



norden

Nordisk Ministerråd

STUDIE 3

Norden som global vinderregion



Building Nordic Strength Through More Open R&D Funding

The Next Step in NORIA

Building Nordic Strength through More Open R&D Funding: The Next Step in NORIA

Preface

A recent discussion paper entitled "*The Nordic Region as a winner in the global innovation economy*"¹, produced by the Nordic Council of Ministers states that the Nordic Region might do well indeed in terms of economic competitiveness in an ever more globalised economy. In the paper 27 key Nordic thought leaders from the business community, research and culture urge the Nordic governments to join forces in an ambitious joint winning strategy that exploits both Nordic strengths and the opportunities offered by globalisation.

The Nordic Council of Ministers has, in continuation hereof, commissioned Technopolis to conduct a study, *Building Nordic Strength through More Open Funding: The Next Step in NORIA*. The study touches upon several aspects of Nordic strength, and also comments on the recommendations from the *thought leaders* regarding how the competitiveness of the Nordic Region can be enhanced. Joint strategic actions, establishing more ambitious win-win cooperative relations, combining Nordic resources are some of the key suggestions. They also point out that globalisation is not just about looking outwards and understanding the changes, but also about looking inwards and understanding one's own strengths and skills. The Nordic Region should have the world's best education system and the Nordic ambition could be to become state of the art in competence development. This would involve investing more heavily in high-level research than is currently the case.

The present study states that the Nordic nations face important challenges in research and innovation. It goes on to point out that NORIA (Nordic Research and Innovation Area) could be strengthened at little cost by selective mutual opening of national R&D programmes to allow research and innovation funders and performers to build Nordic platforms. The report also contains an analysis of what could happen to Nordic states' interests under a number of different circumstances, specifically a strong/weak ERA (European Research Area) in combination with a strong/weak NORIA. The study concludes that a strong implementation of NORIA would in all cases produce the best position for Nordic actors.

The study addresses some very timely and important issues in the light of globalisation and increased pressures on national economic competitiveness. I find the above mentioned analysis very interesting and I look forward to discussing the report with my Nordic colleagues.



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Minister of Education and Research

¹ The Nordic Region as a winner in the global innovation economy (Only summary in English)

<http://www.norden.org/webb/pressrelease/pressrelease.asp?id=1275>

Building Nordic Strength through More Open R & D Funding

The Next Step in NORIA

Research and innovation are the primary corner stones in efforts to strengthen economic competitiveness in an ever more globalised economy. This study states that the small Nordic nations face fierce challenges within research and innovation, and recommends that Nordic research cooperation be strengthened. The study points out that NORIA (Nordic Research and Innovation Area) could be strengthened at little cost by selective mutual opening of national R&D programs. Finally it is analysed what could happen to Nordic states' interests under a number of different circumstances, specifically a strong/weak ERA (European Research Area) in combination with a strong/weak NORIA. The study concludes that a strong implementation of NORIA would in all cases produce the best position for Nordic actors.

The study is compiled for the Nordic Council of Minister by Technopolis, which has been aided by a reference group with representatives from NordForsk, Nordic Innovation Centre, Nordic Energy Research and the Nordic Council of Ministers' secretariat.

Report series: The Nordic Region as a Winner in the Global Innovation Economy

During its Norwegian presidency, the Nordic Council of Ministers for Educational and Research Issues (MR-U) has wanted to identify potentiality for policy developments within certain policy areas, which are relevant for the Nordic countries in the light of globalisation and increased pressures on national economic competitiveness. The interest in such issues and their policy implications, nationally and possibly at the joint Nordic level, takes its point of departure in a discussion paper, which the Council had produced bearing the title "*The Nordic Region as a Winner in the Global Innovation Economy*"¹. The paper concludes an array of *positions of strength*, and forwards several policy recommendation. The Nordic Council of Ministers has in continuation hereof, decided to look more closely at four specific policy areas, which in different ways are believed to be important for the Nordic countries efforts to position themselves as *knowledge economies*. Four independent studies have thus been commissioned, and are now published in a series title "*The Nordic Region as a Winner in the Global Innovation Economy*". The studies are not expressions of the Nordic Council of Ministers' policy or positions, but are merely an expression of the fact that a further discussion of the policy implications of these issues is thought necessary:

1. Nordic Ways of Interaction Between Public Research and Business
2. Quality Assurance of Higher Education in the Nordic Region: Towards mutual recognition and increased cooperation
3. Building Nordic Strength through More Open Funding: The Next Step in NORIA
4. Reading Skills in the Nordic Countries

The Study will be available in English with a Scandinavian summary 16 October 2006 at

<http://www.norden.org/pub/sk/showpub.asp?pubnr=2006:576>

(Preliminary design version)

¹ The Nordic Region as a Winner in the Global Innovation Economy (Only summary in English)

<http://www.norden.org/webb/pressrelease/pressrelease.asp?id=1275>

Building Nordic Strength Through More Open R & D Funding The Next Step in NORIA

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EXECUTIVE SUMMARY

The Nordic nations face important challenges in Research and Innovation. Both Nordic and EU experience shows the value of cooperation based on the needs and self-organisation of those involved. NORIA can be strengthened at little cost by selective mutual opening of national R&D programmes to allow research and innovation funders and performers to build Nordic platforms. However the institutions that could coordinate this at Nordic level are incomplete. They need to be strengthened through better coordination between ministries' areas of competence and the creation of a Nordic arena for the discussion and creation of more holistic Nordic policies than can be constructed while the Nordic Council of Ministers' structures remain overly compartmentalised.

The Nordic nations face important challenges in Research and Innovation

In research and innovation, the environment has gradually been changing around the Nordic nations. While the interdependence of innovation and research is reflected in Nordic nations' national policies, there has been surprisingly little reaction in policy or institutional terms at the Nordic level. Science has to some degree been globalised for many years. Globalisation of other parts of the research and innovation system has rapidly been increasing, as can for example be seen in the dramatic changes in ownership of the major Nordic-owned multinationals over the past 20 years, the movement of R&D within and out of the Nordic region and the resulting changes in the relations between the industrial and university research systems.

The way disciplinary and fundamental research interacts with society and the economy has been changing, too. We recognise these changes under the slogans "Mode 2 knowledge production" and "Triple Helix," and discuss the 'changing social contract between science and society' – which in practical terms means that most countries want to see increasing social benefits resulting from research funding and are no longer prepared simply to fund research and **hope** that something good will happen. We now understand the world of research and innovation in terms of 'innovation systems' – a concept which Danish, Norwegian and Swedish researchers have been key in developing. This innovation systems heuristic tells us that all actors involved in research and innovation need to perform well and that their efforts must be strongly interlinked. There is no single 'policy lever' that we can pull in order to increase the performance of the system. We need a holistic approach. These changes are partly a paradigm shift: we understand the world in a different way now. But they seem partly to reflect changing realities. The explosive growth of higher education means that we produce and use knowledge in more parts of society than before. While we have developed new project-level funding instruments to cope with these changes, they have had little impact on the structures or institutions we use in research and innovation policy, except in the creation of unified research and innovation agencies in Iceland and Norway. Despite the NORIA reform, these ideas have not yet influenced the structures for research and innovation at the Nordic level.

The European Union has recognised the importance of globalisation and concentrating its research and innovation resources. It is implementing a series of policies to build European critical mass and strength under the slogan of the European Research Area (ERA). To do this, it has set ambitious targets, reshaped the way it makes policy, redefined its role in relation to research and innovation policymaking at the member-state level and restructured its funding instruments. In contrast, the Nordic response to the simple arithmetic of globalisation has been passive. This arithmetic says that individual countries count for less than before; that this is especially important for small countries such as the Nordic ones and that creating and accessing critical mass in research will in many fields be an essential precondition for playing a meaningful, international role. Many of the traditional Nordic cooperations answer to these needs. The new Nordic Centres of Excellence build critical mass that helps strengthen Nordic positions. But the commitment of resources and enthusiasm to these Nordic efforts today is pretty minimal.

The overall challenge to the Nordic nations is therefore to operate a 'joined up' research and innovation policy that builds individual and collective strength in a world where the Nordic region as a whole will otherwise become marginal. An active response will use common strengths to build platforms that strengthen Nordic positions in the world. A passive one will leave the Nordic cooperation half-heartedly trying to solve the peculiar problems of the Nordic area. Nordic common action is not a substitute for action at the European level, but is a necessary complement for building Nordic strength in the European cooperation and beyond.

A stronger NORIA is good for the Nordic region, whatever happens in Europe

So far, the pace of implementation of ERA has been slow. The big changes have been in attitude. By and large the EU member states now accept the need for ERA and that there is a need for more cooperation at the national as well as the European level in setting research and innovation policy. They even accept that the European Commission should play a role in coordinating national-level policy. While progress on the ground has been limited, arguably the changes in attitude are a necessary precondition for more radical policies that focus resources without concern for *juste retour*. There will therefore be losers as well as winners in EU research and innovation policies. Increasingly the 'Matthew principle' (that the rich get richer and the poor lose what little they have) will apply in EU cooperation. The Nordic nations ignore this change at their peril.

Our analysis considered what would be likely to happen to Nordic states' interests under a number of different circumstances. ERA might happen quickly or slowly (strong or weak). NORIA might extend the amount and type of research and innovation cooperation in the Nordic region, building strength in both Nordic-focused and more internationally interesting research and innovation topics, or might stay much as it is (strong or weak). We therefore looked at all four possible combinations of strong and weak implementations of ERA and NORIA. We found that a strong implementation of NORIA produced the best position for Nordic actors in all cases. Correspondingly, the current (weak) NORIA implementation consistently produced sub-optimal positions for Nordic actors. The worst combination for most was the conjunction of a weak NORIA with a weak ERA.

- Individual researchers, and especially the more successful ones, tend to benefit from any increase in funding opportunities, especially those that encourage them to build stronger positions in terms of critical mass, shared equipment, and so on. Their interests are best served by a combination of a strong NORIA and a strong ERA
- The university sector worldwide is under pressure to specialise and create larger entities. Here, too, the Nordic cooperations show the way to tackle these pressures on 'home ground', and a strong NORIA would make it easier to build platforms on a Nordic basis
- As in other places, the Nordic research institutes have been restructuring to increase scale and broaden their capabilities. NORIA mechanisms that help them plan and cooperate will strengthen their position relative to competing national systems, some of which are bigger than the whole Nordic institute system
- Research councils and innovation agencies in the Nordic area already cooperate to varying degrees. More explicit cooperation mechanisms, preferably with some funding attached to allow them to plan more together, would reinforce Nordic positions and build stronger platforms for dealing with wider international cooperations, no matter whether ERA is implemented strongly or weakly
- Subjects and problems peculiar to the Nordic area were little affected by ERA but were likely to be better tackled under a strong than a weak NORIA. Opportunities to share facilities and obtain international quality control strengthen the position of such areas under a 'strong NORIA'
- Subjects and problems like pulp and paper or the Baltic Sea environment, which are important to the Nordic area and a limited number of other places in Europe do not necessarily get high priority in EU programmes or coordination efforts. A strong Nordic platform in such areas both supports Nordic interests and provides a good basis for further cooperation – inside or outside EU structures
- In large subject areas of wide international interest (genomics, ICT and so on) a strong NORIA makes it easier to build critical mass and to have a strong position in wider cooperation. Some of the new NCoE centre of excellence participants have already found that their negotiating position in Framework Programme consortia has changed as a result of the combined Nordic strength. Such advantages are not always necessary or available, but where they are beneficial a strong version of NORIA offers the best prospects for Nordic participants to build strong research positions

- In new and rapidly emerging fields, strengthening the established linkages among Nordic actors would make it quicker and easier to set up both informal and formal cooperations, helping the creation of Nordic platforms where these are relevant

Nordic and EU experience shows the value of cooperation based on the needs and self-organisation of those involved

Successful Nordic cooperations tend to be a mixture of formally organised and self-organised activities. For example, the NOVA cooperation among the agricultural universities arose because the rectors saw a need and simply got on with it. Attempts to extend this to a wider agricultural cooperation got stuck when confronted with the Nordic Council of Ministers structures. The Nordic energy cooperation has its roots in a similar bottom-up movement, and in practice survives outside the mainstream of the Nordic structures. The Nordic Centres of Excellence, initiated by the NOS committees, are established by researchers creating alliances bottom-up and then making proposals to the Nordic level. In many cases, a key factor is that at grass roots level, actors who want to cooperate have decided to do so and then sought Nordic-level support.

In the last few years, the European Commission has fostered new structures – especially ERA-NETs and Technology Platforms – that bypass established programmes and exploit self-organisation to identify and organise needed R&D and related activities. The ERA-NETs provide a little money, which allows research and innovation funders to explore joint needs, plan how to tackle them and to begin to implement more open ways of funding projects. The most important lessons are that the planning component brings the biggest benefits and that implementation of joint calls and actions is bureaucratically complex but possible. This would be easier if there were established routines.

The Technology Platforms allow a wide range of stakeholders to work together to define common needs and to assemble a portfolio of funding, based on those needs. The results differ among platforms, but clearly allow configurations to emerge that could not easily have been foreseen or designed in the form of a programme.

These, as well as other examples from national level policy, illustrate the power of using bottom-up organisation to identify and implement effective cooperations.

NORIA can be strengthened at little cost by selective mutual opening of national R&D programmes to build Nordic Platforms

In principle, the Nordic nations could decide to open their R&D funding programmes to each other simply by accepting applications for funding from people in all the Nordic countries. No one regards this as a serious option. More realistic dimensions of opening are to build Nordic Platforms through

- Joint needs analysis and planning among funders and other stakeholders across the Nordic area, either instigated by the funders (as in ERA-NETs) or by other stakeholders bringing cooperation proposals to the funders
- Parallel but separate calls for proposals in Nordic countries, as an outcome of this planning
- Joint calls for proposals. These can easily be financed on a 'virtual common pot' basis, so that funders fund their own nationals only, or they could eventually lead funders to create real common pots, with no *juste retour*

The variation in structures and resources among the Nordic countries means that such opening needs to be done with variable geometry: at least three Nordic countries should participate in each case, but the participation of all five should not be required. A modest amount of money needs to be made available to act as a 'lubricant' by subsidising the planning effort involved. Implementation can be done largely using existing budgets.

There are important differences of law, administrative practice, timing of calls for proposals and so on among the Nordic countries. However, the ERA-NET experience shows that such obstacles can be overcome. Building experience and routines for tackling these questions will create an advantage for the Nordic region compared with other intra-EU cooperations, where the geography is more ad hoc and partnerships are different in every case. A clear signal from ministers that these barriers should be reduced and managed would provide useful encouragement for the agencies involved and *de facto* increase their autonomy by allowing them to pursue internationally coordinated as well as national strategies.

However the institutions that could coordinate this at Nordic level are incomplete

NordForsk and NICE are the current institutional pillars in the Nordic system for discussing and implementing research and innovation policies at the Nordic level. NordForsk is a very recent creation and has yet fully to find its form but promises to bring together the research councils and build upon the work of the established NOS committees. However, NordForsk and NICE live in different ministry fiefdoms (Education and Industry, respectively). Their links to the grass roots at national level are limited and their links to each other seem largely confined to sharing office space. There is no common governance or coordination channel. The Nordic level therefore lacks key ingredients of good research and innovation governance practice that would be necessary to develop the holistic research and innovation policies, which the Nordic states individually see as crucial to good performance. There is little strategic intelligence available that is structured at the Nordic level, so the ability to assess needs and design interventions is correspondingly limited. They have poor governance links to non-state stakeholders, especially industry. Crucially, their overall size is very modest – possibly even under-critical for performing a significant international role.

As they stand, these structures do not have the mechanisms or the defined role that would be needed to coordinate the kind of bottom-up cooperation initiatives that historically have resulted in successful Nordic cooperations and that could in the future create the joint programmes and platforms that will strengthen Nordic actors in the Nordic and international R&D arenas.

Nordic structures need to become better able to develop holistic research and innovation policies and to respond to bottom-up pressures for cooperation and opening of programmes

Periodic meetings and creating a joint secretariat between EK-NE and EK-U, inviting and funding bottom-up planning initiatives would be a good step towards enabling bottom-up driven cooperation and joint funding initiatives to be put in place across current research and innovation spheres.

The mutual dependence of innovation and research is widely acknowledged in national-level policies. The Nordic level, like the individual states, needs to create structures that can cope with this reality. Experience suggests that it is easier to cooperate in research than in innovation, so it is natural for the research and education ministers to take the initiative and to propose and create mechanisms that will eventually allow increased cooperation to spill over from research into innovation policy. We suggest in the first instance therefore that the Nordic Council of Ministers, and its secretariat should propose mechanisms to do two things

- First, to invite the individual Councils of Ministers into a process of horizontal coordination that can build the needed Nordic-level policy arena
- Second, it should find a way to run a pilot programme to encourage bottom-up initiatives across the whole of the research and innovation area. The pilot programme should initially aim to provide planning funds to 5 – 10 projects per year, which should result in concrete proposals for new cooperations, including proposals for limited mutual opening of national Nordic programmes.

To implement such a programme requires agreement from at least some of the national research councils and innovation agencies. (It is not clear that every one of them has to be involved.) It further needs an allocation of, perhaps, a handful of millions of kroner per year for three years to pay for the joint planning projects ahead of an early evaluation to determine the usefulness of the scheme.

The principle of research funding across Nordic borders using a common pot and without *juste retour* is already established. Researchers are voting with their feet to support it. This scheme will extend that principle and allow the research and innovation communities themselves to identify where Nordic Strength is to be found, where cooperation and co-funding makes sense at the Nordic level.