



Government Offices of Sweden

Speech

Speech by Helene Hellmark Knutsson, Minister for Higher Education and Research, at the Meeting of Nordic Higher Arts Educations

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Thank you for the opportunity to say a few words about Nordic collaboration in education and research.

As you know, Sweden holds the Presidency of the Nordic Council of Ministers in 2018. During our Presidency, Sweden wishes to work for an inclusive, sustainable and innovative Nordic region. A Nordic region that is both secure and open. Based on our Nordic model with three pillars: an economic policy focused on full employment, a universal and generous welfare system, and an organized labor market.

In achieving those goals, education and research have a crucial part to play. Education and research represent hope for the future. To enable individuals and societies to develop, education must be inclusive and accessible to all. The education we provide must be sustainable, but also capable of responding to the changes taking place in society.

And research is one of the areas that need to be most innovative and dynamic of all, to offer answers to the major challenges which our societies face and which we share across the Nordic countries.

At the present time we face a troubled world and major challenges to our societies. Fake news and disinformation travel fast and contribute towards

distrust, insecurity and tensions.

In many parts of the world we see challenges to the fundamental values of higher education, such as academic freedom and institutional autonomy. We have had reports about universities being closed based on political conflict, and universities facing new legislation aiming to stop their operations.

In the Nordic countries, we share a belief in academic freedom and institutional autonomy. This is important to highlight and work for in times like these, when such fundamental values are threatened elsewhere.

As countries, we have seen how the expansion of our education sectors has helped transform our societies into knowledge economies. However, to us higher education is not merely about providing instrumental skills. It is also about promoting fundamental values.

Arts education and artistic research – the areas which you represent – have a crucial role to play in this context. Art and culture are integral to vibrant, democratic societies and can act as counterforces against undemocratic tendencies. The education and research that you provide, can help build strong, democratic societies inhabited by curiosity driven and critically reflecting men and women.

In times like these, it is more important than ever to continue to invest in Nordic cooperation. The similarities between us are greater than the differences, and working together on issues we are agreed on gives us an even stronger voice than we would each have on our own. Nordic co-operation is also something that our students and citizens appreciate, an appreciation we must safeguard.

During the Swedish Presidency of the Nordic Council, two topics dominate. Both are considered crucial to the future and are discussed at the Council of Ministers for Education and Research (MR-U). The first is our common Nordic research policy, the second is the future of Nordic co-operation in education. I will say a few words about each of these topics.

About research policy co-operation, this is one of the most extensive and oldest areas of collaboration within the Nordic Council of Ministers. The aims of this co-operation are to help the Nordic region develop into a leading knowledge region. And for the research undertaken to promote the advances in knowledge that are fundamental to the development of society, and policymaking, across a wide range of fields and sectors.

Most Nordic Council of Ministers research initiatives are channeled through NordForsk, which primarily is a platform for collaboration between national research funding agencies. During its Presidency, Sweden has set out to further clarify the role of NordForsk and further develop its work in terms. For example, of Nordic added value, improved collaboration and a greater focus on quality.

When it comes to education, the Swedish Presidency is focused on the agenda for future cooperation. The work that we are now undertaking builds on a report from 2017 by a High Level Group appointed by the Nordic Council of Ministers to carry out a strategic review. The report provides recommendations on how future Nordic co-operation in education could be strengthened and renewed. During the Swedish Presidency, the ambition is that, based on the High Level Group's report, it will be possible at to adopt clear guidelines and priorities for further work by the Council of Ministers on educational issues in the coming years.

Both topics – strengthening our common Nordic research policy and setting out the agenda for our future collaboration in education – will be important in many respects. Nordic collaboration in research can provide real added value to the work that is undertaken in each of our countries. This probably holds true not least in a developing field such as yours. And I note that you have embarked on a number of joint Nordic actions such as a new research journal.

Nordic collaboration in education not only gives the individual student an opportunity to take part in high quality education in a neighbouring country – it also strengthens development in our home institutions.

I am sure that this is something that you are highly aware of in your field. I note, for example, that there are dynamic and ambitious Nordic networks under the Nordplus umbrella, in the fields of fine art and music pedagogy and many others.

The Nordic countries are region in the far north. We need to draw on our joint knowledge and skills, research and innovative capacity.

We also need to build on our common understanding and fundamental values.

It is by working together, that we can achieve a Nordic region that is secure, strong and open. Based on our successful Nordic model.

Let us continue this joint venture, with the goal to secure the Nordic region

as a strong, sustainable and innovative knowledge region.



Government Offices of Sweden

Speech from Ministry of Education and Research

Speech by Helene Helmark Knutsson, Minister for Higher Education and Research, Swedish American Life Science Summit, House of Sweden.

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Washington, 12 April 2018. Check against delivery.

Honourable guests, ladies and gentlemen! It is a great pleasure and a privilege to be here today. I would specifically give my thanks to Barbro Enhbom and the Swedish American Life Science Summit for inviting me here today.

As the Minister for Higher Education and Research in Sweden, one of my top priorities is to enable excellent research and innovation. And I firmly believe that through collaboration between our countries – we can further strengthen the Life -Science sector.

The Swedish government is strongly committed to supporting continued rapid development in the life science sector, benefiting the whole society. And we welcome and value our relationship with the US in this endeavour.

While many countries decrease their investments in research and development, Sweden has chosen a different path. The government's research and innovation bill contains an increase of 300 million Euros of government funding over the next few years.

One of the top priorities in the research bill is life science. Sweden is a major

player on the life science arena, offering a thriving life science environment which is technology-driven and characterised by close collaboration between academia, health care, industry and patient organisations.

As a logical consequence of this, life science is a dominating line of business and a cornerstone of the Swedish economy. Supporting research, innovation and co-creation in the life science sector has been a long-standing strategic priority of the Swedish government.

The threats to human health are escalating rapidly across the globe, rendering human health a major global challenge. Accordingly, in 2015, our National Innovation Council, which is chaired by our Prime Minister Stefan Löfven, launched a strategic programme in life science to further accelerate progress in research and innovation, and promote co-creation involving all major stakeholders.

Further, in February 2018, an Office for Life Science was established in the Government Offices, a first assignment of which is to develop a national strategy for life science.

However, there is so much more to be done. The process of turning research results into clinical practice is of uttermost importance. If new knowledge is not converted into new treatments and other innovative solutions, patient benefit will be lost. Efforts must be made to speed up this transformation and make it easier for researchers, industry and healthcare to join forces.

Clinical studies Sweden is one such effort. It is a national infrastructure that supports and optimizes conditions for conducting clinical trials. The aim is to make it easier – both for academic researchers and for companies – to do high-quality clinical trials in Sweden.

To further strengthen life science in Sweden, the Government has made other several efforts during recent years and I would like to mention a few examples.

The area of biological pharmaceuticals is a Swedish priority. Sweden has the chance to position itself as one of the leading countries for the development and production of biological drugs. Broad efforts have been made within the area, including a national research programme for protein research, method development and production of biological pharmaceuticals.

In parallel with the Government's initiative, the Wallenberg Center for Protein Research has been established. The center is run by three universities, (The Royal Academy of Technology, Uppsala University and Chalmers), in collaboration, with main funding from Knut and Alice Wallenberg Foundation. AstraZeneca and the Novo Nordisk Fund also contributes financially to the Center's operations.

The total investment is close to 100 million Euros and is a brilliant example of the kind and level of resources that can be raised when government and private actors work together.

To further strengthen this field, a test center for industrial scale-up of the production of biological pharmaceuticals will be launched this summer. The center is a joint venture between the Government and GE Healthcare.

The Government also promotes the start and scale-up of new companies in the life science sector. In 2016, the Swedish Parliament gave Government the mandate to launch an investment company.

Starting in 2017, Saminvest Incorporated, with a capital of SEK 5 billion, is entrusted with the task of capitalizing new venture capital funds that are expected to vitalize the Swedish venture capital market. Experience so far indicates that there is a major interest from the life science sector.

A further initiative that is currently being considered includes prolongation of the period of tax reduction available to international experts who are recruited to Sweden as well as provision of options to personnel as a means of attracting and retaining key competences in Small and medium enterprises.

I would like to mention something about the digitalisation revolution in life science. Digitalisation has been a prerequisite for efficient handling of 'big data' arising from the new technologies and will continue to speed up progress in life science and clinical medicine.

Here, Sweden has competitive advantages. Our public health care system, along with the personal identification numbers introduced in 1947, has made generation of unique, comprehensive patient registers and functional biobanks possible.

Sweden's patient registries can provide data from ongoing patient care ("real world data"), including diagnoses, use of drugs and medical devices, compliance with prescribed treatments, and follow-up of outcomes on a large population scale. Combining the use of registries with biobanks paves the way for more in-depth studies on, for example, genetic factors and biomarkers.

The Swedish government has invested more than 150 million euros over the last 5 years, and work is under way to further enable the use of patient registries for research, development and follow-up.

While the health threats and challenges have increased, new opportunities for prevention, diagnosis, treatment and cure have emerged in parallel. Major advances in areas such as genomics, molecular biology and protein science have revealed the specific causes of disease and, increasingly, offer possibilities for finding cures.

These new tools for identification of causal mechanisms of disease, on the level of individual molecules, and for production of drugs targeting specific molecular mechanisms have turned treatment tailored to the individual into a reality.

Lastly, I would like to mention that neither Sweden or the US can't do it alone. We need to strengthen our relationship further if we are to face our global health care challenges together. Only by building a strong knowledge-based society will we be able to take on the challenges ahead of us. And this can only be obtained by continuous efforts into research and innovation in both the US and Sweden.

Thank you very much for listening!



Government Offices of Sweden

Speech from Ministry of Education and Research

Speech by Helene Helmark Knutsson, Minister for Higher Education and Research, at the 2nd China Sweden Health Forum

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Excellencies, good morning! Thank you very much for the opportunity to speak here at the Second China Sweden Health Forum.

As our societies grow wealthier our populations also live longer and are exposed to new health challenges. Such as increased diabetes, cancer and respiratory diseases. The proportion of people with Non-Communicable Diseases continue to grow.

Therefore, our health care systems must deliver care of high quality, while at the same time being cost efficient. This is a challenge shared by Sweden and China.

I believe that international collaboration and pioneering research are crucial to find the most innovative and best solutions for this.

Working across borders to fight disease and conduct joint research with the aim to solve mutual problems is the way forward.

The 2nd Sweden-China Health Forum will provide an opportunity to discuss how different stakeholders can work together to improve care for people in Sweden and China. This is very promising.

One focus area for our government is health care and life science. And Health care and life science is also a prioritized area for Sweden in China.

Swedish health care companies contribute to the Chinese health care system, with research as well as innovative services and products.

A number of Swedish companies have together with Swedish authorities and academia created a platform in order to coordinate bilateral cooperation and to better understand what opportunities and challenges that exist in China within the life sciences and health care. We call this the Swedish Life Science and Health Care platform in China.

Sweden is doing well as a research and innovation nation, and our aim is to continue to be one of the top countries in the world.

We invest heavily in R&D, devoting around 3.3 percent of our GDP to R&D in 2017.

As Minister for Higher Education and Research in Sweden, one of my goals is to enable excellent research and innovation in the public sector – in close collaboration with the business sector.

Collaboration between universities, industry and the public sector is one of the cornerstones of the Swedish innovation system. Through this collaboration we are able to create mutual learning experiences.

Our research and innovation bill, which recently passed parliament, has a long-term perspective. It will define Sweden's research policy for the upcoming 10 years. It contains an increase of 300 million Euro of government funding to R&D over the next four years.

The name of the bill, Collaboration for knowledge, also underlines the Swedish politics in this area. Collaboration with all relevant players in society is essential for achieving greater societal impact.

Some of the societal challenges pointed out by the Swedish Government – climate, health, sustainable societies and digitalisation – are global. To address these challenges we will all, globally, benefit from strong research collaboration.

International exchange is vital to strengthen the quality of higher education and research, but also to promote understanding between countries. Mobility at all levels should be stimulated as well as exchange of best practice and mutual learning.

Our government has appointed a special commissioner to lead an official government inquiry into how Swedish research and higher education may be further internationalised.

I wish to mention that Sweden and China already have ongoing research collaborations at many levels.

For instance, within the antimicrobial resistance, AMR-area, China and Sweden have joined forces and established a joint research programme funded by the Swedish Research Council and the Natural Science Foundation in China (NSFC).

"Framework grants" in antimicrobial resistance have been awarded at several occasions.

The NSFC and the Swedish Research Council, are also funding Swedish-Chinese collaborative research within natural sciences and medical sciences. This programme has a long term perspective.

I also want to say some words about the Swedish health care system. It is regularly ranked at or near the top of most comparative analyses of international health care systems.

One of the main features of the Swedish health care system is its universal coverage. The system ensures that all residents have equal access to health care services. And it is to a large extent publicly funded.

Now, we must ensure that modern health care can be available not just to us, but to our children and their children in the future. For this, we need more research and new solutions.

So this is just the beginning. It is now imperative to maintain momentum, advance our positions and build capacities in order to meet our commitments.

And to do it together in international collaboration.



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Speech from Ministry of Education and Research

Speech by Helene Helmark Knutsson Minister for Higher Education and Research at The 5th European Women Rectors Conference

Published 19 June 2017

Brussels 29 may 2017. Check against delivery.

Dear participants, dear rector Ullenius, ladies and gentlemen.
I'm very glad to be here today at the 5th EWORA conference. It really gives me inspiration that so many bright women and men are here to push these issues forward.

For me, the issue on the agenda here today is at the very centre of my political ambition as Minister for higher education and research in Sweden.

We are here to discuss and to raise awareness of the under representation of women in leadership positions within academia. The need of discussing these issues is still very relevant all over Europe.

Sweden has the world's first feminist government. And this is not empty words, it implies real obligations.

That means that gender equality is high on our agenda in every field and that gender equality must be central to all decision-making and allocation of resources.

For the Swedish government, the goal of gender equality policy is that women and men shall have the same power to shape society as well as their

own lives. This broader perspective is important to keep in mind as academia is not an isolated area from the rest of society. We need to work with these issues in society as a whole and at the same time focus on specific solutions in areas such as the academic world.

And maybe it is even more important that the academic world, that has such immense importance for growth, democracy and knowledge, carries the values of openness and equal opportunity.

Swedish governments have worked with these issues throughout a number of years. But we still have a long way to go.

For example, the share of female professors today in Sweden is 27 %. This is despite the fact that more women than men attend and graduate from higher education, and that it has been this way since the 1970's. And this is despite that Sweden is world leading when it comes to the participation of women at the Swedish labour market.

Statistics of employees at universities in Sweden give the appearance that there is an even gender spread. But if you dig a little deeper, the numbers shows that the women are first and foremost employed as administrative staff. Women and men are also to a large extent studying different subjects at all levels. This leads to a labour market that reinforces gender segregation.

The same picture can be seen in the whole of Europe. From the report SHE FIGURES 2015 it can be read that women are increasingly under-represented as they move up the stages of an academic career. This is despite the significant progress in their level of education relative to men.

Another interesting fact is that the proportion of women among heads of higher education institutions in the EU is only 20 %. In scientific and administrative boards 28 % of the board members are women, and only 22 % are board leaders.

And the European Research Area Survey shows that 36 % of research performing organisations indicated that that they had introduced gender equality plans in 2013. This is not enough.

These numbers show that we are not talking about a single Member State's challenges, but rather a European challenge. I'm very interested in what

other Member States are doing to face these issues. I think that it is important that if you agree that this is a European challenge that we exchange ideas and thoughts on how to combat this problem.

For Sweden these challenges are countered by some key reforms: One policy that lies at the heart of our work is our strategy of gender mainstreaming. This is absolutely crucial to make change. The strategy is a way of ensuring that all policy making has a gender equality perspective and analysis.

The perspective is relevant in all policy areas, at all levels and all stages, by the actors normally involved in the policy-making process. Not least in academia.

That's why I'm glad to say that the Swedish government has included all the state universities and university colleges, into a programme that will strengthen their work with gender mainstreaming.

That's partly why this conference is so important. We need to remind ourselves as decision makers and the other actors working in various ways in the academic world of this holistic view. We need to do this until it gets integrated into every day thinking and policy making at local, national and European level.

There are targets set for each state university and university college regarding the proportion of women among newly recruited professors. And our government has stated that 50 per cent of newly recruited professors should be women by 2030 at the latest.

These are new ambitious goals. And some universities have already expressed their concern, about if they will be able to achieve this. But we need to drive development forward. And I'm convinced that it needs to be done and that it is possible!

We are also trying to improve conditions for young researchers and make career paths more clearly defined to promote mobility. Career development positions should become more uniform and be advertised in open competition at national level and if it possible at international level. It should be about merits and not about who you know. Without attractive career paths where scientist are judged on the merits of their work, universities and

university colleges will ultimately not be able to attract the right competence to research.

Finally: I want to remind us all that we need to change our perception of who the scientist is. If a child is asked to draw a scientist they often draw an older man. This is no accident. In popular culture – video games, books, and movies – professors and geniuses are often men. Being bombarded with these images will inevitably influence young girls and women to believe that pursuing a career within science are not for them.

This is why it is so important to speak about female role models within science at these events as well.

Let us do that and continue to fight the inequality within academia today. The world needs more science and science needs more women.

THE END



Government Offices of Sweden

Speech from Ministry of Education and Research

Speech by Helene Hellmark Knutsson at BIO-Europe spring 2016

Published 04 April 2016 Updated 04 April 2016

Stockholm, 4 April 2016. Check against delivery.

Mayor, honorable guests, ladies and gentlemen. It is a pleasure to see all of you here in Sweden, for this truly important event for life sciences in Europe.

As the Minister for Higher Education and Research, one of my goals is to enable excellent research and innovation in the public sector – in close collaboration with the business sector.

To do this, Sweden needs to build on its strengths, and one of them is life sciences. We have strong medical research, for instance in protein research and genomics, at world-leading universities and in industry. We also have a healthcare system that has always been very innovative and ahead of its time. There is a strong collaboration between the industry and academia, both in medtech and pharmaceuticals.

Moreover, we have a long tradition of strong universities and we are now increasing the number of students in all our universities all around the country. Through this, both research institutions and industry will find very high-skilled staff. It is the high level of skills in particular that has made our country very attractive to investors.

The future of life science in Sweden is of high priority for the government. There are many reasons;

- The demands from the health sector are growing – especially since a larger proportion of the population are the elderly. We need to invest in making life better and in making cures more efficient in the future.
- The life science industry is going through a change where the new ideas more often come from SMEs and universities than from Big pharma. The industry is therefore more and more dependent on collaborations with academia and health care providers.
- Also, Life science is one of Sweden's largest export areas after wood and paper. So it is of high importance for creating jobs and growth for our economy.

I want to tell you about some of the initiatives the government is working with:

1: The Government has appointed an Innovation Council which is chaired by the Prime Minister. It has identified Life Science and digitalization as key sectors for Sweden.

Our aim now is to strengthen Sweden's position in research and development and improve our attractiveness for investments. And also to contribute to better health and help to tackle the health-related challenges we face as a society.

I also wish to highlight that the government will work with a long-term perspective on life sciences. We will address this area in the coming research policy bill that will define Sweden's research policy for the coming 10 years.

2: In order to strengthen Swedish Life Sciences cooperation is the key. I have appointed a national coordinator for life science with the task of stimulating cooperation between the academia, industry and the health care sector, Anders Lönnberg.

The government has also appointed an advisory board with representatives for each part of the sector to assist the coordinator in identifying obstacles, and through dialogue find solutions. The objective is to set priorities and an agenda for the life science sector to work with, and also to leave suggestions for further actions to the government.

3: The Government has identified that with Sweden's skills in protein research and development it is time to make an effort to make Sweden one

of the leading regions for bio-production.

So, in December the government presented a national program for protein research, method development and biologics production. It will extend over a period of eight years and the state funding will total SEK 320 million.

By this new program the Swedish government wishes to enhance the collaboration between the different sectors and make Sweden a stronger international player in the Life Science area. We strongly believe that Sweden has an unmet potential to become an attractive international platform for collaborators both in academia, the health sector and the industry.

Therefore, I am glad that we have had parallel investments by the Knut and Alice Wallenberg Foundation and AstraZeneca.

Together with the government, almost one billion Swedish crowns is invested in total. This shows the importance of common goals.

Portions of this national research program may also be linked to the important research infrastructures existing in Sweden, like the SciLifeLab, the European Spallation Source (ESS) and MAX IV. This creates opportunities for international partners and for creating cross-border cooperation.

I would also like to invite you to these large infrastructures, which are open for collaboration. And I hope that we will see more collaboration between academic research and industry, all over Europe, in the future.

Sweden has a long tradition of research and innovation in the life science area. And I hope that we together with the rest of Europe can take it forward - for the benefit of our society.

So I wish you good luck the coming days!

Thank you!



Government Offices of Sweden

Speech from Ministry of Education and Research

Speech at the conference Large Scale Research Infrastructures – Maximising the Potential of Renewed growth in Europe

Published 23 November 2015 Updated 23 November 2015

Stanhope Hotel, Brussels, 16 November 2015 Check against delivery.

Dear fellow speakers, ladies and gentlemen,

It is a great privilege to be here today to listen and to discuss big-science investments in Europe. But first I would like to reflect on the acts of terror in Paris this Friday.

During the minute of silence earlier today, the whole EU mourned with the people of France – and our thoughts went to the victims and their families.

The dreadful acts of terrorism we have seen in Paris, and in Beirut only a few days earlier, are attacks upon democracy itself and our open society. They must and will be met with resolve. And in these times, the most important thing of all is to stand up for the values that guide us - democracy, freedom and equality between people. Terrorism cannot and will not shake these values.

Terrorism must be opposed. And we also need to tackle the underlying causes of terrorism, by taking a long-term approach. Here we need knowledge, research and international collaboration. Only then can we hope to understand and counteract the complex patterns that attract people to the path of terror.

Knowledge is important – with the right to education, but also increased knowledge of racism and terrorism. The Swedish Government has established an institute to help prevent extremism and terrorism, but also established a research program against racism.

There is also several examples of international collaboration – us being here today, the European Union itself, but also collaboration between member states in projects as the European Spallation Source and MAX IV are examples of.

I very much welcome the initiative taken by the organizers of this event to discuss the important question on how Europe can maximize the societal and economic impact of the investments made in research and specifically in Research Infrastructures.

As the minister for Higher Education and Research in Sweden, I will also take this opportunity to share some more general views and priorities of the Swedish research policy in the coming years.

Today, humanity faces several of its biggest societal challenges ever. Global warming, the rapid extinction of biological diversity, the need to create inclusive societies, ageing societies, public health and pandemics are but a few examples of the grand challenges we need to address.

The way politics, business and society can handle these challenges will strongly affect Europe's economy and society in the coming years. We cannot expect a single scientific or technical area to solve the problems. We need long-term support and investment in broad areas of research and education. This to provide for a sustainable development, economic growth and increased competitiveness for Europe.

Innovation is crucial for Europe's future and Research Infrastructures are a driving force behind it. Research Infrastructures are the most advanced tools for new discoveries and scientific breakthroughs and the pillars in the European Research Area (ERA). But they are also platforms for interdisciplinary research and for collaboration between research, education, industry and the society.

Ultimately, the potential of high-quality Research Infrastructures means that they can contribute to the successful realisation of the Europe 2020 strategy. Research Infrastructures will help to stimulate new ideas, new technologies and new talents. Something Europe will need to realise in the ambitious

programme of the Innovation Union.

Research Infrastructures can attract human capital and become important nodes for regional, national and international collaboration. But care must be taken to ensure they do not become isolated islands. Both public and private sectors need to collaborate to further increase the potential for societal impact, chain of patents, spin-off companies and industrial contracts.

Different countries and regions each have their own unique possibility to transform scientific results to economic growth. Smart Specialization is a good approach to achieve this. The meeting today has provided valuable input on how priorities and policies can be set to maximize the knowledge-based development and innovation ecosystem of a region.

Long-term stability and financial sustainability for construction and operation are key factors for a successful usage of Research Infrastructures.

We are proud to host two facilities in Sweden – the European Spallation Source (ESS) and MAX IV – which are expected to be world-leading in their respective field. Two facilities that will play an important role to help us tackle our big societal challenges.

Sweden has been committed to these two facilities over a long period of time and taken a big responsibility for their realisation. This has allowed the construction of both facilities to start without delays and for other countries to participate.

The recent start of construction of ESS shows that European countries, even in times of economic hardship, can collaborate and invest in the future and in the next generation of scientists.

Sweden is strongly committed to provide good operating conditions for ESS and MAX IV. In this work the role of the region is also important. A shared responsibility for the investment cost is needed and in Sweden the Region Skåne is co-financing both facilities. Regions are promoters for innovation and growth and are providers of the local infrastructure. Without strong regional support and political engagement there will be no fertile soil for the growing of a Research Infrastructure.

By using the possibilities given within the European Union we can build a stable foundation on which ESS can grow - not just nationally but also among all the member countries.

With the recent decision by the European Commission to grant ERIC status to ESS, a true joint European ownership is firmly established. We are very happy for this decision and for reaching this important milestone in the project. There is a solid governance structure in place allowing ESS Member Countries to contribute and guide the project and take a long-term responsibility.

Since the beginning of the 1980s, there is a tradition in Sweden to issue recurrent Government Bills on Research and Innovation, laying the foundation for the government's research policy in a 3-4 year period.

The next Government Bill is planned to lay out the strategies for the research policy until 2026, with a special focus on the period 2017-2020. It will mostly address research, but it will also highlight parts of higher education and innovation which is mutually beneficial.

We need a longer perspective to provide a long-term stability for research – and enable a higher risk taking. Therefore, the Swedish government has expressed its will to have a 10-year perspective of the next Government Bill. Some of the most important scientific discoveries come as a result of the unexpected. We must dare to invest in research for which there is a high-risk of failure but where the potential for new discoveries can be groundbreaking.

We need to stimulate the societal impact of research and create competitive environments where scientists, industry and other areas of the society can cooperate in an innovation system. This is an integral part of research policy and higher education and needs to be taken into consideration.

In Sweden, universities constitute an essential first part of the innovation value chain. But they need to have closer links to business and the public sector in order to find practical applications for new scientific discoveries.

The transfer of knowledge is central in an innovation system. In practice, it is often the individual researcher or student who carries key knowledge and competence. Therefore the mobility of students and researches plays an important role, as does the conditions for young scientists in order to make science careers attractive for young people.

The gap between higher education institutions and society needs to be minimised. In this area politics have an important role. We need to increase the incentives for universities to interact with society.

Therefore, we want to make it easier to shift careers and exchange positions between academia and the rest of society. By increasing the number of people with a science background we help to increase knowledge transfer and growth.

Sweden has the world's first Feminist Government. This affects all policy fields, including research and higher education. I believe that gender equality is essential for Sweden to become a truly prominent research nation. Gender equality is about using all talents and thereby increasing research quality. But it is also a question of democratic rights: that each and every citizen is given the opportunity to follow his or her dreams.

Gender equality needs to improve across the board. That is why I have appointed an Expert group to give advice on gender policy for higher education and research. We are also starting to Gender Integrate all our universities and to set new, ambitious, recruitment goals for gender balance among professors.

We have an ambition to provide more resources to universities. The increased interest from industry in taking advantage of basic research only comes with excellent quality of research. Basic science is as important as the more applied and it is the responsibility of the government to safe-guard this.

To quote the research policy advisor of President Obama: "Basic research is the seed corn for innovation".

For a small country like Sweden it is especially important to develop a national strategy for an effective use of ESS and MAX IV. The resources and efforts spent on these facilities are unique in the history of Swedish research policy.

ESS and MAX IV is a high priority for the Swedish Government. The Swedish Research Council has a special role in supporting the work on ESS/MAX IV and will present its first draft of a national strategy for these facilities in 2016.

Research Infrastructures need to support new user communities. The recruitment of new users of the facilities should be a part in the strategic plans for facilities like ESS and MAX IV. There are many research areas which could benefit from using the facilities, such as climate- and energy research and life science, but where the methods offered by the facilities are not the standard tools in their respective areas of research.

The co-location of facilities is another way of attracting new user groups and to further optimize the investments in Research Infrastructures. ESS and MAX IV will complement each other and offer opportunities beyond what each could accomplish alone. Before the end of the next decade researchers visiting Lund and Sweden, will have access to two state-of-the art experimental facilities. Facilities that could be host joint education, summer schools and perhaps a joint access and use of the facilities.

The universities are the strategic centers for securing the necessary competence to use and develop Research Infrastructures. Researchers at the facilities should get the opportunity to teach and perform research at the universities.

In facilities like ESS and MAX IV we are investing in the future. It is therefore important to attract the next generation of scientists which will be the future users of the facilities.

Finally, I would like to encourage you all to take advantage of the great potential facilities like ESS and MAX IV offer. The Swedish government welcomes a continued dialogue with the regions, the Member States and the European Commission how the use of Research Infrastructure can be more effective to tackle the Societal Challenges we face.

Europe's response to Societal Challenges in the fields of research and innovation is important and I look forward to continue the discussions on these topics in the framework of the Lund Revisited Conference in Sweden on December 4th this year.

Thank you!



Government Offices of Sweden

Speech from Ministry of Education and Research

Speech at Science and Technology forum 2015

Published 14 October 2015 Updated 14 October 2015

International Conference Center, Kyoto, Japan, October 4, 2015 Check against delivery.

Dear fellow panellists, Prof. Wiesel, ladies and gentlemen

Sweden prides itself on being a knowledge society. Our global competitiveness depends on our ability to create, develop and make practical use of new scientific discoveries. In short: our capacity to innovate. We invest in knowledge and competence.

But innovation is not just about competitiveness and economic growth. As we consider the big challenges facing our societies today – climate change, inclusive societies, energy, health and ageing, just to mention a few – innovation is at the heart of our ability to find solutions that are economically, socially, and environmentally sustainable.

In Sweden, universities constitute an essential first part of the innovation value chain. But they need to have closer links to business and the public sector, in order to find practical applications for new scientific discoveries and to transfer knowledge and we also need to look more at students as central carriers of new ideas and knowledge.

And not every scientist should be forced into becoming an entrepreneur. There will always be scientists who come up with new ideas and produce excellent research, but for different reasons do not want to take their projects outside academia. That is why there needs to be ways in which their discoveries can be picked up by other actors in the innovation system.

About half the population in Sweden and the world is female. The Swedish

labour market has a high participation of women, 77 %. This is the main reason why Swedish employment and labour force participation long have been among the highest in the EU. But we still see big differences between women and men when choosing higher education and their possibilities to make a career in research and science.

In Sweden there are more women taking part in higher education than men and the study choices of students are seemingly gender-based. We need to take a long, hard look at our societies and ask ourselves: who gets to appear as scientific experts on TV and in newspapers? What is the gender portrayed for different professions that influences the choice of education? Who gets portrayed as smart and innovative in popular culture? Preconceptions about gender have deep roots and are hard to change. Here, academia has a vital role to play.

Since 1999 the number of Swedish female professors has increased from 12 to 25 %. This is good, but not good enough – especially as the increase has slowed down in the recent years. This means that research and education lose important competence due to fixed ideas and prejudice. Sweden has the world's first Feminist Government. This affects all policy fields, including research and higher education. I believe that gender equality is essential for Sweden to become a truly prominent research nation. But it is also a question of democratic rights: that each and every citizen is given the opportunity to follow his or her dreams. That no one is forced do away with their innermost ambitions.

Gender equality needs to improve across the board. That is why I have appointed an Expert group to give advice on gender policy for higher education and research. We are also starting to Gender Integrate all our universities and to set new, ambitious, recruitment goals for female professors.

Research grants must also be awarded in an equal way. Swedish research councils have equal success rates for men and for women. But the outcome of applications to the European Research Council gave us cause for concern. Sweden came out at the lower end with only 10 % of successful applicants being female. An important goal for us will be to make research funding gender equal.

Sweden is often described as one of the most equal countries in the world. Higher education is a democratic right, available free of charge to every citizen. And still participation in higher education remains highly determined

by your socio-economic background. If your parents have some sort of higher education, you are twice as likely to take part in higher education yourself, compared to those with parents who only finished secondary school. This is a huge flaw in our system.

In a modern country like Sweden, socio-economic background, gender, or disability cannot be allowed to determine a person's chances of getting a degree. Equal access to education is a democratic right. This is why I have put widening access and widening participation in higher education and research front and centre of my agenda as a minister. I have told our government agencies to step up their work on these issues, to identify successful examples and encourage the spreading of best practice among universities.

I look forward to your questions, and this opportunity to have a constructive discussion about the role of universities in creating more democratic, sustainable, and equitable societies in the future.

Thank you!



Government Offices of Sweden

Speech from Ministry of Education and Research

Speech at Association Of Space Explorers XXVIII Planetary Congress

Published 21 September 2015 Updated 21 September 2015

Stockholm Concert Hall, September 29, 2015. Check against delivery

It's an honour to be here with you all today. In Sweden, and probably in your countries, the media headlines are normally about politicians, movie stars, musicians, company leaders and other celebrities

However, for a few weeks in 2006 and then again in 2009, all headlines were about a scientist, about Christer Fuglesang. This was when he twice visited the International Space Station.

It is quite rare to see a researcher being treated like a star - but that was the case when Christer returned to the earth and went on tours in Sweden.

Besides the obvious pleasure of meeting your colleagues, you are also on an important mission this week – to help spread the fascination of space to the public and especially to young people. Your visits to different schools are highly appreciated and will most definitely increase the students' interest in science.

Only three weeks ago, a proposal for a national space strategy was handed over to me after more than one year's work. I had the pleasure to present the work together with the investigator directly to the Prime Minister and several other government colleagues, companies and scientists - the National Innovation Board. They were very interested in how space can increase our knowledge and also improve conditions on earth.

The focus in this strategy is on having a holistic perspective on space activities in all sectors - not only space industry and research. It is important to ensure that the benefits for mankind - and for the societal needs and challenges are in focus.

We will soon ask other Swedish stakeholders for comments on this proposal. And I look forward to receiving these and to continue the discussion on how Sweden can strengthen its role in the global space community - and how to make the best use possible of space activities nationally and in international cooperation.

One thing that was recommended in the proposal was to develop the Swedish space base Esrange - situated above the Arctic circle – and it has a unique potential due to its isolated location and its space cluster. Esrange could be a European space port with capacity to launch small satellites into orbit, besides the existing European space port in French Guiana for heavier payloads. It is an interesting suggestion and we will consider it.

As we heard today, the space context is very international, and your presence here today is a proof of that. The International Space Station owns its success due to the international collaboration. The space can actually be seen as a successful peace project, and Sweden is dedicated to contribute to work in international organizations so that space will remain that way.

We just have one Earth, but up until now we have not been kind to it. Pollution, deforestation, over-fishing and other unsustainable activities have a severe toll on Earth, and the ongoing climate change is already causing changes in weather patterns and sea level rise. To understand what is happening and to be able to come up with efficient counter-measures, we need to monitor the development.

Earth observation satellites are crucial for this purpose. But also for tackling immediate crises like forest fires, flooding and other natural disasters. The Copernicus programme within the European Union and the European Space Agency will be vital for this monitoring - It shows the importance of international cooperation and long term planning and investments.

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Every four years, The Swedish government drafts a National research and innovation strategy. We have recently started the work on the next one that will be ready next autumn. I see space as a driver for innovation, since the

extreme conditions in space demand innovative and efficient solutions. Many of these innovations will be useful also on earth.

And we have many things around us in our daily life that actually stem from space applications and products.

It is a privilege to have the opportunity to meet you.

I look forward to talking to you since I will be attending several parts of your programme this week. Your comments and advice on space issues and how Sweden can embrace it are appreciated. I encourage you to talk to my colleagues from my ministry since they will be around for most of today's program.

Once again, I want to welcome to Stockholm, and may you have a fantastic week here!

Thank you very much!



Government Offices of Sweden

Speech from Ministry of Education and Research

Speech at Nordic Life Science Days 2015

Published 09 September 2015 Updated 09 September 2015

Stockholm Waterfront, September 9, 2015. Check against delivery

Thank you for inviting me to this meeting. It is a great pleasure to participate in the forming of closer ties between Nordic academy and industry.

As a Minister for Higher Education and Research, one of my goals is to enable excellent research and innovation in the public sector in collaboration with the business sector.

I think it is crucial that our welfare is strong for our competitiveness and for our ability to tackle our grand challenges. For this, the government is convinced that in order to stay competitive Sweden must compete with knowledge, research and innovation, not low wages.

It is through the high quality of Nordic higher education and research, in this case life science, that we manage to satisfy the high-tech industry with qualified staff and knowledge - and attract investments in factories and in research and development from the industry.

The Nordic countries are an attractive area to conduct research in, both for individuals and for businesses. But to stay strong we need to attract talented young researchers to a career in science.

I believe that creating attractive research environments as well as providing good working conditions in terms of planned careers will strengthen our position in the world.

Therefore, the system for researchers' careers may need to be revised. In Sweden we are currently looking into this.

Another thing that is necessary for our success is gender equality. If not all our talents are given the possibility to develop, we lose valuable competence. Therefore, the government wants to promote gender equality in science in general, and at universities and colleges in particular.

The Nordic countries have a long tradition of medical research of world class, successful large and small pharmaceutical companies, and a well-developed and well organized health care. Partnerships between academia, industry and health care have been very fruitful. They have led to significant innovations in the form of medicines and better treatments. The open collaboration and access to health care resources have been key factors for this success.

The Nordic countries have certain strengths which we could to a larger extent make use of and benefit from, not the least our life science companies. In the Nordic region we have collected medical information in registers for many years. They are gold mines for research. But our populations are small and the cohort sizes may not always be large enough. So to step up and compete we may need to increase the Nordic collaboration even more.

Expensive research infrastructure is another area where the Nordic countries already are working together. We would like to invite you to the large research infrastructure initiatives that we build now, ESS and MaxIV and SciLifeLab, which are open for collaboration.

As for life science in Sweden, I want to tell you what initiatives we work with. The Government has appointed an Innovation Council which is chaired by the Prime Minister and which among a handful of areas has special focus on Life Science and digitalization.

I have, as the Minister for Higher Education and Research, the overall responsibility for the area of Life Science in the government. We have appointed a coordinator for the life science, Anders Lönnberg. His work involves giving the government suggestions for changes and improvements within the Swedish Life Science eco-system including the business sector, the academic sector and the health care sector.

The next year, the Swedish government will present a research bill with a long term perspective - as a step in strengthening research by providing long-term conditions.

There are also a few relatively new Swedish programs that focus on clinical research that are relevant to the life science industry:

- National coordination of clinical trials, placed at the Research Council. It aims to facilitate and increase collaboration between industry, university and health care.
- A committee of the Swedish Research Council that distributes 100-150 million Swedish crowns per year in clinical treatment research.

I would like to see more collaboration between academic research and industry. It is important that publicly funded research is useful for society in many ways. This can be by providing highly educated people through higher education, by new scientific breakthroughs - but also through direct cooperation between scientists and companies.

In times when the pharmaceutical industry is transforming, it is important that the academic sector is available as a source for knowledge transfer to industry and as a place where industry can find world leading research in areas of interest for their research and development.

Life science is an area that has high priority for the Swedish government. There are many reasons;

- The demands from the health sector are growing – especially since a larger proportion of the population are the elderly
- The life science industry has gone through a tough change and is more and more dependent on collaborations with academic science and health care providers
- The technical development has made it possible for different disciplines to work together in a new way

Sweden and the Nordic countries have a long tradition of research and innovation in the life science area. Now I hope that we together can take it forward into the future.

Thank you very much!



Government Offices of Sweden

Speech from Ministry of Education and Research

Speech at the inauguration of the Integrated Cardio Metabolic Centre (ICMC)

Published 12 June 2015 Updated 12 June 2015

Karolinska institutet (KI), June 2, 2015 Check against delivery

Thank you for inviting me to this inauguration. It is a great pleasure to be here, and to participate in forming a better environment for Swedish research.

It is my mission as Minister for Higher Education and Research to enable the formation of excellent research environments. And this is one of those environments!

Karolinska institutet is one of the internationally most famous Swedish universities. I want to form a government policy that can help you maintain, and improve, your leading position in the world.

Our government is now in the process of forming the research policy for the coming decade. It will be presented in a bill to parliament next year.

And we want input from the scientific community in our work to produce this strategy. This process is now starting. We have invited all universities, university colleges, academies and research funding organizations to give us their input. We think it is important to have a broad discussion about research. That is why we also welcome input from companies and organizations.

I have also appointed an advisory council, Forskningsberedningen, consisting of renowned scientists from different fields, who will give their input to our

work.

Following the advice from the scientific community and other stakeholders, we will develop the details in the coming research bill to parliament which we plan to present in 2016.

And I wish to mention a few priorities that the Swedish government has identified for our new research policy:

Research needs to be viewed as a long-term activity. That is why the new research bill will include a **10-year perspective**.

Basic funding to universities and colleges will have priority. The portion of institutional funds needs to increase.

Working conditions for young researchers needs to improve – for research as a whole to thrive, but also to make sure the best young talents choose a carrier in science.

For Sweden to be a prominent research nation academia needs to be more gender equal – this enables both men and women to realize their full potential.

The connection between research and higher education should be strengthened. This is important to raise the quality of education, and to inspire the next generation of top researchers.

The Government's goal is also to make higher education **available and accessible all around Sweden**. The Government will also work to **increase the quality** of higher education.

The Karolinska institutet is a very international institution with many students, graduate students and scientists from all over the world. This is contributing to the high quality that research and education have at Karolinska. This very is positiv, since the government's ambition is to increase internationalization of higher education.

Regarding ICMC, I think it is a unique cooperation between academic research and industry.

I would like to see more collaborations of this kind. It is important that

publicly funded research is useful for society in many ways. It can be that by providing highly educated people through higher education, by new scientific breakthroughs - but also by cooperation between scientists and companies.

In times when the pharmaceutical industry is transforming, it is important that the academic sector is available as a source for knowledge transfer to industry. And as a place where industry can find world leading research in areas of interest for their R&D.

Life science is an area that has high priority for the Swedish government. There are many reasons;

- The demands from the health sector are growing – especially since a larger proportion of the population are elderly
- The life science industry has gone through a tough change and is more and more dependent on collaborations with academic science and health care providers
- The technical development has made it possible for different disciplines to work together in new ways

There are also specific challenges that need to be addressed within life science.

There is a need for funding mechanisms that lead to increased quality of research and that will support existing research in the best possible way. But they also need to create opportunities for the development of new areas and innovative methods.

Life science research also requires advanced equipment and research facilities. Creating access to such top-class research infrastructure requires national coordination and financing.

Other important challenges are how to better integrate basic and clinical research and how to stimulate entrepreneurship and innovation as well as collaboration.

Recently, the Prime Minister has launched an Innovation Council to strengthen Sweden's competitiveness and one of their highlighted areas is life science. I am a member of the council, and so far we have had two inspiring and productive meetings.

To that end, we have also recently appointed a national coordinator for life science, Anders Lönnberg. The coordinator will support the government's life science work, including overseeing a group of experts from various areas of the life science sector. The input from this group will help the government to improve competitiveness. This can include initiatives such as research and development programs.

Sweden has a long tradition of research and innovation in the life science area. Now we are taking it forward.

The collaboration between Karolinska institutet and AstraZeneca today is very welcomed by the government and we wish you great success with you future work!



Government Offices of Sweden

Speech from Ministry of Education and Research

Speech at House of Sweden on arctic research

Published 20 May 2015 Updated 25 May 2015

Speech at at House of Sweden on arctic research, Washington D.C. 20 maj 2015 Check Against Delivery. Thank you for inviting me to participate in this inspiring Arctic event, at the beautiful House of Sweden.

It is a great pleasure to be here at this time - when our two countries are intensifying our collaboration in the Arctic. It is an area which is becoming more and more important. I believe that we need more of scientific cooperation to tackle the climate challenge and support the Arctic in the future.

Also, I wish to say that this event is very well timed now when the US is taking over the chairmanship of the Arctic Council.

Sweden has research agreements with the countries we have identified as key nations in science and where we together can benefit from closer cooperation. None of these agreements are as active, and important, as the one with the United States of America.

It's no wonder this is the case - the US is the leading country in the world in most areas of science. Our science attaché back in 2001 actually made a study on US science that was suitably named "The envy of the world".

The American scientific community has no match in the world, not only by size, but also when it comes to quality and areas where science develops most rapidly.

Twenty years ago, more than 50 percent of Swedish scientific papers were written together with American partners. Now, only a third of Swedish papers are written with USA. The total volume of our collaborations has not decreased, but our cooperation with other countries has increased - especially within Europe.

I think the same holds for the US. The US and European scientific lead is challenged. New large research nations are emerging, like China, South Korea and India. And they are increasing their scientific production very fast.

In general terms, their increased investments in science are good for the world. The more science we do globally the more knowledge is created for the next generation of citizens. We need it to overcome our great challenges. But it is also hard to remain at the top when other countries are joining us there. And I believe that we have unused opportunities for more teamwork between Swedish and American scientists.

Also, investments in science are more important now when many countries have an economic downturn and little growth. This is the time to expand our knowledge base with increased investments in higher education and in research.

Right now, our government is in the process to define our research policy for the coming decade. During the past six years research investments at our universities has increased with more than 35 percent - but the investments are not delivering the full potential outcome. My view is that we need to gather our strength strategically

And I wish to mention a few priorities that the Swedish government has identified for our new research policy:

Research needs to be viewed as a long-term activity. That is why the next research bill will include a 10-year perspective. It will make it possible for the research community and universities to act more strategically.

Basic funding to universities and colleges will have priority. The fraction of institutional funds needs to increase. It is important for the ability to invest in new projects which – even if the outcome might be uncertain – have the potential of giving rise to breakthrough scientific discoveries.

Recruitment of young scientists must be improved in order to make sure the best young talents choose to stay in science. Now, young scientists can go

for years on short term employment not knowing if they will be able to get tenured. This discourages many of the best talents and that must change. This is also important for global collaboration and mobility. In this matter, we are looking into the US system - with tenure track and tenured positions as a possible model to build upon.

For Sweden to be a prominent research nation - academia needs to be more gender equal as this enables both men and women to realize their full potential. Since 1999 the number of female professors has increased from 12 to 25 %. Good, but not good enough. Therefore, we will work for an increase in the number of female professors. Also, our research funds must be awarded in an equal way.

The connection between research and higher education needs to be strengthened. This is important to raise the quality of education and to inspire the next generation of top researchers.

More priorities will come. And I believe that by the right investments in science, we can solve many of our problems and meet the climate challenge.

We will continue to build strategic alliances in science cooperation. Our most important partner is, naturally, the US.

There is no other place where the best scientists of the world can come and get such opportunities to develop their ideas. It is no wonder that American scientists are awarded the most Nobel prizes. It is also noticeable that many of the laureates have their background from other countries and were once in their youth given the opportunities to settle as scientists at American universities. This shows the importance of international mobility - and of creating good working conditions for scientists.

The agreement between the US and Sweden was signed in 2006. It has been a very active cooperation during the past almost 10 years. The first two years the US embassy in Stockholm and in particular the ambassador (Michael Wood) was the main driver with the (OBT) cooperation on renewable fuels. This resulted in an important deal (between DoE and our energy agency).

At the same time, another agreement was signed between our ministry of defence and department of homeland security on security issues. Both have been very successful. In addition to those two, we have also a number of collaborations between our funding organisations. All originating from the

overarching agreement.

My participation in this event is based on the discussion between our countries on a closer cooperation in Arctic research using the Swedish research vessel and ice breaker Oden. This is in good alignment with our priority on polar research.

We are increasing the funding for the polar secretariat directed at Oden so that we will be able to have yearly, or bi-annually, expeditions to the Arctic together with American scientists.

I am pleased that we now once again come together on Oden. We start with a joint expedition already in the coming summer 2015, with a follow up in 2017.

By joining forces our investments will bring us further. Funding from one of us might bring us to the Arctic ice front. But with funding from both our countries - we can spend more time doing research on location. And this matters.

In addition, the time our scientists spend together will open up opportunities to develop new projects and strengthen ties. By bringing scientists together, new unexpected science will develop.

Oden is a key to the Swedish high priority on polar research. No other vessel has this ice breaking capability together with scientific laboratories and equipment of the highest calibre. We hope it will serve us for at least another decade. But to be competitive in the long term, we must also look beyond the lifetime of Oden.

Our government will in the coming year initiate a study on the next generation polar research vessel - with the aim of having a new ship in operation from around 2030.

The outcome of the discussions during these days is one way for us to understand the need for the coming years, with Oden and beyond – and it opens up the possibility for long-term cooperation in polar research.

The first step is taken already this year with the agreement today between NSF and our Polar secretariat on a joint expedition this coming summer. Let us now continue the work together for the Arctic.



Speech from Ministry of Education and Research

Inspiring new generations – science policy and public engagement

Published 15 April 2015 Updated 17 May 2015

Speech at Forum for Research Communication - London Calling!, Gothenburg 15 april 2015

Thank you for inviting me here today. I believe that the topic for this seminar is of high importance for both science and our society. And it is nice that we also have the opportunity to listen to our colleagues from London.

I would like to start with some words on Swedish research. The Swedish government is committed to continue the important public investments in research.

And now, we are starting the work on the next research bill.

To remain competitive in the future, Sweden needs to recruit the next generation of scientists. This is of high importance for the government.

Some areas we are already highlighting are how to give young scientists good working conditions - and how to make science more gender equal.

But our future as a research nation is also depending on how the university sector and its researchers engage with, and communicate with, the rest of society.

And our continued investments in research need to build on the confidence in research among the public. According to the SOM surveys conducted by University of Gothenburg, the Swedish people have a stable and high confidence in Swedish scientists – about 64 % state that they have high confidence in researchers – which is a higher figure than for most other

professions, (such as teachers, engineers, economists and journalists).

So scientists are truly popular!

And in general, Swedes also have a positive image of science and believes that research makes a very positive contribution to our society.

But this can never be taken for granted. Trust and confidence can be easily lost. A slightly worrying trend for instance is that the confidence in science has decreased somewhat in the last ten years. And for many governments, it is not possible to invest in research in these times.

But through science communication and public engagement – we can involve a larger public in the discussion about research and science. And build confidence.

I also want to say some words about the power of inspiration.

We need to encourage our children to become interested in science, to study and maybe to later on choose research careers.

Many studies actually support that the basis for becoming a university student and developing an interest in research is based on developing a strong foundation already in primary school.

Therefore, we need to give our children a solid knowledge foundation at an early age. And we need to inspire them so that they might become interested in choosing science and research when they become older.

Many anecdotes tell us how individual scientists – including Nobel Prize laureates – first developed an interest in science through an especially inspiring teacher. Children are curious, experimenting and eager to learn, and we need to support this in our schools.

Clearly there can be many different ways to achieve this. To encourage children's interest in science - they can be allowed to become researchers themselves in the classroom. They can perform suitable and real experiments, or collect information for scientific projects. In this way, teaching does not need to rely only on one-way communication of information. Instead, it can show children at an early age that they themselves can be active participants in a research process.

And that it can be fun!

Public institutions can also participate in this. The Nobel museum for example, offers courses where school classes to test being part of simple research processes. And many other museums offer similar learning experiences for children.

There is actually one other factor to consider when asking how to inspire young persons to become our scientists of the future. Young people need to feel that it is important and exciting to be a scientist! They need to learn that scientists are normal persons - with extraordinary jobs.

But most important, the inspiring teacher in school is often the person who can most strongly inspire our children to become interested in science and research. Therefore, teachers need to be in contact with current research. This of course, is part of the larger context of improving the Swedish school experience.

When it comes to public engagement, Sweden has already created some legal support for this task, through a clear legal requirement.

This is important, but nevertheless some work remains.

For example: does it really have a positive merit value for university staff to engage in such activities of public engagement? Or do university promotion boards sometimes regard such public engagement as distracting activities from research?

These are all issues that we need to look into when we ponder upon the next research bill.

I also believe that individual researchers can do many things to participate in public engagement.

For example, they can choose to publish newspaper articles, discussing their research. They can participate in science festivals, or work with museums that exhibit scientific work, or participate in public lectures and discussions.

Universities as organisations can also do a number of things to ensure that they engage with the public. Their key strategy documents can be formulated so they stress the role of public engagement.

Universities can formulate policies so that staff is valued and promoted for their public engagement activities. And universities can give training and support to individual academics.

Our government values and encourages public engagement by scientists.

Sweden is a strong research nation today, but it can grow even stronger if it encourages increased public engagement. It is as important for universities to engage with the public - as is it to get the public to engage with the universities.

Thank you for inviting me!



Government Offices of Sweden

Speech from Ministry of Education and Research

Research as co-operation at home and abroad

Published 29 October 2014 Updated 17 May 2015

University of Tartu, Estonia 29 oktober 2014

Your Royal Highnesses, your Excellences. Teachers and staff, dear students.

First, I would like to take your time and, on behalf of the Swedish government, express our sincere condolences for the tragic school shooting that took place the other day.

I thank my colleague Mr. Ossinovski for his excellent speech. I am grateful for this opportunity to share with you some of my views on the links between education, research, and scientific discovery. I am especially content that one of my first travels as a minister of the newly elected Swedish government has been to Estonia. Already, two of my colleagues in government, Prime Minister Stefan Löfven and Minister of Foreign Affairs Margot Wallström, have visited Estonia. I need not remind you of the extraordinary historical links between our countries. As made evident by these recent visits, those links remain to this day, closer now perhaps than ever.

Today I wish to talk about how we aim to ensure that Sweden stays competitive in a fast-changing, interconnected world. How we can prosper and make life better for our citizens, while at the same time facing up to some of the most pressing challenges of our times. And how this requires a sustained effort involving all parts of society, as well as close co-operation with other countries.

Research and higher education is becoming increasingly internationalised. Student mobility, research collaboration, and co-publishing is now part of everyday life at universities both in Sweden and Estonia. Tartu University alone has entered into bilateral agreements with partners in 26 different

countries, including Sweden.

Mobility for students and researchers is something my government is keen to encourage. There are already many great programs in place, both at the EU level, among the Nordic and Baltic states, and bilaterally. These have to be used to their full potential. There is scope for a far greater flow of people between our countries. This would contribute to the quality of research and education. It would also enhance cultural understanding.

When Tartu University was founded in 1632, higher education was a privilege reserved for a select few. Today higher education is a right for all Swedish citizens. Everyone should be given equal opportunity to progress to higher education - regardless of class, ethnicity, gender, or sexual orientation. It is essential to combat these disparities in access to education wherever they arise. I will return to this subject in a minute.

As Mr. Ossinovski mentioned in his speech, right now two research infrastructure projects are under way in Lund in the south of Sweden. One is the European Spallation Source, the ESS. When up and running, it will generate neutron beams that will enable scientist to study the structure and function of different materials. The other major project in Lund is the extension of the MAX IV facility. The MAX IV makes possible the study of extremely small details in materials, through the use of intense X-ray. Both structures will be of great value to scientists from all over the EU. Estonian scientists, including some from this very university, have a long history of contributing to research at the MAX IV.

Both structures also represent big financial undertakings which no single European country is capable of in these trying economic times. That is why Sweden greatly appreciates the contributions made by Estonia and other member states in order to make these important projects happen. Pan-European projects such as these, and investments in research and development more generally, will be paramount in ensuring our future competitiveness as well as economic recovery.

Sweden of course has a long and proud history as a nation of innovation. Of great scientists and groundbreaking discoveries. This tradition is perhaps best exemplified by the Nobel Prize. In December each year we celebrate the best minds, those men and women - although mostly men - who, in Alfred Nobel's famous words, "during the preceding year [&] have conferred the greatest benefit on mankind". It is a proud moment for every Swede.

But as you all know, research is always teamwork. In the sense that we as a society make these efforts possible through our commonly funded schools and universities. We put the right infrastructure in place. We create the right environments for research to thrive and generate new knowledge. We educate and encourage our children to become critical, creative, and reflective. And we do this in order for them to reach their own full potential as human beings. But also because such citizens are the single most important resource for a society that is looking to prosper and develop in tomorrow's globalized world.

We provide day-care centers, making it possible to combine family life with being a dedicated researcher. This is especially important in our efforts to make academia more gender equal. My government has set itself the task of increasing the number of female professors at Swedish universities. Though the numbers are moving in the right direction, they are moving much too slow. More women than men take part in undergraduate studies. But only one in four professors in Sweden are women.

This obviously represents a significant loss for the educational institutions. They fail to recruit the best minds to their faculties. But greater equality also requires appropriate support from outside academia. We must take a holistic view of these issues. We need to think about how all of society can be better geared towards encouraging both men and women to take up careers in research on equal terms. Hopefully we can expect many more female Nobel laureates in the future. Both from Estonia and from Sweden.

Yesterday, I had the pleasure of taking part in a seminar at this year's Sustainable Development Forum, hosted by the Stockholm Environment Institute. Estonia has taken the important decision to put issues pertaining to the Baltic Sea front and center, through declaring 2014 the Baltic Sea Year. Work done in for example the Council of the Baltic Sea States and the Baltic Marine Environment Protection Commission deserves wider recognition and support.

The seminar covered different aspects of maritime environmental and development issues. Listening to the scientists, officials, and other actors involved, the scope of our challenge became clear. But also the opportunities presented by a joint, focused effort. The Baltic Sea is such a clear example of the necessity, as well as benefits, of scientific co-operation in the environmental field. These challenges know no national borders. Nor can we in our search for solutions.

To close, I would like to sum up some of the main points of what I have touched upon earlier. Small, open countries such as ours have every opportunity to continue to prosper in the world of tomorrow. But we will need to make the right choices. We will have to continue to co-operate. Both bilaterally and through different fora such as the EU and around the Baltic Sea.

We also have to make sure we get the foundations right at home, nationally. By this I mean putting the enabling infrastructure in place. Making sure society as a whole contributes to scientific excellence and the production of new knowledge. Great research environments are about more than just our universities and laboratories. It has to involve all parts of society. And each citizen should be considered a potential scientist.

Thank you for your time.