

LIFE IN Estonia

SUMMER | 2013

SPECIAL!
Smart
Estonia

**Ericsson
Welcomes
Networked
Society**

**The Future
Of Healthcare
Is Digital**

**Famous Estonians
Around The World**

**Taavet Hinrikus:
TransferWise
Revolutionizes
Money Transfers**

**Navitrolla -
The Man Who Paints Freedom**

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Estonia - A Model of the Future State

LIFE IN Estonia



COVER

Taavet Hinrikus
Photo by:
Oscar Barnack

Executive publisher

Positive Projects
Pärnu mnt 69, 10134 Tallinn, Estonia
think@positive.ee

Editor

Reet Grosberg
reet.grosberg@ambassador.ee

Translation

Ingrid Hübscher
Ambassador Translation Agency

Language editor

Richard Adang

Design & Layout

Positive Design

Partner



The digitized world we live in today is so radically different from everything before it that we can talk about a revolution, similar to the one brought about by the invention of the steam engine in the 18th century and the beginning of the industrial era, or the Fordian revolution in the early 20th century that made motor cars available to the broad masses of people. Like then, we now need a totally new understanding of what a contemporary society is and how it functions.

In the era of horse-drawn carriages, there was no need for highway overpasses. The mass production of cars brought about the need for a totally different network of roads and city infrastructures. Similarly, we now need a digital infrastructure to support a society where practically everyone owns a computer or a mobile device through which they are connected to everyone else in the world, and where many of the basic functions of society have gone online.

Estonia has been a builder of those new roads. But this new infrastructure means that we also need new “traffic rules”: laws and regulations that make navigating the new roads safe and smooth.

In the new digital world, any country that wishes to be considered modern and successful must understand that it has to exist online as well as offline. This means more than just applying the available technology to take existing paper services online. Once public services are online, democracy needs to get online as well.

Estonia has done well in these areas. Through our digital innovations, we have become a model of the future state. Excellent examples of e-Governance have been available here for more than a decade. And now we see civil society and popular movements using the Internet as their platform; we see online crowdsourcing used as a means of policy-making and civic engagement.

Ten years of development projects and training all over the world have spread the word about our e-Governance as a tool for efficiency, but we need to aim higher. We need to use our technological advancement to promote the values we believe in: freedom of speech, the rule of law, and the protection of fundamental human rights.

It is no accident that Estonia has been rated No 1 in the world, ahead of the USA and Germany, in Internet freedom by Freedom House for three years in a row. As a member of the Internet Freedom Coalition, we are committed to protecting Internet freedom in the world.

The e-society is not just a matter of technology. It is a way of life, a vision. Stewart Brand, an early architect of the idea of information freedom, has said: You can't change human nature, but you can change tools and techniques.

This is what our idea of e-Governance is about. We create tools that contribute to freedom and prosperity and increase the openness and transparency of decision making. And yet transparency, a cherished liberal value that helps fight corruption, in some cases contradicts another important democratic value: privacy. Seeking the right balance between these competing values is a challenge we will have to deal with.

The Estonian e-Governance system, our technology and our vision have had a wide international reach. We have an IT expert consulting the British government. The Palestinian authority and Moldova are going to use Estonian online authentication services. Finland is contemplating creating a digital infrastructure similar to the Estonian X-Road.

But we must be careful not to get stuck merely spreading the implementation of the technology we have. We need to think further about the digital society we now live in, about how it affects our democracy, our people, our education, our laws and our culture. We need experts in many different fields who understand the technology that shapes our world. And we need research on outcomes, the effects on society, e-Governance, the e-state and the whole digital way of life.

I hope that Estonia, having been an early adaptor of new technology, will also become a hub where modern society is being thought of in depth. Just as there was a vision at the beginning of the ICT revolution, we still need a vision. Or, to paraphrase the late Steve Jobs: we still need to stay hungry and foolish. This is only the beginning.

Toomas Hendrik Ilves

President of Estonia

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Life in Estonia recommends

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Dr. Carri Ginter, an associate professor of EU law at the University of Tartu Faculty of Law, reflects on some of the key factors contributing to Estonia's success in establishing e-services.

14 A Brief Look at Some Famous Estonians

The quote by Ernest Hemingway from *To Have and Have Not* "In every port in the world, at least two Estonians can be found" is not just a literary metaphor. Many Estonians have made it to the top in diverse fields and in faraway countries. Life in Estonia has put together its own selection.

20 The Three Best-Known Faces of Estonia

Before Skype became a global hit, our most famous export was Carmen Kass. Today several Estonian beauties have followed in her footsteps and have joined the cream of the crop in the fashion world. Get acquainted with three of them: Carmen Kass, Karmen Pedaru and Tiit Kuik.

26 Estonia as an Engineer's Dream

Estonia is known around the world as an IT country. Public e-services, e-voting, digital signatures in everyday use and a transparent tax system are only a few of the examples of what makes the innovative small state stand out in the eyes of others. Taavi Kotka, Deputy Secretary General - ICT, Ministry of Economic Affairs and Communications, speaks about the choices Estonia faced when building up its IT solutions.

28 The Story of e-Health Estonia

30 E-Health Applications Like Something out of Science Fiction

On the basis of data from 2012, Estonia is the leader in Europe in e-health applications. Last year, doctor and IT expert Madis Tiik, a key figure in the establishment of Estonia's patient data system, was recruited to promote e-healthcare in Finland and evaluate the e-healthcare services of the Finnish Innovation Fund Sitra.



33 Estonia Waiting for New Electric Cars from Producers

The small "testing polygon" of Estonia has recently become a fertile ground for electric cars: the country is the first in the world to have a national network of rapid charging stations, and the state supports the purchase of electric cars with 18,000 Euro per car. Jarmo Tuisk, Head of the Estonian Electric Mobility Programme (ELMO) at Kredex, talks about how the usage of electric cars has taken off.

37 UniSCADA - The Next Generation Smart Home Solution is here

Uniflex Systems, the Estonian technology company behind UniSCADA™, has created a solution which really stands out from the competition. Cost vs. Performance has always been a major issue in the field of home and building automation. The new technology that Uniflex Systems has created, claims to address them all successfully.

38 Erik Kruse: Welcome to the New, Networked Society!

Even though you might feel that you are already connected through every possible device and that there is no room to be even more networked, it is still just the very beginning, says Erik Kruse, Ericsson's strategic Marketing Manager and Networked Society Evangelist. Life in Estonia turned to Erik Kruse to ask for more information. Kristjan Kuhi, a senior engineer at the Consulting and System Integration Department of Ericsson Estonia introduces the new projects of Ericsson Estonia.



42 Lightmiles – Internet Based on Light is No Longer Light Years Away

Estonian and Japanese IT specialists have joined forces in the company Lightmiles, which aims to bring speedy Internet connection to the world via light. Ahto Päril, Executive Director of Lightmiles, says that this technology has great potential: data communication takes place via LED lamps. The project was born out of Fumiyasu Sunagawa's weird and wonderful career adventures and his discovery of Estonia.

44 **Erkki Raasuke: Modern Banks were Behind the Simplicity of Doing E-Business in Estonia**

Erkki Raasuke has years of experience in bank management and, for the last year and a half, he has been working as Adviser to the Minister of Economic Affairs and Communications. He sheds light on the reasons why it is so easy to arrange business and financial affairs in Estonia that everything from starting a business to submitting annual reports can be done without getting out of your armchair.



46 **Transferwise: A Revolution in Worldwide Currency Transfers**

When the billionaire Richard Branson notices your business and blogs about it, announcing your new service to be a real innovation in banking and finance, then you know you're onto something. Two months ago it happened to a company created by two Estonian entrepreneurs, Taavet Hinrikus and Kristo Käärmann. TransferWise was named also the best e-solution in Estonia in 2013 and won the best European start-up prize, "Europa", last winter.

49 **The Secrets of the Estonian E-Tax Board – Willingness to Take Risks, Trust and the High Standard of IT**

The current central IT system for tax accounting and the Estonian E-Tax Board developed on its basis, which has received international recognition and also some envious looks, was developed four years ago by just twenty IT engineers in an office located on the outskirts of Tallinn city centre. But why does Estonia have such an E-Tax Board when other countries don't? Heiki Kūbbar, Director of Icefire, which created the Estonian E-Tax Board, mentions the three main ingredients: the courage to take risks, the high level of IT in the country and trust.



51 **PORTFOLIO Navitrolla**

59 **Navitrolla – The Man who Paints Freedom**

Estonians know Navitrolla as the guy who paints funny pictures loved by his countrymen and tourists alike. In each picture the artist paints a grotesque, strange detail or creature which totally captures one's attention. Once you have viewed the story in the picture, you are ready to take in the peace and tranquillity of the broad nature motif in the background. Yet his landscapes are amazingly broad and light, and they convey a sense of freedom.

64 **Mektory – A Unique Laboratory Bringing Together Students, Professors and Entrepreneurs**

Tallinn University of Technology will open the doors of a unique innovation centre which brings together various elements to implement great ideas. Mektory Director, Tea Varrak, introduces the new centre where there is room for various activities, ranging from start-up rooms and design workshops to actual production units.

67 **The Road to a Paperless World**

Arne Ansper works as the Development Manager of the Information Security Systems Department of Cybernetica AS, which has participated in the development of the Estonian ID-card, X-Road and the Estonian Internet voting system. Read what he regards to be the keywords behind the success of e-Estonia.

69 **Estonia in Space – What are the Benefits?**

At daybreak on 7 May 2013 Estonia entered space. The satellite ESTCube-1, built at the University of Tartu, was launched to orbit at an altitude of 680km, where it will circle the Earth every 1.5 hours at a speed of 27,054 km per hour. This makes Estonia the 41st country in the world to have its own space mission. Madis Vööras from the Estonian Space Office weighs the benefits of this achievement and Mart Noorma, a pioneer of the student satellite project, shares the emotions of the launch.



72 **Kerli: The Bubblegum Goth Who Wanted To Escape and Found Her Way**

The 26-year-old singer and songwriter Kerli is the only Estonian whose albums have reached the Billboard ratings, who has inspired the style of Lady Gaga and who has written music for the cult film director Tim Burton's recent blockbusters "Alice in Wonderland" and "Frankenweenie".

77 **Estonia In Brief**

78 **Practical Information For Visitors**



Palmse Manor Music

6th – 7th of July 2013 Palmse Manor pond

"PALMSE MANOR MUSIC" – experience the nature, music and the most gorgeous manor complex in Estonia merging into one. Organizers: Foundation of the Museums of Virumaa in cooperation with Eesti Kontsert.

Saturday, 6th of July 21.00 Palmse Manor pond Gala concert "Tchaikovsky and Verdi"

Estonian National Symphony Orchestra – conductor ANU TALI
Soloists from the Moscow Musical Theatre "Helikon-Opera"
KARINA FLORES – soprano
ALI MAGOMEDOV – tenor
MAKSIM PEREBEINOS – baritone



Romantic musical journey through the creation of two great figures of the history of opera.

Sunday, 7th of July 21.00 Palmse Manor pond "Three Men Make a Concert"

JAAN PEHK, JAREK KASAR, VAIKO EPLIK
Estonian National Youth Symphony Orchestra –
conductor JÜRI-RUUT KANGUR

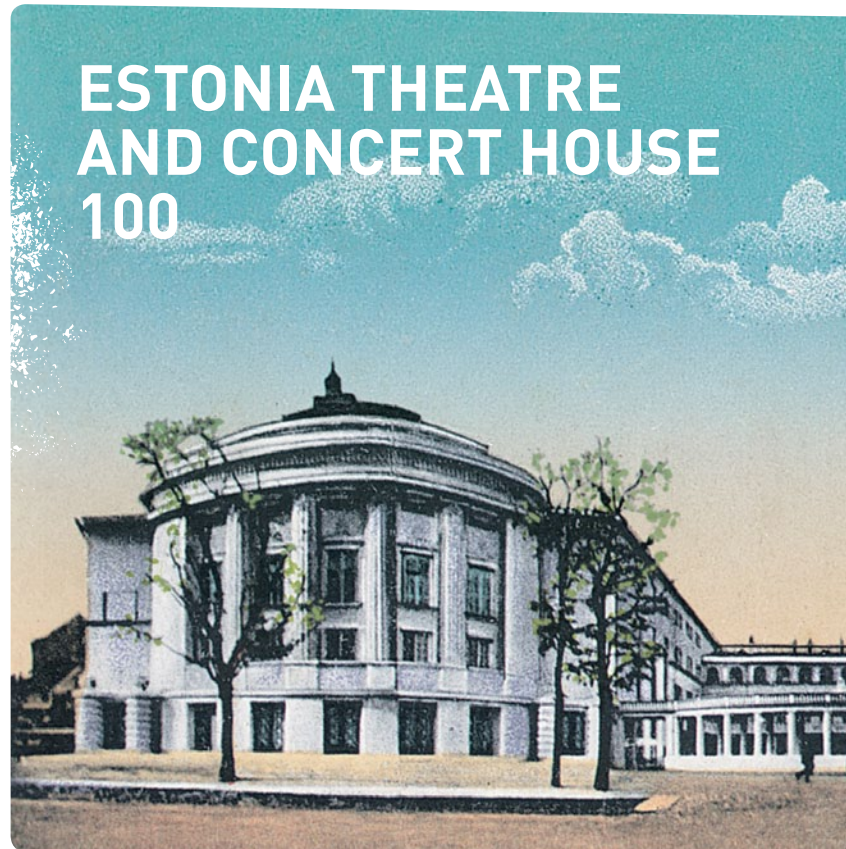


Jaan Pehk, Jarek Kasar and Vaiko Eplik – three tenors of a new generation, new sound masters of the 21st century Estonian pop music, who have won the hearts of critics and Estonians with their innovative and mellow rhetoric and musical language.

Official supporter
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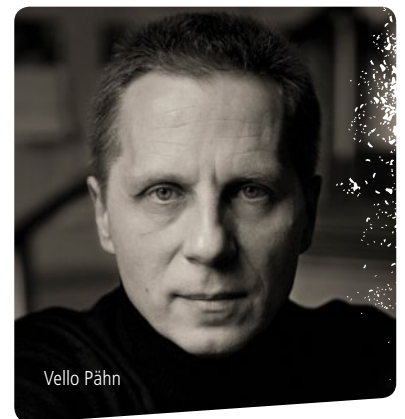
Tickets: www.piletimaailm.com; www.piletilevi.ee
www.palmse.ee



ESTONIA THEATRE AND CONCERT HOUSE 100

/ 6 SEPTEMBER AT THE ESTONIAN
NATIONAL OPERA /

Stage Director: **Arne Mikk**
Conductors: **Vello Pähn and Eri Klas**
Choreographers: **Toomas Edur
and Marina Kesler**



Vello Pähn

Historic Anniversary Gala and Banquet "Once Upon a Time in a Hundred Years..."

Estonian National Opera Soloists, Chorus, Orchestra, Boys' Choir and the Estonian National Ballet, Estonian National Male Choir and guest performers from the Tallinn City Theatre and Finnish National Opera

The historic opening gala of the festival "Estonia Theatre and Concert House 100" will take us a hundred years back in time: the guests will arrive in horse-drawn carriages, and ladies will wear lace gloves and gentlemen top hats. The uniquely beautiful spectacle will take us through the century of beauty and struggle.

The programme features excerpts from Estonian as well as world-renowned operas and ballets. The gala in the Theatre Hall is followed by a banquet with many surprises in the Estonia Concert Hall next door.

www.opera.ee

EESTI KUNSTIMUSEUM

KUMU

Irving Penn. Balenciaga Little Great Coat (Lisa Fonssagrives-Penn). 1950, Paris Moderna Museet, Sweden. © The Irving Penn Foundation

Irving Penn. Diverse Worlds
14.06.–06.10.2013

A survey of the still lifes, portraits and fashion photos of Irving Penn (1917–2009), a late 20th-century American photographer.

An exhibition organised by: **MODERNA MUSEET**

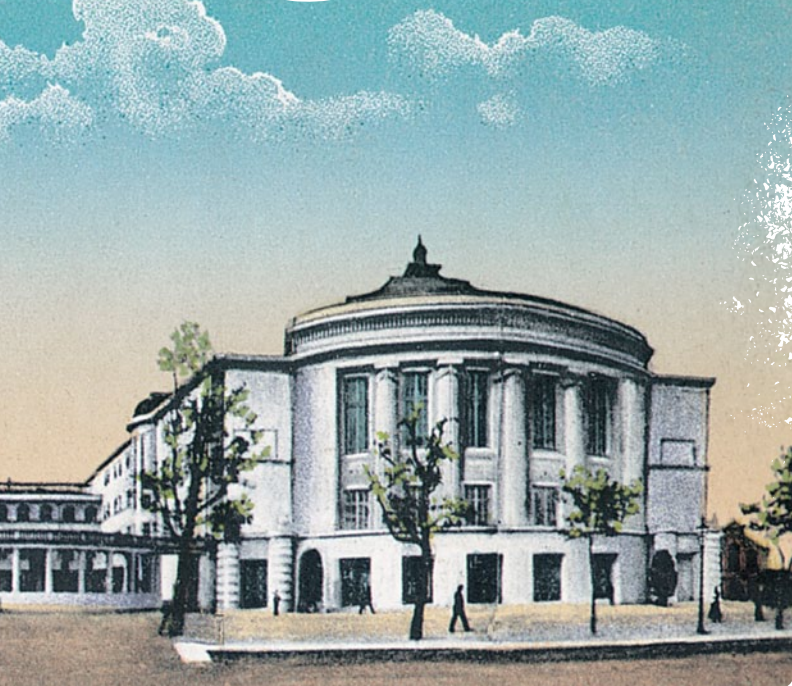
KUMU ART MUSEUM
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Tel +372 602 6000, kumu.info@ekm.ee
www.kumu.ee

Open: May–Sept Tue 11am–6pm,
Wed 11am–8pm, Thu–Sun 11am–6pm
Oct–Apr Wed 11am–8pm,
Thu–Sun 11am–6pm





Estonian National Opera



Risto Joost

Butterfly

Opera by Tõnu Kõrvits in two acts
World premiere on 13 September at the Estonian National Opera

Conductors: **Vello Pähn and Risto Joost**
Stage Director: **Peeter Jalakas** (Von Krahl Theatre)

“Butterfly” by Tõnu Kõrvits is a dream-like opera, merging life, theatre and fairy-tale. The heroine Erika is a mysterious bird-woman, who is employed by the theatre by chance and dances like a butterfly. She is fickle, sensitive and unpredictable. Her bird nature makes her choose between leaving with them on the brink of winter or staying at the theatre, where her heart and her beloved August are.

“Butterfly” was commissioned for the 100th anniversary of the Estonia Theatre and Concert House.

Programme of the festival, 6-20 September: www.estonia100.ee

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KANAZAWA**
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DREAM
BIGBAND**

concert.ee

Birgitta Festival



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9TH – 18TH August 2013

- Charles Gounod's opera **“FAUST”**
- Benjamin Britten's opera **“ALBERT HERRING”**
- Musical **“ARABELLA”** by Olav Ehala and Leelo Tungal
- Nikolai Rimsky-Korsakov's opera **“THE TSAR'S BRIDE”**
- Kurt Weill's – Bertolt Brecht's **“SEVEN DEADLY SINS”**
- Ballet **“FIGARO”**, music by Wolfgang Amadeus Mozart and Gioachino Rossini
- Pyotr Tchaikovsky's ballet **“THE SLEEPING BEAUTY”**

WWW.BIRGITTA.EE



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Estonian VKG picks diesel plant builder

The Estonian privately owned oil shale chemicals firm Viru Keemia Grupp (VKG) has selected an Italian-Spanish consortium, including the companies KT – Kinetics Technology - and OHL Industrial, as its diesel fuel plant builders.

The company did not disclose the details of the turnkey project, but said that all four bidders, including *Samsung* from South Korea, *Tecnicas Reunidas* from Spain and *Technip* Italy from Italy, were very strong. "Especially the Koreans worked very hard to get the project. However, their price was also the highest," said Jaanus Purga, R&D Manager and a board member of VKG. He said that the company won't reveal the price of the construction procurement but the whole refinery complex, together with the production of hydrogen from natural gas, will cost around 400 million euros.

The plant can process around 750,000 tonnes of shale oil a year, of which less than half will be diesel fuel, half low-sulphur-content ship fuel and seven to eight per cent stabilized petrol.

Purga said that the company won't rush the investment decision, since surprising aspects have emerged recently. He mentioned the unexpected decision of state-owned *Eesti Energia* to give up building its own shale oil refinery and launch talks with local shale oil producers to build a joint diesel fuel plant.



Jaanus Purga

NOW! Innovations

In March 2013, NOW! Innovations, Estonian-born tech company that provides of mobile payment and billing solutions globally, announced strategic partnership with BMW i Mobility Services.

NOW! Innovations has signed an agreement with BMW i Mobility Services, which will see its billing and payment platform underpin the mobility services offered by the BMW Group and its partner companies. The capabilities of NOW! Innovations will allow BMW to extend the scope of its own ParkNow service beyond parking garages to include on-street parking as well.

Joachim Hauser, director of BMW i Mobility Services, comments: "NOW! Innovations is a perfect match for us. The current scope of our ParkNow service is off-street parking. With the on-street capabilities of NOW! Innovations we will soon be able to strategically enhance our product offer and be even more attractive for our customers. The integration of on-street parking is a major step in creating a one-stop parking experience."

Üllar Jaaksoo, NOW! Innovations CEO: "In the era of smartphones, applications and platforms we are fascinated by the opportunity to improve the daily lives of all motorists. Seamless parking payments and personalized services are our ultimate goal. In

partnership with such a visionary company as the BMW Group we will have a greater chance to accommodate the transition from analogue to digital parking. We are looking forward to providing a game-changing solution for BMW Mobility Services."

The NOW! Parking Platform offers the widest selection of command channels: App, SMS, QR codes, IVR, NFC, RFID, LPR/ANPR. Its functionality includes dynamic billing mechanisms and multiple payment sources: credit/debit cards, pre-paid cards, customer accounts, direct debit order, PayPal, etc. The platform manages an unlimited number of parking zones, payment rate policies and customer classes. It has the highest functionality and the lowest cost on the market.

NOW! Innovations is also the world pioneer for mobile payment solutions for Electric Vehicle charging. At the beginning of the year, as a part of the consortium led by ABB launched the first countrywide (Estonia) EV fast charging network in the world.





Estonian capital among the world's Top7 Intelligent Communities

Intelligent Community Forum names the world's Top7 Intelligent Communities, all with a track record of new jobs and innovative development. Tallinn is among the Top7.

The Intelligent Community Forum (ICF), based in New York, has named the 2013 Top7 Intelligent Communities of the Year. The Top7 list includes three from North America, two from Taiwan and two from Europe, including Tallinn. "The Top7 communities of 2013 have made innovation – based on information and communications technology – the cornerstone of their economies and fostered economic growth through high-quality employment, while increasing the quality of life of their citizens," said Lou Zacharilla, ICF co-founder.

The ICF 2013 Top7 are: Tallinn, Estonia; Columbus, USA; Oulu, Finland; Stratford, Canada; Toronto, Canada; Taoyuan County, Taiwan; Taichung City, Taiwan. The latter was recently named as the Intelligent Community of the Year by ICF during its annual awards ceremony at Steiner Film Studios in Brooklyn, New York, USA.

The Top7 demonstrate what can be accomplished by embracing information and communications technology to power growth, address social challenges and preserve and promote culture.

In a more detailed report about Tallinn, ICF

says the following: Estonia saw a major boom from 2004 to 2007, as loan capital poured in from Scandinavian countries. The country's rise from Soviet occupation, beginning in 1991, had been miraculous, but the wave of investment was more than the market could usefully absorb. When the financial crisis came, it hit Estonia and its principal city of Tallinn very hard. Several thousand companies went bankrupt and layoffs, particularly of the low-skilled, rose into the tens of thousands. Yet beneath the froth, Tallinn has put into place the foundations of ICT-based growth and generating a strong comeback.

Tallinn's first wave of IT industry growth was driven by national government spending on an amazing range of e-Government applications. Its return to growth has a more sustainable basis in education and entrepreneurship. With 23 universities and technical schools, Tallinn has the resources for a knowledge workforce: it has focused now on expanding access and filling demand for ICT and digital content skills. From 2007 to 2011, Tallinn University of Technology doubled participation in lifelong learning programs.

The city is expanding public access computer sites and training programs for the disconnected, while a public-private project called EstWin will extend 100 Mbps broadband throughout Estonia by 2015. To support local startups and attract talent from beyond Estonia's borders, Tallinn and its educational and business

partners have launched multiple incubators targeting creative services, medical and biotech, mechatronics and ICT.

Europe's first gaming accelerator opened in Tallinn this year, and its Ülemiste City industrial estate is expanding 50 per cent to house 250 companies, making it the Baltics' biggest knowledge-based development. When the 2008 global economic crisis struck, Tallinn moved fast to launch aid packages to get residents and companies through the bad times with their skills and ambitions intact. The value of the city's short-term response and its long-term strategy will be proven in coming years.

The Intelligent Community Forum seeks to share the best practices of the world's Intelligent Communities in adapting to the demands of what it calls "the Broadband Economy" by conducting research, hosting events, publishing books and newsletters and producing its high profile international awards program. ICF's mission to make "place" align with prosperity has drawn the attention of global leaders and thinkers everywhere. The ICF Foundation consists of over 100 communities, cities and regions that have been globally designated as Intelligent Communities and which participate in an ongoing dialogue to strengthen local economies.

For more information, go to www.intelligentcommunity.org



Text: **DR. CARRI GINTER**
/ a partner at SORAINEN and
an associate professor of EU law at
the University of Tartu Faculty of Law

More than half of the land of Estonia is covered by forest. Accordingly Estonians are somewhat traditional - close to nature some would say. They make bonfires, sing folk songs and go camping and fishing. In this context, it may seem surprising that in e-services Estonia is considered very advanced. Ericsson recently released a documentary reflecting the nation's progress called "Life in a Networked Society", which is - of course - available for free on the Internet. >



Here we reflect on some of the key factors contributing to this success.

For progress to happen, one needs clear leadership. In Estonia, this was witnessed by the government switching in 2000 to e-Cabinet – a paperless administration of public affairs. It lets ministers conduct cabinet meetings entirely without paper. E-Cabinet cut the average length of the weekly cabinet meetings from 4 to 5 hours to just 30 to 90 minutes. This success story has been the catalyst for paperless registries (a commercial registry and a land registry), an e-Tax department, e-annual reports, e-notary and so on. In 2010 Estonia started using e-Health records, a digital medical information system, which contains information on doctor's visits, tests, hospital treatments, medications etc. This online public health system permits greater mobility for patients and provides for better availability of medical services. Use this QR code for information about the various alternatives that exist today. >



A significant factor for all this to co-exist and function is to overcome the barriers of communication between different systems. For this purpose, Estonia has created the digital highway

VOTING IN THE FOREST: New e-Breath for e-Democracy



"X-Road" via which all systems communicate. X-Road is considered quite an innovation: such distant countries as Palestine and Azerbaijan are already using the Estonian X-Road platform.

To ensure security, we did not just upload all the information online without seeing what would happen. The system uses timestamps and keeps records of who has been accessing what. Unauthorized use is documented and sanctioned. A lot was learned from the 2007 cyber attacks. This has led to significant improvements in the system. Indeed, today the NATO Cyber Defence Centre operates in Estonia. E-progress is at the centre of attention, with the focus on making life easier and promoting positive change.

Want an example of how this e-progress reduces barriers to creativity? It literally takes no more than 15 minutes to set up a company online. Almost everything can be signed with an electronic signature, which has equal legal force as a handwritten one. Signing can be done with a digital ID card, or a "mobile ID", which in fact is contained in your phone. So the administrative hurdles between your great idea and ultimate success are reduced to a minimum. Formalities are no longer a substantial deterrent to the materialising of good ideas.

Digitalization has led to reducing costs and increasing efficiency. A goal has been set to significantly reduce the time spent on court proceedings. To reach this goal, the country is gradually switching to digital communication in courts, and a significant share of all court activity is now handled by e-mail. The ultimate goal is to create, within the next few years, a digital court file (e-file), which would in the end lead to a completely paperless process.

A major stepping stone for democracy is the e-voting system, where in 2007 Estonians were the first in the world to be able to vote in parliamentary elections on-line. This was later extended to municipal elections. Without question, this greatly contributed to better representation of some social groups in the working of democracy. The increased involvement of such previously under-represented groups is clear when the results of e-voting are published separately: the balance of political power would be very different according to those figures. Voting was made one giant leap easier for those who traditionally would not have had the time or energy to participate.

So, as you can see, the digital leap is indeed helping Estonians to stay true to their traditions: spending time away from major centres without having to become hermits. "Online" is a part of everyday life: it is not seen as doing things differently, but as doing things the way they should be done.

They often say that life in Estonia is, in many ways, easier than life in many other countries due to smart IT-solutions. *Life in Estonia* asked some foreigners who have moved to Estonia in order to do business here to comment on this statement.



STEFANO GRACE

/ East Capital International Ab

Estonia has, in large part due to its size, history and geographic location, managed to capitalize on new technologies that simplify how its residents live, bank, vote and even receive medical care. In countries such as the United States, where I come from, implementing new technology is more challenging, as the existing fragmented frameworks and systems in place deter such drastic new development, requiring more resources and time to implement changes.

I first visited Estonia in 1988, and lived here during the collapse of the Soviet Union, participating in the Baltic Way (the human chain linking the three Baltic States in their stand for freedom), attending the song festivals known as the Singing Revolution, witnessing the tanks roll into Tallinn, and ultimately Estonians achieving the restoration of their independence. The experiences gained during that period played an important role in my decision to return to Estonia.

I returned to Estonia initially to work at the Tallinn Stock Exchange in 2004, when Estonia joined the EU, and since 2006 I have primarily focused on private equity investments in the Baltic States, currently for East Capital, a Swedish

asset manager specializing in emerging and frontier markets. Over the years, I have experienced first-hand the changes in Estonia, with the real estate boom and economic crisis, and a focus on e-solutions has remained a priority for Estonia.

Estonia's relatively small size has enabled it to become a testing ground for implementing e-solutions that make everyday life easier and make Estonia a leading example for other countries. The ability to sign a contract digitally in a secure manner, pay for parking with a mobile phone or pick up prescription medicine with an ID card are now taken for granted in Estonia, but are not real options back in the United States. While the rest of the world is catching up in some respects, such as in mobile and e-banking (even in the United States, despite its prevalent use of paper cheques), it will take time for countries like my own to reach the level of e-solutions offered in Estonia. This provides a great opportunity for Estonia to not only be an example and pioneer in implementing such technologies, but also to be a breeding ground for further developing e-solutions and exporting them abroad.



CHRISTINA JÖRG

/ Director of Schöttli Keskonnatehnika AS

When and why did you come to Estonia?

In 1996, I was working for a Swiss company which started to expand to the Baltic countries. They let me choose between the three Baltic states where I wanted to work. Estonia seemed at that moment to be the safest and the most Westernized of the three. At the end of 1990s, when the economy was experiencing a downturn, the company proposed I buy the Estonian branch. I immediately took advantage of that opportunity!

What is your business?

Schöttli builds water processing plants, relevant technology and sewage cleaning stations. Our contractors are local water companies and the financing comes from the Cohesion Fund. We find the technology which suits the specific object and decide which technology will be used to cleanse the sewage water.

What do you like about Estonia?

For me Estonia is less bureaucratic and its small size is an advantage because the ways of reaching people are straightforward. I cannot imagine being able to communicate with a minister in Germany. It would be impossible. I have gone on several business trips with the Minister for Economic Affairs and Communications, and I have been able to talk to him directly. It is good to learn about the future strategies and plans of the state.

In Germany I have never been interested in finding out about the state budget division. The figures are just too large. But in Estonia I follow with great interest when the state budget is approved in Parliament, as those sums are conceivable. Here I am also able to understand the issues and criticism around the state budget. In Germany, those figures remain remote to the average citizen.

What is your experience with Estonian e-solutions like?

Firstly, I am a great fan of the digital signature. For example, we have a project under way in Suurupi where we are building a sewage processing plant. We are buying appliances worth 1.2 million euros and the suppliers are Germans. The difference between Estonians and Germans is the following: I commission something, an Estonian signs it with a digital signature and within 24 hours I can be sure that the project has started. With German contracting entities, it normally takes between two weeks and a month. I put in the commission, it takes time to sign it, then it's signed, and then a bank guarantee needs to be received. This all needs to be sent by DHL. That means it takes seven days to send the contract to Germany, seven days for somebody to look through it and another seven days for it to come back to me. That really slows down the process and feels so medieval!

The second thing which is unbelievable in Germany is declaring your income tax. In Germany, everyone has a special tax adviser who is like a family member. It is not possible without one. In Estonia, it is simple: I receive a pre-printed tax declaration which saves an enormous amount of time. In addition, declaring taxes is an emotional problem as nobody enjoys dealing with their taxes. It is great when somebody does it for you!

Here is an example of digital prescriptions from a visit to a doctor in Germany. I complained to the doctor how easy it was in Estonia. In Germany I have to stand in a queue, then the doctor prescribes my medication and then I take it to the pharmacy. I told my doctor how great it was to live in Estonia: I call my doctor, who writes out a digital prescription and I can immediately collect it from any pharmacy. My German doctor responded that it was a question of security. But I cannot imagine being interested in whether my neighbour is prescribed flu medicine or not. Sometimes data protection is really over-emphasized in Western Europe.



ZOOT NEL / Gamefounders

How did you end up in Estonia?

In Holland, we were looking for partners to develop our gaming ideas and we came across Gamefounders in Estonia. The communication with them was very nice and felt effortless so when we got chosen for the programme, we decided to work with them on our ideas. The co-operation required that our company move over to Estonia. I hadn't even heard of Estonia before! But when I came here I was pleasantly surprised. I felt comfortable here, much more comfortable than in Holland, really. I like the climate, the weather, the cold. It's consistently cold, I like that it's consistent. In Holland it's sunny in the morning, then it rains, then it hales and then it's sunny again.

What's it like doing business over here, compared to Holland?

Well, younger people seem to be more mobile in the society. Young people find it much easier to climb up the career ladder. In Holland it's more crystallized and hierarchical. It's much more flexible here. That's one thing I definitely like. I find people are very eager to achieve things and



to develop things. In Holland, people in the middle class don't make as much as money as they did seven or eight years ago and many people complain about that and everything stands still. Maybe it's the people I'm with in Estonia but everybody seems to be very optimistic and happy. I'm a little bit scared that it might be a bubble. So I hope people won't make the same mistakes we've made in Holland.

Estonia is also at a crossroads of cultures. The Nordic countries are really accessible, Russia is a bit less but still nearby and Germany and the Balkan countries are quite close. Holland, even though it's a big export country, is very busy with itself and it's not as open.

Also, there's a shortage of talent in Holland and it seems that bigger companies definitely struggle to find talent. On the other hand, you're much more desirable as a partner or as employees.

Some things took time to get used to when I moved here. Like how people talk to each other. But I have a theory about that: the weather is so cold and in the distant past communications must have been quite militaristic, like "it's minus 25, fetch the wood!". And for me, I don't like to take orders. I start to ask why. You can sometimes be expected to be very obedient here.

On the other hand, there's no social aggression, and people are relaxed. Like, on the street, people are happy to see each other. In a big city you get tired of other people.

The wifi is a big thing. Wifi is very accessible, it's everywhere and it's very multi-layered; in some places you have three wifis to choose from!

JAMES OATES / Cicero Capital

Estonia was a second home for me long before it became a first one

Partly it is the result of flags; as a kid I was a bit of a flag nut and was given a collection of cigarette cards of flags of the world in 1936 which my grandfather had collected. I never knew him, since he died of a smoking related disease before I was born. Among many other flags was the flag of Estonia. Then one time my family were visiting London and I saw the *sini-must-valge* (blue-black and white) on a large mansion. Sure enough it was the Estonian Legation, and as I later learned, the UK did not recognise the occupation. Then when I went home I could not find Estonia on the map, and when I did the flag was wrong! So I resolved to get to the bottom of the mystery. Next time I was in London I visited the Legation and was told the terrible story of Estonia - this was in 1979. So I began to understand that the world I was born into - With "East Germany" and "Yugoslavia" was rather less permanent than I thought. So I studied the history, and political economy of Central and Eastern Europe. I got involved in "dissident" groups supporting Baltic Freedom and other groups like Charter 77 and *Solidarno*.

I was probably destined to be an obscure Academic, but as the system broke down - far sooner and more peacefully than I expected - and Eastern European specialists were in demand. So I ended up becoming a banker and learned my new trade with JP Morgan. I then had a 15 year career in the City of London (and briefly Wall St.) working in various financial businesses investing in Central Europe. So with Flemings, for example, I invested in Hansabank in 1993-4 and with UBS helped to privatise Unibanka in Latvia. I also did a lot of work in other places, Croatia, Poland and Bulgaria for example.

By 2007 I could already see that London was no longer that interested in Central Europe - and that there was big crisis looming. So I resolved to relocate. Estonia was an obvious choice for me: many friends, a hard-working culture, a commitment to excellence and innovation. Estonia has a future because it is interested in the future in a way that other countries are not. The only other choice - Warsaw - might have been logical, especially since I speak Polish - my Estonian is still at best hesitant - but the natural environment of Estonia, the clean air and forests suited me better.



I think my expectations of Estonia have been more than matched - the efficiency of the state delivery of services, and the clarity of the rules all underpin the successful business culture that is emerging here. Innovation and entrepreneurship are allowed to flourish and I am constantly surprised by meeting so many open minds - in politics, business, the law, in music and the arts, at almost every level Estonians excel. It is said that Estonia is a small country, but I don't find it so, there is a quality and richness, from the Theatre No99 to Arvo Pärt to the investment culture, to the armed forces, where it is clear that Estonia punches dramatically above its weight.

I now advise different investment projects in the region, and although I could wish for more frequent air connections to more places, I find our business benefits hugely from not having to waste time on a daily commute or waiting to see people: Estonians are rarely late. I work fewer hours but achieve far more than I did in London.

The Estonian world of innovation is now world beating, and the efficiency of my business has been substantially enhanced by the technology that is already an everyday commonplace in the country. The tax authority is the most popular state body in Estonia, and unlike the UK I do not need an army of accountants in order to complete my tax return. Company formation and reporting is all online and again requires a fraction of the time in other jurisdictions. The system of digital signatures also eliminates so much of the routine paperwork. I have not yet caught up with everything the system can do, but I am learning!

A London-based classical music review website has, for the second year running, named Arvo Pärt the year's most-performed living composer.

Bachtrack.com put Pärt in 54th place overall in its "Concert and Opera League Tables 2012," a list created from a sampling of 12,597 concerts and 4,451 opera performances. According to Bachtrack.com, the league table contains the composers who featured in the greatest number of concerts during the year: a composer gets an entry if at least one work was performed in a given concert.

Beethoven, Mozart, Bach, Brahms and Schubert occupied the top spots on the list, followed by Tchaikovsky, Handel, Haydn, Debussy and Schumann. The only two other living composers who found their way into the list's top 100 were Eric Whitacre (78th) and John Adams (89th).



CULTURE: Arvo Pärt – the master of silence

The man Estonians always point out with pride is the trump card of classical music: **Arvo Pärt**. The 77-year-old Pärt is the most famous and most awarded Estonian composer in the world. He is an Honorary Doctor of the University of Sydney, a member of the Swedish Royal Academy of Music, an Honorary Member of American Arts and Letters and, since 2011, a member of the Pope's Culture Council. These are just a few of the titles he holds. The music by this living classic has been recorded nearly 100 times and every day his music is played somewhere in the world.

A BRIEF LOOK AT SOME FAMOUS ESTONIANS

Text: MIHKEL KÄRMAS

The quote by Ernest Hemingway from *To Have and Have Not* "In every port in the world, at least two Estonians can be found" is not just a literary metaphor. Many Estonians have made it to the top in diverse fields and in faraway countries. Life in Estonia has put together its own selection.

Not many people who offer standing ovations in concert halls around the world after listening to Pärt's music are aware of the fact that in the early days of his career Pärt was more successful as a composer for Estonian animation films. While the Soviet censorship ignored his art-happenings and avant-garde works in the early 1960s, his subsequent turn to religion led to a tightening of the creative noose. Conflict with the Soviet regime led Pärt and his family to emigrate in 1980.

Pärt first settled in Austria and later in Germany. He returned to Estonia in the early 2000s and today divides his time between Tallinn and Berlin. Today Pärt is also an Honorary Citizen of his childhood town of Rakvere, where a statue of Pärt has been erected, depicting him as a young lad listening to music from loudspeakers on the street. Currently work is in process to create the International Arvo Pärt Centre in Laulasmaa, near Tallinn, which will function as a research and training centre, museum and archive housing all of his manuscripts.

Pärt's music can be characterised as minimalistic and religious, with mystic motifs. His best-known works are *Tabula Rasa*, *Spiegel im Spiegel* and *Für Alina*. Among other things, Pärt has created his own unique compositional style, called *tintinnabuli*, which, for lack of a better description, recalls the sound of bells. The American composer Steve Reich says: "I love his music, and I love the fact that he is such a brave, talented man. He's completely out of step with the zeitgeist and yet he's enormously popular, which is so inspiring. His music fulfils a deep human need that has nothing to do with fashion."

Although modest and not a man of many words, Pärt, who was persecuted under the Soviet rule, demonstrates a social sensitivity. For example, he dedicated all the performances of his works in 2006 and 2007 to the memory of Anna Politkovskaja, the murdered Russian investigative journalist, and his symphony written in 2008 was dedicated to the imprisoned entrepreneur Mikhail Hodorkovski. Despite his age, Pärt—the father of four and grandfather of six—shows no signs of slowing down.

Other famous cultural representatives

A member of Pärt's generation who also fled to the West from the Soviets and achieved global fame is the conductor **Neeme Järvi**, who has made over 400 recordings with the world's top orchestras. His CV reads like an encyclopaedia of orchestras. Moreover, *the maestro*, who is now 76 years old, also founded a family dynasty, with his sons **Paavo** and **Kristjan** as conductors and his daughter **Maarika** a flute player following in his footsteps. Paavo Järvi (50) is the first member of the family to win a Grammy award.



Famous Estonians on world stages also include the long-time soloists of the English National Ballet **Toomas Edur** and **Age Oks**, who used the stage names Thomas Edur and Agnes Oaks. In 2003, they were named the best ballet couple of Great Britain and Toomas was named the best male dancer. After living in London for nearly 20 years, the ballet artistes, who are also a couple in their private life, returned to Estonia. Today Toomas Edur (44) works as the Artistic Director of the Estonia Ballet Group in Tallinn. In 2010, the couple received the CBE (*Commander of the Order of the British Empire –ed.*) from Queen Elizabeth II. In the same year, their daughter Elizabeth was born.



Estonians are also stars in pop culture. Director of Photography **Alar Kivilo** (60) is the only Estonian who is a member of the American Film Academy, which selects Oscar winners. Born in Canada, the son of war evacuees, Kivilo has worked with Bruce Willis, Keanu Reeves, Cameron Diaz and Sandra Bullock. The latter won an Oscar in 2009 for her role in the film "Blind Side", for which Kivilo was the Director of Photography. To date, Kivilo has made nearly 20 feature films and is among the leading cameramen in Hollywood.



Alar Kivilo



Kalem Mark Kostabi

In modern painting, waves have been created by **Kalem Mark Kostabi** (52), who is considered scandalous and provocative, yet his works hang in some of the most famous museums and private galleries in the world. Born in 1960 in Los Angeles and the son of Estonian immigrants, Kostabi shot into the art world like a meteorite. Many consider him to be a narcissistic weirdo who knows no limits when it comes to self-promotion. One of his performances culminated in a fight with a television show host. Yet Kostabi has appeared on most of the leading American television shows, from 60 Minutes to Oprah Winfrey. Kostabi mainly provokes arts audiences due to the fact that he lets anonymous helpers paint his works on the basis of sketches and just picks up the brush to sign the works. In this way, Kostabi Manufacturing produces 1,000 paintings a year. Now Kostabi lives mostly in Italy.

In every way **Ilon Wikland** (83) is the opposite of Kostabi. Having fled during WWII to Sweden, Wikland became famous as the illustrator of books by the children's author Astrid Lindgren. Wikland has brought characters such as Karlsson, the Bullerby children and other beloved Lindgren characters to life through her drawings.



Ilon Wikland



Kerli

The hottest Estonian name in show business today is the singer and songwriter **Kerli** (born **Kerli Kõiv**), who resides in Los Angeles. In addition to high rankings in Billboard and other charts, she is the most watched Estonian artiste on Youtube (see separate story, pp 72-76).

In the commercial entertainment business, the most famous actress with Estonian blood is probably the sexy schoolgirl of "American Beauty" (1999) played by **Mena Suvari** (34). Born in America Mena's father is the Estonian psychiatrist **Ando Süvari**.

SPORT: An Estonian - Big in Japan

The sumo wrestler **Baruto**, born **Kaido Höövelson**, is an Estonian sportsman with probably the largest number of fans in the world. The 29-year-old *rikishi*, who is currently residing in Tokyo, was a simple Estonian country lad from Lääne Virumaa who has risen to elite status in the Japanese national sport. He is one of the most famous *sumotori*, although due to an injury his recent official rating has dropped.

Europeans find it difficult to get excited about sumo wrestling, but on the other side of the world those heavyweights have almost divine status. "I love sumo and my favourite *sumotori* is Baruto," says Kenzo Toi, the massage therapist who operates Baruto's fan page. He says the Estonian has a physically powerful and impressive fighting style. "I thought he would reach *yokozuna* one day, so I became a Baruto fan."

"The sumo world is tough. To come from somewhere else and to accept this world, its rules, traditions and food, to make the effort to reach the top – I think it is a great achievement," says another fan, Makiko Nakamura. "I think Baruto is very different for the Japanese as he has a very European look with his blue eyes and blonde hair, but inside he is very Japanese. We sense the same kind of pride and modesty and we really do love Baruto," affirms the journalist Kumiko Hilano.

It is easy for the burly lad who is two metres in height and weighs 190 kilos to stand out amongst the general Japanese population with their generally smaller build. Thanks to Baruto, tens of millions of Japanese people are perhaps a bit more aware of the existence of Estonia. Baruto means Baltic in Japanese.



Recently **Margus Hunt** (25) has risen to stardom in American football, which is also an exotic sport for Estonians. Remarkably, Hunt who comes from the small village of Karksi-Nuia in southern Estonia, started out in athletics, becoming the Junior World Champion in discus and shot put in 2006 in Beijing. In university in the USA, he decided to switch careers and started to play American football. Whilst playing for Southern Methodist University, Hunt blocked 17 kicks, including 10 field goals, which is the all-time NCAA record. This spring the 203-cm and 126-kilo defensive end was selected in the second round of the NFL draft by the Cincinnati Bengals, where his first annual salary with bonuses is approximately five million dollars. A successful career after four years may bring him a new contract worth much more.

Hunt is not the first or even the most highly paid Estonian in the NFL. **Michael Roos** (29), born **Mihkel Roos** is from Taebala in western Estonia, although he has spent most of his life in the USA. Since 2005, the 201 cm tall offensive tackle has played for the Tennessee Titans. Roos, who also started out in track-and-field, extended his contract with the club for another six years in 2008 for a sum of 43 million USD.



The most famous Estonian footballer is the goalie **Mart Poom** (41), who spent most of his career in the English Premier League, with Derby County, Sunderland and Arsenal. In 2003, the Estonian Football Union named him the best Estonian footballer of the last

After flying to Japan in 2004, it took just two years for the Estonian to become a member of the elite division, reaching the *ozeki* title in 2010, which is just one step away from the highest – *yokozuna* – status. Injuries followed and at the end of 2012, Baruto lost his *ozeki* status. Because the career of sumo wrestlers only lasts until about the age of 30, he only has two or three years left to reach his big goal.



But when he ends his career as a sumo wrestler one day, Höövelson has clear plans for the future. "Every end marks a beginning of something new. I still see myself linked to Estonia," says the wrestler, whose family owns a farm in the Estonian countryside. "I will become a farmer". In addition, Kaido plans to have five children with his Russian wife Elena.

Other famous athletes

half century. With Arsenal he made it to the UEFA Masters League Final in May 2007, but he didn't get to play that evening. Poom who has represented the Estonian National Team on 120 occasions, retired in 2009 and is now active as the coach of the goalkeepers of the National Team. The most successful current players for Estonia include the striker **Henrik Ojamaa** (22, Scottish Premier League, Motherwell) and the defender **Ragnar Klavan** (27, German Bundesliga, FC Augsburg).



Throughout the years, several top cyclists have come from Estonia. Currently one of the most successful is **Rein Taaramäe** (26, Cofidis). Taaramäe's best achievements are 11th place in the Tour de France in 2011 and a stage victory at Vuelta a Espana in the same year. One of his competitors is **Tanel Kangert** (26, Astana), who finished 14th in the Giro d'Italia this year. Kangert's role was to help his team leader, Vincenzo Nibali, who won the Giro.

BUSINESS: Financier of Hotmail and Skype



Steve Jürvetson

The 46-year-old **Steve Jürvetson** is an Estonian American millionaire, investment guru and star of Silicon Valley. His funds and strategic thinking have changed all of our lives and, if his bold visions come true, will change our lives beyond recognition in the future.

As we entered the new millennium, at the height of the Internet boom, Jürvetson participated at a charity auction, with the prize being the opportunity to have breakfast with him whilst introducing your own business idea. Of the 78 bidders, the prize went to a man who paid 4,400 dollars and took a five-hour flight from New York to California in order to collect his prize.

What made this prize so attractive was the fact that Jürvetson has the reputation for smelling money in the most unlikely sounding ideas. As a 28-year-old it took him just six months to become a partner in one of the most influential investment companies in Silicon Valley: Draper Fisher Jurvetson (DFJ).

Jürvetson became a true media magnet and cover-boy when, in 1996, he decided to support an Indian immigrant's idea of creating free e-mail on the Internet. The same idea had already been rejected by 21 funders. The project was called Hotmail. Less than two years later, Hotmail was sold for 400 million dollars and the idea that people once used to pay money to use e-mail seems ridiculous now.

The magazine Fortune subsequently ranked Jürvetson among the top ten directors in the world and seventh in the list of under-40-year-olds who have most influenced the world in this century. From then on, people started to approach him with their business plans, even in car repair shops.

Born in Phoenix, Arizona, and the son of Estonian war immigrants, Steve grew up in Dallas, Texas. He demonstrated a talent in technology from an early age. What he lacked in athletic ability, he made up for in speaking ability, winning national debating championships throughout his college days. Early on, he also demonstrated other characteristics which have helped to make him successful: focus, a phenomenal ability to work hard, and outstanding intelligence.

"When he couldn't come first in sports, he turned to other fields. He always wanted to win," recalls his father **Tõnu Jürvetson**. "For example, we would play chess and although he didn't know how all the pieces moved, he never liked losing. The next time we played, he knew precisely what to do." Steve continued with the same approach in prestigious Stanford University, from which he graduated with Honours in half the normal time.

Having already made a name for himself, the next global success for the charismatic Jürvetson was Skype, partly created by Estonians, which offered free phone calls on the Internet. DFJ was one of the first investors in Skype. According to the latest data, Skype is worth over eight billion dollars and more than 600 million people use it. There are now also several competitors offering a similar service.

Jürvetson claims to be looking for high-risk projects which have huge potential. "We don't want to spend time, resources and capital on projects which won't make a lot of money. Anyone can make money. You can also make money by putting it in your bank account and earning interest. This is not the reason that our investors invest in us. They invest in us in order to take larger risks and have the opportunity to make huge sums of money. To earn ten or a hundred times their investments. Sometimes even a thousand times."

Jürvetson hoped that Skype would be a project which would have the same kind of effect on telecom companies that a car which runs without petrol has had on the oil industry. It seems that he was at least partially right: long-distance phone calls which people pay for are becoming a thing of the past. And a car that doesn't use petrol is not just a metaphor. One investment which Jürvetson as the Managing Director of DFJ is personally overseeing is Tesla Motors, which produces electric cars (Jürvetson naturally drives one himself). In addition, Jürvetson's portfolio includes an investment in the private spaceship project SpaceX.

In 2011, the magazine Forbes included Jürvetson in the ranking of top technology investors, the "Midas List", and in 2012 Deloitte named the Estonian the Venture Capitalist of the Year. "When you find a company which changes the world, doing something brave and exciting and helping people economically and in terms of their quality of life, it usually makes a lot of money for investors. Especially for early investors. Therefore, we focus on companies which will change the world, and the money is added value," sums up Jürvetson.

Other famous business people



An Estonian industrialist living in Australia – **Sir Arvi Parbo** – used to run a billion-dollar business and at one point he had 80,000 employees. Having been appointed Managing Director of the mining company Western Mining in 1971, Parbo was the first immigrant with a non-English-speaking background to hold such a high industrial management post in Australia, a fact which attracted a lot of media interest. Under the management of the Estonian director, the small mining company became the largest gold producer in Australia. To top it all, in 1975 they discovered a huge copper, uranium and gold deposit in the southern Australian wasteland. It is called the Olympic Dam and is estimated to be worth three trillion dollars. Three years after discovering the mega deposit, Parbo received an honour awarded to no other Estonian: knighthood from the British Monarchy. The father of three and grandfather of six is retired and lives in Melbourne.

Oskar Metsavaht (51), a Brazilian designer with Estonian roots created the company Osklen, which has achieved international success. In addition, he is the Honorary Consul of Estonia in Rio de Janeiro. The company has 70 outlets all over the world and is especially popular in France, Japan, the USA and Italy. He has been featured in the magazine Newsweek and, in 2011, one of the leading business magazines in the USA, Fas Company, named Metsavaht among the “100 most creative people in business”. Metsavaht’s grandfather Oskar Leonhard was an optician in Rakvere and moved to Brazil in 1925. For years his father Renato was the President of the Brazilian Union of Medical Doctors. His mother Maria is a professor of psychology with Italian roots.



Photo: Martin Lazarev



Piret Mürk-Dubout (43) is the highest positioned Estonian woman working in international business. In 2011, she became the Vice President of the Swedish corporation TeliaSonera, which has 29,000 employees and 160 million customers. She started out as a news reporter in television, and her career is even more remarkable considering she is also the mother of two small children.

The founder of the magazines Wallpaper and Monocle, **Jayson Tyler Brûlé** (44), has an Estonian mother. Born in Canada, Brûlé started his career working for the BBC, the Guardian, Sunday Times and Vanity Fair in England. After being injured whilst working in Afghanistan, he founded the trend magazine Wallpaper in 1994. Subsequently, he wrote a regular column for influential British publications.



Text: MIHKEL KÄRMAS
Photos: Bulls Press

Before Skype became a global hit, our most famous export was Carmen Kass. Today several Estonian beauties have followed in her footsteps and have joined the cream of the crop in the fashion world.

The Three Best-Known Faces of Estonia

Five hundred million people all around the world use **Skype**, which got its start in Tallinn. The most acclaimed living composer in the world is **Arvo Pärt**, who comes from Estonia. However, the best known Estonian face in the world belongs to the 34-year-old **Carmen Kass**, the first supermodel to come from the Baltic states. All of you reading this have most likely seen her face.

In 2000, Carmen Kass won the top prize in global fashion: she was named *Model of the Year* in the Vogue/VH1 Fashion Awards, triumphing over her main rival at the time, the Brazilian Gisele Bündchen, another model for Victoria's Secret. Experts said that this achievement overshadowed the only Olympic gold medal won for Estonia in Sydney that year by the decathlete **Erki Nool**. "The Estonian Nokia has been found!" sighed the newspapers in describing Kass's triumph. (*President Lennart Meri had urged us to look for an Estonian Nokia: a brand that would make our country as known in the world as Nokia has made Finland – ed.*)

At the star-packed ceremony at Madison Square Garden in New York, Carmen Kass forgot some of the thank-you speech she had prepared, but once she had collected herself she expressed gratitude to her family. Carmen's journey to stardom had been a true rags-to-riches fairy-tale.

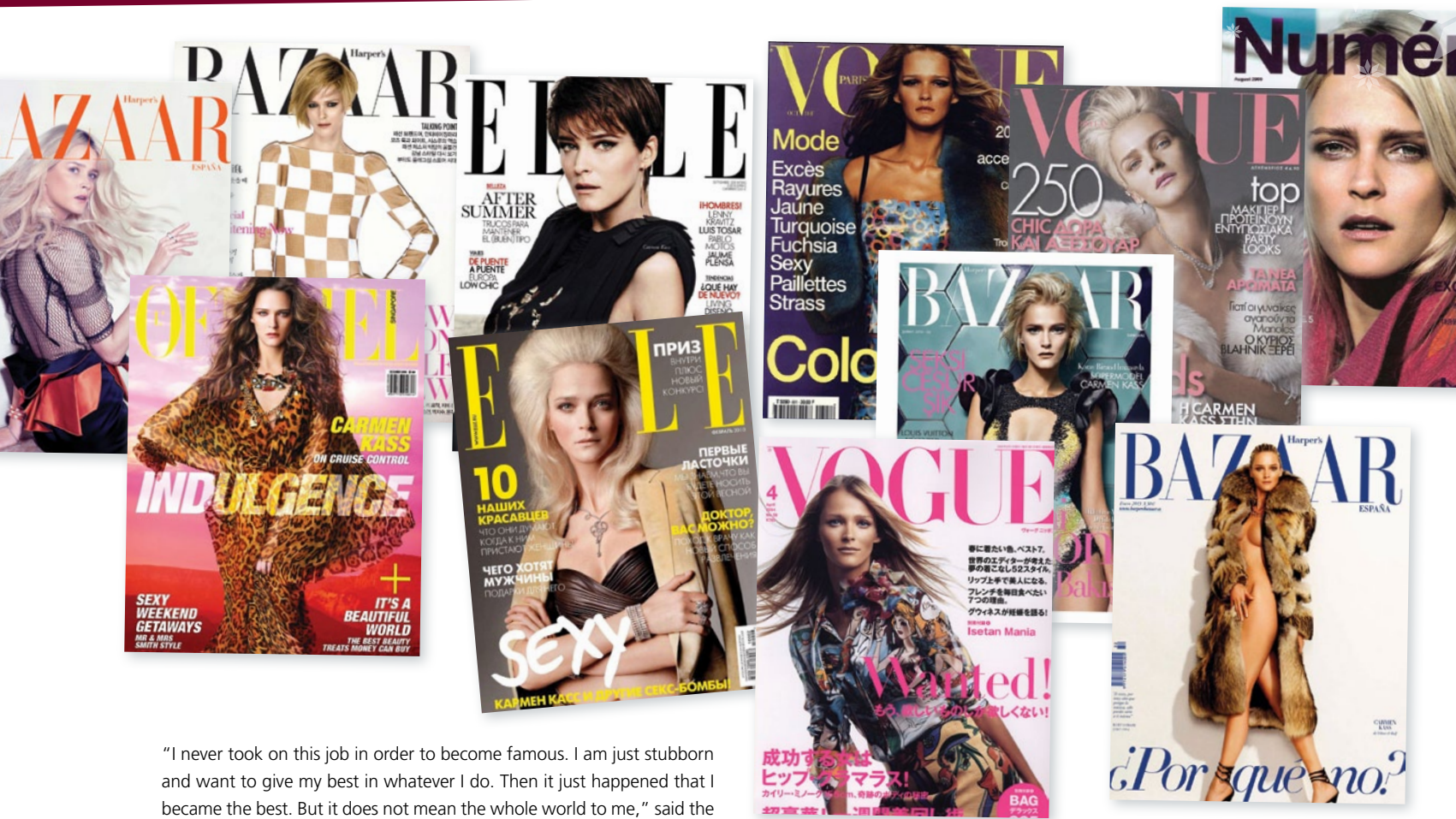
Raised by their mother alone, Carmen, her sister and her brother grew

up in Paide, a town of 8,000 inhabitants in central Estonia. As a teenager, she could easily put arrogant boys in their place and was even listed in the local youth police registry. At the age of fourteen, the future supermodel was discovered by chance at a supermarket in Tallinn by the Italian talent-scout Paolo Moglia, who was then living in Estonia. In order to be allowed to take on her first foreign job, Carmen forged her mother's signature. "Mum did not want to let me go, but my gut-feeling told me I had to do it."

The most adored Estonian woman in the world

Her gut feeling did not let her down and the risk was worth it. At the age of eighteen, Carmen moved to Paris, where a couple of years later the focused Estonian beauty could be seen strutting her stuff on catwalks for Marc Jacobs, Calvin Klein, Ralph Lauren, Donna Karan and Dolce & Gabbana, not to mention numerous cover shoots and commercials.

Her real breakthrough into the global fashion elite came as the face of Dior's millennium perfume *J'adore*. A year later, at the age of twenty-two, came the prestigious modelling award by Vogue in New York. The media called Carmen Kass the most adored Estonian woman in the world, no longer just a model but a supermodel the equal of such fashion icons as Naomi, Claudia and Linda.



"I never took on this job in order to become famous. I am just stubborn and want to give my best in whatever I do. Then it just happened that I became the best. But it does not mean the whole world to me," said the supermodel, who had moved to New York, during an interview in 2001.

"In general terms, we can divide models into *fuck me* and *fuck you* models. For me the most interesting ones are the *fuck off* models – and this is the face that Carmen has," commented a friend of Kass's, the acclaimed Estonian fashion photographer **Toomas Volkmann**. Kass with her 179-centimetre height, green eyes and dark blonde hair was called the representative of the angry girls generation, for she rarely smiled in photographs.

Her own explanation for this image is much more prosaic. "My smile does not look good in photos. Not smiling is a conscious choice and it has nothing to do with my personality or the way I am in my private life."

Success formula: clear head and strong will

Although millions know her face, Carmen Kass herself has always remained a mystery. She visits her native land in secret and cuts off any questions about her private life. "Honestly, I just have nothing to say about it. The public is interested in me because of my work," she says.

According to her former partner, the New York club owner Richie Akiva, Carmen owes 99 per cent of her success to her rational thinking, which is rare and helps her steer clear of trouble. "She is very smart. Having grown up in this city, I have seen models overdose on heroin and lose their earned millions to drugs," says Akiva. "She was very different than the others, and clever. She looked at modelling as a business and knew exactly what she wanted." "Carmen has a very healthy attitude towards modelling. She will not end up like Marilyn Monroe as she does not wear rose-tinted spectacles," confirms Volkmann.

What is Carmen Kass's own view of what makes one person a supermodel and another not? "Strong will. Beauty has something to do with it, but not much. There are many beautiful people in the world, but many give up when they experience a little failure. I myself think I have nothing to lose, regardless of what I do."

Supermodel becomes chess president

Her courage to experiment is illustrated by the fact that in 2004 Carmen Kass joined the Res Publica Party, creating a furore by running for the European Parliament. The supermodel received 2,315 votes but did not make it to the European Parliament. In connection with this brief encounter with politics, she experienced an embarrassing moment. A lie in Kass' biography was revealed: she had falsely claimed to have finished secondary education. Kass had to make a public apology.

Just like many gorgeous women, Kass flirted briefly with a film career. Her first attempt was a small part in Ben Stiller's film "Zoolander". After drama studies in the States, in 2004 Kass got a leading part in the Estonian murder mystery "Tonight we will not sleep" ("Täna öösel me ei maga" – ed.), which did not become a blockbuster.

In recent years Kass has mostly been talked about in relation to ... chess! Her father was a chess trainer and Carmen's hobby was known for years, which is why the Estonian Chess Union asked her in 2004 to become their President. Led by the charming supermodel, Estonia applied to organise the Chess Olympic Games in 2008, but lost out to Dresden. Carmen Kass worked for seven years as the President of the Estonian Chess Union and is still active as a member of their council.



The next Karmen picks up the crystal shoe

Experts claim that Carmen Kass was the one who opened the door for other Estonian models to the top level of the fashion business. She has encouraged and made contacts for many of her younger colleagues. Estonia was not on the global map of fashion before Carmen and nobody knew that top models could come from Estonia. Today Carmen Kass is focusing more on business and has basically ended her personal fashion career. Her most successful heir is **Karmen Pedaru**.

Apart from a similar name, Pedaru's Cinderella story has many parallels with Kass's. The 23-year-old Pedaru comes from Kehra, an even smaller town, with just 3,000 inhabitants, which is just 50 kilometres away from Kass's childhood home. From the age of five, Karmen was raised by her grandmother and she was also discovered by chance – in the cloak-room queue of a theatre in 2005. Pedaru also dropped out of secondary school, but sky-rocketed up the fashion charts. According to the latest data on models.com, Pedaru is sixth in the global ranking of top models.

"If I were an anthropologist looking at her height, the lowness of her voice, the speed of her reactions, I would say she is the reincarnation of Carmen Kass," says the fashion photographer Toomas Volkmann. The currently highest ranked Estonian is the front face of Michael Kors's fashion house and Gucci; her face is used to sell Hugo Boss products and Jimmy Choo perfumes. In addition, Karmen took the "crown" away from Kate Moss to become the face of Mango.

People also talk about Pedaru's dedication and strong will (not just her looks), linking it to her sports background. Before her modelling career, she was an athlete and even a goalie of the under-19 women's national football team. Only ten days after being discovered in the theatre, she was posing for Teen Vogue in India and, as they say, the rest is history.

The beauty, who currently spends her time mostly in Rome and New York, says that she is not an icon yet, but hopes to become one. Experts say that the 178-centimetre beauty with green eyes and light brown hair still has at least ten of her best modelling years ahead.





Top models are not overpaid clothes hangers

Tiiu Kuik also started out in difficult social circumstances. "My mum has sometimes told me how she had to collect empty bottles to put food on the table, but there was always a warm meal. I knew we were poor but somehow she always managed to give us real birthdays, real Christmases, everything a child could want," recalls the 26-year-old top model from Tallinn.

Tiiu was discovered as a 13-year-old in a supermarket by the same Italian scout, Paolo Moglia, and the young girl literally had to start out on the other side of the world: her first foreign job took her to Japan. "I was such a hard-working little girl. How did I dare to just leave school and go do a Gucci fashion show the next day?"

In the early years of her career, she sometimes had to work five stage shows a day. She has participated in more than 50 designer shows, she has been the favourite model of the former Gucci head designer Tom Ford, has posed for numerous Vogue covers and has worked in commercials for Valentino, Dior, Moschino and many other top brands.


In contrast to Pedaru, Kuik these days does not spend much time on stage, a choice she has made deliberately. "The whole point of shows is for people who work in magazines and catalogues to notice you, so that you get work. Since I am already doing this work and people do know me, there is no need to do shows."

It is noteworthy that Tiiu became the face of Dior's perfume J'adore after the same perfume had made Carmen Kass famous. Kuik is not too concerned about fame. "I know it probably sounds bad, but I am still doing it for the money. The work is fun, I get to travel and do what I like, but I am not doing it in order for people to shout my name on street corners," she says, with a laugh.

"When I was little, people were always talking about and looking for the Estonian Nokia and I used to tell my mum: 'don't worry, I will be the Estonian Nokia and I will buy you a house.' Of course, I am not the Estonian Nokia, but I did buy my mum a house."

In the case of all three Estonian top models, the key to success in the cruel world of modelling is courageous initiative, focus and rational thinking. That they are photogenic is secondary. Carmen, Karmen and Tiiu have shattered the stereotype that a top model is just a brainless overpaid clothes hanger.





Estonia as an Engineer's Dream

Text: **TAAVI KOTKA**

/ Deputy Secretary General - ICT, Ministry of Economic Affairs and Communications



Estonia is known around the world as an IT country. Public e-services, e-voting, digital signatures in everyday use and a transparent tax system are only a few of the examples of what makes the innovative small state stand out in the eyes of others. After separating from the Soviet Union, Estonia had to start with a clean slate and, as history has shown, a clean slate is the best surface on which to create innovation.

In building up their IT solutions, Estonians made another vital choice. Instead of depending on the ready solutions of large corporations, they decided to write the necessary software themselves. This was economically more affordable, as Estonia's SME sector is made up of very small companies by the standards of the rest of the world and, in that environment, investments must be directed very carefully. In addition, this do-it-yourself approach provided the opportunity to keep trying out new ideas, and the strong competition within a small country allowed very good ideas to quickly become dominant.

Banks competed among themselves for who could offer more innovative e-solutions to customers. This approach was soon followed by telecoms, and then by others. The Estonian state did not stand by idly and observe all this, but attempted to adopt the best practices in the development of public sector e-solutions; in addition to local inventions, other countries were carefully studied for anything interesting they might be doing. It is a little-known fact, but one of the cornerstones of the Estonian ICT infrastructure, the ID card, is a concept that was borrowed from Finland.

The innovation war that raged across Estonia led to an entire generation of IT engineers who, instead of maintaining old legacy systems, took the opportunity to invent new things and, thanks to Estonians' affinity for new technology, the engineers helped to bring about the social changes that a transition to an information society requires. Add in the success story of the Skype engineers, which opened the Estonians' eyes to the start-up

world and the possibilities of Silicon Valley, and there was fertile soil for the rise of a new type of entrepreneurship.

Since 2007, Estonia's ICT sector has been experiencing a start-up boom, where various companies have been trying to break into the global market with their solutions. As in any country, the number of failures has been higher than the number of successes, but the "innovation generation" is increasingly shaping the economic model of today's Estonia.

2012 was a breakthrough year in this respect, when five technology start-ups entered the list of Estonia's top 100 most valuable corporations. Young companies, none more than six years old, are continuing their rise since, unlike traditional Estonian companies, their market is not Estonia or its immediate neighbouring states, but the entire global market.

Considering that an increasing number of technology companies are knocking on the doors of that same Top 100 most valuable corporation list, and a more active use of technology is also raising the competitiveness of other sectors, the Estonian state is facing the serious challenge of how to develop its innovation generation further.

An interesting lesson was learned from the economic crisis of 2008-2009, when the private sector, previously the driver of new ideas, froze its investments, along with the rest of the world, and paused to see what would happen to the economy next. The state understood that the role of innovation driver had to be taken over from the private sector temporarily, and European structural funds provided the necessary capital. Public e-services were developed further, the e-healthcare sector was taken to a new level, hospitals began to share information with each other, digital prescriptions were introduced, etc.

Services were also opened up to non-Estonian citizens; for example, in recent years over 1500 companies have been started in Estonia

by Finns. A company can be established in Estonia over the Internet, using an ID card; this service also works with the ID cards of other states if they have a sufficient level of security. Thus Finns can use their ID cards not only to establish companies here, but to file their taxes, etc.

Constantly thinking up something new and trying it out is inspirational and motivational for any engineer, but innovation always has a dark side: legacy. Everything that is new and exciting today will be out of fashion and abandoned tomorrow. Software created to support a production process is a large investment, and it is very difficult to justify to a company's owners why that software needs to be updated after six or seven years.

The situation is even more difficult in the public sector, where citizens are used to constant technological development in their everyday lives, and expect the same from the state. An example of this is the rise of smartphones and the Internet. New usage patterns emerge, and the convenience of a touch-screen is expected to be applied to all services.

Estonians have been helped once again in this regard by our Nordic neighbours, who have taught us that legacy maintenance is very expensive, and a small country like Estonia must choose a different path. Technology changes extremely rapidly, and consumer usage patterns along with it; there is also the constant need for progressive legislation. All this means that ICT development must be built up on the principles of continuous re-engineering.

ICT must be seen not as building a house, but as building a road. Like a road, ICT requires constant maintenance and, after a certain time, it needs to be dug up and rebuilt again. Re-engineering and rebuilding lead to the development of a new innovation generation that will continue to surprise the world with its ideas, and will keep the flag of Estonia's reputation as an IT country flying high.



The Story of e-Health Estonia

Text: **AIN AAVIKSOO** / MD MPH, HealthIN

A recent study by OECD/EU reports that both family doctors and hospitals in Estonia are ranked third in Europe in terms of the deployment of eHealth solutions. This puts Estonia in a strong position in the most advanced and very competitive Nordic region's e-health landscape – only the Danes are in higher positions on both healthcare aspects.

What does this mean? How did it happen?

First, Estonia has **strong traditions of healthcare informatics and computer engineering**. In 1960 the Institute of Cybernetics of the Academy of Sciences was established, and in 1973 the Estonian Ministry of Health established the Healthcare Computation Centre. Both required detailed justifications and long-term negotiations to receive permission from the Soviet government in Moscow to become established and then to purchase “military-grade” mainframe computers to become scientific leaders in the field and collaborate with top level scientists abroad. Several of the enthusiastic founding experts in healthcare informatics and statistics from these institutions are still active in various roles in universities, government agencies, hospitals and IT companies.

The fact that the restoration of Estonian independence in 1991 occurred at roughly the same time as the birth of the global world wide web influenced the citizens of the country to enthusiastically embrace new technological advancements, because they felt they were a natural part of their new and better life. Perhaps this is one of the reasons why one of the largest hospitals granted its patients **full access to their medical records** in 2007 without any serious protests or complaints. If the solution had not worked, both doctors and patients would have been very dissatisfied, because many of them felt (and still feel) that well-informed patients are much better prepared for cooperative treatment relationships. Another example of the agility of the medical and general society in accepting new digital solutions is the **ultra-fast spread of digital prescription in 2010**. In Estonia it took just nine months to get from paper-only to 85% of digital prescriptions nationwide, a level that in other countries has taken at least three years to reach. Today 95% of prescriptions are already digital in Estonia.

Naturally strong IT-skills facilitated **rapid computerisation of hospitals** in the early 1990s, despite the very difficult economic situation. This was pushed further by Estonia’s single public payer system for health care: since 1995 the Estonian Health Insurance Fund (EHIF) has accepted and given preference to digital reimbursement claims from hospitals because of the much longer processing time of paper claims. In 2001 no more paper claims were accepted: all health care providers had to process their information electronically. **Fully digital radiology** was introduced by all larger hospitals in 2001 and a **digital imaging archive (PACS)** for sharing radiological test results across the whole country has been available since 2006.

Furthermore, a scarcity of resources has forced Estonia to invent IT-solutions that satisfy the highest standards of health care while still being affordable. The integration of different data sources – health, social and community care providers, and public and private institutions – has been in place in Estonia since 2001 via a nationwide data exchange service called X-Road. It is a universal solution for the whole country and all sectors, allowing for secure information sharing and the provision of electronic services between any number of institutions and databases. Thanks to X-Road, since 2009 all Estonian health system participants – public and private hospitals, family doctors, health insurance,

pharmacies and patients – have been connected to **nationwide electronic health records** at a very low price. The system for sharing all health information from any local information system costs about 10 dollars per citizen in Estonia. This has created a huge **potential for new e-services** that can reduce the fragmentation and inefficiencies of health service provision.

The flexibility of the Estonian approach to e-services in Estonia is also characterized by the easy and cheap development of “bilateral digital services” for any parties desiring them. Examples of such services are **real-time teleservice connection** between remote islands and any hospital, **clinical performance feedback** by the health insurance fund to family doctors as part of their bonus payment system, an **electronic referral and triage service** between hospitals and family doctors, and **online appointment booking**.

Perhaps one of the most important features is **the full overview and control over health information** by patients themselves: everyone can see data about themselves, and patients can also see if anyone else has accessed that information. This provides very strong prevention of the misuse of delicate health information and maintains public trust in e-services.

Finland will be the first foreign country to follow the Estonian model of state-wide data integration (including the health care system), using the X-Road concept. HealthIN Ltd, which is helping organisations and regions in other countries adopt similar robust and affordable data-integration solutions for healthcare, has found serious interest in pilot projects in Norway, Holland and the UK.

The Estonian e-health ecosystem is further supported by the strong engagement of universities, private organisations and start-up accelerators, and active cooperation with Nordic and US healthcare IT hubs. The Tallinn University of Technology offers a successful **international Master’s programme** on Healthcare Technology, the Tallinn Science Park Tehnopol is incubating and accelerating **young life-science companies** from across the Nordic-Baltic Region, and the Estonian Genome Centre and researchers in the University of Tartu are doing serious **research on big data analysis**, which will form the basis for a **nationwide personalized medicine project**, to name just a few of the supporting initiatives.

Typical of Estonia is the situation that, while on an everyday basis 95% of physicians use services that have proven to be difficult to make universally available in many other countries, those physicians are not completely satisfied with it and they demand better usability and advanced functionalities. The same applies to the general public, which will complain about any new e-service that is not flawless from day one or is even slightly inferior to what they’ve seen in other countries.

Looking at the e-health development and strong potential of Estonia, it is clear that being digital is in Estonians’ bones. This spirit, backed up by strong traditions and well-functioning e-services, keeps everybody – policy makers, vendors, universities and other stakeholders – constantly on their toes and keeps innovation rolling.

Madis Tiik, MD

- Tartu University, Medical Doctor 1996
Nordic School of Public Health –
- Diploma in Public Health 2003
Tallinn University of Technology,
- Institute of Clinical Medicine, PhD 2012
- Chairman of The Estonian Society of
Family doctors 2001-2008
- CEO of Estonian eHealth Foundation 2007- 2011


CURRENT WORK

- Vormsi island, family doctor
- Tallinn University of Technology,
Institute of Clinical Medicine, lecturer
- Finnish Innovation fund Sitra,
senior adviser, since 2012

Text: EVE HEINLA
Photos: TIIT MÖTTUS

E-HEALTH APPLICATIONS

Like Something out of Science Fiction



Despite his demanding job in Finland, Madis Tiik is still a local doctor on Vormsi Island in Estonia. Sometimes he uses Skype to give consultations

Countries which achieve success in the field of e-health have clear-cut management structures.

"I can access my health data wherever I happen to be. Patients have the same rights as doctors: they can see who has viewed their data. We Estonians already take this for granted, but for many other countries it is in the realm of science fiction!" emphasizes the e-health advocate Madis Tiik.

It is tricky to arrange an interview in person with Madis Tiik (45), the former Director of the Estonian e-Health Foundation, who is currently responsible for developing the e-health system at the Finnish Innovation Fund Sitra. Every minute of his daily schedule has been organised. He would much rather organise an interview via Skype, paralleling his vision of a future health system where patients do not necessarily need to meet doctors physically in order to have consultations. The health system is also headed to the virtual world. But, still – we meet in person.

What makes you most proud when you think about the Estonian e-health system?

"I consider it the biggest victory that back in 2005 we had the will to cooperate, which is why we founded the Estonian e-Health Foundation, received funding from the European Union, and also successfully implemented the projects we initiated – no other country has been able to do this. Our digital solutions work, and people have got used to them," says Tiik, adding, "of course, in addition, the e-state legislative framework, which was developed beginning in 2002, was innovative and future-oriented enough that only minor changes had to be made later. Those same principles developed back then apply not only in the health system but in the state as a whole, which is what makes this game so attractive – Estonia has been able to create this, while other countries have not."

Tiik admits that in order to realise how successful the digital story of Estonia is, one needs to visit other countries.

"You go somewhere else and see the excitement with which that country views a new solution – and then you recall that it was 2002 when Estonia gave up paperwork. I sometimes forget that since 2002 checks on insurance coverage and healthcare bills have been dealt with digitally in

Estonia. And elsewhere people are talking about this like it's something entirely new...."

Estonia is a leader in e-health solutions in Europe

Tiik admits that, unfortunately, the Estonian e-health success story is not widely accepted in the world because Estonia is a small country. "People think that it is logical to organise things digitally in a small country, but impossible to do it in a large country. In reality, it does not matter whether there are 1.3 million or 8 million inhabitants. I wrote my PhD thesis on the topic of what is needed to introduce an e-health system. And I know that the introduction of e-health is faster in countries with up to 10 million inhabitants, and in larger countries problems start to occur."

In fact, Estonia is the leader in Europe in e-health applications, on the basis of data from 2012. And the comparative analysis published recently by the OECD and the European Commission demonstrates that Estonia ranks first in accessibility and usage of e-health services. The other top countries in this category were Finland, Sweden and Denmark. Estonia ranks second after Denmark in the category of applying e-health services; third place is held by Sweden, fourth by Finland and fifth by Great Britain. In 2010, Estonia was still in the middle of the group of countries compared.

Tiik has been employed at the Finnish Innovation Fund as Senior Adviser since last autumn. He says that e-state components exist in Finland and they are of even better quality than in Estonia. However, as there is no single strategy or particular type of will to cooperate, as everyone wants to create their own world, they have not always been able to bring their visions to life.

"I have said it over and over again: you are wealthy, you have all the solutions right here, and you do not need to reinvent the bicycle! The cooperation which exists in Estonia does not really exist in Finland. In Estonia, we wrote the first digital prescription on 1 January 2010, and implementation of 75% of the system of digital prescriptions only took three months. Estonia has become the leader in e-health in Europe, even though we only started in 2009."

But we should not rest on our laurels; we should keep making an effort in order to avoid a halt in development.

Promoting Finnish e-healthcare

Last autumn Madis Tiik was invited to promote e-healthcare in Finland and evaluate the e-healthcare services of the Finnish Innovation Fund Sitra. As the Estonian digital experience is seen as a success story in Finland, Tiik is now involved as an expert in developing the corresponding system in Finland.

Tiik is able to make use of his experience as a long-term e-health developer (he was a Board Member of the Estonian e-Health Foundation from 2007-2011) and former adviser to the President of Estonia.



E-Prescription

In search for efficiency, the Estonian Health Insurance Fund and the Ministry of Social Affairs started the project of e-Prescription in Estonia. After three years of development, the service was launched in 2010. The overall project lasted for five years including all the preparation necessary to issue prescriptions digitally. By the end of 2010, 84% of the prescriptions were issued digitally. The uptake of e-prescription was very fast, because it instantly delivered convenience and saved time for all parties.

The central system was developed in cooperation with **Helm-es**, one of the leading software developers and integrators in the Baltics. The new centralized and paperless system was designed to be used by all doctors, patients and pharmacies. The project involved a large number of partners from different governmental bodies and registries, hospitals and medical personnel, pharmacies and their software providers. All these organisations had different technological platforms and standards, making the implementation of the system more complex.

E-Prescription has improved the openness and transparency of prescribing medicine and more importantly opened a whole new way for future developments which aim to share information and statistics, to improve the medical care and also the quality of decision making among policy makers.

E-Prescription is understood as the process of electronic transfer of a prescription by a healthcare provider to a pharmacy for retrieval of the drug by the patient.

Doctors prescribe medicine electronically, with the aid of an online form. The system stores incoming prescriptions and sends patients' prescriptions on demand to a pharmacy's information system. The e-Prescription is then immediately accessible in every pharmacy on request.

The pharmacist, who is logged on to the system through the sales software or through the "X-Road" web portal, identifies a person using his/her ID card and receives the prescription from the central database. Patients have the possibility to follow the log attached to every prescription and see when and who has accessed the data. Information about the purchase is submitted to the Digital Health Record. Furthermore, the system can provide an overview of the prescriptions issued for a patient by other doctors and the actual purchasing information regarding these prescriptions.

Patients no longer have to worry about carrying or losing the paper prescription. Another major advantage of the system is that patients with chronic illnesses who need a new prescription for their regular medication would only have to contact their doctor by e-mail, Skype or phone, and the doctor can issue refills with just a couple of mouse clicks.

According to the survey "Citizens' satisfaction with health and healthcare", 97% of the digital prescriptions users are satisfied with the service.

Finns: why can't we learn from Estonia?

"Finns tend to be conservative. At the same time, Sitra commissioned a study where it asked people about their readiness to use e-healthcare and this readiness was high. People often talk about why things are not moving forward in Finland, and why they can't learn from the Estonian example."

Tiik says, with a smile, "I have been asked how to get hold of Estonian ID-cards so that Finns could also use the same services. And they were serious!"

Estonians often tend to compare themselves to Latvia and Lithuania. According to Tiik, in the field of e-healthcare Lithuania ranks last and Latvia somewhere in the middle in Europe. Our starting positions were the same. Why did Estonia do so well? The answer seems to lie in good management.

"Estonia established the e-Health Foundation, which was one of the biggest successes in guaranteeing that e-health initiatives would be implemented." Tiik emphasizes that countries with clear-cut management structures have been the ones to achieve success in e-healthcare. Countries with more diluted management structures have not done as well. "I can log online wherever I am and renew a prescription in Denmark or in Holland. I can access my health data regardless of where I happen to be. Patients have the same rights as doctors: they can see who has viewed their data. We Estonians already take this for granted, but for many other countries it is in the realm of science fiction!"

E-healthcare is the only solution

In a few years, according to Tiik, there will be a much larger deficit in healthcare workers than today, as no European country is able to educate and train the necessary number of medical personnel. People live longer and thus the number of people suffering from chronic illnesses is also on the rise.

"Until now there has been talk about health improving in relation to how much money is spent in medical care. But it would be more effective to direct these sums into health promotion, as what we are doing today is dealing with consequences. Developing technologies are actually helping patients to live longer by helping themselves without doctors. Doctors and nurses will just have the role of doing regular check-ups, giving recommendations – and this too can be done virtually. If used right, technology can deal with about 80% of health-related issues and perhaps 20% will remain in the domain of traditional medical care in the future."

Although he is an optimistic visionary, Tiik emphasises that this is not utopian, and that many people believe today that the old methods will lead us to a dead-end.

"The countries that are already moving in this direction and understand the problem will have an easier time in the future surviving the collapse. Promoting e-healthcare is one of the ways to make the transfer smoother and less painful."

Continues to run his general practice on Vormsi Island

Despite his demanding job in Finland, Madis Tiik is still a local doctor on Vormsi Island in Estonia. He is convinced that medical advice can be given without seeing the patient. But at least once a week he sees patients in person in his practice. At other times, he uses Skype to interact with the nurse at his office, renew prescriptions and give consultations. Tiik says it would not be right for him to go to his

office on Vormsi five days a week and just see five patients during that time – it would be a waste of resources. The nurse is present all the time and the island also has an emergency service.

"When necessary, I talk to clients via e-mail, but "typical" patients who have chronic illnesses receive appropriate treatment from the nurse," he explains.



The small “testing polygon” of Estonia has recently become a fertile ground for electric cars: the country is the first in the world to have a national network of quick charging stations, and the state supports the purchase of electric cars with 18,000 Euro per car. **Jarmo Tuisk**, Head of the Estonian Electric Mobility Programme (ELMO) at Kredex, talks about how the usage of electric cars has taken off.

Text: **TOIVO TÄNAVSUU**

Estonia Waiting for New Electric Cars from Producers

What is your evaluation of the ELMO programme?

In 2012, the sale of electric cars in Estonia exceeded our expectations and the same was true for the first quarter of 2013. In the second and third quarters, we expected Renault to come to the market with its electric cars, but the company postponed this indefinitely. If there are no new models, the sales will suffer. Unfortunately these are difficult economic times for car producers. Thanks to this project, Estonia has received international recognition in this field. Estonia has become better known. We have been able to learn from this project because we didn't have a ready-made solution and had to create it from scratch. Now other countries come to us to learn how we created our electric mobility programme, and how it

got started. For example, Japanese, Czechs, Hungarians, Poles, Dutch, Norwegians, Finns, Latvians and Lithuanians have all visited us to learn from our experiences.

You have also driven an electric car for some time. What has this experience been like?

Recently, I travelled in a Nissan Leaf from Tallinn to Viljandi (160 km). I charged the car before the drive and I charged it in Viljandi: the total cost of the trip was 6.5 Euro!

Weren't you nervous about the battery running out?

I tested out different driving styles. My speed on the way to Viljandi was 85-90 km/h (the

maximum speed on Estonian roads is 90 km/h). On my return, I was driving 90-95 km/h like the other vehicles. A speed difference of 10 km adds 10% savings on energy. But I only saved three minutes. Therefore, it is a matter of choice whether you drive a little bit slower and stay in the way of other vehicles or a little bit faster and make a three-minute charging stop somewhere on the road. It does not really make that big of a difference.

In terms of the battery, the Leaf is really a proper car. You do not achieve the same autonomy as with a car running on petrol and you always have to plan your trips: with an electric car you have to think more about where you are driving and how. In winter, the electric car is the second car of the family. In summer, there are no restrictions with the electric car that I have noticed.

What do the owners of electric cars in Estonia think of them?

By spring 2013 there were nearly 650 electric cars in Estonia, 500 of them used by social workers (Mitsubishi MiEVs) and the rest in private use (including the Nissan Leaf). In May 2013 Kredex published research on the usage of electric cars in Estonia, which among other things showed that:

The first winter when a significant number of electric cars drove on Estonian roads is behind us. Despite the long winter months, the evaluation of electric cars by users has been generally positive.

A quarter of electric car users drive their cars every day, and two-thirds almost every day. The normal distance travelled in winter was 30-50 km per day.

58% of respondents considered the distance which could be effectively covered in an electric car in winter to be 30-60km. This can be increased mostly by decreasing or optimising the heat or choosing the optimal speed.

Cars are mostly charged at night. In 78% of cases, the cars are charged at the place of work using a regular plug – this mostly applies to cars used by social workers. Private users charge their cars in 76% of the cases at home using regular plugs. Only 5% use quick charging stations as their regular charging places.

52% of respondents are satisfied with the availability of quick charging stations, 38% are not satisfied but are able to manage and 11% are not happy with the current situation. Of private respondents, 68% are happy with the situation.

Half of the private individuals believe that electric cars are well-suited for winter conditions, and 8% think that they are not suited. In general, social workers consider the suitability for winter conditions to be much worse.

73% of electric car users are satisfied with their cars or mostly satisfied, and a fourth of the users tend to be not satisfied.

The biggest problems of the electric car for users are the small distances travelled and the small size of the battery. Users see the car as mostly suited for travelling in residential areas



A network of quick charging stations was set up in Estonia over half a year ago. What has your experience of this been like?

The network is there and today one electric car is sold per every thousand cars (in total there are about 650 electric cars in Estonia). We are second in Europe on this indicator. Perhaps Holland has surpassed us this year because they have a really strong incentive programme.

In Estonia, the state, through the Kredex foundation, pays up to 18,000 euros per electric car purchase. Will this programme continue?

We are not about to change it soon. The financing of the programme will run out at the end of 2014, after which the support will no longer come from the money received from the selling of our CO₂ quota.

The price gap between a normal car and an electric car is decreasing but at least until the end of this decade the electric car will still be more expensive. It would make sense for the support payments to decrease gradually, or to introduce an additional tax for CO₂ heavy cars, like in Norway. It is also possible to ask people who wish to sell their “polluting” cars to subsidize “clean” cars. But it makes no sense to just continue the method of paying half of the cost of the electric car by the state forever.

Has ELMO helped the development of our economy? Have new companies been created?

Yes indeed. For example, in the field of infrastructure, we could actually export our solutions, as there are more and more investments in the infrastructure in Europe, where people are looking for ready-made solutions: payment collection, customer administration, and adapting IT systems to the new environment. There is potential here.

What are the main challenges of the programme?

You have to coordinate many stakeholders at once, starting with public relations and ending with the fellows connecting the cables. I have tried to be honest when talking to the public about electric cars, but it may seem like it is a big hype produced by the state. As if we are saying: this is the future, come buy now!

What signals have you got from the world?

We are considered to be opinion leaders. We are invited to conferences to speak about the issues related to developing the total ecosystem of electric cars, how the state can manage to bring electric cars to the market, what the components are and what the best combinations are. Everyone is surprised to see how many different aspects we have managed to deal with simultaneously. This has required a start-up mindset! There is no point in talking about the theoretical aspects endlessly.



What did Estonia do differently?

In many countries, electric mobility has been initiated at the grass-roots level, starting with small demo projects. In Estonia it has been top down.

From the bottom up is of course great: it prepares the mindset of a society. But problems occur when there is not enough volume to make it work. In Sweden, they have very cute small projects where they install a couple of charging stations on one or two roads. But when I am in Stockholm with my electric car what use is it to me to know that somewhere in the middle of nowhere there are a couple of chargers with different payment systems? It does not provide me with a sense of security. So the thought tends to be: let them play with their small initiatives.

In Norway, they have many grass-roots network projects. But their problem is that each network has its own cards and payment systems. Can you imagine having twenty different mobile operators in Estonia and you would need to roam from one network to another, but roaming isn't possible!

The Norwegians were here in spring to learn from our experience. They have a lot of electric cars and they all operate in the vicinity of Oslo. There are also plenty of charging points. They don't attempt to cover the whole country, but just a region. It would be the same if we just created a network around Tallinn, and then around Tartu and the larger transport corridors.

How many quick charging stations are there in Europe?

When you leave Estonia, it is practically empty until Belgium. The Czechs have been active but we don't know if they will reach the point of building a network. The Latvian Prime Minister has said that they should do it like the Estonians have done it. Germans have said that they will not do anything before their "charging standard" is ready and the cars are on the market. They are not allowing the Japanese to enter their market. Holland is active. Norway has supported green transport for a long time. Denmark also seems to be green, but has not really gone from words to action yet.

A new electric car sharing service is currently being developed in Estonia. Can you say a few words about that?

We started to plan this a year ago, when we received feedback from the market that consumers thought electric cars were great but they were afraid to buy first generation technology. Then we thought we would put the cars on the streets and the people could pay on a per-minute basis. Our idea is to promote electric cars. To say to consumers: test it out, drive and if you like it, buy it! But this kind of innovative rental system seems to be best suited for city residents.

In Tallinn, this service includes 20 cars and there are four in Tartu. We make sure that there are always vehicles available at the bus stations of big business centres, such as the Viru Centre, the Ülemiste Tehnopol Science Park and the Tammsaare Business Centre. You can check on a map where a car is, book it online, and use your mobile phone to open the doors. You get in and drive and the minutes tick away. Then you are sent a monthly bill.

Who could benefit from this service?

The main target group is people who come to Tallinn or Tartu on a bus and need to drive around the city. Then there are business users who need cars to run quick errands. Thirdly, there are residents of the city centre or the Old Town who need cars occasionally but for whom it is inconvenient to keep cars near their homes.

In a way, the state is entering the car rental market this way, selecting the best operator through public procurement. The deadline for us is four years – then we will exit the business. By then there will be more electric cars on the streets and more people will have test-driven them. If we are making a profit, we can sell the business.

Isn't there a risk of queues developing at charging stations?

The statistical probability is very low. But in Tallinn this might happen soon. In general, the network is used all over Estonia, mostly thanks to social workers (who are driving the 500 Mitsubishi MiEVs which were bought by the state with the CO₂ quota). In good locations in Tallinn, there should be room for private investors to invest in charging stations.





Electric cars start to light up our households

In addition to the US and Japan, beginning this year Nissan will also produce its most popular electric car in Europe – in the Sunderland factory in Great Britain.

John Martin, Vice President of Nissan said in a recent interview with the weekly *Eesti Ekspress* that 94% of Leaf buyers are satisfied or very satisfied with their cars. The Leaf is mostly purchased as a second family car and is ideally suited to this role.

For winter heating, Martin recommends that Leaf owners use a pre-heating mobile app. Then the energy does not come from the battery but from the electricity network.

Martin claims the Leaf battery already holds the amount of energy needed for two to three days of living in a four-member household, including all domestic appliances, heating and lighting, and there is still energy left over. The engineers at Nissan are researching how to improve the structure of electrodes in the battery to enable them to supply more energy. But Martin says this cannot come at the

expense of safety. We are not dealing with mobile phones here! It is a car and people have to survive in it in floods, thunderstorms or car crashes! Of course the battery could supply energy for four days instead of two or three, but this would come at the cost of safety.

“We have created a short-cut by inserting a 15-centimetre needle into the Leaf battery – and it only leaked a little water. We have used the Leaf to drive through a flooded channel; the water reached the windows and the car kept driving as if nothing had happened,” said Martin.

He said the biggest challenge for them is relieving people’s anxiety about the distances the car can travel and convincing them that it was a good deal to buy an electric car. “We are trying to introduce a new technology into a society which has been used to the internal combustion engine since Gottlieb Daimler invented it in the 1890s.

But families who drive to work and take the kids places are happy about saving 100 euros on petrol every week! And electric cars do not

break down. They have very few moving and ageing parts. There are no rods, pistons and other gadgets. And the maintenance costs are much lower over the life of the car than in the case of a regular car,” said Martin.

In ten years, the Leaf batteries will hold 70-75% more electricity. This is perhaps not enough to drive but it will be enough for the household. Many houses today have solar panels and they are so effective that they collect energy even on cloudy days. When you take the battery out of the car, you can reuse it by putting battery packs together to store solar energy.

The Japanese are already using the Leaf to provide their households with energy. When there was an earthquake and tsunami in Japan, Nissan sent many Leafs to the area as everything except the electricity grid had broken down. Petrol stations were flooded with mud and salt, which meant that the petrol could no longer be used. Nissan made a new special car loaded with battery packs, which were used, for example, to support the electricity supply in hospitals.

UniSCADA - The Next Generation Smart Home Solution is Here

Uniflex Systems, the Estonian technology company behind UniSCADA™, has created **a solution which really stands out from the competition**

“Everything related to home and building automation today is on the level of yesterday at best”, says Neeme Takis, CEO of Uniflex Systems. “The smart building and smart home applications available today are either too simple (to the point of being useless) or too complex. The latter are very expensive and, as a result, smart building automation applications are found in office buildings only. But, even then, coordinating different subsystems (heating, cooling, ventilation, lights, access etc.) is rarely on the level it could and should be today, in terms of integration, usability and usefulness.”

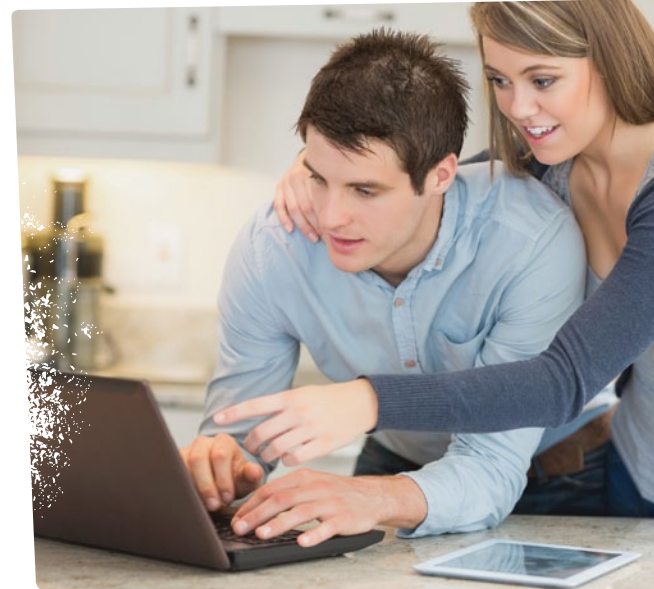
Cost vs. Performance has always been a major issue in the field of home and building automation. There are three traditional problems here, and UniSCADA, a new technology that Takis and his team have created, claims to address them all successfully. Here’s a quick summary of the three problems:

Dumb controllers from yesterday

The “workhorses” carrying out the automation tasks are programmable automation controllers. They have inputs to sense the environment and outputs to control the environment. These controllers are reliable, but very limited in their processing power, memory and communication channels. They make simple decisions that are based on rules that don’t change, and all information to make a decision must come from the sensors connected to the same controller. But if rule validity is a function of another rule which depends on external data (e.g. a weather forecast pulled from the Internet), these simple controllers become useless.

Pre-Internet communication protocols

To fix the first problem, a seemingly obvious solution is to form a cluster of controllers and connect them to a server. This is possible but adds complexity. Yet the biggest problem in such dynamic workload sharing may be surprising: there is no common language for machine-to-machine communications. Competing communication protocols are often incompatible, and the outcome is messy. Shockingly, some of the protocols still widely in use today were developed before the Internet era. Apart from other shortcomings, they have no built-in security for use over the Internet.



Outdated proprietary hardware and software

Globally, the industrial controller systems market is dominated by a few big companies. To protect huge capital investments, mainly made pre-GFC, they only use their own proprietary hardware, designed 20 years ago. Naturally, this hardware can only run their own secret software, written in their own programming language, both developed 30 years ago. It’s no surprise that these big players actively discourage their customers from looking into new automation technologies. They know that a dramatic drop in the cost of automation means an equally dramatic drop in their revenues.

Why and how was UniSCADA™ born?

One beautiful day in 2011, while preparing a cost quote of a multi-site automation project for an industrial client in Estonia, Takis noticed that all of the above problems regarding hardware, software, communication protocols and controllers could be solved if the problematic hardware and software were replaced by some Android-based smartphones with some specific, cleverly designed software. Naturally, a lot of design and programming work would have to be done before a smartphone could ever become a redundant automation device. But to Takis, an engineer with degrees both in automation and electrical engineering, and a top specialist with 37 years of experience in everything from satellite control communications to advanced Unix programming (not to mention being the entrepreneur who brought the first commercial Internet link to Estonia in the nineties), this was just the challenge he was waiting for.

The initial design was ready by 2012 and development work with the new Android-based automation controller could finally begin. Today, the first 27 pilot devices based on specially tested Sony-Ericsson products have been installed into waste-water pumping stations in the Haapsalu region of western Estonia.

“We’re glad that NASA is now using Android-based smartphones in their new low-cost cube satellites going into orbit”, says Neeme Takis. “This makes it easier for us to convince and encourage sceptical customers who are being told by our competitors that Android is not safe. If it’s safe enough for NASA, it should be safe enough for our customers, no matter what the ‘Old School’ guys tell them.”

Text: **HOLGER ROONEMAA**

Erik Kruse: Welcome to the New, Networked Society!

Even though you might feel that you are already connected through every possible device and that there is no room to be even more networked, it is still just the very beginning, says Erik Kruse, Ericsson's strategic Marketing Manager and Networked Society Evangelist. Have you ever thought of, let's say, your mother's refrigerator sending you a message when it hasn't been opened for eight hours? This is just one of the very simple new services that the future holds for us. Life in Estonia turned to Erik Kruse to ask for more information.

What exactly is the concept of the networked society?

The networked society is our vision of the future state of society. It is a vision based on how technology is transforming us as individuals, businesses and society. We see the emergence of connecting all the people and making them networked. The same is happening now with machine-to-machine communication and it is a completely new type of efficiency. We also see totally new ways of organizing and orchestrating capabilities in society. We can do things in a different and more efficient way, with the emergence of totally new services based on broadband mobility.

If you look on a global scale, we have changed as a culture, because thanks to the information and communications technology we are much more collaborative, and we are sharing much more information and knowledge. This is an important cultural moment. Think about Wikipedia. It has completely changed the way people collaborate, because now you have access to free encyclopedic knowledge. Think about Kickstarter, where simple people are investing in start-ups to carry out their fantastic ideas. Collaboration is an extremely important change agent. Also, enterprises need to collaborate more and more. Procter & Gamble has more than 50% of their new product initiative coming from outside of the company. That is a dramatic shift: from having internal innovation only to opening up to external innovation and collaboration.

On a society level, we see, first of all, how we can address some of the global challenges by thinking how we can use digital infrastructure to create totally new services and solutions to some of the major challenges we face.



Can you give me some examples of these kinds of new services?

We see health care being offered in new ways. For example, a doctor may be sitting in one location, but can learn about the patient from connected blood pressure devices and you can have a video conversation with the doctor. You can have remote health care. We can offer people the opportunity to stay at home but still be able to have the same quality of health care through connected devices.

Or let's take another example. We see how the car industry will be transformed by connecting the car and offering completely new services for you as an end-user but also extracting data from sensors in the car. There will be completely new safety methods, because the sensors measure how you drive and give you feedback. Also cars will communicate themselves. If you press the brake, the car behind you can get a warning that you are braking.

In which state of the process of becoming a networked society are we currently?

I think Western countries are still only on the brink of the networked society. We see how Estonia is really advancing in

e-Government services and organizing governmental services in a new way. Societies like Sweden, with good broadband penetration, are thinking about how to network different processes. On the global scale, however, that has not developed very far yet, because you need to have basic infrastructure. At the same time, such services as mobile payments are advancing very fast in African countries because they don't have any legacy systems. On a global scale, it will take 10 or 20 years, but I think some parts of the globe will develop much faster.

Is it really possible to become even more networked? I feel like I am already connected 24/7.

I think that maybe you as an individual may feel that way now, but the society will surely see new types of connected devices. There will be loads of new services, so I am quite sure that you will be even more networked than you are today. Maybe when you replace your old washing machine, the new one will be networked. You could download new washing programmes.



Kristjan Kuhi

Projects of Ericsson Estonia



Life in Estonia talked to **Kristjan Kuhi**, a senior engineer at the Consulting and System Integration Department of Ericsson Estonia, about the projects which the employees of the company's Tallinn office have helped to develop.



So what you mean is that maybe I won't even recognize that a new device is connected, because I just assume it is.

Yes exactly. You will take it for granted just as you assume that from power outlets you can get electricity. I'll tell you a story about my son. When we drove from Uppsala to a small town in the southern part of Sweden, he took for granted that we had wifi in the car. Five years ago that was not possible. The last round of football matches were played in the English Premier League this Sunday and my son actually watched four different matches live at the same time. Each match was on a different device: a smartphone, tablet, laptop and TV.

But what if some people or some societies cannot handle the pace of new technology and they are not able to adopt it?

I think inclusion is extremely important in that matter. What you can see with today's kids is that they need to relearn all the time as new systems pop up. That wasn't the case in the 1960s. In some cases, we can also hide the complexity and even the technology. Let's take remote health care as an example. My mother would get benefits even if she didn't understand the technology. We can put a sensor in a refrigerator that will send you a warning if the door hasn't been opened for six or eight hours. We have an example from the USA regarding video robots. There is a kid

who cannot go to school because he gets sick all the time, but he can use a robot and be part of the class, chat with friends and talk with teachers. We will see lots of solutions that will hide their complexity.

Where does Ericsson come into play in that regard?

We are, of course, making extremely powerful mobile broadband infrastructure. You can get the services when you have coverage. We are making the technology of digital infrastructure even more robust: increasing coverage, capacity and speed. We also provide our customers with new types of services especially in the machine-to-machine field. We are showing proof of concepts through connected, smart street lights for example. We are testing a system of connected stoplights in a town in Brazil. We can manage the traffic in a totally new way. When a fire truck or ambulance is responding to an emergency, the car and the stoplights can communicate between themselves so that the car always has green lights. We are making smart street lights that also serve as electric car chargers and also reduce energy costs for the city. We are connecting 400,000 containers to change the way we do logistics. There are lots of activities in different areas.

But what about Ericsson's branch in Estonia?

Estonia is very progressive in many areas related to our vision of the Networked Society, and the country is important in our efforts to



For example, Estonian engineers have played a significant role in the development of Smart Grid solutions at the Stockholm Royal Seaport. The Royal Seaport will be an open and dynamic showcase city of innovation, where different smart solutions developed by companies will not only be exhibited, but can be tested on location. In simple terms, a Smart Grid is a new generation electricity grid, where several appliances communicate with each other, exchange critical data, for example about electricity consumption and, if necessary, make correct decisions.

The smart and the regular electric car charging station

Good examples of the Networked Society related projects at Ericsson Estonia are the solutions for charging electric cars. Kristjan Kuhi explains that two prototypes of charging stations have been developed partly in Estonia. Firstly, there is the classical solution, where the key role is played by the charger. In other words, for car users all activities, from charging to paying, take place at the charging station. Secondly, in collaboration with the Swedish Victoria Institute, Volvo and Göteborg Energy,

a solution called ELVIIS has been developed, where the car has been redefined to become the moving electric metre and the smart activity takes place in the car itself. The car notifies the administrative system over a mobile network that charging has taken place. Similarly to regular electric metres, the car calculates how much energy is used and transmits this information. "We could say that, in a way, ELVIIS combines a regular charging outlet with a smart car," explains Kuhi. This means that all decisions about charging and managing this activity are made on the central console of the electric car. For example, the console can show the car owner when and where it makes sense to charge: when it is most effective and where electricity is cheaper. Of course, the system also makes sure that it does not send all electric cars in the area to the same charging station simultaneously, which could lead to grid overload.

Smart street lights warn of danger and transmit 4G

Ericsson's smart street lights proof of concept, which also included Estonian engineers in the development process, is in a different category. Smart street lights can interact with each

other and also with your car. They are able to collect data from the surrounding environment and analyse it for your benefit. This creates various opportunities for new services. "For example, if a lamppost has a multicolour LED module attached to it, one can imagine streets looking like Google Maps. The idea is that you can visualize events/situations on the streets in real life. It is like bringing Google Maps into real life using street lights," explains Kuhi. This means that if there is an accident on the road and the traffic flow is interrupted, a smart street light can notify drivers further away about the situation by turning lights red. Similarly, it is possible to lead drivers to the right route by green lighting in order to avoid traffic jams. One of the more simple and cost-effective solutions is having lamps light up when a vehicle or a pedestrian approaches and turn off when it has passed.

Ericsson engineers have also developed an option of attaching 3G or 4G base stations to street lamps. "This is a very attractive opportunity for telecom companies, because in areas with large numbers of data communication users, e.g. in city centres, you have to share the mobile network with many other users. In order for mobile users to be able

understand e-Government. Ericsson is using some of our cutting edge guys in Estonia to work, for example, on electrical vehicle charging solutions, and we also produce an advanced mobile broadband infrastructure in Tallinn. In the energy sector, we are currently rolling out and running a nationwide smart-metering network for Elektrilevi in Estonia.

Overall, society has a lot to gain from the concept of the networked society?

Absolutely! But it also brings new challenges. Departments need to collaborate in new ways. They need to think about cost benefits. Of course, you have to keep in mind the initial investment needs while considering the new benefits. We need to see how ICT can become a platform for innovation, better services and in the end much more cost-efficiency.

So it is still only the very beginning of the era of the networked society?

In the coming decades, we will see lots of new services. When we see them, they will make sense. But at the same time it is extremely hard to see the impact of them now. Think about how much a smartphone has changed your behaviour. Ten years ago you had to pay 10 dollars for one CD, but now you can have access to millions of songs on Spotify for the same amount of money! I am sure we will see lots of new innovations emerging that we can't even imagine now!



to have fast data transmission, telecommunication companies must install more base stations," explains Kuhi. This, in turn, means setting up a dense network of stations in order to guarantee quality transmission. First a suitable location for the base station needs to be found, and then one needs to pay the owners of the location for its usage. "If base stations are attached to street lights, that lowers costs for telecoms and at least partially helps cover costs for local governments in transferring to new lighting systems," says Kuhi.

In fact, there are an unbelievable number of ways to use street lights. Ericsson engineers have also created a concept which combines the street light with a small weather station in order to measure the air quality, temperature and road conditions at particular locations. And, of course, it is also possible to attach an electric car charging station to a street light. "An advantage of such a charging station is the fact that one does not need to dig up the street to lay new cables. The charger can be installed as a module, and the charging system ensures that the electric grid is not overloaded."

Virtual classrooms make maths easy

Ericsson Estonia engineers are also involved in the process of creating a new technology called web real-time communication (WebRTC), even though the main development is taking place in Sweden. WebRTC makes browser-to-browser video and voice applications possible without separate plug-ins. For example, one no longer needs to install separate software on a computer or phone in order to transfer video or sound. Kuhi says that the technology is already being officially standardized. In parallel, engineers are involved in the development of distributed shared memory services, which enable the synchronisation of different events, such as mouse clicks or keyboard touches across browsers. "For example, if one person moves the Google Maps on their computer, the map simultaneously moves for another person. Or it enables two people to simultaneously draw on a board," says Kuhi. He explains that this new technology is well-suited to the virtual classroom, for teaching and learning, as teachers can easily synchronise presentations of material for students or in e-Health applications

allowing better interaction between patient and a doctor. One of the first prototypes in this field is the maths learning demo which has been also integrated with Estonian ID card and mobile-ID infrastructure. "This project is still a prototype, which means that we are looking for a semi-public place to test it."

Smart meters to Estonian homes

One concrete project is the supply and installation of remotely read electric meters for Estonian electricity consumers. Elektrilevi, the major Estonian electricity distribution network operator, signed a contract with Ericsson last year, on the basis of which the company will install 650,000 smart meters for Estonian consumers. Within the next three years such electric meters will reach all Estonian electricity subscribers, and the meters will interact via electric cables or use 2G or 3G propagation. Such meters make it possible to receive hourly-based information about electricity consumption, and electricity producers will have the opportunity to develop new price groups better suited to the consumption patterns of consumers.

Text: TOIVO TÄNAVSUU / Photos: JAANAR NIKKER

Lightmiles: Internet Based on Light is No Longer Light Years Away

Ahto Pär

Estonian and Japanese IT specialists have joined forces in the company Lightmiles, which aims to bring speedy Internet connection to the world via light. The project was born out of a Japanese man's weird and wonderful career adventures and his discovery of Estonia.

People's lives sometimes take strange turns. A few years ago it seemed to Fumiyasu Sunagawa, a middle-aged man from Okinawa, Japan that the island of 1.3 million inhabitants had become too small for him. He needed new challenges. He had worked in the oil business and created a Skype-like solution and wireless last mile solution for the civilians working on the US military bases on the island, and for their family members. That was back in 2001. He felt at home in data communications and had contacts with the locally based company Lampserve, which develops VLC (visible light communication) future technology, which makes data communication through light possible. It was the wireless last mile solution that brought him together with Koichiro Yutaka, the CEO of Lampserve.

Sunagawa claims he picked up a map of the world and started to select countries on the basis of such criteria as attractiveness of the business environment, economic development, IT infrastructure, living quality etc. In the end he was left with two: Scotland and Estonia.

Foreign media were praising e-Estonia and Sunagawa received help from the professional Estonian sumo wrestler Baruto in "opening a few doors". At the end of 2011, Sunagawa arrived in Tallinn without a return ticket, with the aim of settling down here!

Sunagawa did not know much about Estonia before his arrival. As a 14-year-old, he had read a book on the Baltic states and the thought of travelling to Estonia had crossed his mind. Once he had done a bit more research on Estonia, he was amazed to find out that it had quite a few things in common with the island of Okinawa. They have about the same population size, both have been occupied in one way or another, and both have historically well-developed sea commerce.

At first sight, it seems astonishing that Sunagawa does not speak English and he goes about his daily business in Estonia with his interpreter Janne Funk. But this is supposed to be quite common among Japanese entrepreneurs: according to Sunagawa, 90% of Japanese companies have never done business in English, and among them there are such true gems as the VLC technology developer Lampserve.

Lampserve was looking for a technology partner that would produce a circuit board for electronic components of a product prototype. They looked for partners in Asia and the United States but, thanks to

Sunagawa, they finally found what they were looking for in Estonia. As the collaboration between the Estonians and the Japanese was smooth, Lampserve decided to take it one step further. In March 2013, Lightmiles was founded: a company jointly owned by Sunagawa, the founder and CEO of Lampserve – Koichiro Yutaka – and some Estonian IT specialists. The aim of the company is to unite the forces of Okinawa engineers and Estonian IT business experts in order to commercialize the technology. The Japanese side is responsible for producing the hardware and base technology, and the Estonians are responsible for business support (e.g. negotiations with potential clients, such as telecom companies) and the software required for the technology. Estonia will be the testing ground for the technology and is where the first prototypes will be produced. Among other people involved in Lightmiles is Raul Vahisalu, who worked for six years as the Research and Development Manager of EMT, the largest Estonian mobile operator and a part of TeliaSonera.

Ahto Päril, Executive Director of Lightmiles, says that this technology has great potential: data communication takes place via LED lamps. 'It is much cheaper than laying underground fiber optic cables and it is also much faster than wifi, wimax or other similar 'last kilometre' technologies which spread through air'. 'Päril claims that there are no companies in the world today who are able to offer data communication based on LED in open air environment and at relevant speeds, a solution that Lightmiles aims to pioneer with.

Data communication based on light wave-lengths dates back to the 19th century, when the scientist Alexander Graham Bell invented the photophone in Washington DC; the photophone transmitted speech via modulated sunlight over several hundred meters. The same scientist, as we know, also invented the telephone.

Tests on data transmissions based on LED lamps started to be run ten years ago at the University of Keio in Japan, and today more people are working on it, mostly on VLC connections in interior locations.

In 2010, scientists in the Siemens and Fraunhofer Institute laboratories achieved 500 megabits per second as the speed of the VLC Internet. Yet we are far from having an Internet based on light. Ahto Päril says that currently it's at the stage of research and development. He claims that the technology of Lampserve differs from that of competitors because even difficult weather conditions or sunlight interfere with the technology. The worst "disturbance" of VLC comes from the sun, but Lampserve technology is able to differentiate between different light sources.

Päril says that VLC could be ideally suited for creating the "last kilometre" of Internet connection in such sparsely populated areas as Estonia. It is much simpler to test this technology in Estonia than in Japan and it has already been done successfully with transmitters 60 metres apart from each other.

Lightmiles is so new that it doesn't even have its own office space yet. Päril says that the cultures of Estonia and Japan are very different, and that a lot of communication in the company takes place via e-mails due to language barriers. At first sight, this may seem funny in Estonia, with its open business environment where most people are able to speak English without problems.

But if things go well, the company may turn out to be a gold mine for all of those involved and a success story for the Estonian smart economy. Something similar happened with the company Modesat Communications, where Estonians turned years of work by Byelorussian radio engineers in modern technology into a business. Last year Modesat was sold at a decent price to a company called Xilinx, which is listed on the US Stock Exchange.

Raul Vahisalu, a member of the Council of Lightmiles, expects that the cooperation between Estonia and Japan will, in the long term, lead to the development of Estonia into a centre of competence in VLC, closer cooperation with the base technology development units of the world's telecom companies and growth in Estonia's export capacity.

In any case, Sunagawa has been so pleasantly surprised by the ease of doing business in Estonia, our flexibility and local life that he has become a promoter of Estonia in Japan. His mission now is to help develop as many Estonian-Japanese business connections as possible.

Sunagawa says that Estonians are quiet by nature, reserved and modest, but also very hard-working. He has noticed that Estonia is not only highly developed in terms of technology and the e-state, but in comparison to Japan Estonians make better use of technology, legislation is better developed and ideas spread more easily.

Sunagawa is a big fan of the Estonian X-Road and considers it to be fantastic that the ID-card which every citizen has is the basis for the e-state. In Japan, e-services are scattered, difficult to administer, costly and not in wide use. For example, the digital signature, digital prescriptions and e-elections, which are normal in Estonia, seem to be "from outer space" to the Japanese.

Sunagawa says that it is unlikely that an Estonian company would want to participate in Japanese state IT procurements, because the contractors themselves often don't know what they want. Sunagawa is convinced that better and more effective IT systems are made in Estonia for less money than in Japan. Another problem in his homeland is that people do not trust the Internet and do not wish to leave delicate personal data there. Estonians certainly have no concerns or prejudices in this regard!



Fumiyasu Sunagawa



Text: **HOLGER ROONEMAA**

ERKKI RAASUKE: **Modern Banks** **were Behind** **the Simplicity of** **Doing E-Business** **in Estonia**

Erkki Raasuke has years of experience in bank management and, for the last year and a half, he has been working as Adviser to the Minister of Economic Affairs and Communications. He sheds light on the reasons why it is so easy to arrange business and financial affairs in Estonia that everything from starting a business to submitting annual reports can be done without getting out of your armchair.

Is it just something that Estonians believe or is it a fact that many finance, banking and business dealings are much simpler and more user-friendly here in comparison to the rest of Europe?

I think both are probably true. In order to have an adequate overview, we should commission specific research or an analysis. A general overview is provided by the doing business index compiled by the World Bank, which evaluates very broad aspects of the business environment. As far as I know, there has not been any more focused research and perhaps that demonstrates that it is not such a critical field. But if we consider how many Estonian companies do business online and, most importantly, how common digital signatures have become, then those two aspects make doing business in Estonia much easier than anywhere else. It is a really comfortable system and I doubt whether it's possible anywhere else to get all of your things done without moving away from your desk.

Are you talking about everything from founding a business to opening a bank account to declaring your taxes on the E-Tax Board?

Exactly.

Why then has it worked out so well here?

I believe that, although it may seem like a boring topic for those of us who are not technology experts, it was digital identification which made it possible to create comfortable solutions in Estonia. Our financial institutions and banks started at a very early stage to work on being able to identify the person doing transactions on the other end of the wire. First code cards came into use and then it naturally developed further. Today everyone has an ID-card and it is not a niche product or a comfortable solution for a few people. We don't even take our passports with us when we travel. Similarly, I consider it very important that we did not have a historical legacy in that area.

I'm glad you bring up the issue of legacy. Do you agree that this was the reason why in the late 1990s Estonian banks had to create totally new solutions for customer relations, and this, in turn, pushed forward the whole aspect of doing e-business in Estonia?

That is probably true. In one way or another organising finances has a great deal to do with the rest of development and here we have been pioneers. In my current job, I have a lot to do with public affairs and X-Road, and there too people agree that the lack of legacy combined with the lack of our own resources, the small market and the opportunity to influence the market have helped to create a unique environment. The kind of all-encompassing opportunities for interaction between private individuals and the state and local governments which exist in Estonia do not exist anywhere else.

Actually there are other countries which could meet those three criteria but they do not have equally fast and user-friendly systems.

That can probably also be explained by the fact that it was a kind of hype in Estonia. For a long period, financial intermediation was a very popular and, in some sense, a privileged field. Lithuanian banking, for example, has never been in the same position. Instead, they hyped the processing industry and retail services. Banking in Estonia did not enjoy elite status, but it received a lot of attention. And technology is very closely linked to it. As banking and the telecom sector were doing really well in Estonia, there was also the desire to have a wider impact and to give something back. From this basis, projects such as "Look@World, which is unique in the global context, were born. In today's context, when everybody is counting their cents, it is difficult to imagine that companies would come together and in a short time create something which has a constructive social impact.

How did this focus on customer and consumer friendliness work during your time at Hansapank/Swedbank?

There was a lot of enthusiasm. Five or six years ago we had the feeling that if we didn't come up with something totally new on our web channels every 18 months, we would be out of the picture. Perhaps we are not there quite yet, but soon we will reach the stage that many countries are already at. In other words, you have to be careful creating new things because if you change something, you at the same time create

confusion for customers, and having angry customers may cancel out any potential benefits.

Interfering with the habits of customers?

Yes, they are used to doing something in a certain way and they find it comfortable. Back then we came from somewhere else. If you didn't propose large-scale innovative solutions, you were in trouble.

Can you compare how the systems of Hansapank and Swedbank differed in Estonia and Sweden at the time of the merger?

The history of the company in Sweden is different. It was the first half of the 1990s, which was the golden era of merged savings banks. By the standards back then, their systems were state of the art. People from other parts of the world came to visit their server rooms, observe how things were organised etc. Things come in waves and since then there have been relatively few innovations and they have a strong legacy. As we came along later from newer platforms and with greater flexibility, we didn't join the mainframe and therefore we had more opportunities. In Sweden, things were less flexible but their base architecture was thought through better than in Estonia. In our system, the customer was central and around the customer there was an endless tangle. Our approach was modest in terms of analytics, reporting and modularity. It was only in 2008 that we realised that our systems were too complex and their cross-influence was growing too large. The two countries just had different peak times. Our approach was more modern but also more rushed.

How important is the customer-friendly and customer-focused approach for foreign investors? Is it a sales argument?

I don't think it is a separate sales argument. But it is a good added bonus once a decision has been made to start a company and do business here. Once the company realises how easy it is to do business here, it is definitely something which helps to keep them here. But I do not think it is the main argument for starting a company in Estonia. That is definitely our tax system, the general evaluation of the economic environment and other important factors. The technological capacity is secondary.

There are also some drops of tar in our pot of honey. For instance the heavy reporting load and the issue of getting work and residence permits. So, there should be plenty of room for development.

This is true. We are in a dynamic environment. It seems to me that in terms of filling in forms and reporting we are still hanging on to baggage from the past. I can say from my experience over the last year and a half that the Estonian state is a bit too heavy on all sorts of registrations and licenses. This is my personal opinion, but if we end up talking about small water vessels or mopeds or other things, those things for me signify something and we are clearly wasting the limited resources of people in our country.



Taavet Hinrikus and Kristo Käärman

Transferwise: A Revolution in Worldwide Currency Transfers

Text: HOLGER ROONEMAA



When the billionaire Richard Branson notices your business and blogs about it, announcing your new service to be a real innovation in banking and finance, then you know you're onto something. This is not a hypothetical case. Two months ago it happened to a company created by two Estonian entrepreneurs, Taavet Hinrikus and Kristo Käärman. TransferWise is a service which revolutionizes worldwide currency transfers, a field which to date has been strictly controlled by the banks.

Attracting Branson's interest is, of course, not the only reason why we are talking about the money transfer service created by Hinrikus and Käärman in this issue. TransferWise was named the best e-solution in Estonia in 2013 and won the best European start-up prize, "Europa", last winter. Yet the company only signalled its growing ambitions at the beginning of May, when it parked a bus offering free soup in front of Skype Estonia offices and later "blocked" the entrance with a shovel loader: if you're fed up, we'll scoop you up! A week later it was announced that six million USD was invested in the company by the Peter Thiel venture capital fund Valar Ventures, confirming that the ambitions of TransferWise were not just the fantasy of its owners. Thiel is one of the founders of PayPal and is also known as the first foreign investor in Facebook.

In a nutshell, TransferWise is a service offering international payments which, like many other internet-based solutions in other fields, works on the peer-to-peer principle. Let's say you need to transfer 1,000 GBP from the UK to Estonia, to make a transfer during which your pounds become euros. If you pay via your bank, you will most likely lose approximately 5% of the entire sum due to transfer costs and the currency exchange rate. TransferWise just takes a transparent transfer fee, starting at £1, and uses the official central exchange rate as the foreign currency exchange rate. The underlying logic is simple: if there are people out there who want to transfer their pounds into euros, there must be other people

who want to do exactly the reverse. This creates the opportunity to leave official exchange bureaus and banks out of the game.

The beginning

Just like many smart ideas which have changed the world, TransferWise came to life because of a practical need. Kristo Käärman had just moved from Estonia to London, where he worked in the investment company Deloitte Management. Taavet Hinrikus, who was then working for Skype (having also been the first paid employee of Skype), also had a lot of business dealings in London. Soon the new acquaintances discovered that they shared a problem. Käärman earned his salary in British pounds and had to make monthly transfers to Estonia in order to pay for his local expenses, and Hinrikus was earning his wages in Estonian kroons but had to make many payments in England. Instead of making regular transfers between countries and thus giving the banks hundreds of euros in exchange costs, the men decided to start exchanging money between themselves. Käärman transferred the required sum from his British account to Hinrikus and Hinrikus transferred the corresponding amount in kroons from his Estonian account to Käärman's Estonian account. They used Reuters to check the exchange rate. Soon the circle of people using this method to exchange money grew bigger, and TransferWise was born.

Käärman and Hinrikus consider the real beginning of TransferWise to be the introductory article published in TechCrunch in early 2011. "Fifteen minutes later, the first customer transferred 2,000 GBP into our account, and it became crystal clear that we had to start building up our business," recalls Käärman. To date, transfers in the value of 125 million GBP have been made using TransferWise, and five million GBP of customer's money has been saved. The fact that more than half of this sum has been earned in the last six months demonstrates the rapid growth of the company. The company's monthly growth is 20-30 per cent and, in addition to the original transfers in euros and pounds, it is today possible to make transfers involving US, Polish, Swedish, Danish and Norwegian currencies, and the company has promised that soon people will be able to make transfers from US dollars to all European currencies. They also see that there is an existing need to exchange Canadian, Australian, Hong Kong and Singapore dollars and Russian, Ukrainian, Israeli and Turkish currencies.

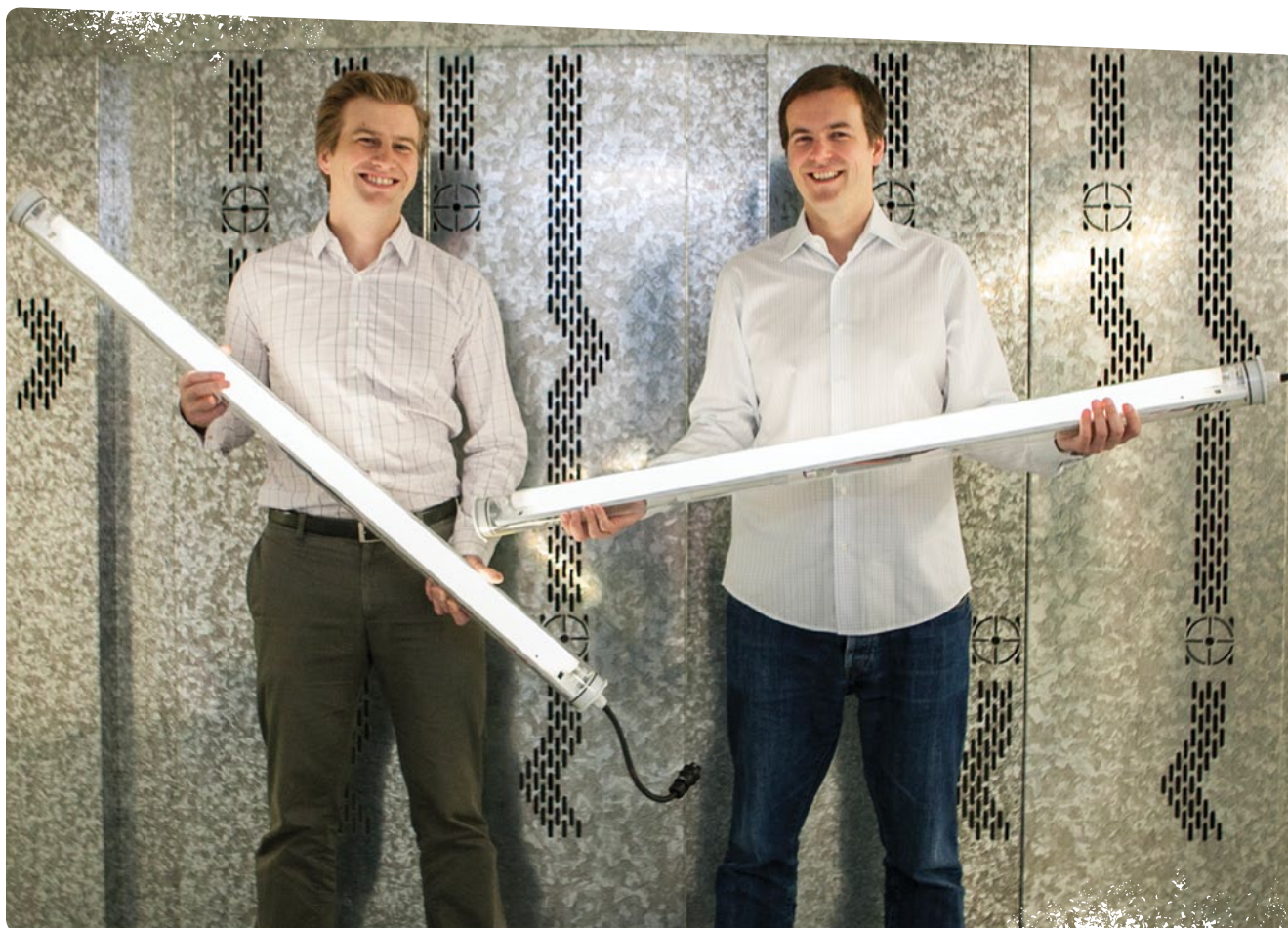
Future plans

Hinrikus says that the new investment will help them to realize their development plans: until now the company has focused on the UK market and has offered its service in English; it hopes to enter the German, Spanish, French and Italian markets within a year. The profits will also be used to enlarge the team. Whereas two years ago the company staff included just the two of them, today they employ 35 people, with offices in London and Tallinn, and hope to have 55 people on their payroll by the end of the year.

Kristo Käärman emphasizes that although TransferWise has already made currency exchange as simple and comfortable as possible, they still have a long way to go. "To illustrate, we can compare traditional currency transfers in banks to a 56kbps modem. TransferWise has developed the service to the ADSL level. Yet other industries outside banking have already invented the mobile Internet and there is a lot of catching up to do for the entire sector." At the same time, he confirms that building up the company and developing the concept was spurred on by two concrete factors: first making international money transfers in England was expensive, complicated and outdated and, secondly, it was logical, comfortable and sensible to use banking services in Estonia.

He admits that he knows several bankers who are already using the services of TransferWise. "The best feedback we got from an English banker after the demo of our payment speed at Finovate was: 'it is physically not possible; you are faking it.' I know many other bankers in England who are using the services of TransferWise for their personal needs."

It is also noteworthy that TransferWise has not paid any attention to classical marketing techniques. The growth has come organically, through recommendations from existing customers and by spreading the word via social media: Facebook and Twitter. Now the company plans to consider classical marketing, in order to see its possible impact. By the way, the six million dollar investment was in large part transferred via TransferWise, and the finance specialists of the investors were dumbstruck by how easy it was to save 3% on their investment. "\$180K is a huge sum to just throw away," says Käärman.





Jan Laksperre

Did you know that the current central IT system for tax accounting and the Estonian E-Tax Board developed on its basis, which has received international recognition and also some envious looks, was developed four years ago by just twenty IT engineers in an office located on the outskirts of Tallinn city centre?



Heiki K  bbar

THE SECRETS OF THE ESTONIAN E-TAX BOARD – Willingness to Take Risks, Trust and the High Standard of IT



J  ri Kirme

The innovative solution—which is still unique in the world—cost the Estonian state 40 million kroons, the equivalent of approximately 2.5 million euros and, in the four subsequent years, an equal sum has been invested in developing the system. In comparison, Finland is in the process of developing a new e-tax system and the first version is estimated to cost 62 million euros. “At the same time, their system will be much less automated than ours,” says Heiki K  bbar, Director of Icefire, which created the Estonian E-Tax Board.

Icefire was founded in the summer of 2002, when four leading IT experts of Hansapank (today Swedbank) decided to leave the banking sector and start their own company. “We had a great life in Hansapank, but not every builder makes a good housekeeper,” explains K  bbar. By 2002, many large projects in developing the IT systems of the bank had been completed and various bank mergers

in Estonia and the other Baltic countries were also in the past. With the new management of Swedbank, a routine of quality management and looking for synergy began. “We simply got bored,” recalls K  bbar, who used to be responsible for the development of such electronic channels as the hanza.net internet bank, the business client internet bank Telhansa and card terminal systems at Hansapank. Other former colleagues who joined him in creating the new company were three energetic ladies: Liivi Kompus, the former Head of IT O&M, Kadri Trahov, an IT specialist at Hansabank Markets, and Vilve Vene, the Head of IT Development at Hansapank who had been the person in charge of developing the whole IT system of Hansapank from scratch.

K  bbar confirms that the experience of building up the IT systems of Hansapank really influenced the future activity of Icefire. He adds

that even the systems of Hansapank back then were more advanced than the IT solutions in our neighbouring states and western Europe. The basic reason why Estonia has a very modern and user-friendly finance system is simple: “In 1994, the salary of an average Estonian programmer was four to five times smaller than the cost of the computer that the programmer worked on. In other words, it was much cheaper to build our own, totally new IT systems with their own logic instead of buying solutions from the rest of the world. If we had wanted the systems which were standard elsewhere, we would have had to pay ten times more for a 15-year-old solution,” explains K  bbar. Secondly, he emphasises that even back then the Institute of Cybernetics of the Tallinn University of Technology and the University of Tartu offered excellent education in basic IT. So the banks were able to employ the very best IT people around.



Innovative projects for Skype and Elion

The E-Tax Board is not the biggest project in terms of data volume and time spent on it: that would be the revenue journaling system created for Skype before its planned IPO in 2010. Heiki Kõbar explains that, before the solution created by Icefire, Skype used to do its accounts more or less by hand, but as a result of their solution this process has been fully automated. Skype is still using the solution created by them.



The company also created an innovative solution for the biggest Estonian telecom and IT service provider, Elion, and this was for their services on the leasing market. "It works like this: the customer's credit status is calculated automatically," says Jan Laksper, who managed the project for the company. Whereas other companies who offer the service of paying in instalments have to analyse the customer's application partially by hand and it may take a few days, Elion's customers can get this contract in just a few moments. "The company automatically receives a message from Elion that they have taken over the commitment and can release the goods to the customer immediately. There are no delays," explains Laksper.

It is no surprise then that, in 2007, Icefire won the commission to develop a new generation system for tax accounting purposes. The Estonian Tax and Customs Board later went on to win the Finnish annual Award for Quality Innovation and Jüri Kirme, who had been in charge of the project at Icefire, received an honorary award from the Estonian Tax and Customs Board. Most of us know that in Estonia pre-filled tax declarations can be submitted in just a few minutes and with a few clicks of a mouse, but that is just one part of the e-Tax Board system created by Icefire. Firstly, they totally redeveloped the concept of the e-Tax Board, moving from the old cash-based accounting to accrual-based accounting and started to register detailed financial transfers at the moment of submitting declarations. According to Jüri Kirme, this significantly improved the state's ability to keep track of its finances: manage debts, and monitor which declarations have been submitted, filled in and paid for. "Secondly, before the new system the state was counting its public revenues in a roundabout way and this process could last for weeks. It was done partially by hand and later it was impossible to tell what certain general figures stood for. We created an automatic system which was faster and linked data. Now we can look at each general figure and identify what it is made up of in detail," explains Kirme.

Thirdly and equally importantly, a single prepayment account for taxes was created for each tax payer. Until then each Tax and Customs Board customer had to pay different tax types using different reference numbers and, in order to pay for a debt outstanding on one tax type using the

pre-paid sum of another tax type, one had to submit and the Tax Board had to process a significant number of applications related to clearing payments and debts between different types of taxes. This process of balancing out the different tax types is now fully automated.

Icefire does not take all the credit for the E-Tax Board but maintain that the new concept was created in an excellent collaboration with the Tax and Customs Board. Heiki Kõbar emphasises that it would have been an entirely different result if they had decided to buy an already existing solution from elsewhere in the world. "Estonia was fortunate that there were innovative people at the Tax and Customs Board in charge of this project. It was also great that this job was tailor-made for Estonia and corresponded precisely to our needs and vision."

Today Icefire continues to work on the development of the E-Tax Board. At the beginning of next year, a new part of the system is set to go live, based on which a large proportion of all of the state's tax claims will automatically go through the Tax Board and the prepayment tax account. This means that if a court, the Prosecutor's Office or Land Registry has a claim against somebody, it will move through the Tax Board and will be directly taken from the prepayment account.

But why does Estonia have such an E-Tax Board when other countries don't? Heiki Kõbar mentions the three main ingredients: the courage to take risks, the high level of IT in the country and trust. "Many things about IT tend to be mystified, but it really is not rocket science!"



The founders and co-owners of Icefire: Jüri Kirme, Jan Laksper, Vilve Vene and Heiki Kõbar

PORTFOLIO_NAVITROLLA



Dodger | 50 x 110 | oil on canvas, 2009



Crossroads | 35 x 50 | oil on canvas, 2009



A Very Smart Cat Lives in the Monster Birch | 37 x 48 | oil on canvas, 2002



Dance | 100 x 100 | oil on canvas, 2012



Where The Clouds Rest | 100 x 100 | oil on canvas, 2010



The Place With No Name | 70 x 95 | oil on canvas, 2012



The Last Free Monkeys | 33 x 24 | oil on canvas, 2001



Confused | 40 x 40 | oil on canvas, 2010



Text: ANNELIIS AUNAPUU / Photos: HEIKKI LEIS

Navitrolla - the Man who Paints Freedom

Estonians know Navitrolla as the guy who paints funny pictures loved by his countrymen and tourists alike. The artist himself claims that he is not a joker and then bursts into infectious laughter whilst his eyes remain totally serious.



Hard Rocks | 60 x 75 | oil on canvas, 2003

His paintings tend to make viewers happy, even if he has not planned on making a joke. The fact is that in each picture the artist paints a grotesque, strange detail or creature which totally captures one's attention. Once you have viewed the story in the picture, you are ready to take in the peace and tranquillity of the broad nature motif in the background.

Dot with an i or i with a dot?

The artist however claims that it is actually not just the background. In fact, he has painted the wonderful nature of Võrumaa and the story is the little extra bit. This little extra bit may be the penguins waddling to the foreground, a funny rabbit, a weird white dog (which was common in Navitrolla's earlier paintings), or a giraffe with a really long neck (in order to reach dreams), or a zebra transformed into a cow or ... the "three fat mischiefs".

Even if he considered himself to be a serious landscape artist (which he definitely doesn't), that would be an overly simplistic view. There is just too much of a story in his works. His pictures are like illustrations for the stories he has created. For example, the painting "Bath duck flew over the precipice" has a fascinating storyline and, although the canvas just shows a cracked desert landscape (there is no duck as it has already **CROSSED** the precipice), the painting can almost be called figurative...

This is perhaps the best example of what the titles of Navitrolla's paintings add to the works: a new and unexpected funny dimension which directs the viewer's attention to the hidden story. Or perhaps they present a separate story.

Standing in front of a Navitrolla painting, you are bound to sense the strange light emanating from it. The technique and tranquillity of the painting hold you in a warm embrace. The artist has created those pieces with love and care and this positive energy is transferred to the viewer.

Let's move on to discuss the artist's background.





Connecting Animals | 75 x 50 | oil on canvas, 2003

A south-Estonian lad

The person behind the artist Navitrolla is named Heiki and was born in 1970 to the Trolla family in Võrumaa, in southern Estonia. This is also the source of his artist's name, which was first used by the poet Kauksi Ülle. For sure, this boy was once called a real "whipper snapper" – with a quick-moving gaze and clear features, resembling some bird with swift movements. During his visits to exhibitions, he admired the leading personalities of the art scene in Tartu, and he was especially influenced by photo-realism, fashionable in those days

He also says that he grew up with the humour and satire journal *Pikker*, which was published twice a week in Soviet Estonia and was the representative of intelligent wit. Together with the back page of the weekly paper *Sirp ja Vasar* [*Hammer and Sickle – ed.*], it tested the borders of political censorship. From these pages, the artist used to gulp down the wit, sensing the allure and power of humour, admiring the freedom which it offered despite the limitations of the times. He especially admired Priit Pärn, whose pictures and animation films were a light in the darkness for many people back then.

Soon he dived into the art scene. After having lived in several places, run art galleries in Tartu and Tallinn, and given them up due to the economic downturn, he is now back in Võrumaa. Having injected new life into the old Vana-Hauka farm, this is where he lives and paints now. The galleries these days are all online, but he still has one gallery in the Old Town of Tallinn, a location which he fell in love with and this gallery only shows his works.

Navitrolla was recently accepted into the Estonian Union of Artists, which shows that this tradition-loving organisation is also becoming more modern and open-minded. Why then does public opinion still label Navitrolla as merely a naïvist, when his fame far outstrips that of other artists? The answer is simple: he does not carry the baggage of a traditional art education (a short-lived tradition: a diploma from an arts education institution only became compulsory for an artist in the 20th century), but he studied for three years in the art studio of the graphic artist Viive Kuks in Võrumaa. This is where his love of details and his skills in graphic techniques come from, but at the same time the borders of graphic art were clearly too small for him.

Painting versus graphic arts, originals versus prints

Sometimes Navitrolla also creates graphic art "to have a rest from the other work" as he says. The advantage of graphic art is that prints can be made, and his portraits of jolly creatures and weird situations in prints are very popular. Postcards with light-hearted painting motifs are also loved. His pictures are known to travel extensively: a Navitrolla painting graced the exterior of the Galaxy ship, which sailed between Tallinn and Helsinki for quite some time.

The possibilities of reproducing paintings are nearing perfection: copies on canvas are these days not easily distinguishable from originals. The losses are minimal and even difficult to spot, sometimes unpredictable, but the use of reproduction technology makes paintings much more affordable to buyers.

Sometimes, he also prints a night scene or a winter scene in between all the sunny landscapes, and sometimes in black-and-white. Whereas a printer is easily able to reproduce colour paintings, it cannot do so with monochrome ones. Hence should you see one, it is likely to be an original.

Reproduction technology is welcome because, in addition to art, painting means a lot of hard work. "On average it takes me one year to paint one picture," states Navitrolla. "The process is already a lengthy one because of the technical aspects, because I paint in several layers to make it more juicy, the colours more intense and deep. The layers of paint and lacquer have to dry in between and therefore you have to have several works in process at the same time," he explains.

Although it does not diminish the happy first impression, the amount of work behind it can be sensed in Navitrolla's pictures. He says that he often feels compelled to go back to finished paintings and re-work them.

The landscape in Võrumaa is so beautiful, the grassland full of blooming plants and life, that he feels the need to keep perfecting it. One can imagine him painting and painting with a twinkle in his eye, finding yet another spot which still needs to be worked on.

Yet this does not mean that his works have too many motifs or that the composition is too heavy: his landscapes are amazingly broad and light, and they convey a sense of freedom.

And it is only later, when the landscape has been perfected, that some character appears on the scene and looks around in amazement and makes the decision to live there. In freedom.

Once Navitrolla said in an interview that he wanted to be the most famous Estonian artist in the world. Probably a joke, but who knows, it may just turn out so, whether he really wants it or not.



M/s Galaxy Photo: AS Tallink Group



Not Far from the Church a Little Dragon Sleeps | 40 x 50 | oil on canvas, 2006





The Fungus of Fungi is Back | 67 x 67 | oil on canvas, 2006

Navitrolla's arsenal - everything is one

What the painter says flows like a Zen-stream over stones, without getting stuck in details. He does not list his favourite subjects, and claims he does not have any. "Because everything is one," he says with bright eyes, confirming that he wants to paint everything, as a whole.

This can also be sensed in his extremely bright, clear and sunny landscapes. These make the viewer admire the completeness of the world, even if it is subconsciously.

In the crystal-clear air in the paintings, there are usually white clouds. Clouds are often the main characters in a picture. They convey a sense of comradeship, desires and goals. For example, in one picture a cloud has descended between two trees to investigate something more closely, yet it is clear that it is not intending to stay for long and will go its way soon. Sometimes these clouds tell a joke or two.

And when a picture has no clouds, it certainly has trees or meadows. At least meadows. And if nothing else grows there, a mushroom will. The mushroom is nature's puzzle. A temporary miracle in the midst of nature's motion. In the midst of birth and death, in the midst of clouds and caterpillars. How they suddenly come to life from nowhere and live their lives, sometimes in colonies, sometimes alone. Sometimes the artist turns the mushroom into a stone, sometime a stone has the shape of a mushroom...

Stones, strange rocks, inaccessible and architectural - stones are even more frequent visitors to Navitrolla's canvas. There is a rocky landscape resembling the silhouette of a city with skyscrapers. It is not an arbitrary resemblance but a reference to unity, to the closeness between nature and man's creation. It is even more understandable once we know that Navitrolla toyed with the idea of becoming an architect...

Generally it seems that Navitrolla, who also studied geology at university, has some interest in rocks as a natural material. Does it seem to him that this lifeless surface contrasts with the moving, growing, buzzing and rejoicing nature he depicts in his pictures? And resembles in its frozen cracking nature and self-centredness the artificial environment created by humans?

But when probed about it, the author does not become animated, instead claiming that this kind of explanation about the essence of his works is not his strength and he considers it unnecessary. And in hindsight it also seems nonsensical to demand answers. Senseless, even unfair. It is like demanding a solution to a puzzle from the creator. What then is there left for the viewer to do? Navitrolla creates images which reflect the shapes and connections he sees, and we just look and enjoy. But Navitrolla is not the type of artist to stare knowingly into the distance without saying a word. To the contrary, he is quite talkative "especially when the talk is about art," he adds, with a smile.

"Despite everything, it is great to paint pictures," he sums up. "I am happy when I'm painting; hence, I have made at least one person happy with my works." This is of course too modest. But it is perhaps another little joke.



Come to Our Park | 50 x 110 | oil on canvas, 2010



Tea Varrak

Text: KAIDI-KERLI KÄRNER

Photos: JAANAR NIKKER

MEKTORY – A Unique Laboratory Bringing Together Students, Professors and Entrepreneurs

A unique innovation centre which brings together various elements to implement great ideas will open its doors in October. On its 4,500 square metres, there is room for various activities, ranging from start-up rooms and design workshops to actual production units, including welding, woodwork and mechatronics. Separate space has been allocated to the satellite demonstration centre.

Presently the labs of the Tallinn University of Technology are spread around campus and are meant for more oriented and professional users. Mektory (*Modern Estonian Knowledge Transfer Organisation For You – ed.*), which received support from the Tallinn University of Technology in the amount of 600,000 euros, will bring them all under one roof in order to enable students, tutors and entrepreneurs from diverse fields to collaborate on projects. In the middle of construction dust, Mektory Director **Tea Varrak** is going about her daily business. The move took place in May, and the construction is set to be completed in September, which is when the eagerly awaited 350,000 euros worth of equipment for all of the labs—the purchase of which was supported by Enterprise Estonia—is scheduled to arrive. In comparison to other living labs where students can bring their ideas to life with the help of entrepreneurs, Mektory is unique because here the students can try out and create things themselves.

“In many laboratories, the equipment is so sophisticated that students cannot get their hands on it. Our environment is designed to be used by students,” explains Tea Varrak. Mektory has been greatly inspired by other living labs, such as the one at Aalto University in Finland and the MIT Media Lab in Boston. But they also looked for ideas in Japan and Australia. Varrak explains that the idea of Mektory is to give students the opportunity to test their ideas in the right environment immediately, from the design to the actual assembly, and to perform product development already in cooperation with enterprises.

Samsung and Ericsson, for instance, will open demo centres in Mektory. In addition, there will be an energy discovery centre, a robot testing polygon, laboratories for e-health, e-state development technologies, logistics, welding, mechatronics, metal, painting, woodwork, mobile services, media and electronics.

In order to implement ideas, Mektory is open to all entrepreneurs and to students from other universities. The goal is to bring the best brains together under one roof.

Benefits for entrepreneurs

Mektory will seek to actively bring in businesses to find solutions to existing problems, together with faculty members and students. Tea Varrak explains that companies will remain involved during the entire lifespan of projects: “If we have a product development project which lasts for eight months, the development manager and engineers of the company will be involved during the entire eight months to find the solution to the problem.”

The projects tend to be interdisciplinary, bringing together students and tutors from different departments, and sometimes colleagues from other universities and countries. For example, a project for the well-known restaurant Olde Hansa seeks to create an innovative beer mug which will have a bowl for salted nuts attached to it. Students from the Academy of Arts are creating the design and students from the Tallinn University of Technology will build the product.

Projects also involve several international universities and corporations. Last spring there was a visit to Japan to present the results of an electric car data-mining project for Mitsubishi Motors Corporation. Two years ago the Estonian state purchased five hundred electric cars from Mitsubishi. The cars were allocated to social workers and the purchase was paid for from the sales of CO₂ quotas. Mitsubishi was interested in learning how the cars coped in Nordic conditions and how actively they were used. Estonia is unique in the world because the entire country is covered with a network of quick charging stations for electric cars. With the help of data logger installed in the electric cars, an overview was produced detailing how often and where the cars were charged and how long they lasted on the road. This gave a detailed account of how the cars were used each minute of the day and what their journeys were like. This data collection was, of course, carried out without revealing individual personal data.

Tea Varrak explains that the resulting 1000-page report is gold to companies: “The company uses it as a basis to develop its cars if they want to sell electric cars in Nordic countries. They consider how quickly the battery ran out, how much mileage was covered, and so on. It was a very successful project and the Japanese company was very pleased, assuring us that they definitely want to continue our collaboration.

A company's interest in future partnerships is also linked to its workforce. Working together on projects gives them the opportunity to select future employees for the company. “Students bring together great ideas and smart companies make use of that potential. Engineers are in great demand, as there is a lack of engineers on the labour market. All companies hope to pick out the best of the best and make them job offers. We also have a project together with Ericsson Estonia and they are really interested in the doctoral students participating in this process and make no secret of the fact that they hope to employ them in future.”



The students of the Tallinn University of Technology with the representatives of Enterprise Estonia, Estonian Ministry of Economic Affairs and Communications, Mitsubishi Motors and MMC Corporation

Data-mining is Estonia's potential

The project with Mitsubishi is one of many data-mining projects that Mektory is working on. There have been meetings with various companies in Japan and elsewhere, introducing ideas which our students can easily bring to life. For example, in Japan we had a meeting with the managers of Expedia, a large travel planning homepage, and we presented a project which is based on data-mining: "You can travel to any country and see on its homepage what the most frequently visited tourist attractions in that country are, how many minutes they spend on each attraction, how to get there, what the journey is like and so on. We really took Expedia by surprise. They told us that they planned to start creating such an environment in 2016," says Varrak. She believes that data-mining has great potential for Estonia in the near future. There are no obstacles; we just have to do it. "Estonia is small and compact and this makes it great as a test site. As the university is a neutral place, does not work for anyone specific and is not linked to politics, data can be analysed neutrally."

Exciting goals for the future

Whereas similar labs in other countries work on 12-15 projects per year on average, Mektory has more ambitious plans: they hope to implement up to 30 business projects each year. The Estonian university system facilitates this, because the role of practical placements outside the university is small. Therefore students have the opportunity to put their ideas into practice and participate in projects via Mektory.

When asked about which projects have the potential to become big in the next five years, Tea Varrak has a clear vision. The most important projects will certainly be linked to IT. Data-mining will remain in focus and the goal is to find 100 companies that will regularly work with Mektory students on product development. Varrak also wishes to raise standards for students: "Today IT companies complain that they employ graduates who lack basic skills and that they have to train them. My goal is to provide students with sufficient experience in Mektory, so that once they enter the employment market they are already experienced." Tea Varrak also says that it is complicated to bring in IT students to projects, as they are all employed already: "You have to offer them something really exciting, for example Mitsubishi Motors Corporation. Immediately, there is interest. The guys who participated in this project had no need to do so; they did it because it was interesting to them. They got to visit factories, talk to engineers who create racing cars, and exchange information with them."

Target markets in Asia and America

Tea Varrak says that Mektory cooperates with other countries in various ways. They view the Chinese and Indian markets as places where they can attract great students to Estonia. In Japan, they look for companies for collaborative projects and in the USA they seek faculty staff and create opportunities for Estonian students to introduce their ideas in US universities and companies. In addition, they are looking for opportunities in Australia. According to Varrak, distance has never been an issue. Skype calls (also founded by Estonians) and mutual visits have guaranteed the success of projects and the international dimension makes those projects more attractive to students and professors alike.

Call Mektory innovation centre
 +372 620 2030 to find out how your
 business can be rocketed by science!
 All SME-s from Estonia and abroad are
 welcome to ask tea.varrak@ttu.ee





Photo: ARNE ADER

The Road to A PAPERLESS WORLD

Text: **ARNE ANSPER** / Cybernetica AS

Arne Ansper is the Development Manager of the Information Security Systems Department of Cybernetica AS (www.cyber.ee). Cybernetica AS is active in the field of information security and e-Government related research and development. In the last twenty years, it has participated in the development of the Estonian ID-card, X-Road and the Estonian Internet voting system.

In Estonia we don't need to fell trees in order to produce paper to print documents on. We don't need to build wide motorways in order to transport the paper documents. In Estonia many things can be done fast over the Internet, computer or mobile phone. The time thus saved can be spent wandering around in forests and creating amazing nature photos.

It is efficient to run your affairs electronically in Estonia: documents move faster and transporting and storing electronic documents is also cheaper.

But the fast and cheap movement of documents is just the first step. Documents form the basis for decision-making. People need to read through documents, to understand and to compare them to other documents and then reach decisions. Decision-making and thus taking responsibility is a weighty and time-consuming exercise. If we are able to speed up decision-making processes, we are really onto something.

Computers could be used to make decision-making as fast as a flash, but for this computers would need to understand documents. And decision-making processes need to be made clear to computers. Once that were done, would we trust the decisions made by computers? In making decisions, people always (or most of the time) use their common sense. In the case of faulty documents or rules, people put on the brakes. Computers lack this ability. They only do what they have been programmed to do, and in the case of faulty data or decision-making rules, computers can make the most nonsensical decisions.

In Estonia we have reached the stage where we can trust computers to make important decisions (e.g. tax returns, risk analyses of imported goods and founding a business). As we can deduce from the above, this process has not been easy or fast.

The foundation of it all has been sorting out data. The state keeps track of very many things: people, property, vehicles etc. There is a lot of data. In order to use this data in decision-making processes, we need to be sure about its validity. Twenty years ago most of this data existed on paper, spread around many institutions. The data was often flawed and contradictory. But as the processing of data was done by people, it didn't really matter. As the Republic of Estonia became independent again, the objective was to make all data electronic. This process also meant a huge amount of work to increase the quality of the data. Ten years ago the quality of data in electronic registers was so high that it was possible to consider it authoritative, meaning that if a paper document was different than an electronic one, it was the electronic one which was considered correct. This was a very significant principle which opened the way to creating the e-Government.

The second important principle which has made it easier to create the e-Government and has enabled Estonia to become a leader in this field, is linked to the identification of people. In Estonia personal identification

codes are in use. Every person has a unique code, which is compulsory for use in every public sector organisation. The uniqueness of the ID code and the correctness of the data is guaranteed by one of the main state registers: the Population Registry. A person is always identified in public bodies by the same code. This enables public institutions to effectively exchange data so that any mistakes are ruled out. The personal ID code is a powerful tool which also has a downside. It can be used to misuse data. Of course, such activity is illegal, but the possibility nonetheless exists.

Using the unified ID code has been an important step. In Estonia we have chosen a solution where registries need better protection in order to rule out the illegal use of data. At the same time, the legal use of data is much easier. This has resulted in an effective system. Many countries have been more conservative and have selected solutions which make it much more difficult to link data between different registries. This results in a less effective system which may (but does not necessarily) better protect the privacy of citizens. Knowing how easily people share personal information in social media channels, such efforts to protect privacy at any cost seem overly cautious.

The unified ID code also makes the Estonian ID-card effective. The ID-card enables citizens to authenticate themselves safely and to give digital signatures. Almost half of the active population use the ID-card for interacting with the public and the private sector. The unified ID-code makes it simple to authenticate oneself with the ID-card and to give digital signatures. Behind the success of the Estonian ID-card is the state's bold decision to make the electronic ID-card compulsory for all citizens and solve the common chicken and egg problem that is often plaguing identification infrastructures. In many other countries, the electronic ID-card is voluntary and its use thus not as effective.

Besides the ID-card, another important pillar of the Estonian e-Government is the unified system of interaction between organisations, called X-Road. For public sector organisations, it is compulsory to use X-Road for automated interaction with other public bodies, in order to guarantee the safe and unified transfer of data from one organization to another. X-Road makes it possible to automatize and link the business processes of different organisations and guarantees unified access to public registries. X-Road is the mechanism which makes doing state business in Estonia effective and which helps computers receive the necessary valid information in order to make decisions.

Our roads may be narrow, but our virtual highways are top class.



The launch of the Vega rocket at daybreak on 7 May 2013

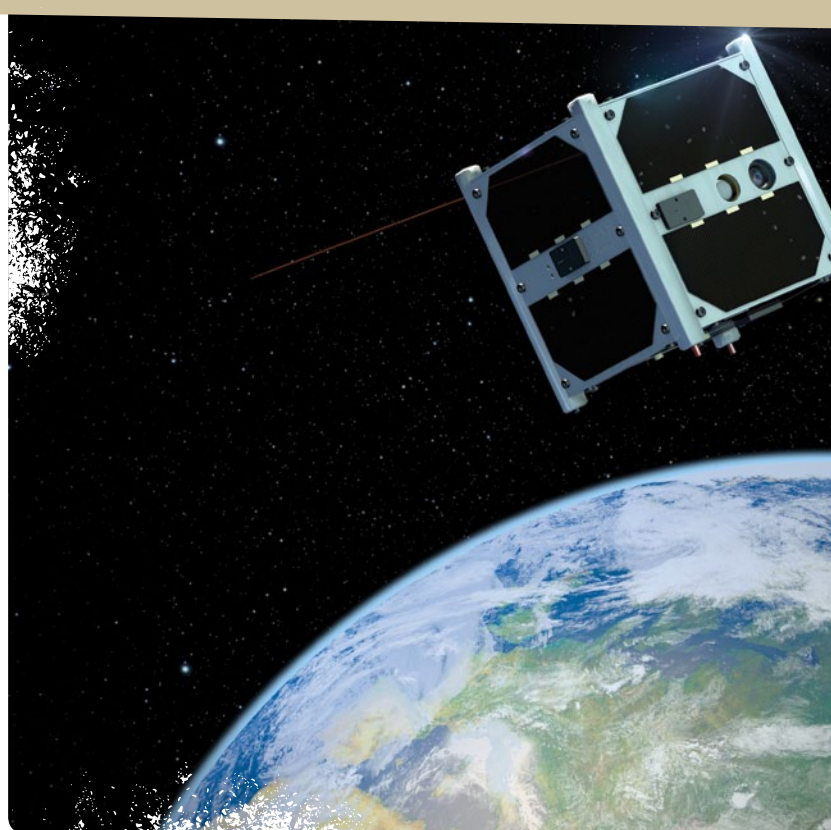


ESTONIA IN SPACE

What are the Benefits?

Text: **MADIS VÕÕRAS**
/ Advisor, Estonian Space Office

At daybreak on 7 May 2013 Estonia entered space. The satellite ESTCube-1, built at the University of Tartu, was launched aboard a VEGA carrier rocket of the European Space Agency (ESA) to orbit at an altitude of 680km, where it will circle the Earth every 1.5 hours at a speed of 27,054 km per hour. This makes Estonia the 41st country in the world to have its own space mission, beginning with the launch of Sputnik by the Soviet Union in 1957. To date this list does not include Finland, Latvia or Lithuania. The satellite is small, built on the basis of the CubeSat standard, measuring 10x10x10 cm and weighing 1.3 kg.



“Good for you!” say some. “What’s the point?” ask others. Active Internet commentators share both positive and negative points of view online. Regardless of the fact that space no longer makes front-page news in big countries, it remains amazing to the layman. This vast emptiness starting 100 km from Earth is still beyond our reach. The mass of a standard space rocket consists of 90% fuel, 9% the rocket itself and 1% is the useful load which is taken into orbit in order to bring some benefits to humankind. The astronomical prices of space technology are partly due to this and also to the fact that risks cannot be taken and to the great difficulty in making repairs in space. Nonetheless, the benefits outweigh the costs, and the Earth today is surrounded by hundreds of satellites which make up the technological infrastructure in space, without which we can no longer imagine our lives. Communication satellites bring us television and intercontinental phone calls, monitoring satellites give us weather forecasts, and location satellites provide us with GPS. We have grown so used to these benefits that we no longer notice them. Jean Jaques Dordain, the Chief Director of ESA, frequently refers to the question he once asked a Parisian taxi driver: do you benefit from space? The answer of course was “taxi drivers have nothing to do with space.” When Dordain pointed to the navigation equipment on the windscreen

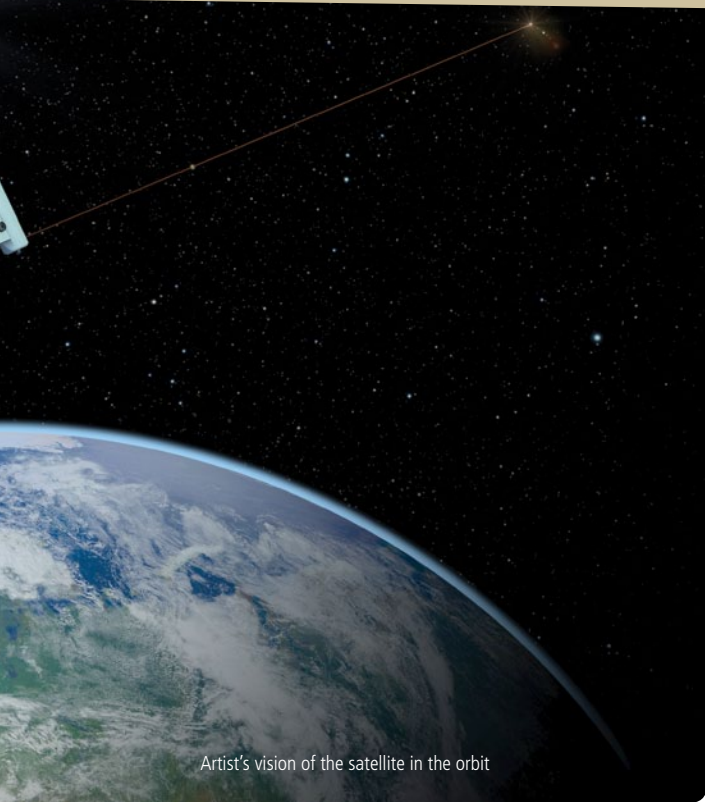
of the taxi, the answer was that this was Tom-Tom, a piece of equipment on Earth. Perhaps that lack of understanding is fine as long as the taxi driver takes customers safely to their destinations. He does not need to know that, contracted by the European Union, ESA has built 30 Galileo positioning system satellites and is in the process of sending them into orbit, which will result in Europe’s own independent navigation system by 2020 at the latest, which will provide new opportunities to the public and private sectors and create new jobs.

Today we see that Estonian companies are among the most active in Europe in taking advantage of the American GPS system. Another large space project of the European Union is Copernicus - The European Earth Observation Programme - initially known as GMES, which provides global environmental monitoring in order to guarantee safety. It is predicted that once it is in full operation (five SENTINEL satellites in orbit), Copernicus will create 70,000 new jobs in the European Union. When we consider it proportionately per capita, 200 of those jobs ought to come to Estonia!

This is the first answer to the question of what the benefits of space are for us. In order to benefit, a country does not necessarily have to have its own satellite in orbit. For a small country like Estonia, it may not make sense to send

its own monitoring or communication satellite into space because there are enough there already. We need a smart approach which supports the implementation of those opportunities for increasing the quality of life in Estonia. First and foremost, we need capable specialists who can take advantage of the opportunities already on offer by the technological space infrastructure, both in business and in the public sector.

This brings us back to ESTCube-1. Building a student satellite is the best engineering training there is. Altogether, 70 students participated in the ESTCube-1 project: dozens of BA and MA theses were written as part of the project and at least five PhD theses are still waiting to be defended. Of course not everyone who participated will be building satellites in the future, but the experience and skills gained will benefit them in future work in Estonia and possibly also in ESA, which Estonia plans to join in 2015. Participants compared the building of their own satellite and launching it into orbit to an Olympic triumph in space science. Olympic champions have always inspired everyone else to take up sports, and the question of how that benefits anyone has never been asked. An Olympic triumph in the space field will have the same effect and inspire people to study to become engineers, which Estonia desperately needs in the future.



Artist's vision of the satellite in the orbit



Waiting for the launch at the ESTCube-1 mission control centre at the Tartu Observatory



Mart Noorma, Vice-Dean of Studies at the Faculty of Science and Technology of the University of Tartu, a pioneer of the student satellite project:

It took five years to develop our ESTCube-1 satellite. It was an exciting time with a lot of challenges to tackle. During the first years of the project, the students had to learn everything about space technology, particularly the development of nanosatellites, by themselves. They did a great job by contacting many other student satellite teams around the world, each of them with its own unique experience to share. Many students from abroad travelled to study in Estonia, joining the student satellite project and contributing to the future space flight. Several companies and organisations contributed their expertise. This network of friends and colleagues is one of the most important assets the satellite builders will take with them in their future careers.

In July 2012, the decision was made that the European Space Agency would take our ESTCube-1 on board the brand-new European rocket Vega, to be launched in spring 2013. This created a whole new situation for the students: a tight schedule without any time margin. One could feel the pressure and excitement rising each day as we moved closer to the deadline: the satellite had to be handed over by the end of January. The relations within the team were put to the test: could this group of volunteers survive the pressure of the final deadline while all Estonia was following their efforts?

The students worked day and night and countless crises were overcome. ESTCube-1 was delivered just before the shipping date. It was shown to the Estonian public and the international media on 21 January 2013. It took several trips to Holland and French Guyana

to complete the testing. By April, everything was ready on our side.

The launch of the Vega rocket was set for 4 May. That was a hard time, waiting for the moment of truth: would ESTCube-1 survive the harsh conditions of the space flight? Would it work in orbit? Everybody was there at the ESTCube-1 mission control centre at the Tartu Observatory on 4 May at 5:06 am to find out. Camera crews from all of the major Estonian news channels were there to witness the success or failure of the students' work.

And just 20 minutes before the launch, it was cancelled by the European Space Agency: too high winds in the upper layers of the atmosphere. The next try could take place any day with little notice. A nervous waiting period started. On the afternoon of 6 May, the call came from the Kourou space centre: the launch countdown procedures had been started again. In the early morning of 7 May, we all were there at the Tartu Observatory again and this time it really happened. It is really unimaginably great to see your own satellite flying into space. The flight of Vega was a complete success and ESTCube-1 was deployed in its designated orbit two hours later. When ESTCube-1 appeared for the first time over Estonia two hours later, we all could hear the signals in Morse code coming from the satellite telling us that the effort of almost 100 students during the last five years had paid off and the satellite was working perfectly in space. A week later, the first images were downloaded from ESTCube-1.

The science programme of ESTCube-1 had started.



I'm from a land called secret estonia
Nobody knows where it's at
Ice cream mountains and chocolate skies
Nobody knows where it's at

From the song Creepshow ("Love is Dead")

Kerli: The Bubblegum Goth who Wanted to Escape and Found her Way

Text: **PIRET JÄRVIS** / Photos: **BRIAN ZIFF**

The 26-year-old singer and songwriter Kerli has always emphasized her Estonian roots in introducing herself to the wide world. This can be seen in the above lyrics from her debut album "Love is Dead", which was released in 2008. On one hand, this is great promotion for Estonia, for Kerli is after all the only Estonian whose albums have reached the Billboard ratings, who has inspired the style of Lady Gaga and who has written music for the cult film director Tim Burton's recent blockbusters "Alice in Wonderland" and "Frankenweenie". On the other hand, Kerli is a girl who never puts a sugar-coating on her native land. Viewing life in Estonia from far away in Los Angeles, she is more likely to stab the national Achilles heel.

"I grew up in an area with beautiful nature, lots of forest, in a little town of 5,000 people (*Elva – ed.*). It is kind of a restrictive environment. I grew up in an abusive household. I had to create a world for myself to be my escape," Kerli told the magazine *Rock on Request* (<http://www.rockonrequest.com/id165.html>). Her childhood hardships led to Kerli writing fairy tales and expressing herself creatively in other ways and, from very early on, Kerli was convinced that one day she would leave Estonia.

In 2002, things started to move in the right direction for the then eighth grade student of the Elva Gymnasium. Claiming to be a year older, she registered to take part in the Baltic talent show "Fizz Superstar", where her pink hair and her version of Nelly Furtado's hit "I'm Like A Bird" made her stand out from her competitors in the very first episode. In the end, the 15-year-old Kerli Kõiv won the competition and received the main prize of an international recording contract with Universal Music. Her journey to conquer the world had started.

Perhaps a peaceful stroll is the best way to characterise Kelly's path to her current situation. Two of her songs, "Army of Love" and "Zero Gravity", have topped the dance charts of Billboard and the song "Skyscraper", written by her and performed by the American teenage idol Demi Lovato, reached the Top 10 of the single charts of Billboard. This song also received an award at the MTV Video music awards in 2012. In April, the Estonian girl performed for 12 million viewers on the most viewed American TV show, "Dancing with the Stars". Those are undoubtedly huge achievements, but after winning the talent show in 2002 Kerli had to wait a decade to get to this point



It is very important to mention that Kerli is not just a pop singer. She is also a composer and an artiste with strong convictions, which may explain why her rise to stardom has been anything but fast. Before the release of her first album in 2008, she explained to the biggest Estonian daily, *Postimees* that had she done everything the way the record company wanted, she could have released the album two years earlier. “They wanted me to wash cars wearing a bikini. This will never happen!”

Therefore, Kerli chose the slow flight, experiencing real hardships from time to time during which she sometimes ate only rice for months. At the same time, she continued to write her music and follow her own production approach, telling the bosses of record companies that she had a certain vision of her art and the image to support it and she was not willing to compromise an inch on that.

Although Kerli has always known very precisely what her stage image should be, her style has not remained unchanged over time. In her choice of stage characters, she is almost as chameleon-like as Madonna. The only unchanging aspects of her style are her extreme fantasy and the courage to be different than society and dominant trends.

As mentioned above, Estonians first became aware of Kerli in 2002, when she immediately stood out from other talent show participants with her pink hair and nose piercing. Subsequently, Kerli’s style seemed to sail on the

riotous pop-punk wave, and the media tended to pay more attention to her ripped tights and sketchers written on with markers than to her songs.

One noticeable style change came in 2006, when Kerli finally moved to the United States. On the other side of the ocean, the Avril Lavigne-like tomboy started to turn into a fairy-like gothic doll, whose stage costumes always incorporated black latex and platform shoes with killer heels. The music that Kerli composed back then was appropriately dark and melancholic, with lots of low guitar riffs.

The gothic princess phase included the next logical step in Kerli’s crazy and fantasy-rich image. After a journalist said that she was falsely being labelled as a “Goth” and suggested that her style could be better characterised as “bubblegum Goth”, Kerli got hooked on the idea (which was originally meant ironically) and decided that in the future she would live up to this previously unknown style definition.

Kerli’s EP “Utopia”, released in March 2013, and the promotional singles preceding it carry the spirit of “bubblegum Goth”, a style which includes many hints of the rave culture of the 1990s, combining bright neon colours with platform trainers, plastic accessories, colourful teddy bears and so on. Kerli’s music has been accompanied by step-by-step changes on the visual side, becoming merrier and more dance-influenced.



Kerli's appearance has always spoken volumes. Without a doubt, this petite, 154-cm tall artiste has stirred many people by her way of expressing herself. Even the most influential pop stars of the world have been inspired by her. For example, on 29 April the American media started to widely publish a photo picturing Kerli and the gigastar Beyonce, who has sold 118 million albums, both wearing exactly the same dress by Amato Haute Couture. What attracted media interest was the fact that this unearthly white dress was not worn first by Beyonce, but by Kerli, who then happily stated on her Facebook account: "it is pretty cool to see Beyonce wearing a dress which I spray painted white on my patio." The media was flabbergasted by the fact that a star like Beyonce would so blatantly copy the image of her young colleague.



There have been many comparisons between Kerli and Lady GaGa over time. It is claimed that the star who won fame with "Pokerface" has repeatedly used stylistic tricks originally belonging to Kerli. When Kerli dyed her hair yellow, it took a couple of weeks before Lady GaGa showed up in public with the same hairdo. Or when Kerli wrapped herself in bubble wrap for promotional photos, some time later her more famous colleague appeared in the same costume at a concert. This all culminated with an angry public outburst from Kerli, which the American press published with pleasure: "I wish she would f*ing stop ripping off everything I do. F*cking b*tch."

Kerli later apologized for her inappropriate use of language and explained that she was just tired of always being compared to Lady GaGa.



But Kerli is not always unhappy about people copycatting her. On the contrary, she is happy to see her music and activities influence thousands of youngsters all over the world. Her almost 300,000 Facebook fans and 85,000 Twitter followers include many dedicated fans who call themselves the Moon Children.

The original idea of the Moon Children was to bring together teenagers who suffered from being insecure. The original concept has developed into a creatively active community whose motto is "being the best you can be". The members of the community can be visually distinguished by the three dots, called "moon marks", on their foreheads, which symbolize integrity, love and unity.





Kerli's works and actions have always carried a deeper message and desire to offer audiences something besides the opportunity to dance and be entertained. Kerli's music, which she says has been mostly influenced by such artistes as Björk, Janis Joplin and Massive Attack, has always truthfully and directly mirrored her own experiences. Not a single topic has been too personal to put into her music. Thus she has written about her father's violence against her mother and the destructive depression which she herself experienced at one point in her life. Her new works, however, are much sunnier and carry a brighter message: dignity, love and unity will save the world!

Kerli has always been sincere and perhaps even too direct in her dealings with the general public. Whereas most Estonians keep their opinions about such issues as the legalisation of cannabis or homosexual marriage to themselves, Kerli has never avoided expressing her opinions. She has expressed support on both questions.

And, as mentioned above, Kerli often works on the collective conscience of her fellow countrymen. Whereas Kerli mostly talks to her fans in English on her Facebook page, she posted an Estonian message in May 2013, expressing her distress at the narrow-mindedness and extreme criticism of Estonian people. She said that Estonians were too quick to be negative about their fellow Estonians, criticising everything and everyone, from the First Lady to the singer who represented the country at Eurovision. She called on Estonians to be more tolerant and supportive of each other, instead of always trying to call attention to the weaknesses of others.

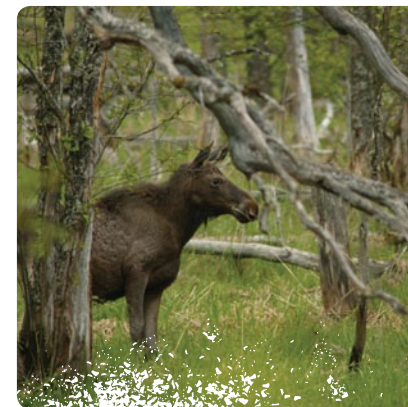
Her message was widely publicised in local media. It is clear that Estonians see Kerli as a role model who is listened to. We hope that Kerli will continue representing and introducing her secret homeland with ice cream mountains and chocolate skies which nobody else knows about in the wide world.



Estonia in brief

Official name:	Republic of Estonia
State order:	Parliamentary republic
Area:	45,227 sq kilometres (17,500 sq miles)
Population:	1,294,236 inhabitants: 67.9% Estonians, 25.6% Russians and 6.5% others
Population density:	28.6 people per square kilometre. Over 70% reside in urban centres
Capital:	Tallinn with 392,331 inhabitants (as of 2011)
Other major towns:	Tartu (98,514), Narva (65,706), Pärnu (44,437), Kohtla-Järve (41,992)
Administrative divisions:	15 counties (<i>maakond</i>), divided further into 226 local municipalities, incl 33 towns and 193 rural municipalities (<i>vald</i>)
Islands:	1521, the biggest being Saaremaa 2,671 sq km, Hiiumaa 989 sq km, and Muhu 198 sq km
Biggest lakes:	Lake Peipsi 3,555 square km (1,529 sq km belong to Estonia), Lake Võrtsjärv 271 square km
Longest rivers:	the Võhandu River 162 km, the Pärnu River 144 km, and the Põltsamaa River 135 km
Highest point:	Suur Munamägi (Great Egg Hill) 318 m
Air temperature:	annual average +7°C; January -3.5°C, July +20.3°C (2011)
Official language:	Estonian, a member of the Finno-Ugric group. Russian is widely spoken. Many Estonians speak English, German, and Finnish
Alphabet:	Latin
Religion:	Predominantly Protestant (Lutheran)
Currency:	euro (EUR)
Average salary (1st quarter of 2012):	792 EUR
Driving:	Right hand side of the road. Speed limits in town 50 km/h, out of town 90 km/h. International driving licence required
Weights and measures:	Metric system
Electricity:	220 volts, 50 Hz
Country calling code:	372
National flag:	Blue-black-and-white
National holiday:	24 February (Independence Day)
National anthem:	<i>Mu isamaa, mu õnn ja rõõm</i> (My fatherland, my joy and happiness)
National flower:	Cornflower (<i>Centaurea cyanus</i>)
National bird:	Chimney swallow (<i>Hirundo rustica</i>)

Member of EU, NATO, OECD, WTO, Schengen area



Practical information for visitors



For more travel details, please consult the sources below: www.visitestonia.com (Estonian Tourist Board), www.riik.ee/en. Tourist information centres are located in all larger towns.

The Tallinn Tourist Information Centre in the Old Town is located at 4 Kullassepa Street - no more than 10 steps from the Town Hall Square (ph.: + 372 645 7777, e-mail: turismiinfo@tallinnlv.ee). The Tallinn Tourist Information Centre in Viru Keskus (ph: + 372 610 1557, 610 1558), open every day 9 am - 9 pm, is located in the centre of the city. A wide selection of maps, brochures and publications in several languages (largest selection in English) can be found at local bookstores and tourist information centres.

Visa

As of 21 December 2007, Estonia is a part of the Schengen visa area.

Nationals of EU and EEA member states are free to enter Estonia. The required travel document for entry is a national ID card or passport. Nationals of the following countries do not need visa to enter Estonia, and can stay for up to 90 days in any 6-month period: Andorra, Argentina, Australia, Brazil, Brunei, Canada, Chile, Costa Rica, Croatia, El Salvador, Guatemala, Holy See, Honduras, Hong Kong, Israel, Japan, Macao, Malaysia, Mexico, Monaco, New Zealand, Nicaragua, Panama, Paraguay,

San Marino, Singapore, South Korea, USA, Uruguay, Venezuela. The required travel document for entry is a valid passport.

Citizens of countries not mentioned above require a visa to enter Estonia. Visitors arriving in Estonia with visa must have national passports valid at least 3 months after their planned departure from Estonia.

Children aged 7 to 15 years must have their own passport when travelling to Estonia or, if they are registered in their parent's passport, must have their photo next to the name. Children under 7 years need not have a photo if they are registered in their parents' passports. Persons above 15 years must have a separate travel document with photo.

For detailed information on visa requirements and entry rules, please consult the Ministry of Foreign Affairs website at www.vm.ee/eng.



Arrival

By plane: Recently renovated, the Tallinn Lennart Meri Airport, just 3 km from the city centre, is welcoming, modern and user-friendly. Among other amenities, travellers have access to a free WiFi area in the transit zone. The airport's 24-hour customer service telephone is +372 6058 888.

Tartu Airport is situated at Ülenurme, near Tartu. Flights from Tartu to Helsinki depart six times a week.

Regional airports are located in Kuressaare (Saaremaa), Kärdla (Hiiumaa), and Pärnu; these provide no regular international connections.

By ship: With over 6 million passengers annually, the Port of Tallinn is undoubtedly Estonia's main gateway. Large passenger ferries arrive from and depart for Helsinki and Stockholm regularly. The 85-km Tallinn-Helsinki line is served by ferries that make the journey in 2 hours; hydrofoils and catamarans make the trip on 1.5 hours and operate between April to November-December, depending on weather conditions. Travellers should note that different ferry lines depart from different terminals and harbours. The City Port with its four terminals is a 10-15 minute walk from Tallinn Old Town; the Paldiski-Kapellskär line uses the Port of Paldiski, about 50 km from Tallinn.

By car: Border checkpoints greet travellers entering or departing the country by way of the Estonian-Latvian border points at Ikla (the Tallinn-Riga highway) and Valga, as well as on the Estonian-Russian border at Narva (the Tallinn-St. Petersburg highway), Luhamaa, Koidula and Murati. On the Estonian-Russian border, all traffic is subject to border formalities both when entering and leaving Estonia.

By bus: Not only is travel by bus the fastest and most convenient mode of international public transportation in the Baltic states, it also offers excellent value for your money. Regular connections service all major cities in the Baltic countries and St. Petersburg. Eurolines Lux Express and Hansabuss offer comfortable Riga Airport transfers from Tallinn, Pärnu, Klaipeda, Vilnius, Panevezys, and Šiauliai. Prices start from €20.00. A useful tip: Regular passenger buses have priority at the border checkpoints, so travel is smooth.

By train: There is only one international overnight train to Moscow.

Customs

We suggest travellers consult with the Estonian Customs Board help desk (ph.: +372 880 0814 or www.customs.ee) for details. The limit on import of alcoholic beverages from outside the EU is one litre for beverages over 22% alcohol content, and two litres for beverages up to 22%, and four litres for wine. Import of tobacco and tobacco products from non-EU countries is limited to 40 cigarettes or 100 cigarillos or 50 cigars or 50 g of tobacco products. Counterfeit goods, including pirated CDs, video and audio tapes, are prohibited by law. A special export permit is required for specimens of plants and animals of endangered species, protected species and hunting trophies (please contact the Nature Conservation Department, Ministry of the Environment for details). Articles of cultural value produced in Estonia more than 50 years ago also require special permits (please contact the National Heritage Board).



Getting Around Estonia

Inter-city public transportation

Public buses are the easiest, cheapest and most convenient solution for visiting Tartu, Pärnu or any other of the larger towns. Buses from Tallinn to Tartu depart every 15-30 minutes, to Pärnu every hour. On weekdays, seats to these destinations are almost always available even immediately before departure (watch out for special events). For weekend travel or trips to more remote locations with fewer connections, it is advisable to buy tickets in advance. The Tallinn Bus Terminal is located at Lastekodu 46. The timetable is also available online at

www.bussireisid.ee and ticket information is available at telephone +372 6800 900.

Travelling by car

Travellers hoping to see more of the country and the rural areas it would be best advised to travel by car. The roads are quite good and traffic is light. Crossing Estonia from north to south or west to east by car takes approximately three to four hours. All major car rental agencies have offices in Tallinn. It is also possible to rent the car in Estonia and drop it off at a rental agency in Latvia or Lithuania, or vice versa. The speed limit in rural areas is 90 km/h and in cities 50 km/h. In some areas the highway speed limit is increased during the summer months. Headlights and seatbelts (front and back) must be on at all times. Driving under the influence of alcohol or other intoxicating substances is punishable by law.



Local transport

Taxis: Taxis must clearly display their fares, driver's taxi service licenses, and a meter. The initial charge for entering a cab ranges from 2 to 3.5 euros. Different taxi companies have different rates, but the average charge per kilometre is 0.5 euros. There is no additional charge for ordering the taxi by phone, and it usually takes the cab just five to ten minutes to arrive. All taxi drivers must give you a receipt (in Estonian, ask for "Kviitung, palun"). Locals usually give the exact fare and no tip. As in most major cities, some dishonest drivers attempt to overcharge unsuspecting passengers. If in doubt, note the taxi company and license plate number.

Public transportation: Tallinn has a public transport network of buses, trams and trolley-buses. Other Estonian towns have buses. Check the time schedule for Tallinn bus lines for any bus stop at www.tallinn.ee/eng.

Free public transport: As of 2013, all residents of Tallinn, students and passengers 65 years and over are entitled to free travel on Tallinn public transport.

Tickets for visitors: The Public Transport Card Ühiskaart may be purchased for the price of €2. This smart card, onto which you can load money, or e-tickets can be purchased from post offices and online at www.pilet.ee. Personalise the card for €1 at the point of sale or for free at www.pilet.ee/yhiskaart.



If you are using pay-as-you-go credit, your smart card automatically calculates the cheapest fare within the next 24 hrs (never more than one-day travel card). Validate your journey with Ühiskaart immediately after entering the public transport vehicle. You can also buy tickets from kiosks and from the driver (single ticket €1.60 and student ticket €0.80). Try to have precise change (cash only) for the driver. The ticket is valid for one journey only in that specific vehicle. Discounts only for ISIC Scholar and Student Card holders. Holders of a validated TallinnCard are entitled to a free ride.



Accommodations

All major hotels in Tallinn have been newly built or completely renovation in recent years. Despite annual additions to the number of hotels and rooms, it can nonetheless be difficult to find a hotel room on short notice (particularly over the week-end). For the best selection, we urge visitors to Tallinn and the rest of Estonia to book hotel rooms in advance. For more details, see the Estonian Tourist Board website at www.visitestonia.ee.

Money

On 1 Jan 2011, Estonia adopted euro as its currency thus replacing the Estonian kroon which had been the only valid currency in Estonia since 1992.

Most larger hotels, stores and restaurants accept Visa, MasterCard, Eurocard, Diner's Club and American Express. However, it is advisable to carry some cash with you.

Traveller's checks can be exchanged in most banks but are less likely to be accepted in shops. Eurocheque is the most widely accepted traveller's check, but American Express and Thomas Cook are also accepted. Banks are plentiful and easy to find in Tallinn. Most are open from 9:00 to 18:00 on weekdays, while some offices are also open on Saturday mornings. All banks offer currency exchange services. Exchange offices can also be found in larger hotels, the airport, harbour, railroad station and major shopping centres. ATMs are conveniently located around town; instructions are in English, Russian and Estonian.



Telephones and Internet

The country code of Estonia is 372. Dial 00 for outbound international calls.

The GSM mobile phone system is available; please check compatibility with your operator. Public Internet access points have been set up all over Estonia. They are located in local

libraries and post offices. There are over 100 wireless free Internet zones around the country, many of them in rather unexpected places - beaches, Old Town squares, stadiums, and concert halls.

Emergencies

112 is the emergency number for ambulance, police and fire department. The police can also be reached directly at 110. Emergency numbers can be dialled free of charge. Select pharmacies are open 24-hours-a-day in many major towns. The one in Tallinn is located at 10 Pärnu Road (opposite the Estonian Drama Theatre); the one in Tartu is located in the Town Hall building (Town Hall Square).



National Holidays

Estonians celebrate January 1 as New Year's Day, a rather slow and quiet day as people recover from the festivities. Shops open late and banks are closed. February 24, Independence Day, is celebrated with a parade of the Estonian Defence Forces at Vabaduse väljak (Freedom Square). May 1 is a bank holiday, similar to Good Friday and May Day. June 23 is the biggest holiday of the year as Estonians celebrate Midsummer Eve and the Victory Day in commemoration of the 1919 Battle of Võnnu, and June 24 is St. John's Day (Midsummer). August 20 is the Day of Restoration of Independence (1991). December 24 (Christmas Eve), December 25 (Christmas Day) and December 26 (Boxing Day) are usually spent at home with families.

Food

Traditional Estonian cuisine consists of simple peasant food, such as cottage cheese, potatoes and bread, all of which are still important components of the local diet. The Estonian dark bread is the main staple missed by Estonians abroad. Typical Estonian dishes do not feature prominently on restaurant menus, and traditional home cooking is more likely to appear at small eateries in remote areas. Still, a few establishments have made Estonian specialities their niche; to sample Estonian cuisine, try the Vanaema juures, Kaerajaan and Kolu Tavern (Open Air Museum) in Tallinn, and the highly recommended Muhu Kalakohvik and Lümända söögimaja on the Island of Saaremaa.

The list of the top 50 Estonian restaurants can be found at www.flavoursofestonia.com





Drinks

The main drinks in Estonia are beer, wine and vodka. While many young city residents opt for beer or wine, the older generation and rural folk tend to prefer vodka. In the 1930s Estonian vodka made it into the Guinness Book of Records as the strongest vodka in the world (96°). Local brands of beer enjoy a very strong market position in Estonia. The two main breweries are Saku and A. Le Coq. Saku is Tallinn-based, and its corporate colour is navy blue while A. Le Coq is brewed in Tartu and its colour is red. There are also many smaller breweries. A full list of Estonian beers is posted at www.BeerGuide.ee



Spirits also include some traditional liqueurs. The famous Vana Tallinn (Old Tallinn) has a 45° alcohol content, and is coincidentally made from 45 ingredients - the recipe is known only to a handful of people. Indeed, the legendary

19th-century *kristallkummel* (caraway liqueur) has made its long-awaited comeback.

Estonian wines, made from currants or other local berries, are rather sweet. Wine lovers

Even the most sceptical museum-goer is bound to find something intriguing in Estonia's large selection of museums, which feature everything from history, art, photography to toys, chocolate, musical instruments, even wax fig-



usually prefer imported wine, of which there is an ever-increasing selection at stores and vinoteks. A very popular and refreshing non-alcoholic drink is *kali*, made of bread, malt, rye or oats flour and yeast; it has a characteristically dark brown colour. It was with this drink that the Estonians forced the Coca-Cola company into submission, or at least into a business deal. *Kali* was enjoying phenomenal sales, while Coke was not selling up to expectations. It was then that Coca-Cola decided to broaden its horizons by buying one of the local *kali* trademarks in order to make a profit on the stubborn Estonians.



Entertainment

The entertainment scene in Estonia is vibrant year-round, providing visitors and locals alike with a long list to choose from. Concerts, festivals theatre, street raves, DJ competitions – Estonia has it all. It is not by chance that both Tallinn and Tartu have their own opera and ballet theatre. Tickets are an excellent value for the money; concert tickets cost around 10 euros, and best seats at the opera are yours for about 25 euros. For more information on the concert schedule see www.concert.ee; the programme for the national opera is posted at www.opera.ee. Tickets can be bought at the box offices or via ticket agencies located in all larger supermarkets, or via Internet www.piletilevi.ee, www.piletimaailm.com and www.ticketpro.ee

ures and many other topics. Most museums are closed on Tuesdays and many on Mondays as well. It is advisable to have cash on hand as many museums do not accept credit cards. Tallinn is also bustling well into the night with booming and blooming club scene. Clubs are usually open and packed with energised vibes from Thursday to Sunday, with Friday and Saturday drawing the liveliest of crowds. In addition to local and resident DJs, clubs frequently present guest performers from London, the US and other club hubs. For those looking for a more mellow night on the town, Tallinn's street are brimming with pubs, vinoteks and bar-restaurants, many of which offer live music even on weekdays. Rather take in a movie? Films in cinemas are shown in the original language with subtitles.



Shops

Souvenir shops in Tallinn and most other tourist locations are open seven days a week, 10:00-18:00 or 19:00. Big supermarkets and hypermarkets are open seven days a week from 9:00-21:00 or 10:00-22:00. Department stores close a few hours earlier on Sundays or, in smaller towns, may be closed on Sundays. Smaller food shops may have shorter opening hours. Some 24-hour shops can be found as well. Other shops usually open at 9:00 or 10:00 and close at 18:00 or 19:00; they often close early on Saturdays and are closed on Sundays. The majority of shops accept credit cards, with the exception of smaller stores and stores in rural areas.



Souvenirs

Souvenir and shopping preferences vary hugely but there are certain souvenir gifts that have gladdened many a heart. Estonian handicraft comes in many forms. There are woollen

sweaters and mittens with local ethnic patterns, linen sheets and tablecloths, crocheted shawls and veils, colourful woven rugs, hand-made jewellery and glassware, baskets, and an array of wooden spoons and butterknives made from juniper. Fine and applied art for show and purchase is on display at art galleries around the country, featuring graphics, glass, ceramics, hand-painted silk scarves and leatherwork. Various herbal teas from wild plants are available at pharmacies. Local honey – pure or flavoured, e.g. ginger, is another delicious treat. In rural areas, you may find hand-milled flour. And those who keep coming back swear by the Estonian black rye bread. To bring home local spirits, popular choices include Vana Tallinn or *kristalkümmel* liqueur or local beer. And there is no place better than Estonia to buy Estonian music.

Crime

Although common sense is advisable in all destinations, Estonia gives no particular reason to be excessively worried. Do not walk the unlit and abandoned areas alone at night. Do not leave bags or items of value in the car, as not to tempt car thieves or robbers. Pickpockets may operate at crowded tourist destinations in Tallinn, so make sure your wallet and documents are stored safely.

Language

Estonian is not widely spoken in the world, so Estonians do not expect short-term visitors to master the local language. Still, local people are thrilled and pleased to hear a foreigner say "Tere!" (Hi!) or "Aitäh" (Thank you) in Estonian. Knowledge of foreign languages is naturally a must for hotel staff and numerous other professions in the service sector. Many people are fluent in English, particularly the younger urban generation, and a great number of people also speak Finnish, due to Finnish TV, Finland's close proximity to Estonia and the great number of Finnish tourists. German is less widely spoken in Estonia, although previous generations have often studied German, not English, at school. Russian-language use has dropped to a point where older people no longer speak the language well and the younger generation have already chosen other languages to learn at school. Studying French has become more popular over the last few years but the number of people who speak French is still quite small.

An English-Estonian dictionary is available online at www.ibs.ee/dict.

Estonians

Estonians are typical Nordic people – they are reserved, not too talkative and speak rather monotonously, with very little intonation. All this may give one the impression of coldness bordering on rudeness. But rest assured, this is not the case, and the speaker may actually be extremely well-meaning, even excited. There are several well-known Estonian sayings, such as "Think first, then speak", "Weigh everything carefully nine times before making a move", and "Talking is silver, silence is gold". It is, therefore, no wonder that the people are not very good at small talk, do not waste too much time on grand introductions, and usually come straight to the point. This is why Estonians' English may sometimes sound shockingly direct. There is, however, often a subtle irony involved in Estonians' utterances - delivered with a serious face and just the slightest twinkle of the eye.



Estonians are relatively individualistic. There is a saying that five Estonians mean six parties. Even though people agree on the final objective, they insist on reaching it in their own ways. Estonians also value their privacy. In the old days, it was said that the neighbour's house was close enough if you could see the smoke from the chimney. Modern, tight-packed urbanites flock to remote countryside on the weekends to enjoy more space and privacy.

Even though guests at birthday parties and concerts are rather quiet and subdued in the onset, they warm up eventually and turn into a direct opposite of their day-character, as you are likely to see in Tallinn's clubs.





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