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Tectonics that Change the Landscape of Research Funding

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I

INTRODUCTION

The objective of this report is to map and analyse the inception of a five year programme for Swedish diabetes research which is funded by the Juvenile Diabetes Foundation (JDF) together with the Knut & Alice Wallenberg Foundation (KAW) and scientifically scrutinised by the Swedish Medical Research Council (MFR). This story about the initiation of collaboration between these three actors is written from the perspective of Science Policy Studies (SPS) and addresses some of the current theoretical issues in this field. As a story told from a distinct discursive position and relying on material that has been made available to us by individuals in these organisations the report lays no claim to be exhaustive or provide the final “true account” of events, but to provide a coherent understanding of the process which differs slightly from the perspective of the actors involved. We also hope to contribute to the understanding of how science-funding initiatives are initiated and carried through, a field deserving a lot more attention from Science and Technology Studies (STS).

This opportunity to perform a close study of the behaviour of funding agencies enables us to address a growing area of discussion in SPS which concerns current changes in the patterns of organisation and funding of academic research. These changes have been conceptualised with expressions like “triple helix” and “mode 2”. Both these metaphors are meant to capture the changing conditions of academic research with an increasing amount of funding coming from industry and other private financiers with an explicit interest in specific problems rather than in disciplinary basic research. “Triple helix” concerns the relationship between universities, political agencies and business. The argument is that there is a global trend of new forms of interaction in the field of knowledge production, which changes the conditions for scientists. “Mode 2” refers to the way both cognitive and social organisation of knowledge seeking is moving towards increased goal-orientation and collaboration. The idea is that this is a new trend resulting from changes in funding pattern and science policies.

At first glance the Swedish Diabetes Programme seems to fit into this novel pattern since it is aimed at probing the problem of a disease rather than promoting disciplinary research in medicine or biomedicine. However, taken at large it seems like the scholars probing the area assume that the dynamics of this process of change is that of science moving from one type of financiers to another, mainly from public funding to industrial or other business providing money. Changes occurring within or in the relationships between various funding bodies have not been explored in any substantial way. Nor have the activities of non-profit non-governmental science financiers been paid attention.

The science policy analysts engaged in the debate over changing patterns in research funding have tended to focus on the changing motivations and collaboration patterns of research apparently presupposing that the funding bodies expand in number and diversifies while their organisations, interests and ways of working remain unchanged. The picture emerging from many SPS stories show mobile researchers navigating the shifting economic resources in a surrounding of quite static institutions. Scientists are depicted as changing behaviour to accommodate new potential contributors. Economic resources are understood as ebb and flow moving between various institutions, but these institutions come out as being fixed. It is our view that this picture is a result of paying far too little attention to the diverse population of funding bodies, their characteristics, internal and external organisation as well as their possibility for change.

From what one can gather just through reading the very few studies there are of research financiers, funding bodies are innovative and flexible, they work to make funding address both the needs of research communities, scientific curiosity and the needs of society. In the process of setting and accomplishing their goals they develop new forms of collaboration, within and across boundaries which were formerly considered adequate but perceived more like obstacles in renewal processes.

The report relies heavily on material from Swedish sources. We have obtained material from KAW, such as copies of letters, facsimiles and memos and interviewed representatives.¹ We have also interviewed representatives from MFR and viewed various materials in which the organisations present themselves both on paper and in electronic form. Regarding JDF our image relies mainly on material from our Swedish sources but we have complemented that by studying material from its website. We do not aim for exhaustive representations of any of the organisations, but want to sketch them, as they appear to have taken part in the process of establishing the SEK 80 million programme for Swedish diabetes research.

In relationship to the Diabetes Programme we have also conducted a study of the concerned scientist. In a questionnaire they were asked to give their opinions on a number of topics regarding the organisation and aims of research funding and the Diabetes programme in particular.² Their answers on some of these questions, as well as viewpoints expressed in interviews that we conducted with some of the scientists, are pre-

¹ Because of a technological mishap our interviews with Håkan Westling and Jan S Nilsson KAW are unrecorded, but there were notes taken from the interviews.

² The questionnaire was distributed between November 1997 and February 1998 to the 43 scientists named as network collaborators in the seven full applications.

sented in the report to highlight the relationship between the research community and the funding agencies in this process where scientists were involved from the beginning.³

The report is divided into four sections: the first briefly presents the result of the negotiations of JDF, KAW and MFR that took place during 1997 and lays out the theoretical concerns of this study. In the second section the initiation of this process is sketched and the actors that took part are presented with regard to the characteristics relevant to this study. The third section captures the process of consolidating commonly articulated objectives and sending a message to the scientific community. It also discusses the way in which the scientific community responded to this message by reporting some of the answers given in response to our interviews and questionnaire. In the fourth, concluding section, we comment on the process from our SPS perspective.

³ Interviews were conducted with scientists figuring as project leaders in the letters of intent.

II

THE EMERGENCE OF NEW LANDMARKS

On May 18 1998 a press release from MFR announced that SEK 80 million would be spent on diabetes research over the following five years.⁴ It was stated that three different research teams, led by professors Arne Andersson, Leif Groop and Carl-Gustav Groth respectively would share the money. The press release also told the reader that the programme was a joint effort by JDF, KAW and MFR. The first two organisations provided the funds while MFR was responsible for the review procedures and the administration. The objective of the initiative was to support both biomedical and clinical research on diabetes. It was also meant to link together highly qualified scientists in networks that would form centres of excellence.

MFR releases several messages to the press about research funding every year so that is not the interesting aspect of this one. However, this press release is different in that it signifies a novel pattern of collaboration in the area of science policy and funding.⁵ That JDF sponsors research in Sweden is nothing new, it has done this before, in the form of project grants to individual applicants. KAW has sponsored research since the beginning of the 20th century but has focused on giving grants to expensive equipment and individual scholarships. MFR is the main agency in Swedish medical research with its mandate and its funds from the national government, operating under the auspices of the Department of Education. What is new as of this press release is these three coming together.

The MFR press release also marks a new way of mixing cognitive ambitions with organisation. As the abbreviated presentation above suggests the scientific objectives of the funded scientists are connected with their organisation in networks and centres of excellence. This means that this programme is an attempt by financiers of basic research to organise Swedish diabetes research in ways that are supposed to enhance the quality

⁴ MFR 18/5/98.

⁵ In this paper the notion of “policy” plays a prominent part. However, this is a quite difficult concept entwined in many tropes and negotiated in differing usage. In this report we use “policy” to signify plans and actions undertaken to implement decisions or to accomplish specific larger scale goals. Policies can be developed to implement, counteract or complement political decisions but are always situated in a political landscape where values are being articulated and debated (see Sandström 1996 for a discussion of “politics” vs. “policy”). Public science funding is a policy tool for the nation state to implement political decisions about research, but other actors also promote their own policies through funding science, policies that relate to the politics of the state although they do not necessarily complement it.

of scientific knowledge. The two features of marking a novel collaboration between science funding agencies and a new connection of content and form of research is what makes the press release an interesting signifier for STS researchers to work with, because policy issues is one of the core subjects in this field.

Policy studies may be the oldest field in the entire area of studies of research. Claims have been made that policy issues were at the focus in the 1960s debate, which generated an entire new field focusing on the way science, technology and society are bound together.⁶ However, the science policy and funding area remains to this day far from exhaustively mapped and understood. Over the years science policy scholars have published plenty of studies but the main focus in the discussion has been on the consequences for scientists of various formal aspects of state-governed systems for resource allocation.⁷ While these works have been most illuminating and may have had implications for policy making they leave a lot of territory uncharted, especially since state funding has been a decreasing part of the overall funding of science and technology in Western countries since the 1970s.⁸ Studies done in the 1990s imply that the number of contributors to science has increased and that they have become increasingly diversified.⁹ The changes in the constituency of science financiers will probably lead to changes in traditional public science policy since the objectives of new financiers will not necessarily correspond with these of the nation state which has been setting the policy agenda since the Second World War.¹⁰ For SPS today's challenge must be to map this new territory with its new, as well as already familiar, actors in order to understand the mechanisms of change and the forming of new patterns among funding agencies and to illuminate their relationships with the scientific communities. The project from which this report stems is one effort in this direction and its aim, besides mapping a process, is to initiate and extend STS discussion on science funding and policy.

In a way this science policy project can be said to be part of the Diabetes Programme. KAW funds it with the objective to monitor the consequences the initiative may have on

⁶ Edge 1995.

⁷ See for example Wittrock and Elzinga 1985, Agrell 1990 and Ziman 1994.

⁸ Slaughter and Rhoades 1996 maps this trend in the US and there is nothing to suggest that things would be otherwise in Sweden or other comparable countries.

⁹ See Sandström 1996 for a view on the diversity of agencies distributing public money in Swedish research.

¹⁰ The effects of a discrepancy in objectives between government science policy and the interest of business and industry funding research may be especially pronounced in small countries according to Yearley 1995.

Swedish diabetes research.¹¹ The reports produced by this project are to be read by KAW and JDF but it is our goal also to make them fit for consumption in the SPS field, as well as to a wider public interested in science policy issues. This is the first report and it focuses on the process leading up to the funding of Andersson's, Groop's and Groth's research projects. While the empirical motive for this study of how a joint venture came into being stands out - it has not been done before - the relevant theoretical issues need to be further pinned down.

In the STS discussion about science funding observations have been made that the sources of research money have diversified and that shifts have occurred in the constituency of science financiers.¹² There are more actors involved in the area of funding research than there have been before and their interests in research are as varied as their fields of activity. It has also been noted that research interests inside the university system have changed from a large majority of disciplinary studies towards more problem-oriented work. This has been read as amounting to a major shift in the tradition of academic research, a move to a new style of doing science by some called "mode 2".¹³ The changes in funding and research patterns have in some analyses been understood to occur because cutbacks in public spending have forced actors with more resources and with an increasing need for scientific knowledge into the science-funding arena. University researchers are forced to look outside the public sector for research funding and the actors formerly perceived as consumers of academic research using theoretical developments in applications have to take a larger responsibility for research in academic settings. Scientists have been seen to adapt to the changes in the landscape of research funding by behaving more like entrepreneurs and with organising research in more collaborative and goal oriented manners.¹⁴ As can be expected from the meagreness of SPS work in this area the empirical support for this interpretation of recent developments in funding patterns is limited, but so, of course, is the foundation for posing counterclaims. Let that be as it may, one aspect of the discussion of changes in the landscape of research funding is the images of the funding bodies produced and relied on.

Although most of the scant research on this topic have focused on the behaviour of scientists and the reorganisation of research in the face of alterations in funding policy it has been noted that the changing landscape generates new relationships between politi-

¹¹ The idea of turning to STS for real-time studies of science was first effected on a large scale by the US agencies NIH and DOE in their funding of the Human Genome Project.

¹² According to Gibbons et al. 1994 and Hicks & Katz 1996 the pressure financiers put on scientists to organise in collaborations is increasing.

¹³ Gibbons et al. 1994.

¹⁴ Etzkowitz 1983.

cal decision makers and science funding bodies. This process has been captured for example with the concept of “triple helix” which connotes new patterns of collaboration between public agencies, private enterprise and entrepreneurial scientists.¹⁵ Although the few scholars working in this area notice and attempt to depict changes in dynamics structures the discussions appear to suffer from some quite lopsided presuppositions.¹⁶ In several studies of the changing relationships of the patterns of science funding it is tacitly assumed that political decision makers, funding bodies and scientific communities are clearly distinguished, have previously set, well defined policies and that negotiations are carried out in the space between these separate actors. Notions like “mode 2” and “triple helix” apparently presupposes clear boundaries between the various actors and between activities. According to these representations there was first public funding for disciplinary research and research on problems concerning all of society, this changed when private funding with profit interests outnumbered shrinking public funds. Now, when the incentive to scientists is to turn to private business the economically inferior public agencies have had to change and adapt in order to at least be able to influence some of the direction of research away from that which can be patented.¹⁷ This trope can be traced in SPS analyses of developments in university research in the 1980s and 1990s and in the theoretical discussion trying to come to grips with current events. However, we find this image problematic, not only because of the way in which it invokes the spectre of profit interests overtaking truth, but also because it ignores the “messiness” of everyday work in science policy and funding.¹⁸ Things are never that simple unless viewed from a very distant position and at that distance most empirical insights are lost.

As an alternative to the imagery of clear-cut institutional boundaries present in many SPS works we prefer to rely on a notion of “hybridity”. Thinking about science policy and funding in terms of hybridity was done already in the 1980s but today the notion is also gaining ground in other fields and discussions about complex processes e.g. globalisation.¹⁹ This widening in usage provides the SPS scholar with a golden opportunity to

¹⁵ Etzkowitz and Leyesdorff 1997.

¹⁶ For examples of ways in which funding agencies reorient and change see Raymond 1996 and Balmer & Sharp 1993.

¹⁷ Callon’s 1994 argument for viewing science as a public good can be read to this end.

¹⁸ “Messiness” is a notion used by STS scholars who aim to study as many aspects of a scientific process as possible. This is done in contrast to analyses looking to reduce the number of included factors to these traditionally thought to have relevance for theoretical development. For examples of studies paying attention to the messiness of science and preserving complexity in the analyses see Star 1989 and Fujimura 1996.

¹⁹ Elzinga 1985 was a work with much impact in the SPS community which introduced a notion of hybridity. Today the notion has been creatively developed in post-colonial theory by for instance Homi Bhabha.

update the concept in line with recent developments in STS and Cultural Studies. For us this updating begins with acknowledging the intrinsic hybridity of the processes reconfiguring science policy and funding and an interest in understanding how new alliances are formed across the boundaries set up by ideological differentiation and separation to legitimate the authority of social, political and scientific actors. Our analysis aims to capture how such new alliances both rely on and refigure established assumptions about the identity of actors and their objectives in the co-construction of new patterns.

The following analysis circles around how three well-established actors in science funding managed to negotiate their distinct approaches to research into a collaborative effort – an effort directing both the form and content of research into specific patterns. We will show that scientists, policy-makers and financiers in order to make the alliance come about, transgressed the boundaries between institutions. We will also take notice of how the concerned Swedish diabetes researchers responded to the initiation of the programme and we will discuss the way compromise and construction are displayed in the wording of the MFR press release. By doing this we hope to contribute to the illumination of the complexities of research funding in the ever-changing global system of knowledge.

III

OLD ACTORS FORMING NEW ALLIANCES

According to the material we have got access to the process of putting together the Diabetes Programme began as an enterprise by Swedish scientists in the scientific review committee of JDF.²⁰ Looking at its World Wide Web presentation JDF appears to be a non-profit voluntary organisation with local chapters throughout the world.²¹ Its main objective is to support scientific research in order to find a cure for diabetes. The organisation awards research grants to scientists in numerous countries and claims to be giving more money to diabetes research than any other private health agency in the world.²² In 1997 JDF gave 350 grants to scientists in 15 countries amounting to USD 31,5 million.

The history recounted on the website is that JDF was founded in 1970 by parents of children with diabetes and has since its inception given USD 220 million to diabetes research. It has a grant review process where senior scientists in a Medical Science Review Committee judges applications for funds regarding their scientific merit and a Lay Review Committee which selects, among the projects recommended, the ones most likely to advance JDF's goal. Other financiers of science, both business and foundations also engage the JDF review process.

It was through their participation in the Medical Science Review Committee of JDF that some Swedish scientists got the opportunity to advocate the idea of creating a centre of excellence for diabetes research in Sweden. An initiative that would correspond with JDF ventures in other countries.

Since 1992 JDF has joined forces with public agencies to fund five-year research programmes. On the website the first six programmes, launched in partnership with the US National Institute of Diabetes and Digestive and Kidney Diseases, are said to have been the "single most ambitious enterprise in the history of diabetes research" and the first such programmes in the world. The partnership was regarded effective and led JDF to enter into similar arrangements with other agencies. It counted 39 such initiatives

²⁰ We got the information about the role of the Swedish scientists in JDF through interviews with people with knowledge about what happened before the negotiations between JDF, KAW and MFR began.

²¹ The following outline of JDF is based on its website at <http://www.jdfcure.org>.

²² Note that JDF understands itself to be a "health agency" this implies that it assumes some sort of accountability regarding the community it caters for which, if looking at the website is to suffice as an indication, is mainly US diabetics. This group is invited to take part in JDF activities and to access practical information on the main website as well as on websites maintained by local chapters.

worldwide in 1997. Besides the joint programmes JDF funds research projects to the full with one year renewable grants, individual scientist's career development with one year renewable grants for stays in prominent institutions which provides resources and guidance plus post doctoral fellowships for one year, also renewable.

JDF raises money through contributions from the Board of Trustees and the work of volunteers and the joint programmes have meant a major influx to JDF sponsored research since they require that the other party matches JDF's contribution with money of their own. It was such a joint venture that the Swedes in JDF worked up an interest for. According to our interviewees the then manager of JDF, Sara King, became interested in their proposal and anchored it in the Board and USD 1 million per year for five years was offered as JDF's contribution to a Swedish programme.²³

However, it turned out to be a harder task than expected by the Swedish scientists to find a Swedish counterpart. A first approach was made to the MFR.

MFR is a body in the Swedish state apparatus implementing government research policies. Its objectives, as presented on its website, are to support and initiate basic medical research, to aid Swedish participation in international research collaboration and to disseminate information about medical research.²⁴ MFR distributes about 10% of the yearly public funds allocated to medical research in Sweden, money it gets through the national research budget. While universities, university hospitals and institutes get their core funding directly over the national budget they depend largely on MFR for money to basic research. In 1997 MFR used a bit more than SEK 348 million to support approximately 1400 projects.²⁵ MFR supports research projects headed by individual scientists, in later years the policy have been to favour younger scientists and to strengthen international collaboration.

According to MFR's website about 2,400 grant applications are handled every year in a review process which has three levels. First there are 14 priority committees that are specialised in different medical fields; they consist of five scientists who rank the applications before they are sent on to the co-ordination board. The co-ordination board is composed of elected scientists and council deputies, this instance weighs the applications ranked in the various medical fields by the priority committees against each other before they are passed on to the council. In the council there is one chairperson and ten members, seven of which are active scientists who get elected to the council by lecturers

²³ We have promised that our interviewees among diabetes scientists should remain anonymous to the readers and will therefore not give references to them by name.

²⁴ [Http://www.mfr.se](http://www.mfr.se)

²⁵ Figures from MFR 1998.

and researchers at the Swedish universities and university colleges, the chairperson and three members are appointed by the government.

There are about 80 scientists at any one time working within the council at various levels in the review process. The scientists are with the council for a limited period of time which have as a result that a large number of Swedish medical scientists have been involved in MFR procedures acting on behalf of the council. One of these scientists acts as the scientific secretary general of the council and works together with two assistant secretaries, the administrative director and a staff of fifteen people at the secretary's office. The scientific secretaries work part-time for the council and uphold their regular research positions the other half. The secretary general is with the council for six years and the assistant secretaries for three. The secretary's office administrates the activity of the council and it was this unit that was approached by JDF.

JDF turned to MFR presenting the concept of a jointly funded diabetes programme in Sweden but MFR was not prepared to re-allocate that amount of money from their already diminishing budget. According to MFR representatives the approach by JDF was appreciated, but the general secretary's office considered it impossible to request that the council would re-direct a major part of their annual budget towards diabetes research. Instead, the representatives supported the idea that JDF should turn to KAW.²⁶

Our interview material gives the impression that the Swedish scientist connected with JDF turned their gaze onto KAW after having been turned down by MFR. As we understand it the initial approach to KAW was made during the autumn of 1996. This understanding is supported by a letter sent to KAW from MFR that expresses MFR's support for the collaboration and willingness on MFR's behalf to assist with the scientific review process.²⁷

KAW is a private foundation, inaugurated in 1917 by a donation from Knut and Alice Wallenberg, a childless couple with a fortune made in investment banking.²⁸ The foundation's monetary assets were from the beginning managed by SE Banken (the bank owned by the Wallenberg family) and the descendants of Knut Wallenberg's siblings have ever since the outset been present on the board. The administration of the capital has been very successful and the foundation's website announced that in 1997 it could give more than SEK 510 million to research and education.²⁹ The amount of money spent makes KAW into the largest private contributor to research in Sweden.

²⁶ Interviews with Ivar Vallin and Olle Stendahl.

²⁷ Letter 30/12/96.

²⁸ *Till landets gagn*.

²⁹ [Http://kaw.wallenberg.org](http://kaw.wallenberg.org)

KAW grants have traditionally been for expensive equipment and facilities. The foundation has financed the building of laboratories, research institutes, museums and so on, and it has enabled researchers to purchase super-computers, electronic microscopes, particle accelerators and other instrumentation. KAW supports all kinds of university research, not only natural science and medicine but also social sciences and research in the humanities. The money for buildings and equipment goes mainly to universities and academies but the foundation also provides various scholarship programmes for individual scientists. A lot of these scholarships are for travelling and postdoctoral studies abroad but there are also stipends for younger scholars to work in Sweden. In 1997 KAW launched a research scholarship programme to facilitate the academic work by younger women who had recently been awarded PhD degrees.

KAW is run by a Board with eight members that decide on whom to give a grant. The grant announcement, application and payment administration is the work of the Secretariat, which is run by one of the board members, called the “Executive member” and two administrators. Several of the board members are university professors; some others come from the Wallenberg family. The foundation has a group of “Huvudmän” with representatives from all Swedish universities, which monitors the board and provides a connection between the foundation and the academic community. The “huvudmän” appoint one of the board members and the board itself the remaining seven.

KAW has no review process of its own but relies on advice from others, like MFR. In many cases grant applications are reviewed by the executive member and one of the professors in the board after which they are presented to the board for decision. KAW relies heavily on the initiatives from the scientific community for giving grants and the approach from the Swedish scientists with JDF was such an initiative.

The letter from MFR to KAW expressing support for a jointly sponsored diabetes research programme of JDF and KAW was followed by two letters to KAW from Swedish scientists at KI (Karolinska Institutet), a well known medical research centre, in the beginning of 1997. This was the first suggestion presented to KAW and it came from three diabetes scientists. The letters sketched the objectives, background and the form of the programme initiative.

The first letter presented the problem of diabetes, JDF’s support for research and the contribution expected by KAW.³⁰ It outlines the programme as the financing of one research centre that would gather prominent diabetes scientists. This centre would act as an autonomous unit within a university, as a department or as a unit within a department. It would be large enough to have research groups with different specialities (molecular as well as clinical), each consisting of a leader, a post doctoral fellow, PhD students and

³⁰ Letter 10/1/97.

technicians. A board in which the manager and the group leaders had seats would run the centre. This centre would be created through an open application process where a committee appointed by MFR and JDF would facilitate the procedure of reviewing proposals. There would also be an evaluation board, appointed by MFR and JDF, which was to monitor the research and review it every second year. In the second letter the suggestion is fleshed out further, the description of the problem is extended and a connection with biotechnology industry is suggested.³¹ In this letter Swedish diabetes research is mapped in terms of geographic location and research orientation and it is pointed out that the research is well in the international forefront. The outline of the centre is the same as in the previous letter and the benefits of such a centre are repeated. Both letters close with a formal request that KAW support the programme with USD 1 million per year for five years in collaboration with JDF.

On March 12 1997 the KI scientists who wrote the letters, KAW representatives, MFR representatives and Sara King, the then manager of JDF, met to discuss the proposal. According to the notes we have got from this meeting the terrain was laid out - the involved actors were presented and a strategy to proceed was drawn up.³² On a second meeting in March, from which we have got a PM, KAW announced that it would not be negative towards a request to match a JDF contribution in a programme for diabetes research in Sweden. A proposal could be decided on at the board meeting May 28.³³ The meeting decided that MFR would call Swedish diabetes researchers to a hearing. It was agreed that the application process for programme grants should have two steps, the first having scientists sending in a letter of intent with the financiers deciding on who of the applicants should be asked to take part in the second step and present full applications. Such a two-tier application process appears to have been established practice at JDF. The final point recorded from this meeting was to formally thank the involved KI scientists for their initiative and excuse them from further participation in the decision process. They were regarded as possible grant applicants and should no longer be privy to the deliberations of the funding and reviewing agencies.

After this meeting a letter was sent to Sara King at JDF reporting on what had been decided. This letter specifically asked her to respond to four requests:

- to agree on a date for the deadline of letters of intent;
- to send copies of what JDF considered to be good applications for their programme initiatives;

³¹ Letter 3/3/97.

³² Memo 12/3/97.

³³ PM 22/3/97.

- to give an opinion on the formal organisation of the decision process and
- to send a list of Swedish scientists holding grants from JDF.³⁴

Apparently this letter was never answered because a letter signed by representatives from KAW and MFR from May 21 repeated the requests and also urged her to send a “Memorandum of Understanding”.³⁵ In this letter a draft for an advertisement of the programme grant to the scientific community was presented. Seemingly KAW and MFR heard nothing from JDF in response but in June a letter arrived from JDF in which a new Vice President for Research announced that he had taken over Sara King’s responsibilities.³⁶ In this letter it is explained that JDF was reworking its agenda, its policy and funding strategies and wanted to re-negotiate the deal with the Swedish agencies even though the application process in the Swedish programme was well underway. The internal reorganisation had caused some confusion regarding who was responsible for the contact with KAW and MFR, but now the new JDF Vice President of Research suggested a meeting in July in Stockholm.

³⁴ Letter 25/3/97.

³⁵ Letter 21/5/97.

³⁶ Letter 12/6/97.

IV

RE-ENROLLING THE SCIENTIFIC COMMUNITY

Although KAW and MFR had not heard from JDF since the meeting with Sara King in March they had gone ahead with the plans and engaged the Swedish community of diabetes researchers. On May 28, before hearing anything from JDF, MFR published the advertisement for the grant on its website.³⁷ The announcement had a conditional wording, it stated that KAW had decided to support Swedish diabetes research with SEK 8 million yearly for five years provided that this money was matched by an equal contribution from JDF. In this advertisement the programme was said to consist in a few large grants for centres of excellence or networks. There was an emphasis on organisation features, in the guidelines for letters of intent the applicants were requested to specify the way in which they planned to collaborate in no less than in five points, compared to the two points of specification of scientific content. The deadline was set to June 17 1997.

It may seem harsh to expect the interested researchers to come up with a letter of intent outlining new research in a novel organisational form in a way palatable to MFR, KAW and JDF in little more than two weeks. Some of the scientists we interviewed did complain about the short time allocated to writing the letter of intent.³⁸ Although appreciative of the new initiative some aspects of the application process draws criticism from the scientists. They talked negatively about the dissemination of information, they were dissatisfied with only finding it on the MFR website, and they also had critical remarks on what they perceived to be a lack of precision in the guidelines for how the application should look. In our questionnaire we asked the collaborating scientists from where they had heard of this initiative. The majority had been informed by the project leaders (60%), 47% had heard about it from MFR (it was a multiple-choice question). A few had got information via KAW or JDF (14 and 16 percent respectively). We also asked the collaborators how they regarded the dissemination of information about the programme and 44% thought it was good, 16% very good but 14% found it to be bad. It seems like the project leaders were good at presenting the programme to the scientists they enrolled as collaborators but that MFR was somewhat less efficient.

³⁷ It could be accessed at <http://www.mfr.se/html-sidor/nyttmtrl/Diabetesstod>

³⁸ We granted the scientists anonymity both in the interviews and the questionnaire and will hence only refer to them as groups.

In our interviews with the project leaders some discontent with the time-span in which the proposal had to be wrote up was expressed by the scientists first learning about the initiative on May 28. Also, albeit to a lesser extent, the same discontent is found among those present at the meeting on April 28. To this meeting MFR had called the diabetes scientists they knew about through their “Project Catalogue”.³⁹

On March 26 MFR sent an invitation to Swedish diabetes scientists to attend a hearing where MFR and KAW would present the idea of a five-year programme of SEK 7 to 14 million co-sponsored by KAW and JDF.⁴⁰ This hearing had been decided on at the meeting between KAW, MFR and diabetes scientists at KI March 20. Another opportunity to meet scientists mentioned at that meeting was the Swedish Diabetes Associations congress in May.⁴¹ The April hearing took place at the MFR quarters in Stockholm, 30 scientists were invited and given opportunity to briefly present the direction of their research.⁴² The majority of the scientists were informed about the programme and the application procedure on this gathering, six weeks ahead of the deadline.

Some of our interviewees among the scientists questions why no representative from JDF attended the meeting at MFR, feeling that the information for how to write applications and what the programme initiative meant would have been more extensive had such a person been present. The scientists present at this meeting had six weeks to work out a grant proposal and several of our interviewees say they began to communicate with their peers about joining forces in network or centres immediately after the event. Some said they enjoyed this experience, finding it inspiring to talk about what gains could be made by closer collaboration, while others found it to be a strain, tearing apart collaborations already established.

The result from our questionnaire indicates that each other knew the collaborators in the networks or centres presented in the applications before they were linked together in this particular proposal. 77% listed the first partner as a previous/present collaborator and 51% had already worked with the second partner. However, it seems like the size of collaborations has increased with this initiative because 72% said that the third partner was a new acquaintance. The three kinds of contacts with the first and second most common were joint projects, joint publications and organised meetings.

The scientists interviewed and answering the questionnaire all had experience of collaborating in network and centres, both nationally and internationally. Of the collabo-

³⁹ Every year MFR compiles a catalogue covering all the projects receiving grants from them.

⁴⁰ MFR 26/3/97

⁴¹ PM 22/3/97.

⁴² Dagording.

rators answering the questionnaire 81% had previous experience of work in such organisational forms, 70% had participated in informal networks, 53% in formal networks and 14% in centres. Networks appear to be a popular thing with the EU because 66% of the scientists said that the financing for the networks they had been in came from there, 37% had received money from research councils but 34% had been in networks with no funding. EU funding have not meant that scientists collaborate exclusively with researchers in other countries because 69% of our respondents said that they had participated in networks with both national and international groups.

The experience with co-ordinating researchers in networks and centres had to a large degree been a positive experience according to our interview and questionnaire population, although the logistics and administration could prove to be more time consuming than what was the case in singular projects.

The answers to our questionnaire come from scientists figuring in the full applications that were prepared by the scientists whose letters of content passed muster in the review made by representatives from MFR, KAW and JDF on July 23 1997. The meeting called by the new Vice President of Research at JDF in his letter to KAW and MFR on June 12.⁴³

The purpose of his visit with KAW and MFR was to provide an updated vision of JDF's plans since, according to the letter, much had changed with the new leadership in the Research Task Force and in the Board of Directors. A reference was also made to NIH (US National Institutes of Health) whose activity was said to have consequences for the JDF and KAW programme. The letter pointed out that JDF had not made a final commitment to the Swedish programme and would not do so until the JDF Board of Directors approved both the financial terms and the precise nature of the programme. It was also said that JDF's internal review process with scrutiny by both scientists and lay people would push the schedule of grant approval well into 1998.

At the July meeting the non-negotiable opening point was that the letters of intent were already written and received. The negotiations concerned how the guidelines for the full application should read and how to organise the review procedure. At this meeting the idea of a STS study of the programme was voiced.⁴⁴

It was on this meeting that the selection of which of the preliminary applications should be allowed to go on to the final round was done. Of fourteen letters of intent seven were chosen to be allowed to expand to full applications and the deadline for this

⁴³ Letter 12/6/97.

⁴⁴ Noter 23/07/97.

eventually came to be November 14 1997. After this settlement MFR went out to find suitable international reviewers.

Our interviewed scientist overflow with opinions on the selection procedures, the review process and the decision making. At the time of our interviews some of them had had their letters of intent rejected while some had been asked to send in a full application. We found that several of the interviewees were concerned that the letters of intent had not received a peer review scrutiny, they were also aggrieved by what they considered to be a lack of clarity regarding the criteria used in the selection process. They did not contrast this with a view of review procedures as smooth running or easy in general but acknowledged the difficulties of finding competent referees with no personal ties to any applicant.⁴⁵ There was a feeling that everybody in this field in Sweden knew each other, even that everybody in the field internationally knows each other. This corresponds with the views of the respondents to our questionnaire who expressed a preference for either a mix of international and national (49%) or international reviewers (42%). If everybody knows each other in a field it probably feels fairer to have reviewers who are likely to have little to gain by supporting a specific candidate.

Although some scientists were critical about the procedures of getting this programme up and running most seemed, at the point of our questioning, to be rather positive about the initiative itself. They especially appreciated its long duration and its economic extent – some even thought that it could function as compensation for shrinking university grants. A good number also found it to be an interesting organisational form for their group. On this question the project leaders and the collaborators answers agreed. In the questionnaire 79% expressed appreciation for the duration, 72% for the extent and 51% thought it could compensate for shrinking council and faculty grants. 37% found the form of organisation appealing and 21% liked the connection to scientific interests in the USA.

Eventually MFR found international reviewers and their recommendations led to the decision to fund Andersson, Groop and Groth as announced by MFR on May 18 1998.

⁴⁵ This entire process took place at a point in time when review procedures have been widely discussed and criticised in the scientific community in journals like *Science*, *Nature* and *New Scientist*.

V

AN ANALYSIS OF THE TECTONICS OF FUNDING LANDSCAPES

Viewed from the perspective of SPS analysis to follow the process of initiating the Swedish diabetes research programme proved to be every bit as interesting as could be imagined from the outset. In light of recent discussions about the science policy landscape this process can be looked upon as an example of how that landscape is transformed, in contrasts to images of how scientists navigate along new routes. In the case of the diabetes programme there were three well-established organisations at the centre of attention that had long experience in funding science. They articulated a common policy goal (that Swedish diabetes researchers should be given the opportunity to work in programme form in new tight collaborations) and they adjusted their ways to work to accommodate that goal.⁴⁶

KAW's prior collaboration efforts appear to have been with industry and universities in jointly funding laboratories and expensive scientific equipment.⁴⁷ This time it was another private foundation in another country that was the collaborator and the objective was to fund scientific work not facilities or technology. Also for JDF it appears to have been a novel experience to engage in a joint venture with a private foundation, its usual collaborators were public agencies under the auspices of national governments in the joint programmes.⁴⁸ MFR was such a public agency but in this case its role was more to facilitate and legitimate. It provided a link with the scientific community and assisted in articulating the objective, it also took control of the review process albeit not by relying on its own reviewers but by assuming responsibility for furnishing an international review board. MFR's link to the Swedish nation state appears to have been a way to ensure that the programme would be compatible with national science policy and other relevant regulations.

⁴⁶ With regard to "triple helix" and "mode 2" conceptualisations it is interesting to note that industry only figured in the process represented in the present study through the proposals written by scientists. There it figured as the tentative user of research results, possible to engage in the translation of scientific results to drugs which would benefit diabetes sufferers.

⁴⁷ For example funding the Wallenberg Laboratory for Cardiovascular Research at Göteborg University together with ASTRA AB.

⁴⁸ Examples of JDF programme partners are the *Medical Research Council* of Canada and the *National Health and Medical Research Council* of Australia.

None of these actors fit in the maps of the science funding landscape that distinguish sharply between a scientific community, policy makers and private financiers. The scientific community was present in the policy and funding organisations. The grant giving agencies were not acting on behalf of a government but nor were they furthering the interests of industry or business.

Thinking about the events unfolding in terms of hybridity allows us to understand the permeability of boundaries between institutionalised interests in the field. The clearly separate identities of the actors were an outcome of the successful process. During the process hybridity with interests, identities and boundaries shifting among actors was prevailing.

In the beginning scientist's spoke for Swedish diabetes research in JDF, then they spoke for JDF in relation to KAW. MFR spoke on behalf of the scientists. MFR and KAW spoke as one to JDF. MFR spoke for JDF and KAW to the community of Swedish diabetes scientists. The outcome was, seen from this angle, a reconfirmation of the identities and the assumed interests of the actors. JDF got to fund front-line research on diabetes and managed to attract fresh money to this cause matching the contribution made by them. KAW got to fund Swedish research in an initiative that would probably not have happened without its participation and which will, hopefully, be successful both in promoting Swedish scientific excellence and in alleviating the lives of diabetes sufferers. MFR managed to implement Swedish national science policy without spending any money. In this light the initiative was a definite success in several ways, the interests central to the identities of the three actors were re-established as well as their objective: a novel research programme.⁴⁹

With hindsight some of the actions can be interpreted as tactical moves pushing the process ahead at points where trouble could have halted or significantly delayed it.⁵⁰ The first such move was MFR's letter to KAW expressing their positive attitude towards and their willingness to support KAW's participation in the proposed programme. Considering that KAW was moving into a, for them, unknown territory of funding research programmes and doing it jointly with a foundation in another country MFR's support ought to have had a comforting ring to it. Another tactical move was that KAW and MFR went

⁴⁹ With a view of the entire process it seems like events were perceived as obstacles by individual actors were successfully negotiated and managed.

⁵⁰ This interpretation is only possible in hindsight knowing that the programme came about eventually. If it would have failed it is most likely that what now seems like tactical moves would not have been noticed at all or would look like mistakes. The identification of tactical moves also depends on treating the organisations as actors instead of the individuals representing them. On an individual level such an interpretation would mean to ascribe specific intentions and we know nothing about the actual intentions of the people involved in the dealings.

ahead with the first round of applications, the letter of intent, even though they had not received a final commitment from JDF.⁵¹ When doing this they choose to use a two-tier application procedure that JDF was familiar with. They gave the JDF representative two options: to join in or to withdraw. To start the application process all over again would have required a lot of work by JDF and would most likely have stripped the programme of credibility in the scientific community. It is almost unthinkable that MFR would have returned to the scientists with the message that the conditions had changed and new letters of intent would have to be sent in. The third tactical move was made by JDF, which abandoned its own review process. By leaving the review issue for MFR to solve JDF ensured a link to the Swedish nation state. To involve with public agencies appears to be an important legitimisation strategy in the JDF five-year programmes and in this case it could be achieved on the level of reviewing the full applications.

With regard to the relationship between financiers and scientists one feature that stands out is the involvement by scientists throughout the process, albeit in different ways. It appears to have been scientists that initiated the whole thing. The idea of a five-year programme in Sweden was conceived by and anchored in JDF by Swedish diabetes scientists. It was scientists from KI that presented the initial proposals to KAW. In this phase the boundary between funding bodies and scientific community was dissolved, scientists acted as JDF spokespersons looking for a partner for a joint venture. When the partner had been enrolled the boundary was reinstated. The KI scientists were excused from further participation in the dealings between KAW, JDF and MFR.⁵²

With MFR participation a more formal way of interaction between financiers and scientists was established. MFR wanted an open application procedure which made the link between financiers and recipients a lot more public than usual KAW procedure. It also brought in accountability regarding the selection process and this is what enabled the diabetes scientists to express their dissatisfaction with the application process. Normally KAW funding is not accountable to the scientific community but to “Huvudmännen”, scientists may feel grievance against KAW’s funding choices but it is none of their business what this private foundation chooses to spend its money on. With

⁵¹ It is possible that KAW would have decided to fund a programme by themselves had JDF pulled out. The suggestion of SEK 7-14 million per year in the invitation to the scientists for the MFR meeting can be interpreted to this end.

⁵² The entrepreneurial initiative by these scientists do not fit into common STS understandings since they did not find funding for their own research (cf. Etzkowitz 1983). If that would have been their objective it may have been wiser to approach KAW on their own to ask for funds for a centre of excellence in five years and not involve JDF or MFR who were bound to request open application. We speculate that these scientists could have received funds from KAW, had they presented a solid proposal and had sufficient institutional backing.

MFR it is since this agency is officially responsible for how medical research in Sweden is governed by the state.

Formally MFR is accountable to the government but to keep its legitimacy it also have to be perceived as fair and as having transparent selection procedures in its distribution of taxpayers money to university and institute researchers.⁵³ To reproduce this legitimacy MFR has to be open for and responsive to criticism from the scientific community. From the perspective of SPS analysis taking account of the interviewed scientists' opinions the information to the scientific community of the diabetes research programme could have been better. Calling the most prominent scientists in the field to a meeting was a good initiative but it lacks in transparency and could have been supplemented by other means to be regarded as adequate by all scientists concerned.

The second point of criticism from some of the interviewed scientists concerns the short time-span between advertisement and deadline for the letters of intent does also appear as justified. 17 days is a very short time to conjure a proposal for a five-year programme of this magnitude and so is six weeks. The reshuffling of scientists and groups in the networks and centres outlined occurring between the letters of intent and the full applications can be taken to indicate a lack of substance even in the seven successful letters of intent.⁵⁴ By throwing a wider net of information and allow for a longer deadline MFR may have created more transparency in the application procedure and a perception of more fairness.⁵⁵ One can speculate that the number of applications would not have been significantly larger since the organisational requirements of the programme meant high demands. Applicants were supposed to have good contacts with other scientists in the area and this would have barred scientists not previously engaged in diabetes research as well as the ones doing things that in the best of times only would have been thought of as remotely related to diabetes.

It seems as if the scientists had long enough time to creatively configure the notions of “network” and “centre of excellence” which remained flexible throughout the entire process. In the proposal to KAW from the KI scientists they wrote about *one centre* for research on diabetes. On the March 12 meeting it was made understood that JDF programme grants funded research *centres* each working on several aspects of diabetes or *networks* addressing one or more specific problems. This distinction between centre and

⁵³ See Sandström 1996 for a discussion on the functioning of national research councils.

⁵⁴ This reshuffling also points to a space for tactical moves by scientists to have the fullest possible coverage to get funded in the programme and taking the opportunity to form new alliances. This aspect will be further explored in our next report.

⁵⁵ Of course not every scientist would have been satisfied but the procedure would have been more in line with normal MFR practice.

network addressed the cognitive organisation of research, centres were said to consist of groups working on various aspects of the big issue of diabetes while in networks groups were aimed towards solving more specific problems. The letter to JDF from KAW 25/3/97 asked for examples of good applications for both networks and centres.

In the call to the meeting on April 28 the wording was “very large projects for instance ‘centre of excellence’ or ‘national network’”. With the word *national* MFR and KAW introduced a new trope without knowledge of JDF interpretation since the example applications never arrived. In the MFR invitation the notions *centre* and *national* function as modalities connoting the spatial distribution of research as a feature distinguishing centres from networks. The letter sent by KAW and MFR to JDF after the meeting on April 28 talked about supporting 2-3 centres of excellence or networks for collaboration in research. This was also the wording in the advertisement on the MFR website on May 28. It was left to the applicants to suggest they organise in one way or the other.

This shift is interesting because according to our interview material there was no consensus on how to define these concepts, each individual had her or his own understanding of what the concepts *network* and *centre of excellence* meant. Their understandings differed to the point where the only coherency was to be found on the individual level. Even more intriguing given this lack of consensus is that the interviewees converged on a belief that there was an inevitable push towards these new organisational forms within research. Our conjecture is that at this point in time there was considerable hype regarding these concepts – they circulated in the science policy discourse as catchwords inscribed with positive value but their meaning was not stable enough to function as predictive references. When people were told to create a network or a centre of excellence their hands were quite free, not at all as if they were told to create a university department or a research group.

In the announcement from MFR on May 18 “networks” and “centres of excellence” were collapsed in the sentence which stated that: “the intention is that highly qualified scientists should be linked together in networks forming centres of excellence”. It seems like the scientists managed to exploit the positive connotations of both these concepts in a way that cancelled the potential incompatibility of the terms, had they been used to distinguish differences in the organisation of research or of spatial extension.

From an STS perspective this conceptual fluctuation is one of the fascinating aspects of how things come into being. Viewed from this angle the negotiation of the meaning of “network” and “centre of excellence” in the process discussed above is understood to be a crucial moment in the construction of diabetes research in Sweden. In our next report we will explore the activities linked to these notions in order to understand what

this new programme means to the patterns of interaction and exchange among Swedish diabetes researchers.

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