierre Zune* from the National Agency for Higher Education (Högskoleverket) and *Ingrid Elam* from Malmö University were the discussants. Commentators: *Arne Jarrick*, the Swedish Research Council (Vetenskapsrådet), *Jean-Pierre Zune*, National Agency for Higher Education (Högskoleverket), and *Ingrid Elam*, Malmö University

Moderator: *Peter Schilling*, SISTER

ADMINISTRATION 2006

FINANCIAL POSITION

In 2006, core grants from the founders amounted to 2.6 million SEK. Annual fees from the 14 members amounted to 0.7 million SEK. Additionally, the Institute financed its work through project funds and other external contributions. In 2006, total costs (excluding depreciation and items written off) amounted to approximately 10.5 million SEK. Projects continuing från 2005 were financed by, among others, the research councils and the research foundations. New projects are being financed by, among others, the Swedish Foundation for Strategic Research (Stiftelsen för Strategisk Forskning), the Bank of Sweden Tercentenary Fund (Riksbankens Jubileumsfond), the Knowledge Foundation (Stiftelsen för Kunskaps- och Kompetensutveckling), the Royal Institute of Technology (Kungliga Tekniska högskolan), the Foundation for Strategic Environmental Research (MISTRA) and the Swedish International Development Cooperation Agency (Sida). External funding—for both commissioned assignments and research projects—accounted for approximately 70 per cent of the income reported for 2006.

Funds received are broken down into different periods over the span of time in which they are to be spent. The reason for this is that some of the research grants SISTER receives span several years, and some are for work done by groups of researchers in collaboration. In this context one project in particular should be mentioned—the Knowledge Environments of Tomorrow project. Funds for these partners in cooperation are deposited in a special clearing account on the Institute's balance sheet.

STAFF

At end-2006 the Institute had twelve members of staff—the Managing Director, Enrico Deiacò; four postdoctoral researchers; six research assistants; and one financial officer/administrator. The corresponding numbers of staff at end-2005 and end-2004 were twelve and nine, respectively. They have scientific expertise in different disciplines such as history, the sociology of knowledge, economics, industrial organization and economic history. The Institute's wider circle also includes researchers and PhD students who are working on projects that are connected to SISTER but are employed elsewhere, mainly by universities and colleges of higher education.

THE ADMINISTRATIVE OFFICE

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

SUMMARY FOR THE FIVE YEARS 2002–2006

	2006	2005	2004	2003	2002
Profit/loss from operations (in SEK 000)	117	– 62	45	– 1,346	– 521
Turnover (in SEK 000)	10,723	10,523	9,282	11,589	10,575
Turnover (in SEK 000) divided by number of employees	974	1,052	1,031	828	768
Average number of employees	11	10	9	14	14

PROPOSED TREATMENT OF THE RESULTS

The Board and the Managing Director propose that the profit of 112 thousand SEK for 2006 be carried forward.

On the results and the Institute's general financial position, see the income and expenditure statements and balance sheet which follow, with the accompanying notes.

INCOME STATEMENT

	note	31 dec. 2006	31 dec. 2005
<i>Operating income</i>			
Membership income		700	700
Operating subsidies and grants		6,022	7,321
Other operating income		4,001	2,503
		10,723	10,524
<i>Operating costs</i>			
Other external costs	1	- 2,501	- 2,782
Personnel costs	1	- 7,920	- 7,441
Depreciation of tangible fixed assets	2	- 185	- 363
		- 10,606	- 10,586
Operating profit/loss		117	- 62
<i>Profits from financial investments</i>			
Interest income		20	27
Interest expense		- 13	- 16
Profit/loss from financial items		124	- 51
Profit/loss before tax		124	- 51
Tax on profit for the year		-12	0
Profit/loss for the year		112	- 51

BALANCE SHEET

	Note	31 dec. 2006	31 dec. 2005
ASSETS			
Fixed assets			
<i>Tangible fixed assets</i>			
Equipment, furniture and fittings	3	368	517
Total fixed assets		368	517
Current assets			
<i>Current receivables</i>			
Accounts receivable		369	671
Other receivables	4	184	222
On-going projects		67	0
Prepaid expenses and accrued income		208	228
		828	1,121
<i>Cash and bank balances</i>		2,424	2,565
Total current assets		3,252	3,686
TOTAL ASSETS		3,620	4,203

BALANCE SHEET

EQUITY AND LIABILITIES

Equity	5		
<i>Non-restricted equity</i>			
Profit/loss brought forward		174	225
Profit/loss for the year		112	- 51
Total equity		286	174
Current liabilities			
On-going projects		0	189
Accounts payable		96	126
Current tax liabilities		12	0
Other liabilities		1,027	2,237
Accrued expenses and deferred income		2,199	1,477
Total current liabilities		3,334	4,029
TOTAL EQUITY AND LIABILITIES		3,620	4,203
MEMORANDUM ITEMS			
Pledged assets		none	none
Contingent liabilities		none	none

ACCOUNTING AND VALUATION PRINCIPLES

General information

The annual report has been prepared in accordance with the Swedish Annual Accounts Act and the general guidelines of the Swedish Accounting Standards Board.

Income

Income is entered in the accounts as 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 assets, as follows:

Equipment, furniture and 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

Note 1. Personnel costs, remuneration and fees	2006	2005
<i>Average number of employees</i>		
Men	7	6
Women	4	4
	11	10
<i>Salaries and other remuneration</i>		
Managing director	960	916
Other employees	4,291	3,850
	5,251	4,766
<i>Social security costs</i>		
Pension costs, managing director	353	321
Pension costs, other employees	427	538
Statutory and contractual social fees	1,822	1,739
	2,602	2,598
No fees were paid to the members of the board		
<i>Gender distribution in the management:</i>		
Number of men/women on the board	31 dec. 2006	31 dec. 2005
Women	3	2
Men	6	4
<i>Fees to auditors</i>	2006	2005
Ernst & young ab audit assignments	62	47
Other assignments	41	15
	103	62
Note 2. Depreciation		
<i>Depreciation</i>	2006	2005
Equipment, furniture and fittings	185	363
Total	185	363

Note 3. Tangible fixed assets

	31 dec. 2006	31 dec. 2005
<i>Equipment, furniture and fittings</i>		
Opening accumulated acquisition value	2,505	2,344
Acquisitions	36	162
Sales/disposals	–	– 1
Closing accumulated acquisition value	2,541	2,505
Opening accumulated depreciation	– 1,988	– 1,626
Sales/disposals	0	1
Depreciation for the year	– 185	– 363
Closing accumulated depreciation	– 2,173	– 1,988
Book value	368	517

Note 4. Other receivables

	31 dec. 2006	31 dec. 2005
Current tax receivable	178	168
Other	6	54
Total other receivables	184	222

Note 5. Equity, 2006

	Retained earnings	Profit for the year	Total
Amount at beginning of year	225	– 51	174
Transfer of previous year's profit	– 51	51	
Profit for the year		112	112
Amount at year-end	174	87	261

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 2006 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

Financial Manager and Assistant to the Managing Director

Inger Lindbäck

Programme and Communication Coordinator

Pehr Mårtens, M. A., Social Anthropology, Uppsala and Stockholm Universities (resigned in 2006)

Researchers

Karla Anaya de Carlsson, B. A., Sociology, Stockholm University

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

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

Lars Geschwind, Ph.D., History, Uppsala University

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

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

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

Göran Melin, Ph. D. Sociology, Umeå University

Fredrik Scheffer, B. A., Sociology, Stockholm University

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

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

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

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

Peder Karlsson, Ph. D. Sociology, Umeå University

Lillemor Kim, Ph. D. Pedagogy, Uppsala University

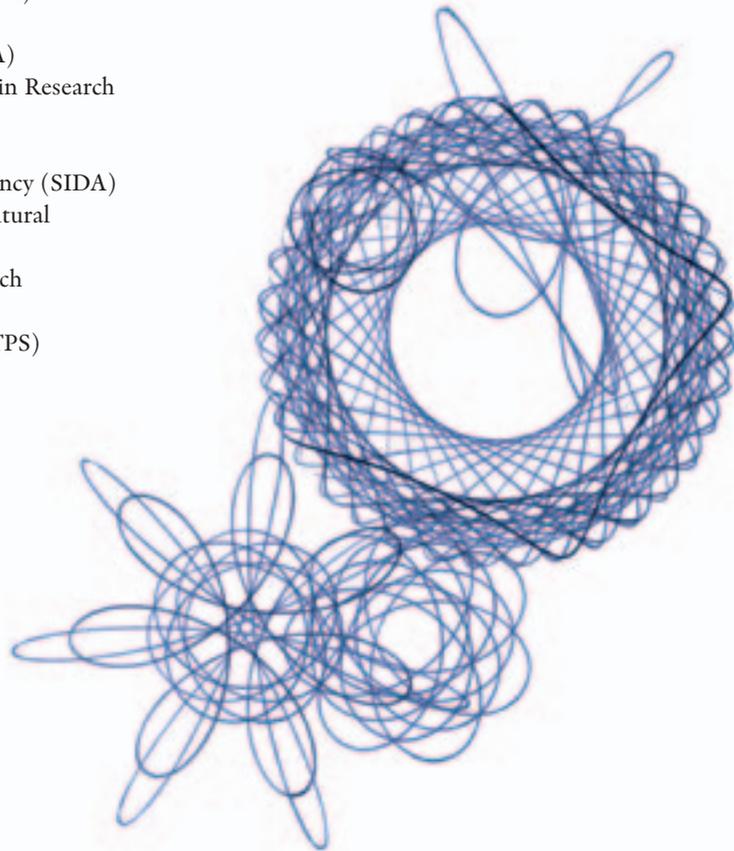
Mats Magnusson, Ph. D., Innovation Engineering and Management, RIDE, Chalmers

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

Göran Reitberger, senior consultant

FUNDING FOR SISTER IN 2006 PROVIDED BY:

ALMI –group (ALMI Företagspartner AB)
Bank of Sweden Tercentenary Foundation
Center of Excellence for Science and Innovation Studies
(CESIS)
Danish Ministry of Science
European Union (EU)
Ministry of Enterprise, Energy and Communication
NIFU/STEP, Studies in Innovation, Research and Education
Nordic Innovation Centre (NICE)
Östergötland County Council
Royal Institute of Technology (KTH)
Royal Swedish Academy of Engineering Sciences (IVA)
Stockholm County Administrative Board
Swedish Agency for Innovative Systems (VINNOVA)
Swedish Foundation for International Cooperation in Research
and Higher Education (STINT)
Swedish Foundation for Strategic Research (SSF)
Swedish international development cooperation agency (SIDA)
Swedish Research Council for Environment, Agricultural
Sciences and Spatial Planning (Formas)
The Foundation for Strategic Environmental Research
The Knowledge Foundation
The Swedish Institute for Growth Policy Studies (ITPS)



SISTER's MEMBERS

Akademiska Hus

www.akademiskahus.se

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

www.formas.se

Royal Swedish Academy of Engineering Sciences (IVA)

www.iva.se

Royal Swedish Academy of Agriculture and Forestry (KSLA)

www.ksla.se

Royal Swedish Academy of Sciences (KVA)

www.kva.se

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

www.vitterhetsakad.se

Swedish Municipalities and County Councils

www.skl.se

Bank of Sweden Tercentenary Foundation

www.rj.se

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

www.stint.se

The Knowledge Foundation

www.kks.se

Foundation for Strategic Environmental Research (MISTRA)

www.mistra.org

Foundation for Strategic Research (SSF)

www.stratresearch.se

Swedish Association of University Teachers (SULF)

www.sulf.se

Vårdal Foundation

www.vardal.se

SISTER's Board of Director

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

Henrik Blomgren, Head of Programme,
The Royal Academy of Engineering Sciences (IVA)

Göran Blomquist, Executive Director of the Bank of Sweden
Tercentenary Foundation and former President of Swedish
Association of University Teachers (SULF)

Madeleine Caesar, Executive Director
of the Knowledge Foundation

Måns Lönnroth, Executive Director
of the Foundation for Strategic Environmental Research

Lars Rask, Deputy Executive Director
of the Foundation for Strategic Research

Christina Rogestam, Senior consultant and former President
of Akademiska Hus

Roger Svensson, Executive Director of the Swedish Foundation
of International in Research and Higher Education (STINT)

Christina Ullenius, Vice president of the European University
Association, Professor at Karlstad University

WHAT IS SISTER?

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

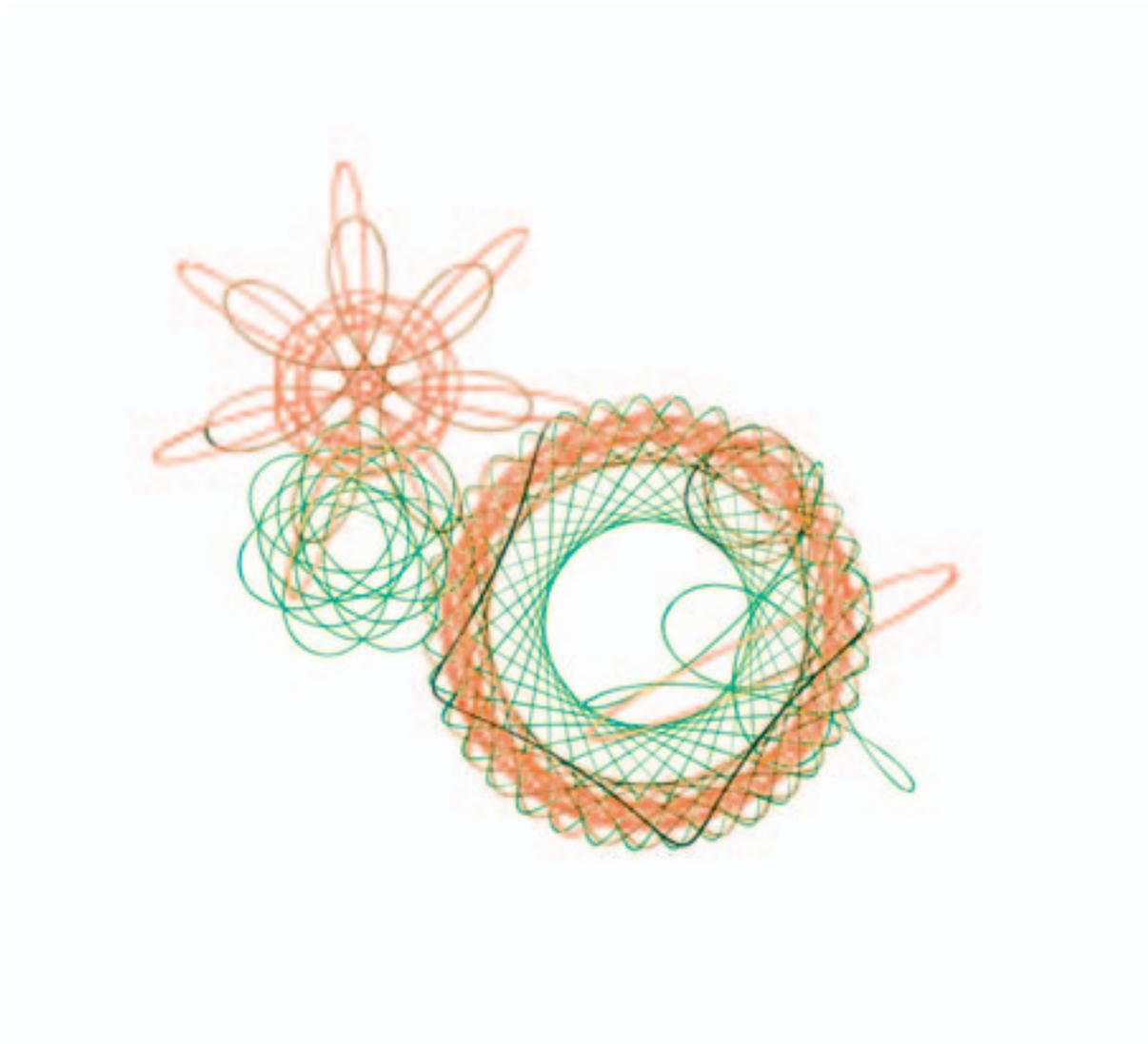
In May 1999 a number of academies and research-funding foundations in Sweden established the Association for Studies in Research and Education for the purpose of conducting and promoting studies in research and education and to foster debate in this area. These activities are being carried out by the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

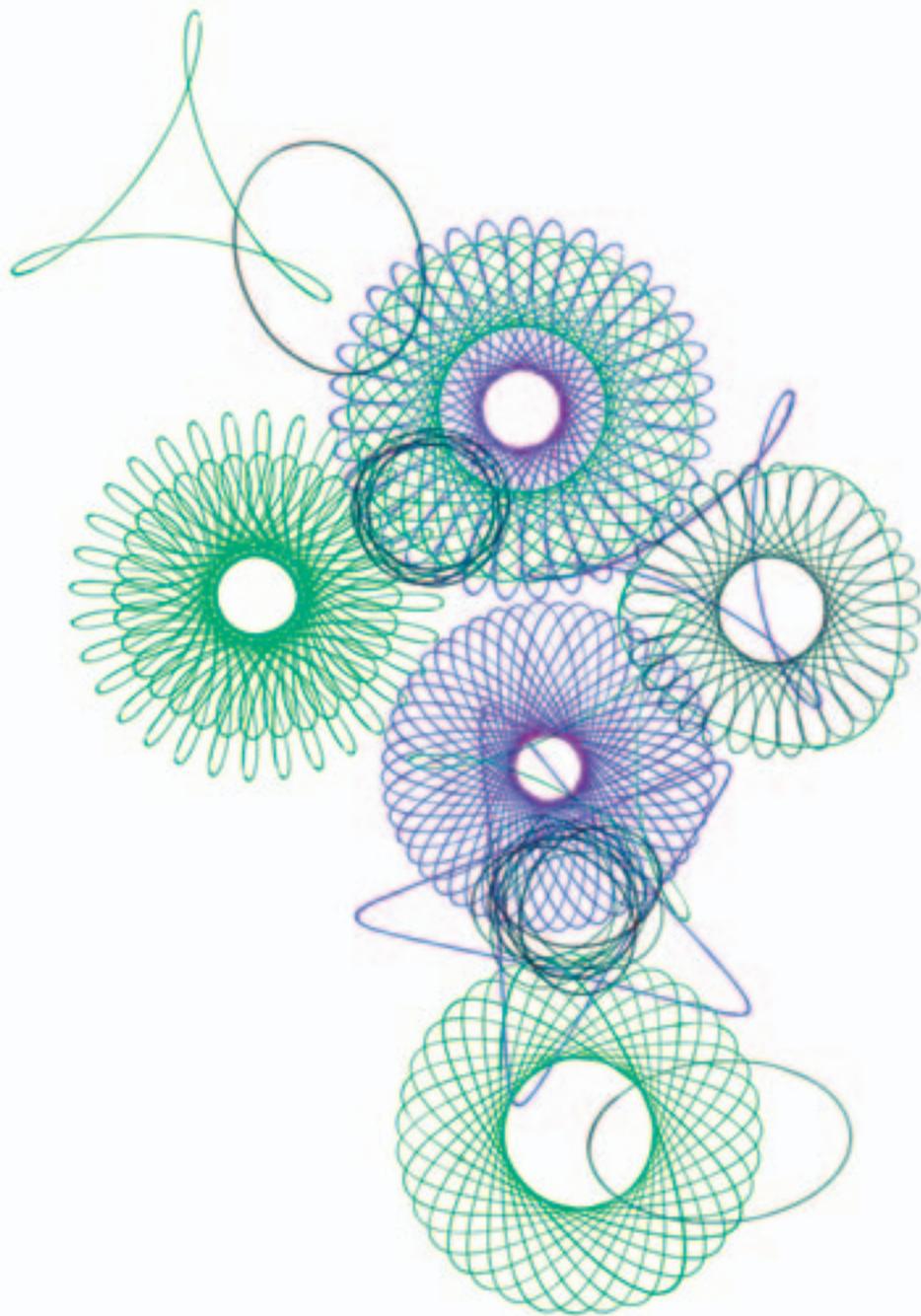
The Institute for Studies in Research and Education was launched on 1 January 2000. Its creation can be seen as a response to a need that had been discussed for some time for independent analysis and studies on the state of Swedish education and R&D systems. Initially the Institute was established for 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. As an artist Martin Ljungqvist 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.