

A photograph of two men in business attire standing outdoors. The man on the left is wearing a dark blue suit jacket over a white shirt and is holding a blue mug. He is gesturing with his right hand while speaking. The man on the right is wearing a light blue button-down shirt and dark trousers, and is listening attentively. They are standing in a park-like setting with trees and a white pillar in the background.

The ICT powerhouse in the North –
opportunities and challenges of the
Baltic/Nordic high-tech cluster

Executive summary

A well-educated, innovative and productive workforce are some of the elements that have spawned a regular Information & Communications Technology (ICT) powerhouse in the North. The small countries of the Nordic/Baltic region have already produced an extraordinarily strong group of globally leading companies such as Ericsson, Skype and Nokia – which have been created on the back of agile governments, tech-savvy citizens, a high degree of innovation and a well-functioning infrastructure. While the Nordics (Sweden, Norway, Finland and Denmark) have succeeded in building extraordinarily stable, economically viable, connected and safe societies, the Baltic states (Estonia, Lithuania and Latvia) are still working hard to reach comparable living standards and opportunities. This ambition has, in turn, resulted in an impressive increase in productivity since the turn of the century.

Overall, the small nations on the Western and Eastern shores of the Baltic Sea complement each other very well and stand out, in a great number of ways, from the rest of the EU.

The region does also, however, face the challenges associated with aging populations and – in case of the Baltics – negative net migration. Therefore, the small countries will have to enable a future in which the public and private sectors work together in order to meet the complex and demanding challenges at hand.

Furthermore, the region is characterized by dominance of small and medium sized businesses (SME), not only compared to the rest of the EU, but – especially – compared to the US. This is the result of relatively small markets and public funding efforts and programs on both national- and EU levels favoring smaller companies which makes the region vulnerable to economic downturns, as a critical mass of larger corporations are much better bolstered to withstand shocks to demand. Also, the relative lack of large companies makes it somewhat harder for these small economies to attract crucial fi-

nancing and specialists from abroad; factors that could boost an environment that, in turn, greatly favors smaller ICT companies as well. A strong ICT sector and ruthless focus on innovation is important to solve these core challenges of the North - not only by providing the tools necessary to raise productivity, but also to secure job growth and economic prosperity. But the ICT industry is unable to do so without strong governmental support and expanded cooperation between companies, public sector entities and education.

THEREFORE, IT MIGHT BE EXPEDIENT TO:

- **Secure skilled labor:** The region needs far more aggressive strategies to attract technical specialists who can help develop solutions and ideas to ensure future growth. The role of education and a region-wide ICT curriculum are also very important aspects to meet this end.
- **Promote growth and think big:** ICT companies of all sizes need easier access to venture capital in order to enable growth and the development of patents and new technology.
- **Update the legislative framework:** Businesses – especially those operating from the small Nordic/Baltic markets – are hampered by inconsistent regulations concerning privacy and cloud computing across the EU. This is a factor that blocks innovation, growth and the development of new, web-based business models.
- **Work together across the region:** Decision makers and ICT companies in Nordic and Baltic countries can do more to foster growth in the ICT sector as well as companies across the rest of the economies. One obvious possibility is to cooperate on technological solutions to ensure efficient digital interfaces and solutions that enable the societies to do much more with comparatively fewer hands in the future workforce.

The Nordic/Baltic region stands quite strong, ICT wise. But global competition is really fierce, and there are a number of common challenges that we could do much more to face head-on together. So it makes very good sense to develop a more coherent and fluent cooperation between companies, public sectors and education in the Nordic/Baltic region. Actually, it would create a collective lift on a great number of levels.

*Andrus Järg, Managing Director,
Skype Estonia*



The rise of The North as ICT powerhouse

The Baltic and the Nordic countries have a surprising number of common denominators that make the region a European ICT powerhouse in its own right: high levels of education, tech-savvy populations, cutting edge ICT sectors, open economies, fiscal prudence and investment friendly business environments, to name a few. But they also have a number of serious challenges that could slow or even stop the further development of an ICT powerhouse in the North.

Granted, rain, world record taxes and winters lasting well into the spring might not sound like the recipe for joy and smiling faces. And let us not even get into the obsession with film noir and 'Nordic Cuisine', where hay and the gathering of garlic-like substances on the beach is all the rage.

Baffling to the rest of the world, however, the citizens of the Baltics and Nordics continuously stand out as some of the most innovative, productive and – at least in the Nordics – happiest people on Earth. And, although the very concept of 'happiness' is a subjective beast, both the OECD Life Satisfaction survey and the UN World Happiness Report rank the Nordics way up in the top. Furthermore, the governments kept a fairly level head during the economic crisis with the result that these small countries stand poised to take full advantage of the beginnings of the economic recovery.

Even more surprising, though, is the fairly recent emergence of the Nordic/Baltic region as a really strong player on the global ICT scene with the potential to rival traditional US West Coast tech clusters like Silicon Valley in California and the Puget Sound area in Washington State.

ICT: AN IMPORTANT JOB CREATOR IN THE NORTH

The ICT sector was by far the fastest growing industry in the Nordics/Baltics through the first decade of the century. For instance, IDC estimated that the sector generated more than one in twenty jobs. And since one job in the ICT sector usually generates more than four non-high tech jobs, the net-contribution of the sector to total job creation is very significant.

Updated, consistent growth numbers for the ICT sector in the whole region are hard to come by. But, as Denmark tends to follow the general trends in the Nordic market, it is interesting that IDC reported 2,5% growth in the Danish ICT sector in 2013.. Notably, this growth rate was hampered by a dramatic slow-down in hardware sales, while software and solutions were driving the market with growth of an impressive 5,4% year-on-year. It is safe to assume that the rest of the Nordic/Baltic region follows this trend and – from a regional perspective – this is especially interesting, as the development and implementation of software and solutions tend to generate far more local jobs than hardware.

Taking the longer view, a number of global ICT corporations have invested heavily into organic growth and acquisitions in the Nordic/Baltic countries during the last 10-15 years.

Take Microsoft, for instance. Since 2002, the corporation has been investing a lot in the North. Through the acquisition of Danish business-software corp. Navision, Norwegian search company Fast, Swedish/Estonian VOIP-innovator Skype and Finnish mobile phone giant Nokia, the corporation now directly employs nearly 8.000 people in the region and has more than 13.000 partner companies. Also, Microsoft

Compared to other regions, the Baltics and – especially the Nordics – have very high salary levels. But that has, on the other hand, increased the interest in using ICT for automation in all companies and taught ICT companies to be extremely competitive and to make world-class products with fewer hands. So perhaps it is no coincidence that five of the companies in the global Top 20 of ERP-companies were founded here. And that they share geography with the founders of Skype, Nokia, Ericsson and a growing number of game developers who are doing really very well globally.

*Niels Bjørn-Andersen, professor,
Copenhagen Business School*



has six R&D centers, which is – in itself – interesting considering that the ICT corporations have traditionally staffed Nordic/Baltic-branches with marketing- and partner specialists while leaving development to existing R&D-centers in the US or low-wage countries abroad.

A fairly innovative corporate culture, world-class infrastructure and stable, business-minded political systems makes these countries very interesting for ICT companies like Microsoft. This goes especially for the Nordic countries, but in recent years the Baltics have also risen to the challenge. With their European mindset and attitude towards good governance, they soar – in many aspects – high above the vast majority of former Soviet states with whom they actually seem to have quite little in common.

*Dorothee Belz, Vice President Legal and Corporate Affairs,
Microsoft Europe*

When asked about why the North is such an interesting place to invest for ICT businesses, executives usually point to the stable, agile and business friendly governments, and well-educated citizens. Also, the Nordic countries in particular enjoy world-class infrastructure and practically zero corruption.

All these qualities combined makes the high wages and tax-levels less of a concern, and that is why executives at Microsoft, only half-jesting, call the small countries up North a “second home.”

Perhaps it is because the regional structure, the mindset and challenges are so similar to the Seattle-area in Washington State – usually named Puget Sound – where the tech company’s headquarters are based. Even the significant challenge of recruiting foreign specialists to an fairly frigid climate are very much alike.

Also, with approximately 3,2 million people employed, well-educated citizens and a high tech sector driving innovation and job-creation, Washington State could structurally pass for a Nordic country.

But let us first take a statistical look at the small countries that have put the ‘bigger is better’ proverb to shame in the global, volume driven ICT business.

WELL-EDUCATED, INNOVATIVE AND CONNECTED

	% of pop. with tertiary education	WEF Human Capital (overall ranking)	WEF Human Capital (ranking - education)	Connectivity Scorecard*	Bloomberg Innovation Index **
NORWAY	47,6	7	15	7	13
SWEDEN	47,9	5	14	2	5
DENMARK	43,0	9	18	1	9
FINLAND	45,8	2	1	5	4
ESTONIA	39,1	27	20	*	31
LITHUANIA	48,6	34	23	*	33
LATVIA	37,2	38	30	*	44

The Nordic countries stand out as extraordinarily connected, innovative, ICT ready and with a well-educated population. The Baltics are also very much in the game with a percentage of the population with tertiary education on par with the Nordics and superseding the EU average – 35.7 percent – by far.

**) Based on the 2013 edition of the Connectivity Scorecard; a global ICT index ranking 52 countries to measure the extent to which governments, businesses and consumers make use of connectivity technologies to enhance social and economic prosperity, so called useful connectivity. Unfortunately, the Baltic states are not included yet.*

****) According to Bloomberg ranking of the 50 most innovative countries. It is worth noting, that even though the Baltic States are still behind the Nordics, they are gaining traction and are grouped quite closely with tech nations like Hong-Kong (36) and Israel (32). In this respect, the Bloomberg conclusions align well with the European Commission Innovation Scoreboard 2014 mentioned later in this paper.*

Sources: Eurostat, World Economic Forum (Human Capital Report 2013), Connectivity Scorecard, Bloomberg

Baltic states trail behind – but are catching up

The most clear partition between these two blocks within the Baltic Sea region – excluding Poland and Germany – can almost exclusively be explained by shifts in the tectonic plates of history. The Nordics consist of old, mature democracies with strong democratic institutions and mixed economies, while the three Baltic states obtained their independence and parted ways with planned economy at the breakup of the Soviet Union a mere 23 years ago. Honoring the ancient bond across the Baltic Sea, however, the Nordic countries were actually amongst the first in the world to recognize Baltic independence.

The Baltic economies have since undergone an almost unparalleled transformation, crowned in 2004 by the three states' accession to the European Union, by Estonia's 2011 adoption of the Euro and most recently by Latvia's inclusion in the euro zone as of January 1, 2014. Lithuania is expected to follow suit to become the 19th euro zone member in 2015.

To arrive at this point, the Baltic countries have gone through a riveting process of privatizations and structural, financial and market reforms, which, in combination with low costs of labor and favorable tax laws, helped open up their markets to the world and attract solid inflows of much needed foreign direct investments. Also, the Baltic states have shown an unrelenting commitment to the European Union – which actually makes them stand out compared to the Nordics of which only Finland is an euro zone member.

But, obviously, the Baltics face challenges. In the 2014 Innovation Scoreboard from the European Commission – spearheaded by Sweden, Denmark, Germany and Finland – Latvia was in the least favorable section alongside Bulgaria and Romania. Lithuania fared somewhat better, while Estonia was way ahead and almost on level with the EU average.

It deserves mentioning that the small countries on the eastern brink of the Baltic Sea have come a very long way since their recent USSR-tied past, and this rapid progress has set the stage for an attractive business environment for years to come.

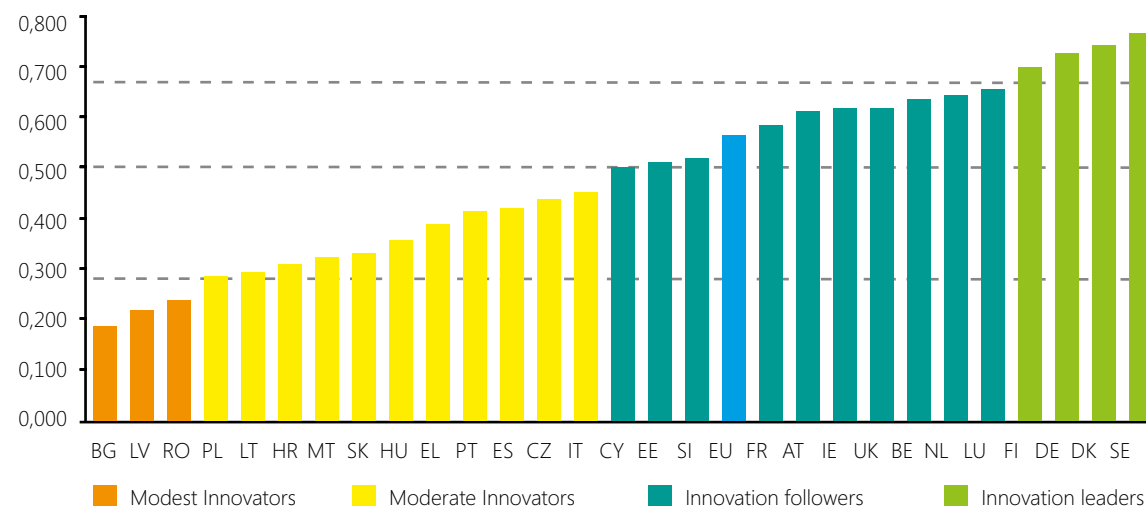


Viewed in terms of ICT preparedness, the Nordic region also tops the world ranking – but with the Baltic countries in comparatively close pursuit.

According to the report “Measuring the Information Society 2013” published by the United Nations International Telecommunication Union, only South Korea is performing better on the ICT development index than the Nordic countries. Sweden takes second place, Iceland third, Denmark fourth, Finland fifth and Norway sixth place.

The index measures ICT development levels of 156 countries worldwide, using ICT access, ICT use and ICT skills as criteria. The US comes in as number. 17 on the latest ranking, published in September 2013. The Baltic states are ranked as follows: 22 (Estonia), 35 (Latvia) and 44 (Lithuania). Important ICT innovation nations such as China and India rank 78 and 121, respectively.

BALTIC STATES CATCH UP ON INNOVATION WHILE NORDIC INNOVATION GROWTH SLOW DOWN



Nordic countries top the 2014 EC Innovation Scoreboard while the Baltics trail behind. But looks can be deceiving. The report specifically praises Estonia and Latvia as overall innovation growth leaders from 2006-2013. At the same time, the gap between the leaders and the rest of the pack becomes increasingly smaller, illustrated by the fact that the leaders demonstrated notably slower rates of growth than the EU average.

Illustration: 2014 European Commission Innovation Scoreboard

Focus on education and ICT preparedness an absolute necessity

One of the primary reasons why the Nordics and Baltics fare so well in competitiveness- and innovation studies is that education is held to a very high standard across the region. This is underscored by a broad political consensus to provide tuition-free universities as well as comprehensive student benefits and cheap loans. All of this is established in order to boost the number of citizens completing higher education.

The number of people with secondary education or less comes to an average of 10% of the population in the Nordics and merely 9.2% in the Baltics.

The percentage of people who completed tertiary education comes to 46% in the Nordics and 42% in the Baltics. For the EU as a whole, the averages are 13% and 36%, respectively.

Also – and this is interesting from an ICT perspective – the students of the Nordic/Baltic region rank very highly regarding ICT preparedness. That is one of many interesting conclusions in a large-scale study by the European Commission named “Survey of Schools: ICT in Education” from early 2013. While the Nordic countries almost uniformly spearhead use of and access to ICT in schools, the Baltics (and especially Estonia!) also rank above the EU average on a number of central parameters – one of which is illustrated below.

Although the Nordic and Baltic schools increasingly make use of computers and tablets, we still lean heavily on traditional linear methods from the days of the textbook. Even though research indicates that elements including non-linear methods or even “gamification” often work far better.

*Morten Søyby, Head of Policing Unit,
Norwegian Center for ICT in Education*



And while most countries wait until at least secondary school to put coding and the creative use of technology on the curriculum, Estonia has embarked on a nationwide scheme to teach kids in primary schools to code.

The statistics and initiatives like the Estonian coding program are just a few examples of how the governments of the Nordic and Baltic states have embraced the necessity of ICT in education - not just in order to meet the needs of the future labor market, but also to ensure a constant line of trained professionals are ready to enter the fast-growing ICT industry.

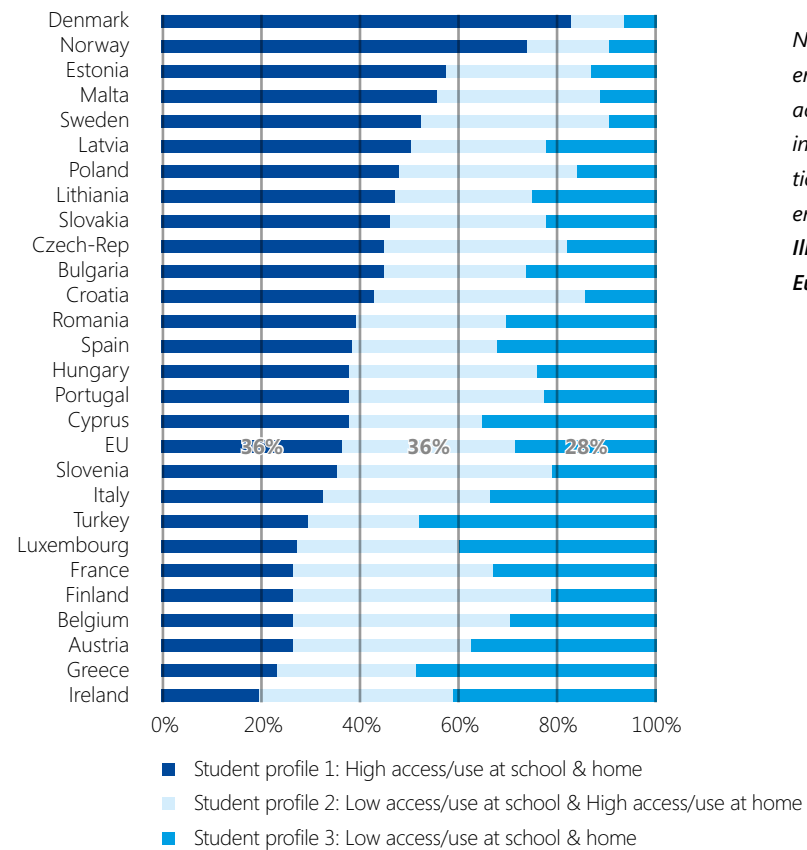
But while these initiatives are necessary and highly commendable, they alone will most likely not suffice to produce the ICT skills needed to meet the region's needs in the future. Actually, there is already a serious shortage of ICT specialists across the board.

In Denmark, we spend huge amounts of taxpayers' money on giving kids in primary schools their own pc or tablet. But that does not really solve anything, because the really great learning apps are simply not there yet. And handing student an iPad and hope for the best is no easy fix for anything. What we need is way more experimentation with IT. After all, kids and teenagers need to learn to master and utilize technology, not to be slaves of it.

*Morten Søby, Head of Policing Unit,
Norwegian Center for ICT in Education*

USE OF ICT AT HOME AND AT SCHOOL

(GRADE 11, GENERAL EDUCATION, APPROXIMATE AGE 16-17 YEARS)



At age 16-17 – even before high school – the students of Nordic and Baltic countries use ICT tools to a far greater extent than the EU average.

Note: In the case of Finland, while it ranks lower than its peers, this report doesn't take into account Finland's high access to ICT equipment in other age segments as well as to non-traditional ICT learning tools such as virtual learning environments, interactive whiteboards and more.
Illustration: Survey of Schools: ICT in Education, European Commission

Too few trained ICT professionals hinder growth

To return briefly to Washington state, the job-gap is also a challenge that this traditional tech cluster struggles with.

As a matter of fact, this issue is exactly the subject matter of the 2013-report "Great Jobs Within our Reach – Solving the problem of Washington state's growing job skills gap" from the Boston Consulting Group.

But the potential reward is very great; if the job-gap is filled, 160.000 jobs could be created in just a few years. Not only does that amount to an impressive five percent job growth out of a total employed workforce of 3,2 million people, it also reduces the unemployment rate by 1,2-1,8 percentage points and adds up to an extra USD 720 million a year in state tax revenue.

But if the education system does not succeed in meeting the demand, the results could not only be a net loss of jobs, but also a loss of competitiveness. As an unnamed senior HR-executive states in the report: "We are dooming our kids to live in a world where the jobs are knowledge jobs and we aren't giving them the knowledge to compete."

The curriculum aimed directly towards the ICT sector gets outdated really quickly, and universities are simply unable to keep up. Therefore, graduates find that they are not at all up to speed – technologically speaking – when they get their first job and will have to learn a lot of stuff that they ought to already know. That is a terrible waste of time. So why not try to cooperate across the Nordic/Baltic nations to continually evolve the ICT curriculum together? We could save a lot of time and money doing so – and provide our graduates and ICT businesses with a really useful competitive edge.

Andrus Järg, Managing Director, Skype Estonia

But – doomsday drums aside; as Washington state and the Nordic/Baltic countries are very much alike in a number of respects, there's every reason to think that the potential wins there would be similar in the North. In Estonia, for instance, there is an acute shortage of up to 25.000 ICT employees; an astounding number out of a total population of 1,3 million.

One reason why it is necessary – but unfortunately not sufficient – to focus on education across the region is that the population base of the Nordic and Baltic countries is simply too small to satisfy the growing ICT sector's demand for trained professionals.

While the freedom of movement makes it potentially easier for Nordic countries to attract skilled labor in the years to come, the Baltic States are fighting a tough fight to limit brain drain, as young, educated people emigrate to seek jobs and higher wages in mainly Western Europe. For instance, Latvia has lost some 9.1% of its population to emigration in recent years, or as much as 14% of its workforce. Rising unemployment during the global economic crisis has only sped up the process; in 2008, Lithuania was thus the single country with the highest negative net migration in Europe.

Finland is the most popular destination among emigrants from Estonia, while Latvian and Lithuanian emigrants tend to favor the UK, the US, Ireland, Norway and Germany, a recent OECD study found. This is why – as stated very clearly in the Eurostat numbers below – the Baltic states as well as the Nordic countries will have to work even harder in coming years to train, maintain and attract skilled labor.

Our governments should do more to attract and integrate foreign ICT talents effectively. A constant flow of foreign talents educated in their home country is, after all, what keeps the US ICT sector competitive. And I see no good reason that we should not be able to utilize the same mechanisms in the North.

*Niels Bjørn-Andersen, professor,
Copenhagen Business School*

SMALL COUNTRIES WILL HAVE TO DO MORE WITH FEWER WORKING HANDS

COUNTRY	Population (1.000)		Pop-growth	Percentage aged 65+	
	2008	2060	2008-2060	2008	2060
EU	495.394	505.719	2,1	17,1	30,0
Norway	4.737	6.037	27,4	14,6	25,4
Sweden	9.183	10.875	18,4	17,5	26,6
Denmark	5.476	5.920	8,1	15,6	25,0
Finland	5.300	5.402	1,9	16,5	27,8
Estonia	1.339	1.132	-15,4	17,2	30,7
Lithuania	3.365	2.548	-24,3	15,8	34,7
Latvia	2.269	1.682	-25,9	17,3	34,4

According to projections, European populations will grow steadily towards 2060. Nordic countries are expected to follow suit through a combination of proactive family policy and immigration. The Nordics will still, however, have to decide how to maintain their welfare states, when the populations have a growing elderly component. The Baltic states are hit particularly hard in this respect, as they also face rapidly shrinking populations.

Source: Eurostat

Baltic and Nordics countries face fairly similar challenges in the public sector. Never the less, each country follows separate paths developing their own ICT solutions, when we should really try to solve these challenges together. Or at least try learning from each other and exchange technology and experiences to a much, much larger degree than we do today.

*Andrus Järg, Managing Director,
Skype Estonia*

Job growth has been four times stronger in tech hub Kista than in Sweden overall in recent years. The ICT sector is a job creator, and the supply of talent is one of our main action points in Kista. But we are beginning to see problems attracting engineers to fill positions and getting young people to choose technical and mathematical university courses. As we see the emergence of big data, we are increasingly aware that mathematics is central to future innovation, and so it is difficult for companies and universities to continue their research without the needed talent. Therefore we need to be successful in attracting new talent for growth to continue.

*Thomas Andersson, CEO,
Electrum Foundation & Kista Science City*

Demographics underscore need for IT-driven productivity

Demographically speaking, the seven Nordic/Baltic countries also share another similarity that aligns uncomfortably well with a megatrend affecting middle-class dominated, knowledge-driven states across the planet; an aging population.

But while Denmark, Norway, Sweden and Finland manage – barely – to keep population growth rates in the black through a combination of family-oriented policies and immigration, the Baltic populations are actually shrinking at alarming rates.

In combination with growing healthcare expenses and skilled labor bottlenecks, aging populations constitute a serious challenge for the welfare systems in the North. Looking forward, the region needs far more aggressive strategies to educate and attract the technical specialists needed to develop solutions that enable the societies and economies of the North to secure growth.

This is not only a basic necessity in order to solve challenges in the public sector with the comparatively smaller workforce and tax-revenue of the future, but also to finance the continued development of the societies through accelerated productivity and growth in the private sector. Fortunately, highly educated and ICT ready populations make the North a model region to develop and try out some of the technologies that makes it possible to develop the economic competitiveness and to preserve the degree of public service for which European societies are known.

Smart deployment of ICT solutions is one of the best ways to raise efficiency and productivity dramatically across the public and private sectors alike. In the public sector, ICT solutions can automate tasks previously handled manually and make it more effortless for citizens and businesses to communicate with the municipality, region or state. Effective implementations free up valuable time and resources and minimize bureaucracy for citizens, institutions and enterprises.

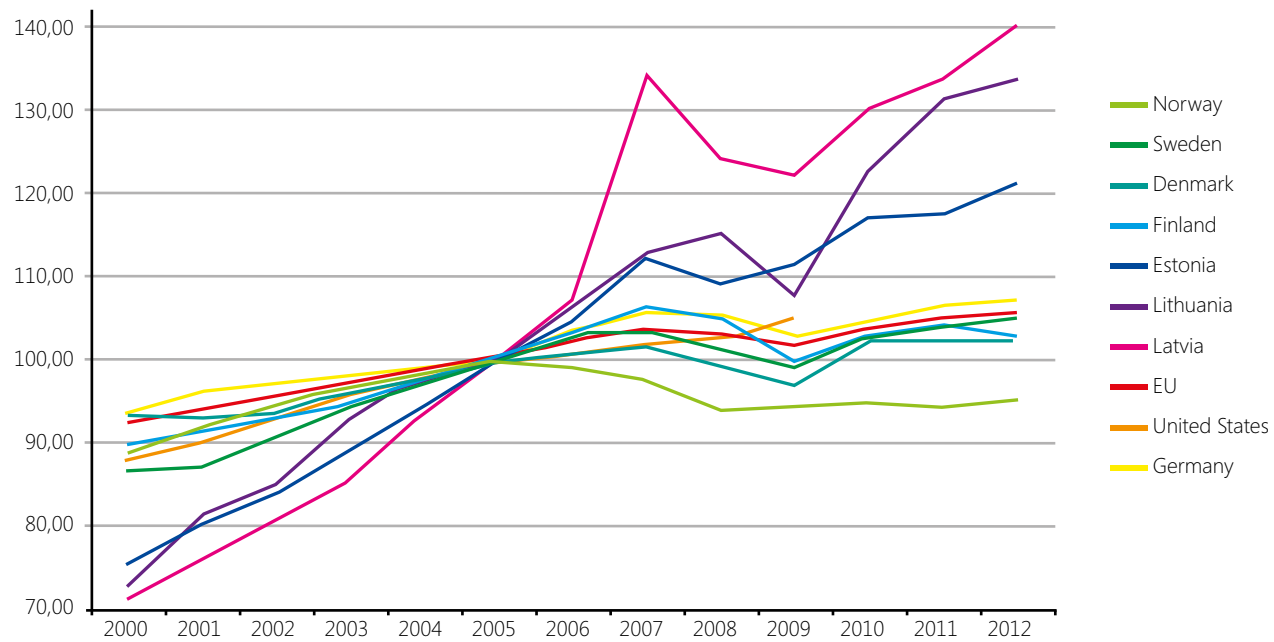
According to the latest statistics below, the Nordics especially must apply a sense of urgency to raise productivity across the board. Here they could possibly learn from the Baltics, which have shown a remarkable will and ability to try out everything possible to solve the tasks at hand and – along the way – have succeeded in raising productivity dramatically over a very short period of time. Arguably, the Baltics have done so from a much more modest starting point than the Nordics, making their progress all the more notable.

And, since all countries across the region share similar challenges, an obvious part of the solution would be to promote cooperation between the countries by aiming to develop public solutions together. Not only to exchange experiences and develop good practices, but also to share the – often very significant – R&D expenses associated with the development of large public solutions.

The shifts in demographics challenge both the private and the public sector in the Nordics. So – in order to raise productivity – we invest a lot of resources in developing efficient, user-friendly digital interfaces between citizens, businesses and the public sector. Also, our public sectors ICT systems are amongst the best in the world. All in all, we might not succeed each and every time, but we are definitely moving in the right direction and gaining valuable know-how along the way. But, honestly, I think it is a shame that we do not at least try to export some of the best solutions and capitalize on an area where we belong to the global ICT elite.

*Niels Bjørn-Andersen, professor,
Copenhagen Business School*

LABOR PRODUCTIVITY PER HOUR WORKED (2005 => INDEX 100 FOR ALL)



Fixed on the year 2005 as index 100, this graph illustrates the relative change in productivity per hour worked. Obviously, the absolute productivity as measured in output per Euro per hour (not shown) is still much higher in the Nordics than in the Baltics. Nevertheless, this graph is a very useful tool for measuring changes in productivity over time. And the Baltics are coming on very strong indeed.

Source: Eurostat



SMEs dominate

Another important factor of the Nordic and especially Baltic private sectors, the ICT sectors not excluded, is the dominance of micro, small- and medium sized enterprises when compared to EU and the United States.

One of the often-cited reasons is that venture capital is hard to come by when compared to the traditional tech-hubs in the US where a much larger number of startup companies – all things being equal – result in a larger amount of companies ending up as successful and very profitable enterprises.

But another reason could very well be that Nordic/Baltic ICT companies are hampered by inconsistent and outdated legislation concerning privacy and cloud computing across the EU as well as other legislation relevant to a digitized business model that makes it costly to expand and implement innovative business models across borders. This is especially an issue in smaller countries, because ICT companies there have a much harder time gaining critical mass than companies in countries with 10-20 times as many potential customers operating within the same legislative framework.

Almost every ICT company I know of points to a modernized, homogeneous EU based legislative framework as a simple necessity for the ICT industry in small countries like those in the North – especially if they are to expand internationally. Perhaps it would be a really good idea for the legislators to give this serious thought.

Lars Jacobsen, Editor in Chief, Computerworld Denmark

But let us take a look at the composition of businesses in the North. First of all, it is obvious that – apart from Finland and Sweden – SMEs play a larger role in the North than in the average EU country. And, when compared to the United States, the significance of SME led job creation and net-contribution to GDP is much more significant in the North.

SME IN SHORT: SMALL IS BIG IN THE NORTH



SMEs play a larger role in job creation and as contributors to GDP in Nordic and Baltic countries than in the EU as a whole – and when compared to the United States, the difference is even more pronounced. The significant presence of SMEs gives the Nordic/Baltic countries certain possibilities, for instance by promoting innovation through the development of thriving ICT clusters. On the other hand, comparatively few large companies might also make it harder to solve challenges like securing sufficient investment capital or attract skilled ICT specialists from abroad.

Primary source: European Commission SME Performance Review 2013 (Country Fact Sheets)

It is important to promote diversity in the ICT sector. For instance, Finland has been – to maybe too large a degree – reliant on one single company, Nokia. While, on the other hand, the Icelandic economy is made up of an abundance of quite small companies, while lacking large players. The “sweet spot” lies somewhere in between, and governments need to address this.

Dorothee Belz, Vice President Legal and Corporate Affairs, Microsoft Europe

On one hand, the high density of SME's and good start-up terms support innovation, because it shortens the road from idea to market and promotes the formation of know-how clusters and vibrant and friendly environments for entrepreneurs and greenfield investors.

Nordic and Baltic states alike need more ICT employees; in Estonia alone we could be lacking as many as 25.000 employees to fill the available jobs. So it is very urgent to attract foreign talent. But in this aspect, larger companies have a significant competitive edge, because they have the resources to help employees from abroad and their families to integrate and navigate the bureaucracy etc. Smaller companies usually do not have resources to do that, so they are at a disadvantage in this aspect – and it would be really great if governments could lend a hand in any way possible to tackle this challenge.

Andrus Järg, Managing Director, Skype Estonia

It does, however, also have downsides. The absence of larger players means these economies lack the financial muscle to make deep investments in R&D or to offer more attractive opportunities to attract the skilled labor of expats. This is a potential issue across large parts of the region and especially in the Baltics.

Seen from a helicopter perspective, the SME-dominance furthermore makes the region more vulnerable to economic downturns, as large corporations traditionally are better able to withstand shocks to demand and have easier access to crucial financing.

Therefore, it is imperative to ease the access to capital, assist companies in recruiting foreign specialists and cultivate a culture of growth that makes it possible for still more companies to grow from micro to small or midsize.

But these are just some of the ways in which it might be possible to pave the way for midsize growth companies and give them better opportunities to grow into large scale enterprises that – in turn – can leverage the future potential of the region.

There's a shortage of venture capital, not least small start-ups can have difficulties obtaining this on the Swedish market. At the same time, the government has locked up billions of Swedish kronor in funds that have geographical or business sector limitations, barring them from being used where they are needed the most. This needs to be changed. There are alternative solutions with better track records that combine private and public funds. But the strategic issue is that we need new reforms to make it easier to build and access private capital.

Fredrik Sand, Policy Adviser,

Stockholm Chamber of Commerce

Common challenges and solutions across the Nordic/Baltic region

Taking a snapshot of the Nordic and Baltic countries today, one might easily be led to conclude that the Nordics are so far ahead that the whole idea of a discussing the idea of a Nordic/Baltic ICT cluster is pretty absurd. And yes, it is certainly true that the average Nordic GDP per capita is almost exactly double the average Baltic GDP per capita.

But, in relative terms, the truth is not so black and white. As a matter of fact – and as discussed earlier – the Baltics are coming on very strong as measured by a number of parameters, including education, ICT usage and connectivity, competitiveness or innovation. It is for these reasons that international tech companies increasingly relate these seven small countries as one region, even though the countries' governments do not.

The Nordic and Baltic countries hold education in high regard – but could still learn a lot from Hong Kong, Singapore and South Korea. All of whom decided early on to bet heavily on IT and technology and have adopted a more systematic approach all the way from primary school and to university.

*Morten Søby, Head of Policing Unit,
Norwegian Center for ICT in Education*

Most profound, however, is the impressive rise in productivity that the small states have experienced in recent years. Not only compared with the Nordics and EU average – which they certainly surpass by a great length! But also compared to US or Germany; the European growth engine per excellence. Arguably, the Baltic starting point is much more modest. But that does not belittle a Baltic rise in productivity amounting to almost 100 percent at a time, when the Nordic- and EU average has practically flatlined.

Economical differences besides, the countries share a number of common denominators and challenges that could be solved in part by a dedicated bet on the ICT solutions. In practical terms, it might for instance be helpful for the ICT industries in the small Nordic and Baltic nations if a common EU legislative framework for the usage of cloud based software and solutions were developed. This way, it might be easier for local enterprises to expand beyond borders and compete directly with larger software providers on a European scale.

Also, the countries have several common practical issues at hand – productivity-wise, for instance – but also even greater challenges concerning the availability of ICT specialists in order to secure economic growth and steady creation of attractive and specialized jobs in the future.

We need to step out of the misconception that our education-system in the North is world-class; it is not. The vast majorities of candidates are not even remotely prepared for a professional life in the ICT industry – or for a job outside the ICT industry involving IT-skills, for that matter. For instance, the ability to use Excel on more than a rudimentary level is almost completely absent amongst tertiary graduates in Denmark.

*Lars Jacobsen, Editor in Chief,
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Therefore, it is not only necessary to amp up on education in technology and the natural sciences – and to face the fact that maybe it is possible to develop the acclaimed Nordic education-system even further.

But it is also adamant to prioritize the development and launch of initiatives aiming to attract and maintain a steady influx of foreign specialists in the Nordics as well as in the Baltics. While free mobility of labor within the EU certainly helps in this aspect, it is also imperative to expand the effort to make it possible – and even more attractive – for specialists abroad to make the journey and put down roots in the soil of the modern, liberal and well-educated North.

With these common challenges and opportunities across the region, it seems that possibilities of closer cooperation between government entities should be part of the answer. Not only in order to secure and support future growth, innovation, and job creation in the ICT sector across the region, but in the whole Nordic-Baltic economy. All in all, it seems very likely that such common effort could make it possible for Nordic-Baltic countries to reap benefits far exceeding the resources invested – thus putting the whole region in a much better position to prepare for future.

Three particular challenges need to be met with regard to competence supply: More state resources must be diverted to vocational training; there's a lack of women working in the sector; it's not sufficiently easy for foreign ICT experts to migrate to Sweden – working permits and housing are the main stumbling blocks. The Migration Authority has done a great deal to simplify and speed up processes, but up to half-year long processes are still much too long for companies in need of critical skills.

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