NORTHERN LIGHTS

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The UK Science & Innovation Network has three officers based in Stockholm, Copenhagen and Helsinki. UK stakeholders often tell us that they imagine the Nordic region to be, "green", "organised", "quirky", or "family friendly". All these adjectives ring true but I would add one important one to this list: "innovative". Sweden, Denmark and Finland are three out of the four "innovation leader" countries in Europe according to the EU Innovation Scoreboard in 2012.

How is the Nordic region an innovation leader? What great science is going on? What can the UK policy makers learn and who should our scientists and innovators be seeking to collaborate with?

Sweden, Denmark and Finland have their own context, priorities, and particular brands of success when it comes to science and innovation although there is also a shared agenda especially on developing greener economies and growing more sustainable economies through R&D.

Science and innovation are well respected culturally in the Nordic region and education standards are high. One spectacle in particular epitomises the region's cultural elevation of science – the annual Nobel Science Prizes awards ceremony hosted by Sweden. A five hour live television marathon of the Nobel banquet holds the nation spellbound as Sweden's science community turns out on the TV to illustrate and explain the work they are doing in labs and incubators up and down the country. It is truly an inspiration for an up and coming generation of scientists. In Finland the Millennium Tech Prize is awarded bi-annually for innovations that improve quality of life or sustainable development.

. . . most networked nations in the world . . .

Governments and businesses in the Nordic region have long maintained strong investment in science and innovation and are broadly maintaining this despite the current economic climate. Research and innovation performance also remains high. Sweden has spent around 3 per cent of GDP on R&D for a number of years already including both the business and state shares. Only Israel, Finland and South Korea allocate a higher percentage of GDP to R&D. Finland has maintained exceptionally high R&D investment rates including the business share (3.73 per cent of GDP in 2011). Denmark also nudges above the 3% mark. The Swedish Government announced in early September a doubling of its public funding for research.

Sweden, Denmark and Finland are well networked countries, both in terms of links between business and academia exemplified by the high business investment in R&D scores above, but also in terms of the way that people circulate rather easily between these worlds, often double or triple hatting in a number of roles simultaneously. They are also some of the most networked nations in the world with high ICT access and proficiency amongst their citizens. It is also relatively easy to set up a company, or innovate a new piece of Intellectual Property. On the other hand companies report a lack of cash flow in the system including venture capital. It can also be difficult to attract top international talents to research institutions on the same scale as in the UK. Innovation systems are underpinned by open, excellent and attractive research systems with a strong supply of

. . . UK looks to the Nordics on innovation policy . . .

both excellent fundamental research and support structures for industrial R&D. Copenhagen University tops the THE rankings for research in the region with all three countries boasting a number of excellent research universities.

. . . the annual Nobel Science Prizes awards ceremony . . .

In policy terms the UK has looked for inspiration towards the North on issues such as the new Catapult Centres with similar long standing models in the region such as the Finnish VTT centres and SHOKs or the Swedish Vinnvaext centres. There is good collaboration between the innovation agencies in the UK and those in Sweden, Denmark and Finland on a number of issues such as service innovation or public sector innovation. In the last few years Finland and Denmark have both gone through major reforms in their university sectors. Sweden has recently introduced fees for foreign students and is now providing more concentrated research funding to key nationally strategic research groups.

. . . Microsoft setting up an App Campus . . .

The UK is also historically interested in many aspects of energy and environmental innovation policy as the Nordic countries have led the way in many areas such as Carbon Capture and Storage, combined heat and power systems, biomass, recycling, or green transport. In Physics there is expertise here in materials technology crucial to underpin new discoveries in all areas of science including the digital revolution. There is also excellent Organic and Atmospheric chemistry. In Life sciences there is considerable expertise on forestry and agriculture. In Medical sciences there are strengths in many areas including molecular biology or oncology. The Nordics are tackling a public health agenda similar to that in the UK including elderly healthcare, chronic diseases, allergies, and MRSA/infectious diseases.

There are many industrial strengths in the Nordic region giving the countries a powerful export offering, including domestic and multinational companies for example in forestry and mining, electronics and communications (Nokia, Ericsson), agriculture and food export as well as logistics interests (Maersk), retail (IKEA) and a strong biotech sector (NovoNordisk, AstraZeneca). All three countries are experiencing growth in the Cleantech sector. Sweden maintains car manufacturing interests (Volvo and SAAB) and Finland maintains good nuclear energy capabilities.

. . . exceptionally high R&D investment rates . . .

In Finland there is a new wave of ICT, digital and creative industries spurred on by the heyday of Nokia in the 2000s with Rovio, the producer of the mobile phone games application Angry Birds the latest to emerge. Nokia and Microsoft recently injected €18million to set up an "App Campus" dubbed as the world's largest mobile acceleration programme. The next generation of entrepreneurs is being provided by the "Aalto Venture Garage" set up by entrepreneurial students at Aalto University. These developments epitomise the Finnish emphasis on renewal within its innovation system, and also the constant emphasis on innovation from the perspective of the user.

. . . investing in infrastructure . . .

In Sweden there is currently a focus on ensuring the best research infrastructures are in place to underpin national capability in a number of areas. One example of this is the new national Science-for-Life laboratory, a step change in national infrastructure to support not just research but also innovation in the areas of translational medicine. The facility has attracted significant funding already from the Swedish state and business and will receive even more in the future. This development epitomises Sweden's ability to convince national players to work together and focus on making changes that will benefit all of them in some way.

. . . exciting new energy developments . . .

In Denmark the Government, research community and companies continue to pioneer exciting new energy developments that make the country something of an energy innovation lab for the rest of Europe, such as the EcoGrid EU project, voted one of the world's "100 powerful sustainable solutions" at RIO+20. The project will integrate renewable energy and transport solutions in a smart grid with 2000 households "live" on the system and show how demand can be met safely even with a high proportion of renewable energy. All in all, the Nordics are open for business and research collaboration with the UK. These countries have a great attitude when it comes to breaking boundaries. Just think of Tetrapak, the pacemaker or in a more modern context Spotify or Angry Birds. They are prepared to tackle issues in both practical and creative ways. To anyone who is interested in the region, I would say come and explore it.