INTELLIGENCE WATCH

Scandinavia's Sustainable Tech Banana Beckons Japan

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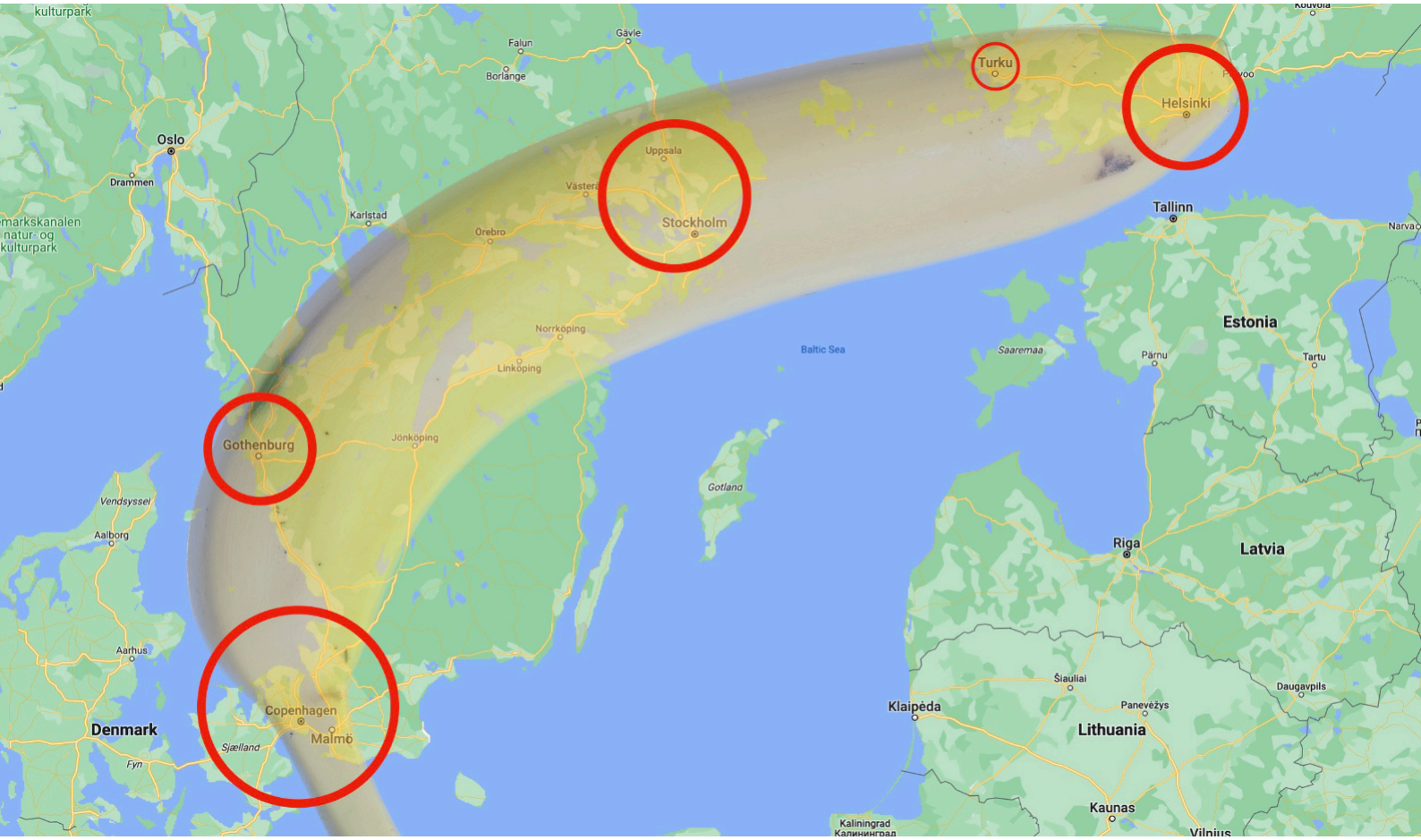
Author:
Olshov, Anders



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From left to right: Charles Michel (President of the European Council), Ursula von der Leyen (President of the European Commission), Fumio Kishida (Prime Minister of Japan)

Photo: European Union

About the report: The report is an independent report from Intelligence Watch. It focuses on Scandinavia and its relations with Japan. As there is a special project to create a Japanese hub in Malmö, extra attention is given to the southern Swedish region Skåne. The author is member of the board of Japan Bridge Scandinavia

Introduction to the beckon

When many still looked at China, Intelligence Watch argued that it was time to, once again, turn the eyes towards the economic Asian giant of the 1980's

It did so in the report Business relations Skåne-Japan in November 2019, in spirit of closer partnership between the EU and Japan and awareness of the new geopolitical situation characterized by increased conflict between democracies and authoritarian regimes. In addition, it wanted to build on the extensive business and research relations between the twin cities of Malmö and Lund in southern Sweden/ Scandinavia and Japan. It argued that these could be developed by creating a Japanese house and hub for the whole of Scandinavia in Malmö in Sweden, only 12-13 minutes away by car or train from Copenhagen Airport in Denmark.

In this report we argue that Scandinavia, given Brexit and that its inhabitants speak a high level of English, should be worth considering as the natural entry point for Japanese companies into the larger EU market of 448 million inhabitants. Europe's more sustainable version of California's Silicon Valley - what we have chosen to call Scandinavia's Sustainable Tech Banana due to its shape – is a world innovation leader.

Thus, it is about selling, being inspired to develop and to diversifying with partners in a more uncertain world order.

After 150 years: Partnership to be built on

In 1868, Sweden and Japan established diplomatic relations by concluding a Treaty of Friendship, Commerce and Navigation. That made Sweden one of the first countries to establish relations with Japan in the Meiji era. 150 years later, the EU-Japan Economic Partnership Agreement entered into force. Together with the Strategic Partnership and the Green Alliance it brings Japan and Europe, including the Scandinavian countries Sweden, Denmark, Finland, Norway, Iceland and the Baltic countries, politically closer than ever before. In addition, security is the theme of the day. Russia's invasion of Ukraine and China's rapid expansion of its military and conviction to reclaim Taiwan have, with the words of Japan's prime minister Fumio Kishida, marked the "complete end of the post-cold war world". Japan and the US have had a mutual defence treaty since 1960 and Kishida's government intends to modernise its country's military, while Sweden and Finland are on the way to enter NATO.

Today Japan and the EU, in which Scandinavia and the Baltic countries together have a large political, economic and security influence, are close allies. That partnership can be built on. ■

Scandinavia - the country that was never formed

The word Scandinavia stems from the germanic words *Skaðin* and *Awjō*, which are thought to be referring to the treacherous waters and sandbanks around the town Skanör and the region of Scania (Skåne) in southern Scandinavia. Geographically Scandinavia is a peninsula in Norway and Sweden with the Scandinavian Mountains. The historical, cultural, and political ties between the people of Denmark, Norway, Sweden, Finland, Iceland and the Baltic countries have been and are strong. Perhaps they would have formed a common country similar to what happened on the European continent, if not the big powers had intervened in order to stop the rise of a strong northern power.

During the centuries there have been various unions of Scandinavian nations, most notably the Kalmar Union of Denmark, Norway and Sweden, which lasted for over 100 years. The most recent union was between Sweden and Norway 1814-1905. Conspicuous is the Kingdom of Sweden in which Finland was a natural part for about 700 years until 1809, when it was lost to Russia after a war. A minority of 5 percent of the population in Finland still has Swedish as mother tongue and it is one of the two official languages. After the Russian revolution in 1917, Finland declared itself independent. In 1952 the cooperation between the countries resulted in the setup of the Nordic Council by Denmark, Iceland, Norway and Sweden. Finland joined in 1955, when relations with the Soviet Union thawed following Stalin's death. In 1952, passport-free travel was introduced, in 1955 the Nordic Convention on Social Security was implemented, in 1958 followed the Nordic Passport Union – a forerunner of the modern European Schengen agreement – and in 1961 Denmark, Norway and Sweden joined EFTA (the European Free Trade Area), while Finland became an associate member. Denmark joined the EU in 1973, Sweden and Finland in 1995. Norway and Iceland - outside the EU - participate in the internal market through the EEA agreement. Scandinavia has no exact definition. Here, we use the same as for the Nordic: Norway, Denmark, Finland, Iceland and Sweden.

Equality, trust in the state and nature lovers

Scandinavian countries have common values and structures, a similar pathos for equality and a trust in the state. Although the citizens are strong liberal individualists they are prepared to pay much of their consumption through taxes in the belief that the public service benefits young and old. The Scandinavian languages' close relationship gives ground for the cultural community. There is a love for nature. Hiking is a popular pastime in Norway and Sweden, where wilderness and mountains offer peace of mind.

	Population (million)	GDP (USD bn 2021)	GDP/capita (USD 2021)
Japan	124.8	4 937	42 940
EU	447.7	17 180	48 480
of which Scandinavia	27.7	1 831	64 547*
Scandinavia's share of EU (%)	6.2	10.7	+33%

*) Non weighted average except Iceland. Population as January 1, 2023 for Japan and 2022 for Europe.

Facts

Japan is the world's third largest economy and Scandinavia, considered as one market, the tenth largest, behind Canada but slightly larger than South Korea and larger than Russia, Brazil and Australia. As an entry point for the EU - a market roughly the same size as China - Scandinavia would play in a higher division. In terms of GDP/capita, Scandinavia belongs to the world's richest areas behind some few tax paradises, oil and gas countries and the US, but is 33 percent above the EU average and 50 percent above Japan.

Jämtland, Sweden

In business, the companies have organized themselves with Scandinavia as their home market. Banking, insurance, energy, paper, food and drinks, airlines, telecom and IT are some industries with typically Scandinavian organizations. The stock exchange and electricity trade have common Scandinavian

trading platforms. The economies of the Scandinavian countries have never been so intertwined with each other as they are today, thanks to the European cooperation which has removed barriers, the digitalization and the globalization which have brought about openness and restructuring across national borders. Olshov, Wichmann Matthiessen and Lindqvist (2010) showed that 55 percent of 300 international companies represented in the region had Scandinavian headquarters.[1] Sweden, as the largest economy, had 67 percent of all Scandinavian headquarters and Denmark 28 percent, while Norway and Finland had few, and Iceland none. ■

[1] The Location of Nordic and Global Headquarters

	Population (million)	GDP (USD bn 2021)	GDP/capita (USD 2021)
Sweden	10.5	627	59 324
Denmark	5.9	397	64 651
Finland	5.5	299	55 013
Norway	5.4	482	79 201
Iceland	0.4	25	57 612

Source: National statistics and World Bank. Footnote: The production of oil and gas accounts for 20 percent of Norway's GDP.

The sustainable banana

When the European Commission announced the 100 EU cities that will participate in the EU Mission for 100 climate-neutral and smart cities by 2030, 21 were in Scandinavia and the Baltic countries

In light of the overwhelming interest from 377 cities to join the mission for 100 climate-neutral and smart cities, the Commission's choice confirmed that the north is leading the transition towards sustainability. Together with five cities in the Baltic countries, the north was selected 21 percent of the 100 climate-neutral and smart cities, despite having a mere seven percent of the EU's population. In comparison the more populated France, Italy and Germany were selected ten respectively nine and nine cities.

From Sweden alone seven cities were selected: Umeå in the far north, Gävle, Stockholm, Gothenburg, and Malmö, Lund and Helsingborg in the southern region Skåne. From Denmark three cities were selected, Copenhagen, Aarhus and Sønderborg, and from Finland six: Espoo, Helsinki, Lahti, Lappeenranta, Tampere and Turku. Of the 100 cities 49 were later selected to join the even more ambitious NetZeroCities Pilot Cities Programme and take rapid action on bespoke combinations of six main domains, including: energy; waste management; land use; electricity for buildings; industrial processes; and mobility and transport. Among these cities were Malmö, Umeå and Uppsala in Sweden and Lahti in Finland.

The urban areas are home to 75% of EU citizens. Globally, urban areas consume over 65% of the world's energy, accounting for more than 70% of CO2 emissions. It is therefore important that cities act as experimentation and innovation ecosystems to help all others in their transition to become climate-neutral.

21 of EU's climate-neutral and smart cities were appointed in Scandinavia and the Baltic countries

Cities Mission received EUR 360 million of Horizon Europe funding covering the period 2022-23, to start the innovation paths towards climate neutrality by 2030. The research and innovation actions address clean mobility, energy efficiency and green urban planning, and offer the possibility to build joint initiatives and ramp up collaborations in synergies with other EU programmes. The Commission will invite the 100 selected cities to develop Climate City Contracts, which will include an overall plan for climate neutrality across all sec-

tors such as energy, buildings, waste management and transport, together with related investment plans. Among the cities to inspire the rest of the union is Malmö in northern Europe's green sustainability banana.

A city in transition – the example of Malmö

Malmö gained international attention with the European Housing Exposition in 2001, also known as "Bo01", which was the first neighborhood in the world to declare that 100 percent of its energy was sourced from renewables. Its energy system includes wind power, district heating, photovoltaic solar panels, and heat pumps. The neighborhood is located by the sea and boasts a dense and green environment. Stormwater management is achieved through the use of rain gardens, small ponds, and canals throughout the neighborhood.

Malmö has since set a goal to become Europe's most traffic-smart city. It has built an extensive network of bicycle lanes, complete with service stations and bicycles for rent. These measures have made Malmö one of the world's most bicycle-friendly cities, alongside Amsterdam, Utrecht, and Copenhagen. The city also became the first in Europe to operate 24-meter completely electric buses, known as Bus Rapid Transit, with separate fast lanes. More railway lines are under construction. The city's policy to grow inwards aims to counteract urban sprawl.

In addition to its transportation initiatives, Malmö has constructed hotels for pollinators such as bees and bumblebees. The city's food strategy aims to decrease the consumption of meat for climate and environmental reasons. Between 2010 and 2019, the city reduced its meat purchasing by 41 percent while increasing the purchase of fruits and vegetables by 18 perrcent. The city has recently decided to make vegetarian or vegan food the new

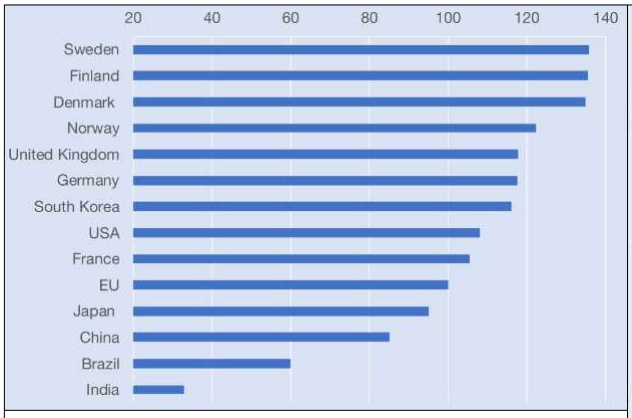
For sale but not on the menu

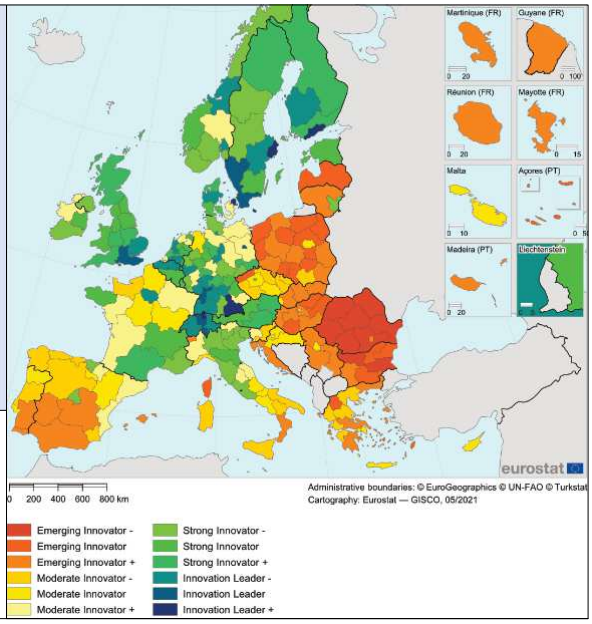
norm for all conferences it organizes. Fish or chicken can be especially ordered only in the evening, but not meat.

Sysav (South Scania Waste Company) in Malmö is leading a promising effort in the automatic sorting and recycling of textiles on an industrial scale. . Siptex (Swedish innovation platform for textile sorting) is the world's first large-scale facility of its kind. Using near-infrared and visual spectroscopy (NIR / VIS), Siptex sorts textile waste by fiber type and color. The textiles are illuminated and the light is reflected in different ways depending on the material. Sensors detect and calculate the type of fiber. Compressed air blows the fabric so that it ends up in the correct container. The project is led by IVL Swedish Environmental Institute and is carried out with a broad consortium consisting of Swedish fashion companies such as H&M, Gina Tricot, and KappAhl, the retail furniture giant Ikea, research institutes, authorities, and actors from different parts of the textile value chain. The many stakeholders are necessary because the project is not only about sorting but also creating a market for the recycled textiles and an economy for all involved. ■

There are hotels in the city center too

Automatic sorting and recycling of textile





EU Innovation Scoreboard 2022 (above) shows Scandinavia well ahead of the EU average and other countries and described as an innovation leader.

The map (right) shows EU Regional Innovation Scoreboard 2021. Of 240 regions 14 were described as innovation leader or innovation leader+. Five of these were in Scandinavia.

The tech banana

The news provider Reuters asked the entrepreneur behind Klarna "How Sweden became the Silicon Valley of Europe". The answer surprised

It is well known that the Scandinavian countries are world innovations leaders. It is less known why. The news provider Reuters decided to find out and asked the fintech company Klarna's founder Sebastian Siemiatkowski, one of the most successful together with Spotify's Daniel Ek and Skype's Niklas Zennström. In the article "How Sweden became the Silicon Valley of Europe" (August 11, 2021), Siemiatkowski surprised, by crediting the Swedish welfare state. He especially pinpointed a late-1990s government policy to put a computer in every home and building broadband earlier than in other countries.

gave the Swedish company the upper-hand when streaming became the norm around the world, he explained to Reuters. "That could only happen in a country where broadband was the standard much earlier, while in other markets the connection was too slow. That allowed our society to be a couple of years ahead", Siemiatkowski said.

The historian Henrik Berggren and the science journalist Eva Krutmeijer tell the story behind fifty important innovations in the book "Innovation the Swedish way", produced in cooperation with the Royal Swedish Academy of Engineering Sciences.

> "That could only happen in a country where broadband was the standard much earlier, while in other markets the connection was too slow"

In 2005, when Klarna was founded, there were 28 broadband subscriptions per 100 people in Sweden, compared with 17 in the United States - where dial-up was still far more common - and a global average of 3.7, according to data from the World Bank. Spotify allowed users to stream music when Apple's iTunes was still download-based, which

The most common reason cited for Sweden's strength in innovation has been its strong tradition of engineering, but the authors include political and social phenomena that arose in Sweden and were later adopted by other countries. For example, Sweden was the first country in the world to introduce paid parental leave for both parents in 1974.

Today, Swedish fathers take a third of the nation's total parental leave. They emphasize the introduction of the public school in the 1900's century, but already in the 1800's century the majority of the population had learnt to read. In addition to broad literacy and access to education, the authors highlight several aspects that have contributed to the Swedish culture of innovation: society's openness to foreign influences, high social trust, flat organizations, protection of property rights and cooperation between companies, state and academia, and not least political stability.

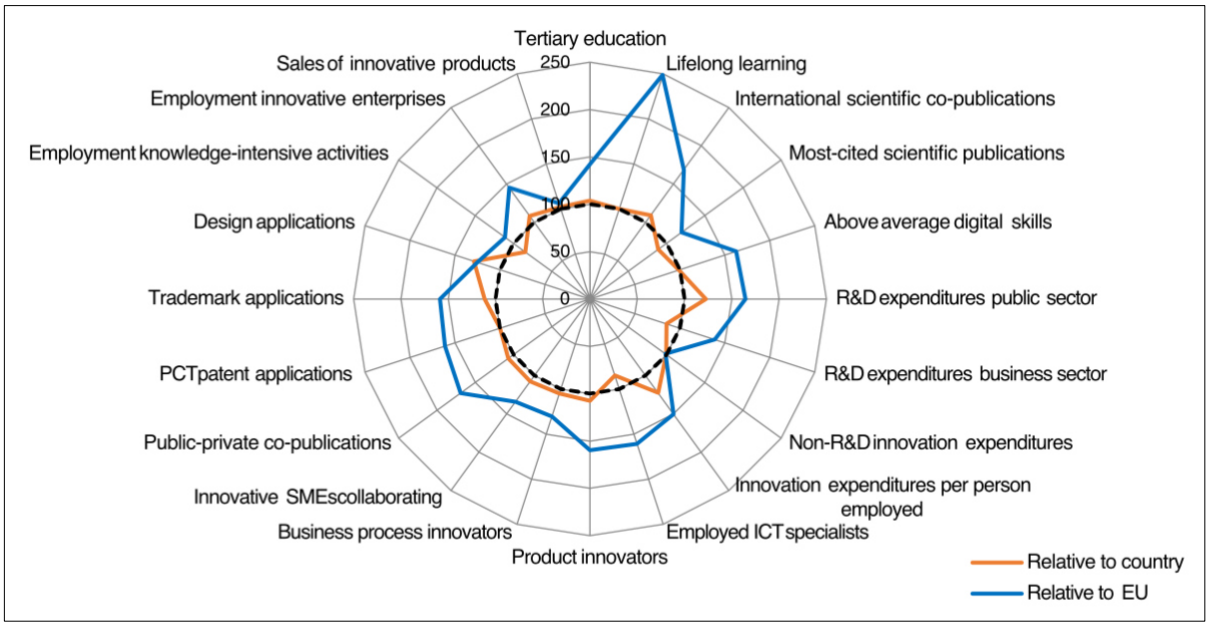
"The ability that we have had for a large part of history to find political compromises has made it easier for people to feel sure that they will get a dividend for their inventions", Berggren and Krutmeijer write.

Ranked number 1 since year 2000

The probably best and most comprehensive measure of the different economies ability to innovate and develop is the European Innovation Scoreboard, a yearly study which distinguishes between four main types of activities – Framework conditions, Investments, Innovation activities, and Impacts – with 12 innovation dimensions, capturing in total 32 indicators. It does not fall in the trap to look at one indicator only, such as patents for example, but is broad. It is written independently by researchers at Maastricht University (UNU-MERIT) in the Netherlands on behalf of the EU Commission after preparation and coordination with Deloitte Consulting & Advisory and Valdani Vicari & Associati (VVA). According to the "European Innovation Scoreboard 2022" Sweden ranks number one in the EU with a performance 35,7 percent above the EU average, Finland number two 35,5 percent above and Denmark number three at 34,8 percent above. In comparison the US is 8 percent above, Japan 5 percent below and China 15 percent below the EU average. In fact, Sweden has been ranked as the EU's most innovative country since the Innovation Scoreboard was first published in 2000. The gap to its Scandinavian neighbors is small, while it is quite large to many other economies.

Regional innovation leaders

Every second year the Regional Innovation Scoreboard is published comprising 240 regions in the European Union. Last time, 2021, 14 had values at least 34.9 percent above the EU average and were called innovation leaders or innovation leaders +. At the top was Stockholm, followed by Helsinki Uusimaa, Oberbayern and Copenhagen. In ninth place was Southern Sweden with the twin cities Malmö-Lund and in the eleventh place West Sweden with Gothenburg. Five of the 14 innovation leaders were in Scandinavia, in the tech banana stretching from Helsinki to Stockholm, via Gothenburg and down to the metropolitan region Malmö-Lund and Copenhagen. Being number 9 out of 240, 42 percent above the EU average is not



The radar graph shows Southern Sweden's relative innovative skills compared to Sweden (orange line) and the EU average at 100 (blue line)

bad, but how come the innovative growth center Malmö-Lund is not at the top? To answer this, it is important to know that the EU measures performance in areas called NUTS (Nomenclature des Unités Territoriales Statistiques). The definition of the regions affects both the numerator and the denominator. For example, Southern Sweden comprises Skåne (Scania) and Blekinge. Thus, the region includes both the skilled Malmö-Lund city with several universities and the highest educated people in Sweden (3.0 percent has a post-graduate education compared to the national average 1.4 percent) and lower educated areas. Often the capitals are defined as a region themselves, without this difference within the region. Another factor which affects is the commuting into the regions. While the commuting in larger NUTS is within the region, capitals and some other regions can benefit from inward commuting with the result that e.g. production per capita becomes extra high.

Examples of inventions

Each country has its list of famous inventors and entrepreneurs. In Sweden it contains Carl Linnaeus or Carl von Linné (taxonomy system of naming organisms), Alfred Nobel (dynamite), Anders Celsius (the thermometer scale), Lars Magnus Ericsson (telephone equipment producer), Johan Petter Johansson (adjustable spanner and plumber wrench) and Ingvar Kamprad (Ikea). Less famous is Aina Wifalk who invented the rollator used by many elderly. In Sweden it is used by every third person over the age of 80 years. Many inventors were active in Lund. Lund University mentions some of them:

- Professor of medicine Nils Alwall developed the world's first clinically useable artificial kidney in 1946. From this industrialist Holger Crafoord founded the global company Gambro, acquired by Baxter in 2013.
- Physicist Hellmuth Hertz and cardiologist Inge Edler developed the first echocardiogram for ultrasound examination of the heart in 1953.
- Arvid Carlson made ground-breaking discoveries on the role of dopamine in the brain in 1957, which led to the first and still currently most effective treatment for alleviating the symptoms of Parkinson's disease. He subsequently became a professor in Gothenburg and Nobel Prize laureate in 2000.
- Björn Jonson and Sven Ingelstedt created the modern respirator in 1971.
- Kjell Wetterlin with colleagues at what was then Draco developed the Turbohaler in 1987 for the inhalation of asthma medicine.
- Researchers at Lund University developed the health-promoting bacteria culture Lactobacillus. It developed into the fruit drink Proviva, launched in the early 1990s. In 2010 Proviva was sold to French dairy giant Danone.
- Professor Rickard Öste developed a liquid oat-base as an alternative to milk drinks and founded a company, Oatly, in 1994 (then under the name Ceba).
- In a project initiated by Ericsson Mobile in 1994, a wireless technology standard for exchanging data over short distances was developed. The technology was introduced onto the market in 1998 and was called Bluetooth.

Bluetooth is the Anglicised version of the Scandinavian Blåtand after King Harald Bluetooth. The Bluetooth logo is a bind rune merging the Younger Futhark runes (ᚼ, Hagall) and (ᛒ, Bjarkan), Harald's initials.

- Jan Erik Solem, a mathematician at Lund University's Faculty of Engineering, developed a search engine with advanced image analysis and facial recognition in 2004. The search engine formed the basis of the company Polar Rose, which was sold to Apple in 2010.
- As a result of Engineering students Anna Haupt and Terese Alstin's project in 2005 the "invisible" cycling helmet Hövding was developed.
- Industrial designer Mehrdad Mahdjoubi's degree project in 2012 resulted in a shower that reduces water consumption by 90 per cent and the company Orbital Systems. ■

Interview with professor Konno about Scandinavia as "Silicon Valley of Europe"

An innovation ecosystem "based on human existence"

Professor Konno, you have visited Scandinavia several times. Why do you find Scandinavia interesting and what is your opinion about the region in terms of innovation and economic development?

- The image of Scandinavia in Japan used to be that of a cold and distant country, but recently this image has changed to one that is more approachable and friendly. This is probably due to interest in the quality of life and lifestyles of the Nordic countries. As you know, in the world of management, the image of Nordic companies was somewhere between American-style management and Japanese-style management. Recently, I think there is a growing interest in non-military democratic innovation, says Noboru Konno.

Some studies show the Scandinavian countries' innovative capabilities well ahead of the EU average, the US, Japan and China. For this reason Scandinavia is sometimes said to be "the Silicon Valley of Europe". While there are many differences, do you find this parable relevant or how would you best describe Scandinavia?

- Depending on how you define the "Silicon Valley of Europe" it meets the requirements (universities, companies, public organizations, and civil society) to be an innovation ecosystem. Also, the Baltic Sea region, which was historically a sea of trade, is almost the same size as the state of California, so I think it has these qualities at the level of agglomeration. The Baltic Sea region is considered as a region that includes Denmark, Stockholm, Helsinki, Espoo, and the Baltic States and the Netherlands: the Baltic Sea Innovation Region, the Nordic Innovation Region, and so on.

Scandinavia is a region with different countries.

With Japanese eyes, can you briefly describe some of the most interesting strengths you have noticed?

- A national and social system based on human existence (existentialism) is something that is not often seen in Japan, but at the same time, the ability to act collectively different from US-style individualism (Japan is a collectivist country) is interesting. Flexibility with a future orientation (which may also be due to the fact that it is a group of small countries and a city-states). The emphasis on nature is also interesting; Scandinavia shares common resources and social capital with Japan, but operates on different principles.

What can Japanese companies and startups learn from Scandinavia?

- I think that we should learn from you is the collaboration with universities, firms, local government and communities, or the innovation ecosystem at the national level.

Every region has its strengths and weaknesses. If we turn the question, is there any weakness in the Scandinavian innovation structure where learning from Japan could add value? Which are Japan's relative strengths?

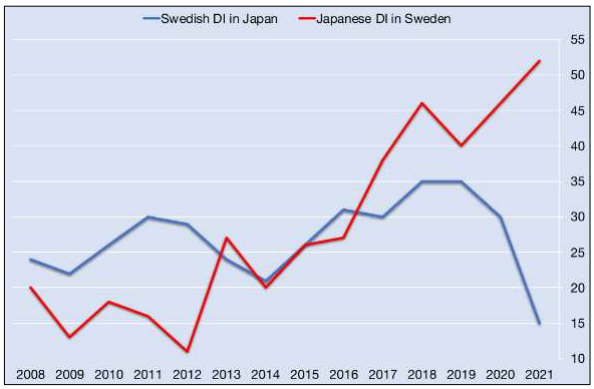
- Japan still keeps a 20th century industrial society and manufacturing (monozukuri) culture, and this has often been a stumbling block to leapfrogging to service innovation. On the other hand, the strength of monozukuri is the concentration and density of knowledge produced in the process. It is essential to combine these with digital technology and other means (such as Germany's Industry 4.0) to evolve into what I call a "knowledge manufacturers". Therefore, I believe that collaboration between the two parties is critically important. ■

Noboru Konno

Professor, Tama University Graduate School, Director of Ecosyx Laboratory, Director of Future Center Alliance Japan (FCAJ), President of Japan Innovation Network (JIN), and Guest Professor at the Graduate School of System Design and Management (SDM) at Keio University. He is engaged in theoretical and applied studies of knowledge creation, innovation, design thinking, and "purpose engineering" based on the study of knowledge ecologies. His publications in Japanese include "Innovate by Design-base Management", "Principles of Knowledge Creation Management," "Methodology of Creativity," and "Whole Innovation Catalogue."

Business relations Japan-Scandinavia

Statistics show Japanese direct investments in Sweden has been rising the last ten years. Hitachi's acquisition of ABB Power Grids for $11 billion in 2020 is the largest acquisition in Scandinavia. Other investments are in high tech and tires in Sweden, biotechnology in Denmark and salmon in Norway



Direct investments between Japan and Sweden 2008-2021 (SEK billion)

The Japanese interest to invest in Sweden has been on the rise for the last ten years. From yearly direct investments of SEK 16 bn a year in the period 2008-2012 on average, investments have increased gradually to reach SEK 44 bn on average in the period 2017-2021. During 2021, it even reached a new record of SEK 52 bn.

Yokohama Rubber: Trelleborg Wheel Systems

The latest large Japanese acquisition in Sweden is Yokohama Rubber Company's purchase of Trelleborg AB's business area Wheel Systems for EUR 2.1 bn (SEK ~22 bn), consolidating Yokohama Rubber's leading position among tire producers in the world.

Hitachi Energy: ABB Power Grids

The largest investment has been the technology conglomerate Hitachi's acquisition of Swedish-Swiss ABB Power Grids for $11 billion. The deal was agreed between the parties in December 2018. On 1 July 2020 Hitachi acquired 80,1 percent of ABB Power Grids and at the end of 2022 it completed the acquisition of ABB's remaining 19.9 percent equity stake. The company employs about 36,000 people in 90 countries, has annual revenues of about $10 billion and has a leading market share in the world's transmission and distribution sector with core offerings in grid automation, high-voltage components, grid integration, and transformers. Today, Hitachi Energy has 3 000 employees in Ludvika and 900 employees in Västerås, Sweden. ABB is a merger between ASEA in Sweden and BBC (Brown Boveri & Cie) in Switzerland. Since the headquarters is in Switzerland, the acquisition might not show up in the Swedish statistics.

Nippon Steel & Sumitomo Metal: Ovako

Nippon Steel & Sumitomo Metal Corporation (NSSMC), one of the largest steel producers in the world, acquired Ovako from Triton in March 2018 and made it a subsidiary of Sanyo Special Steel in March 2019. Ovako has 3 040 employees, 9 production facilities of special steel and sales in 30 countries amounting to EUR 921 million 2017. The parties agreed not to make the terms and conditions of the transaction public.

Softbank: Sinch, Klarna and Exeger

In December 2020, SoftBank took a $690 million stake in Sinch, which provides cloud-based "omnichannel" voice, video and messaging services to help enterprises communicate with customers.

In June 2021, SoftBank's Vision Fund 2 led an equity funding of USD 639 million in Klarna, a leading global payments provider, retail bank and shopping service. Additional participation came from Adit Ventures, Honeycomb Asset Management and WestCap Group.

In 2019, the SoftBank Group invested EUR 18 million in Exeger which has a patented solar cell material described as the third generation of photovoltaic solar cell technology and a reinvention of the Dye Sensitized Solar Cell (DSC). The solar cell, Powerfoyle, is flexible enough to be bent and can be printed in any form. At the same time SoftBank entered a strategic partnership with Exeger through its subsidiary SB Energy Corp. Its CEO Shigeki Miwa entered the board of directors in Exeger Operations AB.

Canon became leader in video surveillance

In February 2015, Canon made a public cash offer to acquire Axis, the world leader in video surveillance and the network video solutions industry outside China, worth SEK 23.6 bn. It was an investment in a promising new business area. Canon envisaged three synergies: 1. Technology synergies: The combination of Canon's excellent optical and imaging technologies and Axis's outstanding network image processing technology enable both companies to offer innovative, sophisticated network video solutions; 2. Strengthening the intellectual property portfolio, allowing leveraged product development which contributes to an increased ability to introduce new and innovative products, solutions and services; 3. Enhancing the distribution and service network. Canon has created a global distribution and service network for its camera products and business equipment. Axis has a well-established worldwide network of 75,000 business partners, including system integrators. In October 2018, Canon made Axis a wholly owned subsidiary. Axis's management team, its headquarters in Lund, development centers, and sales offices have remained, the brand name has been maintained and Axis has continued to be a separate legal entity within the Canon Group. Axis has grown to 4000 employees in over 50 countries, of which 2500 are working in Lund. In 2022, sales amounted to SEK 15.9 bn, an increase by 38 percent from 2021.

Fujio Mitarai, chairman and CEO Canon, has visited Axis in Lund several times. Here during a visit in July 2019

Fujifilm acquired Biogen's manufacturing

In August 2019, Fujifilm invested USD 890 million to acquire Biogen's manufacturing subsidiary in Hillerød, Denmark. In June 2020, Fujifilm announced it made a major capital investment of USD 928 million in the site of Fujifilm Diosynth Biotechnologies, a leading contract development and manufacturing organization (CDMO) for biologics and advanced therapies. The investment will expand production lines for bulk drug substance with the addition of a further six mammalian cell bioreactors, bringing the total to 12 x 20,000-liter bioreactors by fall 2023, making the facility one of the few major large-scale manufacturing facilities in the bio-CDMO industry.

Mitsubishi Heavy Industries-Vestas Wind

In September 2013, Mitsubishi Heavy Industries and Vestas Wind Systems in Denmark established a joint-venture company dedicated to business in offshore wind turbines. In October 2020, Vestas acquired MHI's shares in the MHI Vestas Offshore Wind joint venture for EUR 709 million, and MHI acquired 2.5 percent in Vestas. In February 2021, the two partners established another joint-venture, MHI Vestas Japan, with a 70 percent stake for MHI and 30 percent for Vestas. MHI Vestas Japan markets onshore and offshore wind turbines in Japan.

Mitsubishi acquired Norwegian salmon

In September 2014, Mitsubishi Corporation acquired Norway's Cermaq, the world's third-largest salmon farming and processing company for USD 1.37 bn and turned it into a wholly owned subsidiary. Mitsubishi entered the salmon farming business by acquiring Chile-based Salmones Humboldt three years earlier. After the takeover, Mitsubishi's combined salmon production volume became the second largest in the world after Norway's Marine Harvest.

Toyota Material Handling Europe

Toyota Material Handling Europe (TMHE) has its European head office in Mjölby, Sweden, where approximately 2 000 of the 12 000 employees work with administration, R&D, Design and production. Material Handling Equipment, including lift trucks and logistics solutions business, is Toyota Industries Corporation's (TICO) largest business area with a share of 66 percent of the total sales of SEK 208 bn in 2022. It is larger than Automobiles' share of 29 percent, but vehicles are also sold in other Toyota group companies. The expansion of e-commerce and needs for more efficient and automated logistics are driving growth. TMHE has factories in Sweden (Mjölby), France (Ancenis) and Italy (Bologna), where over 95 percent of the trucks it sells in Europe are produced. Among the Japanese employees in Mjölby, Toru Suzuki, who is Chairman of the Board, can be mentioned.

TICO, with almost 72 000 employees in total in 2022, is the global number one in material handling since 2001 and active in 5 regions worldwide under brands such as Toyota, Raymond and Cesab. Since the acquisition of Vanderlande and Bastian Solutions, it's TICO's ambition of becoming the first-choice partner in the material handling business as a total solution provider for projects of all sizes.

Nordic Ninja VC

JBIC (Japan Bank for International Cooperation) has together with Panasonic, Honda, and Omron set up the venture fund Nordic Ninja VC in Helsinki. Fund 1 has a capital of EUR 101 million to invest in the Nordic Baltic Region with a preferred investment size of EUR 1-6 million. The fund has made 19 investments in different startups.

Slush - startup event

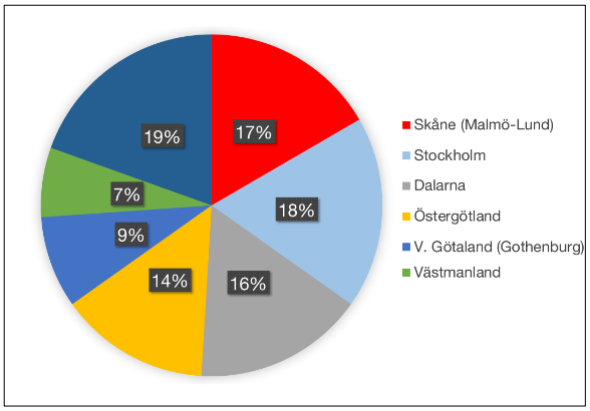
Last year a delegation of 100 Japanese investors and entrepreneurs attended the startup event Slush in Helsinki. Apart from meeting others many took the opportunity to buy Moomin souvenirs and enjoy the famous Finnish sauna.

Can be found almost everywhere in Finland and Sweden - a sauna or bastu in Swedish

Japanese ownership in Sweden

20 980 employees worked for a Japanese controlled enterprise in Sweden in 2020, making Japan the eleventh largest foreign owner country in Sweden. Outside Europe only the US, controlling enterprises with 73 972 employees, and China plus Hong Kong, controlling enterprises with 34 881 employees, were larger. In the case of China 21 854 employees (63 percent of all in Sweden) were in the region of Västra Götaland with Gothenburg as center, due to the ownership of Volvo Cars.

The Japanese ownership is more outspread. 18 percent of all employees in Japanese owned companies worked for enterprises in Stockholm, which has several market and sales offices for the Swedish and Scandinavian markets. This is to some extent true also for Skåne with the Malmö-Lund city. 17 percent worked in Skåne, where Canon's ownership of Axis and Sony's site and office count. Dalarna has 16 percent of all employees. Here the big company is Hitachi Energy after the acquisition of ABB Power Grids. In Östergötland Toyota is a big employer. Västra Götaland only has 9 percent of all. Calculated as the concentration of all employees in each region. 5,6 per thousand worked for a Japanese controlled enterprise in Skåne, 3,0 in Stockholm and 2,1 in Västra Götaland. For the rest of Sweden it was 5,3 per thousand. 4 670 worked for a Japanese controlled company in 2000. ■



Employees in Japanese controlled companies per region (% of total in Sweden)

Sumitomo Corporation bought Q-Park Nordics

Sumitomo Corporation purchased "Q-Park Nordics" with parking facilities in Sweden, Norway and Finland in March 2019, Q-Park Nordics is the largest provider of parking facilities in Sweden, Norway and Finland with about 20% market share. Q-Park Nordics is active in introducing new services such as EV charging equipment, car maintenance, tire replacement, home delivery lockers, and cashless app payment options. ■

Parts of Malmö University by the sea

Business relations Japan-Skåne

The twin cities Malmö-Lund, in the southern Scandinavian region Skåne, is in the centre of the Swedish-Danish "Oresund region" with 4 million inhabitants within one hour from the bridge crossing the strait. Malmö-Lund has especially strong business relations with Japan.

From a business point of view there are three main types of relations between different economies: trade foreign direct investments and finance. The EU is Japan's third most important trading partner with over 10 percent of all trade in goods. Japan is the EU's eight most important trading partner and the city of Malmö's ninth most important export market, and the second outside Europe after the US. However, trade figures are less reliable as a measure of economic dependence today than historically since production nowadays often takes place in third countries.

Still, companies from Japan and Scandinavia look for market access and investments which add value to their business. They open market and sales offices and look for companies to acquire, or for potential buyers when they want to divest. Japanese companies have been very active in Skåne. Likewise, many companies from Skåne have been in Japan for a long time with good results. Concerning finance, as a coincidence both Sweden and Japan change central bank governor almost simultaneously and after a similar, extremely loose monetary policy which have weakened the Swedish krona and the Japanese yen against most currencies. The new Riksbank governor Erik Thedéen has clearly signalled he wants to strengthen the krona in order to decrease imported inflation. Bank of Japan's new governor Kazuo Ueda will chair his first BOJ policy meeting on April 27-28. It is highly expected he will end the unpopular yield control policy and normalise the prolonged ultra-easy policy. International financial markets will watch the development carefully.

Sony: Close collaboration Tokyo-Lund

There are around 500 people working for Sony in the Skåne region, including consultants. Although there is a long history of mobile phone development, nowadays the Sony colleagues in Skåne represent and support many businesses within the Sony Group. The four focus areas of the sites in Lund and Malmö include software development, R&D, business development and design.

Software development for smartphones is still a very important part of the Lund site's function, but nowadays, the software center also supports other products and businesses, for example TVs and image sensors. It can be noted that the collaboration between the software teams in Lund and Tokyo has never been as close as it is today. R&D do research and standardization work for mobile connectivity and the design studio - Studio Nordic - is part of a global organization, called Creative Design Centre. Since 2015, there is also a clear focus on creating new business, and some of the new solutions are since 2019 part of the new company Sony Network Communications Europe, with an office in Malmö. The company offers intelligent connected services for asset tracking, mobile health & safety, management of office space and more. Managing Director for Sweden is Shigehiko Nishizawa.

Studio Nordic is a team of designers with expertise in design research, user experience, user interface, color & material, industrial design and communication. For example, it had a role in the development of the electric car concept Vision-S, which has now been developed further into the prototype Afeela, in the joint venture Sony Honda Mobility. Sony's first-ever car will have cutting-edge tech and self-driving capabilities powered by chips from Qualcomm. Video game maker Epic Games collaborates on in-vehicle entertainment. A prototype was shown at CES 2023, the consumer electronics show in Las Vegas. Afeela will be available for pre-order in 2025 with first deliveries due for spring 2026 in North America.

An example of how Lund is described by a Japanese manager can be found in a news article from 2020 in the local Swedish newspaper Sydsvenskan, when Shugo Yamaguchi – back then a representative from R&D, now part of the Corporate Executive Office in Sony Group – visited Lund. He described that 5G and internet of things is a top priority and that Sony "instead of Intel inside has Lund inside" Sony's products. According to Yamaguchi Lund colleagues also contribute with valuable perspectives on strategic decisions: "The majority of our R&D employees live in the Tokyo area and watch only Japanese culture, so we need more diversity", he told the paper (Sydsvenskan 7 February, 2020).

To understand Sony's presence and development in Lund a historical background is required. The city site was already back in the 1980's the home of the telecom company Ericsson's R&D center for mobile phones. This is the city where Bluetooth was invented and already in 2000 Ericsson launched the world's first smartphone with touch screen, the R380. After some challenging times in the industry, Ericsson, a typical B2B-company, decided to enter a joint venture with Sony regarding the consumer product part of the company Ericsson Mobile Communications. In 2001, a joint venture, Sony Ericsson, was set up for the development, design and production of the mobile phones, whereas the mobile platforms business became Ericsson Mobile Platforms. The coming years became successful. In 2007, Sony Ericsson sold 104 million mobile phones, had sales worth SEK 120 billion, made a profit of SEK 15 bn and held a 9 percent global mobile phone market share as the fourth largest vendor. But Sony Ericsson, like Nokia (from 2011 together with Microsoft), RIM (Blackberry), Motorola, HTC and LG, were dramatically challenged when first Apple launched its Iphone and later Huawei entered the smartphone market.

In 2012, Sony acquired Ericsson's share of the Joint Venture and the company Sony Mobile Communications was formed. In January 2013 the headquarters moved to Tokyo, and later the mobile business was fully integrated into the Sony Corporation portfolio. Since March 2020 the site in Lund, today managed by Stefan Andersson, belongs to Sony Europe BV.

Thus, the knowledge at the site in Lund is used differently than before. Important for the business relations Japan-Skåne is the amount of employees who have worked together during two decades and have travelled between Tokyo and Lund. Probably no other company in Scandinavia has had the same traffic. ■

Axis became world leader thanks to Japan

Sweden has a small and open economy. The limited size of the home market has made English the business language and has helped to internationalise

many companies. The co-founders of Axis in Lund, Mikael Karlsson, Martin Gren and Keith Bloodworth, choose to make (West) Germany the home market from the beginning and already in its first year, 50 percent of the sales were exports, four years later 90 percent. Axis also decided to use a 2-tiered business model where they are always loyal to the reseller. The main product in the beginning was print servers to connect to IBM's mainframe computers. The printer industry was oriented towards Japan where most printers were made, hence Axis had a strong desire to enter that market.

As a coincidence, during one of Gren's business trips to Tokyo in the mid '90s to meet potential customers, one of them had an inventory of analog cameras that were difficult to sell. Knowing that Axis had experimented with technology that made networks smarter, he asked Gren if it was possible to attach them to a network. Gren saw the potential and the idea started to sprout.

Back home he talked to an Axis engineer named Carl-Axel Alm, who was in the process of developing a prototype of a network video conference system. Gren suggested using the new hardware to create a network camera. The result was the world's first IP camera, the "Neteye 200" introduced in September 1996. It had very low performance, only one frame every 17 seconds. "We built the product only because we could, not because we saw a market for it. The most difficult is not to invent a product, but to take it to the market", he explains. "But we were looking for the market and realized this was an industry all analog waiting to go networked.

> "On the surface the US culture is similar to Sweden, but under the surface it is quite different. With Japan it is the opposite. Under the surface there are a lot of similarities, such as a consensus oriented atmosphere and a desire to always improve – even if it is not broke"

In 1987 its first subsidiary was set up in Boston, the US, but the culture was different and many mistakes were made. It took some 15 years before Axis really got it right in the US. "On the surface the US culture is similar to Sweden, but under the surface it is quite different. With Japan it is the opposite; the culture on the surface is very different but under the surface there are a lot of similarities, such as a consensus oriented atmosphere and a desire to always improve – even if it is not broke", says Martin Gren.[1]

Axis first experience with Japanese companies was in 1987 when they got in contact with the OEM (original equipment manufacturer) customer Juki, a traditional company whose main product was industrial sewing machines. They learnt a lot about the Japanese culture. In the next few years Axis found many customers: Fujitsu, Canotec (Canon) and IBM Japan. Axis got to know a similar company, TMR, which helped with recruiting and did also become a reseller. Mikael Karlsson and Martin Gren travelled frequently to Japan and when it was time to set up a subsidiary, Mikael Karlsson decided to live in Japan for two months to learn the Japanese culture, but even more important to build the Axis' culture in the subsidiary. The first office was at the Sweden Center in Roppongi. "We had a lot of practical help from the Trade Council. We started doing network print servers, a great fit for Japan. We had a substantial part of our sales in Japan and made almost all of our profit there. Canon became an important customer", says Martin Gren.[2]

Martin Gren speaking at Intelligence Watch's seminar "Business relations Japan-Skåne", November 2019

[1] "How Axis was establisehed in Japan", seminar at Intelligence Watch, 20 November 2019. [2] ibid.

The "Japanese" companies Sony and Axis are neighbours in Lund

In addition, we applied the Axis strict 2-tier business model where we are loyal to the partners and this was something new in the industry. This meant Axis disrupted the CCTV industry", he continues.[1]

The road was bumpy around the year 2000, before the breakthrough around 2004 in connection with the security industry's rapid transformation from analog to network-based cameras. That started a growth journey which has lasted ever since. Martin Gren, one of the largest owners of Axis, received a number of proposals to sell his life's work, but he rejected them all until Canon came with an offer in February 2015. The amount of cash itself was not the most important, but a personal letter from its chairman and CEO Fujio Mitarai with a promise to respect Axis culture and business model with a guarantee of continued independence and that all main functions will remain the same. Gren appreciated this very rare commitment and agreed to sell. Today, he is vicechairman of the board of Axis and director of new projects. The circle is closed. The company for which the Japanese market became incredibly important, finally got Japanese owners and a partner for fruitful development. ■

[1] Martin Gren 24 February 2023, and Axis 30 August 2021: "Changing the face of surveillance: The brains behind the first network camera"

Scandinavian and European head offices

Olshov, Wichmann Matthiessen and Lindqvist (2010) showed that 72 percent of the largest international Japanese companies with Scandinavian headquarters had chosen Sweden, 20 percent Denmark and 8 percent Finland.[1] This was no surprise. Sweden is the largest Scandinavian market and most of the companies are in the region with marketing and sales offices with the purpose to sell their products and services. For similar reasons the European headquarters were most often located in London, Germany, Amsterdam or Belgium, but Toyota Material Handling Europe has head office in Mjölby, Sweden. Most of the Japanese companies had their Scandinavian headquarters in Stockholm, as capital of the largest market and its central location close to Swedish-speaking Finland and the Baltic states. Gothenburg and Malmö had together the same amount of regional Japanese headquarters as Copenhagen and Helsinki together, 28 percent.

Malmö has become more attractive after the opening of the Oresund bridge in year 2000, which connected the city to Copenhagen Airport, just 12-13 minutes away with train or car. The fact that 2.1 percent of Malmö's population is born in Denmark is a strategic advantage as the Danes living in Malmö can be employed and work with the Danish market. Together with some Norwegian and Finnish employees, a Scandinavian head office can be easily setup and four countries be covered to the price of one. After Brexit the question is if Malmö can become a Japanese hub also for the European market.

Fanuc Nordic moved to Malmö

Fanuc, one of the worldwide leaders in factory automation for CNC control systems, robots and production machinery, moved its Nordic headquarters from Stockholm to Malmö in the end of 2019. Two years later it was inaugurated in the presence of the President of Fanuc Europe, Shinichi Tanzawa, and via video link from Japan, Dr Yoshiharu Inaba, Chairman of Fanuc, and CEO Kenji Yamaguchi, President of Fanuc. The company has 8,200 employees and a turnover of JPY 551 bn (SEK 42 bn). It established itself in Sweden in the 1960s, Fanuc Sweden in 1981 and Fanuc Nordic in 2007. The facility in Malmö includes sales and service facilities, an enlarged showroom and event area, retrofit and technical centres, spare parts and logistics centres, and an enhanced training centre and robot academy.

[1] The Location of Nordic and Global Headquarters

Cerold Andersson, CEO Fanuc Nordic

Imports of Japanese cars. Photo: Dennis Rosenfeldt

At a seminar organized by Intelligence Watch, Ceorld Andersson, CEO Fanuc Nordic, told that the Malmö facility is more accessible to customers that want to meet a Fanuc representative and that the company can better serve customers than before, as it can reach 60 percent of its customers in a relatively short time. In order to come to this conclusion, it utilized a business intelligence report where all subcontractors in the Nordics were marked on a map. Also customers in the Baltic market, Estonia, Latvia and Lithuania are served from Malmö.

Honda Nordic

Honda Nordic, a subsidiary to Honda Motor Europe, was established in Malmö shortly after the opening of the Oresund bridge between Sweden and Denmark in year 2000. It made it easy to cover Sweden, Denmark and Norway from one location.

Marketing, distribution of cars, garden products and boat engines, management, HR, IT, finance and business administration are done at the office.

Subaru Nordic

Subaru Nordic moved from Helsingborg to Malmö in 2013 where it established a new head office, central warehouse and education center. The company has operations in Sweden, Denmark, Finland and the Baltic countries Estonia, Latvia and Lithuania.

Copenhagen Malmo Port

Copenhagen Malmo Port was founded in 2001 as a merger between the ports of Copenhagen and Malmö. Malmö is the largest port for imports of cars to Sweden, Denmark, Norway and Finland. It is especially important for Japanese brands such as Toyota, Honda, Isuzu, Lexus, Mazda, Mitsubishi, Subaru and Suzuki. Between 2003 and 2021 ships transported newly produced Toyota and Lexus directly from Japan to Malmö, but since then the cars are first unloaded in Zeebrugge in Belgium for further transport to Malmö Port.

HMS Networks: Hitachi became a key customer

HMS Networks, situated in Halmstad, creates products that enable industrial equipment to communicate and share information. For example, it enables a Japanese robot to communicate with a European robot using different industrial protocols. Founded in 1988, it had only 5 employees in 1993 when it started to develop Hitachi´s remote system, an industrial protocol, for their customer Atlas Copco. The problem with the project at that time was mainly related to the manual which Hitachi sent over entirely in Japanese. The founder of HMS, Nicolas Hassbjer, found and later employed Monika Liljenqvist who had lived in Japan in her childhood. She could translate the Japanese characters so that the development could continue. The project resulted in more business with Hitachi and in 1994 HMS received their first and very prestigious order from Japan.

HMS' innovative Anybus module enabled an automation device to become network-neutral and was a success from its first release back in 1995. In the years 2001-2006 a subsidiary was opened in Japan and Japanese customers helped push HMS to new levels of performance. In 2008 HMS was congratulated by His Majesty the King of Sweden for being named Sweden's "Export Company of the Year". Today, HMS has 750 employees in 17 countries around the world and a total revenue of EUR 225 million in 2022. In Japan it has office in Shin-Yokohama with clients such as Toshiba, Yaskawa, Sony, Panasonic and Hitachi.

IKEA furnishes Japanese homes

The Swedish retail chain IKEA has 460 stores in 62 markets, 231,000 employees and EUR 44.6 bn in sales 2022. Malmö is one of the company's main locations. In Malmö the IKEA group (Inter IKEA, INGKA and Ikano) employs 4,230 persons and in Malmö and its vicinity 11,300 persons (Älmhult 3,860, Helsingborg, 1,600, Copenhagen 1,600). In Japan, IKEA has 12 stores, including three city shops in Tokyo. They had 26 million visitors in 2021. The busiest store was IKEA Kohoku. A new store will open in Maebashi, Gunma Prefecture, in 2024, the first one in the north Kanto region.

Among other things, IKEA highlights the work imbalance between couples in homes around the world through The Equality at Home campaign. According to the 2020 Globescan survey, only 26 percent where satisfied with equality in their homes in Japan compared to 77 percent globally.

Harajuko city store, Tokyo, spring 2020. Photo: IKEA

Alfa Laval in Japan since 1925

Alfa Laval, headquartered in Lund, is a world leader in heat transfer, separation and flow management with total sales of SEK 52 bn in 2022. Alfa Laval has been present on the Japanese market since 1925. In 2018, the last published year about different markets, it was the company's fifth largest market after the US, China, the Nordic countries and South Korea with a market share of 7.1 percent of the total order intake of SEK 45 billion. One of the company's 39 largest manufacturing units is in Japan and 241 of the 17,419 employees. Profit before tax in Japan decreased from SEK 217 million in 2020 to SEK 75 million in 2021. Alfa Laval has three subsidiaries in Japan: Alfa Laval KK, Framo Nippon KK and StormGeo Japan KK. Moreover, it owns 11 percent of the shares in Kurose Chemical Equipment Ltd.

Tetra Pak: 192 billion packages, some with milk

In 1951, Dr. Ruben Rausing established Tetra Pak in Lund, presenting a new packaging system. In 1971 a new production plant was opened in Gotemba, and 1981 another one in Seishin, Japan. In 1998, a new Tetra Top® package – Tetra Top® Mini GrandTab 250ml – was launched in Japan. The new package had a slim profile with rounded corners and a generous opening to facilitate pouring and drinking from the package. Three million Japanese school children receive milk in Tetra Pak packages. In 2021 Tetra Pak sold 192 billion packages and reached net sales of more than EUR 11 bn. The company is present in more than 160 countries and has 94 sales offices worldwide.

Metal powder to Japan's automotive industry

Höganäs AB has sold metal powder to Japan's automotive industry since 1956, first through the trading company Gadelius and since 1985 through its own sales company. This makes Höganäs one of the oldest Scanian companies with a presence in Japan. Total sales to Japan amount to approximately SEK 800 million, which can be compared to the company's total sales of SEK 10.5 billion in 2021. More than half comes via exports from Höganäs and Sweden. Since 1987, Höganäs AB has had a mixing station for metal powder in Saitama.

Höganäs AB's Saitama plant

Trelleborg AB

Trelleborg AB, a world leader in engineered polymer solutions that seal, damp and protect critical applications in demanding environments, will establish production of vehicle bellows in Japan in the coming years. In 2021, sales to Japan was SEK 405 million and its total sales SEK 33.9 bn. It has two subsidiaries in Japan: Trelleborg Sealing Solutions Japan and Trelleborg Marine Systems Japan. ■

Japan and Scandinavia collaborate almost with the speed of light

World class research facilities unite

Japan and Scandinavia are soft powers. The construction of world class research facilities in particle physics - J-PARC, ESS, SPring-8, MAX IV and NanoTerasu - has created an exchange of expertise and extensive collaborations which help to increase man's understanding of matter and to push the boundaries of science.

Japan and Europe are allies also in the world of physics. Japan and Sweden/Denmark host two of the three MW spallation sources in the world, J-PARC (Japan Proton Accelerator Research Complex) and ESS (European Spallation Source). Sweden has constructed MAX IV, a new generation of synchrotron radiation facility, and Japan is constructing NanoTerasu, which starts to operate next year. Japan and Europe collaborate to increase human knowledge about matter, often described as microcosmos.

The author of this report has visited both J-PARC and ESS, but from the perspective of the economist. Advanced technology of this kind is expensive, but contributes to increased knowledge, productivity and wealth. Few countries have the skills and financial resources to develop such scientific projects completely by their own. For example, when the James Webb Space Telescope unfolded the huge primary mirror of the largest, most powerful space telescope on 8 January 2022 it was the result of an international collaboration between NASA, the European Space Agency (ESA), and the Canadian Space Agency (CSA). The cost of the observatory is estimated to USD 10 bn.

The Large Hadron Collider (LHC) at CERN, the European Organization for Nuclear Research, is another example. It is the most powerful particle accelerator ever built, 27 km long and famous for the discovery of the Higgs boson particle. It is financed by 23 European member states, among these Denmark, Finland, Norway and Sweden. Japan was admitted as an observer state in 1995 and gave financial contributions in 1995, 1996 and 1998. The US became observer in 1998. In 2008 the LHC started up. Material costs for the construction were estimated to CHF 4.3 bn (SEK 48 bn).

At the ESS. From the left: prof. Lars Börjesson, Swedish Delegate to ESS Council and representative of the Swedish Research Council, Kevis Jones, technical director ESS, dr. Shuichi Wakimoto, vice-director J-PARC, dr. Takashi Kobayashi, director J-PARC, H. E. Noke Masaki, ambassador Embassy of Japan to Sweden, Helmut Schober, director general ESS, Shinya Tatematsu, first secretary, Science Attaché, Embassy of Japan to Sweden, Anders Olshov, director Intelligence Watch and board member Japan House Scandinavia

Materials and Life Science building, J-PARC.

The author's guide during the visit in January 2010: Jun-ichi Suzuki, research manager Neutron Science Section, Materials and Life Science Division, J-PARC.

There are other techniques for the study of matter. Among these are synchrotron radiation, X-ray free electron laser and neutron scattering, which complement each other. Japan has all of them (Spring-8 and SACLA at RIKEN SPring-8 Center in Hyogo, J-PARC and soon NanoTerasu). Lund in Sweden has the synchrotron radiation facility MAX IV and ESS (with its data center in Copenhagen).

The MAX Laboratory was inaugurated in 2016 and cost SEK 6 bn to construct. ESS, constructed at a cost of EUR 3.3 bn (2013 prices), is planned to operate from 2027. It is financed by 13 European countries with Sweden and Denmark as hosts and main contributors. Neutron scattering was previously based on a technique with nuclear reactors, but scientists and engineers have developed a new generation of neutron sources based on particle accelerators and spallation technology. In 2006, the United States Department of Energy inaugurated Spallation Neutron Source (SNS) in OakRidge, Tennessee, as the first in the world.

Japan and Europe were convinced they need to develop their own facilities to keep up with developments. That year J-PARC center in Tokai village in Ibaraki prefecture was established after an agreement five years earlier between the organizations High Energy Accelerator Research Organization (KEK) and Japan Atomic Energy Agency (JAEA). Sweden was still competing with Spain and Hungary to be the host of ESS and invited J-PARC to hold a presentation in Lund.

In 2009, Sweden decided to construct MAX IV Laboratory, a Swedish national synchrotron laboratory with 16 beamlines that provide modern X-ray spectroscopy, scattering/diffraction, and imaging techniques and with Lund University as the host university. It is the successor to MAX-lab, which was in operation between 1987 and 2015. Shortly after, Sweden was chosen for ESS. CEO Colin Carlile, ESS, visited J-PARC as collaboration was needed to succeed with the construction of ESS' many instruments.

It was at this time, in January 2010, I visited J-PARC and interviewed director Shoji Nagamiya, who told me that he already twenty years before had the idea that Japan would invest in becoming a world leader in materials science and particle physics and contribute with something scientific to the rest of the world. He was very positive to collaboration and there, at J-PARC, I understood how internationalized and interdependent the world of physics is. Dr. Jun-ichi Suzuki, research manager at the Neutron Science Section at the Materials and Life Science Division, guided me around J-PARC's three large experimental facilities: Materials and Life Science Experimental Facility (MLF), Neutrino Experimental Facility (NEF), and Hadron Experimental facility (HEF). At NEF I met professor Alain Blondel from the University of Geneva who was head of the T2K (Tokai to Kamioka) neutrino oscillation experiment with participants from 64

The author of the report with guide at the Neutrino Experimental Facility, 8 January 2010


Shoji Nagamiya, director J-PARC 2006-2012

universities around the world, assisted by the Swedish guest researcher Gustav Wikström. I learnt that the specialized instruments are manufactured around the world and possibly can be given away to another facility when the experiments are completed or can be upgraded and reused.

First MOC signed in 2012

In May 2012, director general of KEK and president of JAEA Atsuyuki Suzuki, chair of ESS AB Sven Landelius and director of ESS Colin Carlile signed a collaboration arrangement between ESS and J-PARC. In September 2014, the construction of ESS started and one month later director general of ESS, James Yeck visited J-PARC. In the years 2013-2015, ESS staffs frequently visited J-PARC to learn design of beam port and bunker. In April 2015, Masatoshi Arai with a background as section leader of the Neutron Science Section at J-PARC from 2005 to 2009 and director of J-PARC's MLF from 2009 to 2015, started as technical coordinator at ESS.

The ESS collaboration with J-PARC goes back to ESS's design phase. According to Arai "ESS has benefitted greatly from building on the experience and expanding on the knowledge of other facilities such as J-PARC." He mentions a set of experiments at J-PARC in April 2015 by physicists from the ESS Target Division and J-PARC that validated the physics behind the ESS "flat" moderator design. This breakthrough optimisation of the ESS moderator is expected to produce 2.5 to 3 times more neutrons than the preceding baseline design for those instruments at ESS, able to exploit its high brightness. ESS is unique among the existing spallation sources being the first long pulse source, having a design power of 5MW, and having a rotating target, a helium-cooled tungsten target wheel. The proton power at J-PARC, using a short pulse source, has been ramped up to more than 0.8 MW close to the final goal of 1 MW. The new technology at ESS means J-PARC is very interested to follow the development, to advise and help making the project a success, but also to learn in order to improve J-PARC.

The European Spallation Source, previously setup as a Swedish-Danish company, became a European Research Infrastructure Consortium (ERIC) on 1 October 2015 with thirteen founding members: Czech Republic, Denmark, Estonia, France, Germany, Hungary, Italy, Norway, Poland, Spain, Sweden, Switzerland and the United Kingdom.

MAX IV became the first 4 GSR in the world

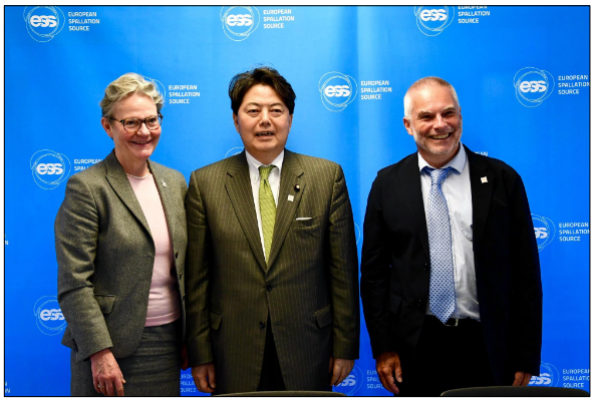
MAX IV facility was inaugurated in June 2016. The X-ray light at MAX IV is produced by an accelerator complex comprising a linear accelerator as well as 1.5 GeV and a 3 GeV storage ring for electrons. MAX IV became the first worldwide realisation of a fourth-generation light source (4GSR) with a new Multi-Bend-Achromat lattice technology to achieve ultralow emittance and hence ultrahigh brightness and transverse coherence. This enabled a much higher energy and a more intense beam. It was followed by Sirius (Brazil) and European Synchrotron Radiation Facility Extremely Brilliant Source (ESRF-EBS), which both started to operate in 2020, and APS-U (USA), which starts to operate in 2023.


MAX IV.

In June 2017, the Memorandum of Collaboration (MOC) between J-PARC and ESS was renewed and signed by chair of ESS ERIC Lars Börjesson and director of J-PARC Naohito Saito in front of the then two prime ministers, Shinzo Abe and Stefan Löfven. In October the same year, ESS hosted the director of the J-PARC, Naohito Saito, and the deputy director, Institute of Particle and Nuclear Studies at KEK, Takashi Kobayashi. Professors Saito and Kobayashi led a seminar on J-PARC for ESS management and staff. In October, experts from J-PARC held a particle and heavy ion transport code system tutorial course at ESS on neutronics calculation.

In January 2018, a Japanese delegation including the minister of Education, Culture, Sports, Science and Technology (MEXT) Yoshimasi Hayashi visited ESS, MAX IV and Medicon Village in Lund

Renewal of MOC in June 2017. Photo: Maja Suslin/ESS



State secretary Karin Röding, minister Yoshimasi Hayashi and John Womersley, general director ESS

to learn more about the facilities and the ecosystem that surrounds them. MAX IV finally convinced MEXT. That same month an expert panel of MEXT issued a report saying that such a facility should be developed in Japan as soon as possible and that "great need and demand can be expected for its industrial use." MEXT included the promotion of next generation synchrotron radiation facility by the public and private sectors partnership in the 2018 budget. On January 18-19, 2018, ESS also hosted a two-day workshop with representatives from J-PARC to share information on the current status of each facility and exchange knowledge across the technologies of the accelerator, target, and neutron instruments as well as the safe operation of the respective facilities. In the final remarks, a J-PARC branch at ESS and an ESS branch at J-PARC were proposed as well as to investigate connection of student programmes (e.g. SwedNess access to J- PARC).

Japan-Sweden science cooperation

On 10 October 2018, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan, the Ministry of Education and Research of Sweden and the Ministry of Enterprise and Innovation of Sweden made a joint statement on the strengthening of Japan-Sweden science and technology cooperation on the occasion of the 150th anniversary of the establishment of diplomatic relations between Japan and Sweden. The cooperation through the large scale facilities MAX IV, ESS, Spring-8 and J-PARC were mentioned as examples of the importance of, and potential for, Japan-Sweden cooperation in science and technology.

At the 2019 general meeting of the Japanese Society for Neutron Science, dr. Masatoshi Arai - former head of the MLF division at J-PARC and currently professor emeritus of KEK and technical coordinator of ESS-ERIC - received an achievement award. The award is presented to a person with noteworthy achievements in developing neutron science in Japan, and Arai was recognized for his consistent efforts in instrument development and facility construction/operation relating to pulsed neutron scattering. The award recognized Arai's "pioneering research and leading role in the use of pulsed neutrons." Arai has been involved with J-PARC since its planning stages.

In 2019, the National Institute for Quantum and Radiological Science and Technology (QST), designated by the Japanese national government to be the core body for the development and operation of Japan's new synchrotron radiation facility, started to construct the accelerator, and the regional partner started site preparation. In June 2022, the facility was nicknamed "NanoTerasu" as the powerful light illuminates and observes the "nano universe" within materials, and because of "the wish that the research results produced by this facility will bring abundant fruits to the world's academia and indus-try, just like the goddess "Amaterasu," enlightens the world in Japanese mythology." In 2023, the building is completed and the first beam produced, before the start of operation next year, according to the plans.

NanoTerasu, Japan's new synchrotron radiation facility

7-11 June, 2021, The University of Gothenburg hosted MIRAI 2.0 Research and Innovation week as a digital event. In a seminar on synchrotron sources director Atsushi Muramatsu, Tohoku University, associate professor Jesper Wallentin, Lund University, professor Yukio Takahashi, Tohoku University, and professor Magnus Borgström, Lund University, participated. In a seminar on Spallation Sources instrument scientist Andrew Jackson, ESS, professor Toshiya Otomo, KEK, professor Max Wolff, Uppsala university, and professor Hirohiko M. Shimizu, Nagoya University, participated.

European Spallation Source Photo: ESS

ESS and J-PARC collaboration renewed

After the corona pandemic, on 10 October 2022 a renewal of the collaboration agreement between ESS and J-PARC was signed by Helmut Schober, ESS director general, and Takashi Kobayashi, director of J-PARC, during a ceremony at ESS in Lund. The renewed cooperation agreement is valid for another five years. Japan's ambassador to Sweden, Noke Masaki, were among the guests at the event. A tour of the ESS facility took place after the ceremony. In conjunction with the event a two-day commissioning workshop involving staff from ESS and J-PARC was held. ESS is planning its first neutron production (BOT: beam on target) in late 2024, while J-PARC had BOT in 2008. Since the most of ESS staff have not had an experience of commissioning, it was extremely useful for ESS to study the lessons learnt at J-PARC, although the source design is quite different. It was also true for young staff of J-PARC, who joined after the commissioning period. Hence, the commissioning workshop were fruitful for both parties, to present the experience at J-PARC and discuss the commissioning scheme of ESS under planning.

ESS director general Helmut Schober and director of J-PARC Takashi Kobayashi renew the collaboration agreement and take a tour inside the ESS

In December, d.eng. Makina Yabashi talked about the upgrade of SPring-8 beamlines at MAX IV. There are other Japanese connections at MAX IV: P.hd. Takashi Tokushima works on the commissioning, research and development at the Veritas beamline and several of the instruments have been delivered from Japanese companies: JTEC, Toyama, Hitachi, Olympos and Hamamatsu.

It should be underlined that the industry is using the facilities for experiments to develop materials in a variety of fields. Gränges, a Swedish aluminium technology company, has performed experiments at both MAX IV and SPring-8 to investigate flux-free materials. Alfa Laval has investigated the deoxidation process that occurs during the brazing of stainless steel and Boliden how to improve the extraction of byproducts from complex ores. The food packaging and processing company Tetra Pak studied the nanostructure of fibre materials to develop more sustainable packaging solutions.

In a positive spiral, ESS learns from J-PARC, which can learn and upgrade its facility after what can be achieved at ESS. The same happens between SPring-8, MAX IV and NanoTerasu. The will to constantly improve the research facilities in Japan and Sweden will not wane, but grow larger as the they push the boundaries of science. ■

The academies in Japan and Sweden in joint effort

MIRAI: 20 universities collaborate

2017-2019 seven Swedish and eight Japanese universities joined together in the MIRAI project. Research seminars, workshops, short courses for Ph.D., and Post-Docs and researcher mobility were implemented to strengthen collaboration between Sweden and Japan. The importance was highlighted in the joint statement on 'Strengthening of Japan-Sweden Science and Technology Cooperation' signed during the MIRAI seminar in Tokyo on 10 October 2018.

Around 170 participants in the MIRAI collaboration gathered at Lund University in October 2017.
Photo: Maria Johansson

The collaboration has continued during the period 2020-2023 through MIRAI 2.0, now with 20 universities, of which 11 are Swedish and 9 Japanese. The aim is to contribute to long-term research collaboration and to promote Sweden and Japan as nations of world-leading large-scale research infrastructure. MIRAI 2.0 focuses on early career researchers and addresses scientific issues within Ageing, Materials Science, Sustainability, Artificial Intelligence and Innovation and Entrepreneurship relevant to both countries.

The main activities of MIRAI 2.0 are the research & innovation weeks taking place in both Sweden and Japan, scientific workshops and seminars organized within the thematic focus areas, short courses for PhD's and seed-funding to support promising collaborative initiatives. The next MIRAI 2.0 Research and Innovation week will be organized on November 13-17, 2023 at Umeå University, Sweden. ■

The Japanese foundation is the largest donor

Nippon Foundation contributes to WMU

The World Maritime University (WMU) was founded in 1983 by the International Maritime Organization (IMO), a specialized agency of the United Nations, as its premier centre of excellence for maritime postgraduate education, research and capacity building. It is located in Malmö, a port city which was once famous for its shipyards. As it is located in Sweden it is no surprise that the government of Sweden is one of the largest donors with a 23 percent share of WMU's revenue sources in 2021. Malmö City gave another 5 percent. That was only exceeded by The Nippon Foundation which share was 29 percent of the revenues. The foundation gave the core funding to The WMU-Sasakawa Global Ocean Institute (GOI), which was inaugurated in 2018. The vision of the GOI is to act as a working focal point at the interdisciplinary interface between science, industry, policy, ocean governance and law for discussions on how to best manage and use ocean spaces and their resources. Its efforts are contributing to international processes such as the development of an international legally binding instrument on marine biodiversity in areas beyond national jurisdiction (BBNJ).The executive director of The Nippon Foundation, Mitsuyuki Unno, is member of WMU's executive board. ■

World Maritime University in Malmö

An association has been formed to increase the Japan-Scandinavia relations

The aim is a physical Japanese hub

In 1971, The Swedish Center was inaugurated in Roppongi, Tokyo. The architect behind the house was professor Sten Samuelsson from Malmö. 50 years later a group of people formed the association Japan House Scandinavia with the aim to establish a Japanese house and Scandinavian hub in Malmö.

Sweden Center in Tokyo, 1971


Inside Malmö University. The board of Japan Bridge Scandinavia is examining a ground closeby for the construction of a new building

During the corona pandemic, on 22 April 2021, the participants in an online meeting decided to form the new association Japan House Scandinavia (proposed to change name to Japan Bridge Scandinavia in April), a non-profit association working for increased economic, scientific and cultural relations between Japan and Scandinavia. The aim is to establish a physical hub in Malmö where Japanese companies, investors, organizations and visitors can reach the entire Scandinavian region, and where Japanese and Swedish counterparts can meet for cross-national exchange. From Tokyo, the Swedish Ambassador to Japan Pereric Högberg talked about the Swedish-Japanese relations and congratulated Japan House Scandinavia, welcomed the initiative and promised to support it. From Copenhagen, Schmidt Hammer Lassen Architects illustrated how the upcoming house could look like. From Stockholm, the former Swedish ambassador to Japan Lars Vargö (currently at Institute for Security & Development Policy Japan Center) joined and was elected to the board together with a group of other people who consider Japan an interesting, important, amazing or even fantastic country: Kerstin Tham, Malmö University, Cerold Andersson, Fanuc Nordic, Mikael Palmquist, IKEA, Micael Nord, Malmö City, Viktor Öwall, Lund University, Ofelia Madsen, PanLink, Anders Olshov, Intelligence Watch, and as deputy members Cecilia Christersson, Malmö University, and Richard Hultin, Skanska.

Fifty years had passed since The Swedish Center was inaugurated in Roppongi, Tokyo. The architect behind the house was professor Sten Samuelsson from Malmö. Now the objective was the same - to increase Japan-Sweden relations - but the direction the opposite: The house is planned to be built in Malmö, Sweden. The project is planned in two stages: Stage 1: Establish a Japanese-Scandinavian business and innovation hub in Malmö; stage 2: Build a "Japan house" with the hub at its core and with a hotel, restaurants and spaces for culture and meetings. There is, as this report shows, already a considerable network between Japan and Scandinavia in general, and between Japan and the Malmö-Lund city in Sweden in particular. Furthermore,

Japan and Scandinavia have similar focus areas and share upcoming challenges. Japan's new climate goals coincide with Scandinavia's sustainability efforts and the thorough focus on innovations and economic development are common objectives.

In November 2022, a delegation from Japan House Scandinavia and the city of Malmö went to Japan to present the project. Meetings were held with ministries and organizations in Tokyo, as well as a reception at the Embassy of Sweden, with Osaka prefectural government, NTT West Japan, Kobe Start-up, city of Kobe and Hyogo prefectural government along with private companies meetings. In January 2023, a workshop was held in Malmö. The mayor of Malmö was invited to Global City Network for Sustainability (G-NETS) by the Tokyo Metropolitan Government on February 28, 2023.

During 2023, the "Japanese" business and innovation hub is planned to be launched in Malmö. It will act as a single-entry point where Japanese companies and organizations looking to scout the Scandinavian markets can get streamlined access and tailored support in a single place. The aim is to promote knowledge transfer and spillover effects to spur business opportunities, strengthen international competitiveness of the ecosystems, and create solutions to current challenges. Through an ecosystem of key partnerships and mentors/advisors with industry expertise within innovation, digitalization and green transition, the hub will support Japanese companies in establishing their business on the Scandinavian market.

Marcus Horning, director Urban Planning, and Micael Nord, director Business and External Relations City of Malmö in Tokyo on November 28, 2022

The aim with the second stage of the project is to build the actual "Japan House Scandinavia" in Malmö. As the business hub grows and contains more parts, it will need more space and a permanent location. For this a Japanese and Scandinavian house accommodating the business hub with surrounding services, as well as a connected hotel and restaurants, is envisioned to be finished by 2027. The completed house will combine Japanese and Scandinavian design and will be the natural starting point for those who in different ways seek to create or expand their operations in and/or networks in Japan and Scandinavia. ■

Governor of Tokyo Yuriko Koike and Sofia Hedén, chairman of the environmental committee City of Malmö, at G-NETS. Footnote: Hedén replaced mayor Stjernfeldt Jammeh who became sick

Remarks about the call

In this report it is argued that Japan and Scandinavia should work more closely together. These are two of the most advanced regions in the world and strategic partners through the Japan-EU partnership. The geopolitical situation is challenging, but means that Japan is strengthening its role as Europe's most important partner in Asia. The very high level of human development found in both Japan and Scandinavia, clearly above the world average, must be underlined. It gives ground for the proposed collaboration.

	World rank	Value
Iceland	1	0,915
Norway	2	0,908
Denmark	3	0,898
Finland	5	0,890
Sweden	7	0,885
Japan	18	0,850
World	85	0,590

Inequality-adjusted Human Development Index 2021, United Nations Development Programme (A study of 191 countries)

	World rank	Value
Denmark	1	90
Finland	2	87
Norway	4	84
Sweden	5	83
Iceland	14	74
Japan	18	73
Global average	74	43

Corruption Perception Index 2022,Transparency International (A study of the public sector in 180 countries. A value of 100 means very clean, 0 highly corrupt)

	European rank	SDG Index Score
Finland	1	81,7
Sweden	2	80,6
Denmark	3	79,2
Norway	5	77,2
Iceland	12	72,8
EU average	15	72,0

Europe Sustainable Development Report 2022 (A study of 34 European countries)

	OECD rank
Norway	1
Iceland	2
Sweden	4
Finland	5
Denmark	9
Japan	30

OECD Better Life Index (A study of 38 OECD countries plus Brazil, Russia and South Africa.)

Independent of statistical measure - GDP/capita, Better life index, Human development index, Sustainable development, World Competitiveness Ranking, Innovation or Corruption Perception Index - the Scandinavian countries are at the top in the world, while Japan is at the top or close to the top in Asia. We should be proud of that, but not satisfied. There are many things to improve. By collaborating with and learning from each other, our societies can evolve and the challenges be overcome. The climate challenge makes the time factor particularly important. In a short time, our societies must change. Our collective knowledge is accelerating, but the transition is associated with time lags. We have to ask ourselves which structures need to change and with whom we should cooperate in order for us to achieve our goals.

Scandinavia offers two of the main answers

1. Innovation

During Japan House Scandinavia's travel in Japan everybody spoke about the wish to innovate and digitalise the economy. As a way Japan plans to encourage startup businesses by sending 1,000 people to Silicon Valley over five years to provide them with valuable entrepreneurial experience. The aim is a 10-fold increase in the number of startup companies as part of the government's push to drive economic growth through innovation and the cultivation of human talent.

For an economy with low growth and high government debt this is plausible. The fiscal stimulus during Abenomics and the ultra-easy monetary policy under Bank of Japan's governor Haruhiko Kuroda have created asset price inflation, but failed to create economic growth and wealth to households via higher real wages. Japan is not alone. Also the US, the EU, China and Scandinavia have too long relied on ultra-easy money, which increases inequality and rather than rises productivity makes the opposite: "very easy monetary conditions support 'zombie banks' which in turn support 'zombie companies' which in turn prey on the otherwise healthy and lower their productivity."[1] Financial market participants have for a long period observed that Japan has too much government debt and a declining population, implying low growth and limited options to service the debt rather than through low interest rates - a so called debt trap. Thus, they borrow JPY and invest USD or EUR and earn an interest margin with low risk. The next governor Kazuo Ueda has to end the decade-long monetary experiment and the yield control policy. Cheap money is not the solution, but part of Japan's problem.

A digitalised economy

For Scandinavians who make almost everything digitally - banking and insurance services, income declaration and payments to the tax authority, pay cashless in the shops, book an appointment in healthcare and at the dentist, receive compensation from the Social Insurance Agency and apply for preschool and school - it is a surprise to see other developed countries still doing services in the old way.

[1] William R White: "The Ultra-Easy Money Experiment", October 20, 2015

Both the US and Japan have a potential to digitalise more and free labour resources to other parts of the economy. Scandinavia has its weaknesses, but is not afraid of changes and is an early adopter of new technology. The five countries watch each others. When one country tries something the others learn, either by doing the same and develop, or by avoiding the mistake. It is no coincidence that two of the market leaders in mobile communications networks and previously mobile phones - Nokia in Helsinki and Ericsson in Stockholm and Lund - are from Scandinavia and that the Scandinavian countries, despite different specialities and industries, on aggregate perform almost the same on world rankings.

Scandinavia could be the right place for Japan to look for ideas how to innovate and digitalise the economy, especially in the public sector. A physical presence in California and in Scandinavia is complementary. A local presence in two of the most innovative regions in the world increases the likelihood of being an early adopter.

It is worth to emphasize the Noble Prize winner Douglass C. North's thoughts about successful economic evolution: "Successful political/economic systems have evolved flexible institutional structures that can survive the shocks and changes that are a part of successful evolution." Today, the economic evolution goes faster than ever before. It makes it more important than ever to be where the changes originate.

Social innovation: Paid parental leave

An important Swedish social and gender invention was paid parental leave for both men and women, which was introduced in 1974 after a historic law passed the Swedish parliament. In 1995 – two decades after the introduction of shared parental leave – fathers accounted for just 9 per cent of all parental leave. In order to accelerate the pace of change, a 'fatherhood month' was introduced. If a father did not take that month of leave, it was lost. In the early 2000s, the quota was increased to two months and later to three months. The share of parental leave taken by men has since then increased steadily to 30 percent in 2020.[1]

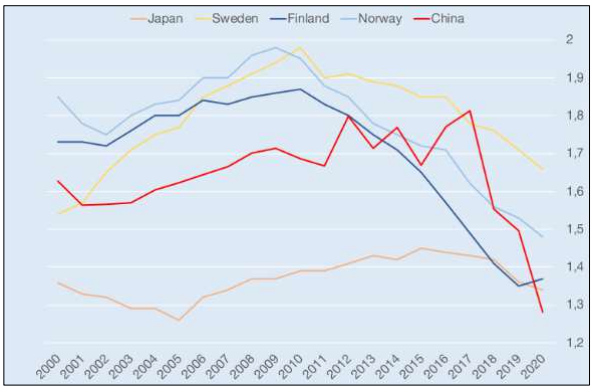
[1] Henrik Berggren & Eva Krutmeijer (2023): Innovatiuon The Swedish Way

Parental benefit, allowing parents to stay at home, is paid out from the state for 480 days (16 months) for one child. For 390 days, the compensation is based on the parents' income and for the remaining 90 days, the compensation is set at the minimum level of SEK 180 per day. To promote gender equality ninety days are earmarked for each parent and cannot be transferred.

The photographer Johan Bävman, based in Malmö, has portrayed 45 dads with their children in a serie of portraits of fathers who choose to stay at home with their children for six months or longer. The Swedish Dads exhibition has been shown in 65 countries. In Japan it has been shown for over five years and had over 200,000 visitors. Among them was Japan's Minister of Environment 2019-2021 Shinjiro Koizumi, who caused quite a stir when he himself took two weeks of parental leave when his first child was born.

Photo from The Swedish Dads exhibition by Johan Bävman

The Scandinavian countries work actively for gender equality. Paid parental leave is just one factor. Gender policy is high on the political agenda and the career opportunities for women are promoted. These are some reasons why the employment rate for women are much higher in Scandinavia, from 75,6 percent in Denmark to 78,0 percent in Sweden (the highest in the EU) in the age group 20-64 years.



Fertility rate 2000-2020, births per woman.
Source: World Bank

This can be compared to the EU average of 67,7 percent. The relatively better conditions for a balanced work and family life, compared to most other countries, contribute to the high fertility rate in Scandinavia compared to most other developed countries. There are some cycles in the statistics, but over time the rate has been among the highest in Sweden, between 1,5 and 2,0 births per woman, while it has been considerably lower in South and Eastern Europe, Germany and Russia. Very low rates are also seen in Japan, between 1,25 and 1,45 births per woman and South Korea. Recently China has experienced a dip down to 1,28 in 2020. Most population experts forecast very low rates in China the coming decades.

The fertility rate and the net migration are two of the most important variables to forecast the population development. In the table, the results from two studies by Institute for Health Metrics and Evaluation (IHME) at the University of Washington and the World Population Prospects 2022 by the United Nation's Population Division are shown. The studies estimate a dramatic population decline in China, Japan and South Korea, differ in their view on India and a small increase in Scandinavia.

	2022	IHME 2100	WPP 2100
China	1419,3	731,9	776,1
India	1412,3	1093,1	1533,4
Japan	124,8	59,7	73,8
South Korea	51,8	26,8	24,2
Sweden	10,5	13,1	13,2
Denmark	5,9	6,1	6,2
Finland	5,5	5,2	5,0
Norway	5,4	7,5	7,2
Iceland	0,4	0,4	0,4
Scandinavia	27,7	32,3	32,9

Population forecasts for year 2100 (million inhabitants)

The increase in Scandinavia is to a large extent caused by net immigration. However, problems with the integration from some countries have changed the political landscape and the immigration rules have been tightened. Diving deeper into the numbers, the median age is expected to rise from 48,7 years to 54 years in Japan. The greying of the population is forecasted to go even faster in Sweden, from 39,6 to 48,4 years, and even more so in China, from 38,5 to 56,8 years, according to the World Population Prospects. It was less than 25 years in 1990. No country has ever gone gray at a faster pace than China. The IHME has translated its forecasts of working-age population into scenarios for total GDP and concludes that China is forecasted to rise to the top in terms of 2035, but then to be superseded by the USA again in 2098, as China's population decline curtails economic growth.

The rapid greying of the population in developed societies raises questions about economic and social sustainability, while the rapid population increase in Africa does it in a different way. Scandinavia has not all the answers, but has a long experience in working with social innovation and gender policy. In Sweden, gender equality issues became a separate policy domain in the early 1970s and have had a central position in the public debate ever since. It is a cornerstone of the Danish and Norwegian welfare states. In the political life, women and men have the same opportunities. All the five Scandinavian countries have had a female prime minister at least once. If Japan is serious about its efforts to revive its economy the importance of this policy area - and the skills of women - should not be underestimated.

2. Sustainability

In May 2021, the European Union (EU) and Japan announced a Green Alliance to accelerate their respective transition towards a climate-neutral, circular and resource-efficient economy over the coming decades. It was a milestone in the efforts to create a global coalition for net zero by the middle of the century. The EU and Japan are no strong military powers, but together they are a world superpower for green sustainability. The five priority areas for the Alliance are:

1. pursuing a cost-effective, safe and sustainable energy transition by adopting low-carbon technologies, including renewable energy, renewable hydrogen, energy storage, and carbon capture, utilisation and storage;

2. strengthening environmental protection by promoting more sustainable, circular practices in production and consumption, and contributing to the global goal of protecting at least 30% of both land and sea in order to conserve biodiversity;

3. increased regulatory cooperation and business exchange to drive global uptake of low-carbon technologies and environmental solutions that will accelerate the global transition to climate-neutral economies;

4. consolidating existing collaboration on research and development in the areas of decarbonisation projects, renewable energy, and the bioeconomy;

5. and maintaining both parties' leadership on international sustainable finance to help converge on a definition of sustainable investments and ensure consistency and transparency about sustainability-related disclosures.

Finally, the two partners agreed to work together closely on the international stage to promote cooperation on climate action in developing countries.

Another tool, Japan hopefully can introduce too, is a Carbon Border Adjustment Mechanism (CBAM) to tax carbon in a similar way the EU does. It is a climate measure aimed to prevent the risk of carbon leakage (i.e. companies based in the EU could move carbon-intensive production abroad to take advantage of lax standards, or EU products could be replaced by more carbon-intensive imports) and support the EU's increased ambition on climate mitigation, while ensuring WTO compatibility. The CBAM aims to equalise the price of carbon between domestic products and imports and ensure that the EU's climate objectives are not undermined by production relocating to countries with less ambitious policies. If implemented in both Japan and the EU, a CBAM creates the foundation for a growing global club with countries with high climate ambitions.

The EU and Japan are natural speaking partners regarding the green transition. However, to early understand the EU's coming direction the Scandinavian countries offer valuable clues. As can be seen from "Europe Sustainable Development Report 2022", they are leading the union towards sustainability. For example, Denmark, Norway and Sweden have together with Germany and the Netherlands proposed a REACH restriction to ECHA (the European Chemicals Agency,) to address the risks to the environment and human

health from the manufacture, placing on the market and use of per- and polyfluoroalkyl substances (PFASs). It is a class of about 12,000 chemicals commonly used to make products resist water, stains and heat, called "forever chemicals" because they do not naturally break down, and accumulate in human bodies and the environment. A prohibition can enter into force in 2025 if the proposal is adopted. Another example, is the European Union's new laws banning farmed animals from being routinely fed a diet of antibiotics, an issue that has been driven by the Scandinavian countries.

The exchange of information between cities are also valuable. A recent example is the conference "Global City Network for Sustainability (G-NETS)" which was held in Tokyo February 27-March 1 and where different world cities exchanged information. Malmö participated in the session "Environment" attended by Ms. Yuriko Koike, Governor of Tokyo, and Helsinki in the session "Safe and secure cities". As mentioned earlier, Malmö, Umeå and Uppsala in Sweden and Lahti in Finland have been selected to the EU's ambitious NetZeroCities Pilot Cities Programme to take rapid action as climate-neutral and smart cities by 2030. A local presence in any of these cities gives good opportunities to follow the latest trends.

However, no city can make the transition on its own without the structural change on a higher level concerning energy, vehicles and the use of new technology. Moreover, the CSS technology is still in a research phase with many issues to solve, not least the high cost and the storage. New structures need to be built, like for the textile value chain with sorting, recycling and an aftermarket with several stakehol-ders.

The banana!

The genus Musa for banana was created by Carl Linnaeus in 1753. There are more than 1 000 varieties of bananas produced locally in the world. The most commercialized is the Cavendish type banana, which accounts for around 47 percent of global production. The biggest producers are India, China and the Philippines. No banana trees are growing wild in Scandinavia, but "Bananas! At Any Cost" is a Swedish documentary directed by Fredrik Gertten (from Malmö) about a conflict between the Dole Food Company and banana plantation workers in Nicaragua over alleged cases of sterility caused by the pesticide DBCP. The film was criticized by Dole for containing "patent falsehoods", which sued Gertten for defamation. It was displayed in the Swedish parliament in 2009. Dole withdrew the lawsuit the same year amid free speech criticism from groups in Sweden and Gertten made a new film about Dole's scare tactics: "Big Boys Gone Bananas!" ■

Image: WG Film

Diversification as a strategy for development

The Scandinavian countries are small open, free trade and peace minded economies. The strategy of being open to new knowledge, trade, migration, foreign direct investments and international collaboration has so far been successful, but has for a period of time also been naive. Supply chains can be disturbed and war can happen. It is the time to strengthen the relations with Japan, a very dear ally

In a time of global turmoil, uncertainty and war, Scandinavia should do more to collaborate with Japan, Asia's most developed economy, the third largest in the world and an important ally to the EU. It is easy to be impressed by the high level of civilization found everywhere in the Japanese society, the many companies and their worldwide famous products, the extraordinary level in physics demonstrated by several Noble Prize winners, the friendly treatment, the respect, shown to tourists and in other contexts, the rich literature, films, manga and animé. Many of our colleagues who have worked together with Japanese bear witness that we - Scandinavians and Japanese - work well together, have a culture of trust, a collective mindset at the workplace and a desire to constantly strive for improvement. Even when it comes to food culture, there are similarities. As maritime nations, we eat a lot of fish, even raw. We combine city life with relaxation in nature. Our societies are based on certain common principles of

respect for human dignity, freedom, democracy, equality, the rule of law and respect for human right. When those principles are under threat, the answer must be clear: Stand up for your values and strengthen the ties with your friends. One implication is that considerations other than price must be guiding. Greater consideration must be given to the environment and climate, labour's working conditions and the risks in the event of increased conflict. Diversification is, as always, a good strategy for development. ■

Policy recommendations

1. Japan and Scandinavia should agree on a "Sustainable Development Partnership"

The very high level of human development found in Japan and Scandinavia can be enhanced by an extended partnership with focus on future challenges and the need for sustainable development. Today's university collaboration within MIRAI 2.0 and the collaboration between the research facilities in particle physics and material science, shown in this report, lay the foundation for more collaboration. Most importantly would be a political partnership to jointly lead the way towards sustainable development. No other region in the world would be more suitable to cope with the transition to a net-zero economy than a joint Japan-Scandinavian partnership with all the ability and knowledge that both regions possess. In addition, Japan would gain by studying the more human form of innovative capitalism found in Scandinavia with regards to sustainability, quality of life, social innovation and gender policy, digitalisation within the public sector and the early and widespread use of new technology. Correspondingly, Scandinavia would gain by studying Japan's high level of automatised production and robotics, the manufacturing (monozukuri) culture, energy efficiency, aging and, with Japan as a base, diversify in Asia.

The collaboration should be considered as complementary to the very important partnership between Japan and the EU.

2. Develop a Japanese hub in Scandinavia as a test pilot and a knowledge centre

As a complement to the state structures with embassies and external trade, business and tourist organizations this report suggests the setup of a Japanese hub for Scandinavia in Malmö, Sweden, which already has strong relations with Japan and is a stronghold in science and creative, sustainable development. It should be seen as a test pilot to learn what kind of knowledge could be collected and how relations can be developed by building on local presence were it happens.

The existing network in the association "Japan House Scandinavia"[1] is already working on realizing this proposal. A hub for business, startups and knowledge (including sustainability) will be developed during the coming years and Japanese-Scandinavian relations will be promoted. Through online activities the hub plans to collaborate with partners in Japan, such as Kobe Startup Hub and Quintbridge in Osaka, and thus get a larger reach. This bottom-up initiative would be strengthened by mutual student and labour exchange programs between actors in the public sector, academia and business. The hub can lay the ground for increased exports, imports, direct investments and transfer of knowledge and support the Japanese-Scandinavian "Sustainable Development Partnership".

[1] A name change to "Japan Bridge Scandinavia" is proposed ahead of the annual meeting on 20 April.

About the author

Anders Olshov is director and founder of Intelligence Watch. He has a degree in economics and business administration from Stockholm School of Economics and a post-graduate degree from Amsterdam School of International Relations. He has worked as an economic-political journalist at, among others, Dagens Industri, macroeconomist at Carnegie Investment Bank 1992-1994 and macroeconomist at Nordea Bank 1994-2002 and as professor assistant in Finance at European University Institute in Florence for half a year in 1998. He founded the Oresund Institute in 2002 and was its director until 2014. In 2010 he was named economist of the year in Skåne by Economy Forum Skåne/Executive Foundation Lund. His book about the Oresund region as Copenhagen's untapped opportunity was published by Gyldendal in Swedish and Danish in 2013. He is board member of Japan Bridge Scandinavia.

Contact details:
Email: anders.olshov@intelligencewatch.org
Mobile: +46 73333 6660

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Intelligence Watch

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