

# The Importance of Education in Building a Digital Economy – Lessons from Estonia

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British Ambassador to Estonia

NAACE, Leicester, 24 March 2016



# Estonia

## Where? Who? Why?





# So what is e-Estonia?



Home - e-Estonia x

www.e-estonia.com

## Components for Digital Society:

BUSINESS CITIZENS EDUCATION FINANCIAL-SERVICES GOVERNMENT HEALTHCARE INFRASTRUCTURE PUBLIC-SAFETY UTILITIES

### DigiDoc

DigiDoc is a system that's widely-used in Estonia for storing, sharing and digitally signing documents.

### Digital Signature

Digital signature enables secure, legally-binding, electronic document signing

### e-Business Register

Enables entrepreneurs to register their new business online in minutes

### e-Cabinet

A powerful tool used by the Estonian government to streamline its decision-making process

### e-Law

Allows public access to every piece of draft law that has been submitted since February 2003

[more](#)

### News

- 08.03 Guardtime Secures Estonian Health Records
- 15.02 Geektime Highlights Estonian Startup Scene
- 12.02 e-Residency to Support Nasdaq in Transforming Shareholder Participation
- 04.02 Alec Ross: An Epic Tale of Two Countries
- 04.02 BBC features Estonia in 'My Perfect Country'

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## The Estonian Digital Economy



- Estonia reliant on digital technology for its government – almost all services, 98% tax returns online/completed within days, digital signatures by default , online voting etc
- Digital economy grew 40% in 2015, 59% buy goods/services online
- Ranked 5 in world for cyber security
- Very strong English skills among under 40s – ranked 7 in world – very high numbers in tertiary education – and the strength of STEM...



# e-Estonia e-services...



e-Residency - e-Estonia

<https://e-estonia.com/component/>

 <b>DigiDoc</b> DigiDoc is a system that's widely-used in Estonia for storing, sharing and digitally signing documents.	 <b>Digital Signature</b> Digital signature enables secure, legally-binding, electronic document signing	 <b>e-Business Register</b> Enables entrepreneurs to register their new business online in minutes	 <b>e-Cabinet</b> A powerful tool used by the Estonian government to streamline its decision-making process	 <b>e-Law</b> Allows public access to every piece of draft law that has been submitted since February 2003
 <b>e-Police</b> Revolutionizes police communication and coordination, maximizing effective policing.	 <b>e-Prescription</b> A centralized, paperless system for issuing and handling medical prescriptions	 <b>e-Residency</b> Estonian e-Residency is a digital identity that allows everyone in the world to do business online with ease.	 <b>e-School</b> Allow students, teachers and parents to collaborate in the learning process	 <b>e-Tax</b> e-Tax has drastically reduced the time spent by individuals and entrepreneurs on filing taxes
 <b>Electronic Health Record</b> Integrates data from healthcare providers into a national record for each patient	 <b>Electronic ID Card</b> e-ID acts as definitive proof of ID in secure electronic environments	 <b>Electronic Land Register</b> A one-of-a-kind information system for storing real estate and land data	 <b>i-Voting</b> i-Voting allows voters to cast their ballots over the internet, from anywhere in the world.	 <b>Keyless Signature Infrastructure</b> Estonian digital society ensures the integrity of its systems and data by using the KSI technology.

e-Residency - e-Est... Welcome to the Tall... Pictures Microsoft PowerPoi... 01:29






# e-Estonia tax...



e-Tax - e-Estonia

https://e-estonia.com/component/e-tax/

## Tax declaration in Estonia is online! 95% of people do t... ➔



E-Tax is the electronic tax filing system set up by the Estonian Tax and Customs Board.

Since its introduction in 2000, it has drastically reduced the time spent by individuals and entrepreneurs on filing taxes. In 2002 the system matured tremendously with automated tax declaration forms.

In 2013, 95 percent of tax declarations in Estonia were filed electronically.

Using a secure ID, a taxpayer logs onto the system, reviews their data in pre-filled forms, makes any necessary changes, and approves the document with a digital signature. The process typically takes five minutes.

In addition to individual tax returns, other declarations can be made in the system:

- An enterprise's declarations for income tax, social tax, unemployment insurance and contributions to mandatory funded pension
- Value-added tax returns
- Alcohol excise duty, tobacco excise duty, fuel excise duty and packaging excise duty returns
- IMF declarations

INTRODUCED IN: 2000

BENEFITS:

- ✓ Transparent and efficient tax collection
- ✓ Taxpayers receive refunds in five days
- ✓ Lower administrative cost for tax board

### Did you know?

Starting 2007 all businesses were required to use e-tax system exclusively, eliminating paper filing.

TAGS: **CITIZENS**

e-Tax - e-Estonia - ... Welcome to the Tall... Pictures Microsoft PowerPoi...

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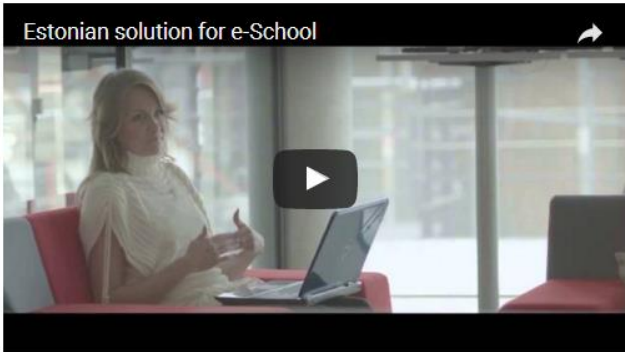


# e-Estonia e-Kool/e-School...



e-School - e-Estonia

https://e-estonia.com/component/e-school/



Estonian solution for e-School

One of the most widely used and innovative web applications in Estonia is e-School. It provides an easy way for education stakeholders to collaborate and organize teaching/learning information.


The system has a range of different functions for its various users:

**Teachers** enter grades and attendance information in the system, post homework assignments, and evaluate students' behavior. They also use it to send messages to parents, students or entire classes.

**Parents** use it to stay closely involved in their children's education. With the help of round-the-clock access via the internet, they can see their children's homework assignments, grades, attendance information and teacher's notes, as well as communicate directly with teachers via the system.

**Students** can read their own grades and keep track of what homework has been assigned each day. They also have an option to save their best work in their own, personal e-portfolios.

**District administrators** have access the latest statistical reports on demand, making it easy to consolidate data across the district's schools.



INTRODUCED IN: 2002



BENEFITS:

- ✓ Parents have better control and can be more involved in children's schooling
- ✓ More efficient organization and record keeping for teachers
- ✓ Better communication between teachers and parents

**Did you know?**

Over 85 percent of Estonia's schools use e-School, covering about 95 percent of all grade school students.

TAGS: **EDUCATION**



e-School - e-Estonia... Welcome to the Tall... Pictures Microsoft PowerPoi...

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## The Estonian Digital Economy – how much does it rely on education, and how could it get stronger through education?



### The strong positives

- STEM results – (joint) top of world outside E Asia
- >85% of schools use e-School
- >60% of schools offer programming as optional course, integrated in other subjects or as extra-curricular activity
- NB Digital literacy is the focus of curriculum, not programming
- “Digital skills” 1 of 5 priorities of Estonian lifelong-learning strategy: aim 80% 16-74 yo by 2020 (65% in 2012)
- Planned transition to e-textbooks, interactive exercises, open education resources, web-based assessment





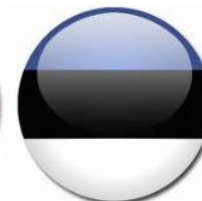
## The Estonian Digital Economy – how much does it rely on education, and how could it get stronger through education?...



- Equipment
- Investment in teacher skills \*
- More EdTech – for skills, and engagement
- “How do we keep up with the kids?” Student-led? Or support from others?
- Business engagement – skills in technology and in being an entrepreneur/launching start-ups (including planning and comms/marketing...)



# e-Estonia – educational change...

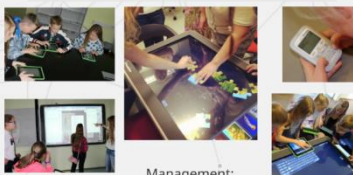


## About CIE

- Sub-academic unit to develop teacher education, in and outside of TU
- Cooperation with TU institutes, other Estonian and foreign universities
- CIE partner schools, CIE Idea-partners (NGO and private sector educational initiatives)



## Technology in CIE



Management:



## Development towards student-centered approach to school leadership and teaching/learning:

- New approaches to leadership and teaching/learning (NATAL) - national educational strategy 2020
- School development projects to increase leadership capacity and promote changed learning culture
- Testing of new methods and collecting best practice
- Bringing education to 21st century: digitalization, social and collaborative skills, hands-on, minds-on learning ...



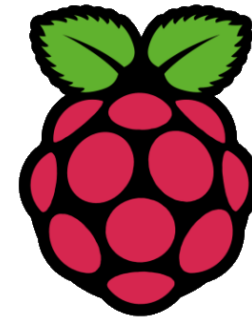
## Educational technology and interactive learning environment in CIE

- CIE learning environment - where crazy ideas come to life
- Classrooms with subjects, interactive classrooms
- Built to be flexible
- Learning scenarios to help and inspire teachers and lecturers





# UK-Estonia programming connection – the [Raspberry](#) Pi programme



RaspberryPi



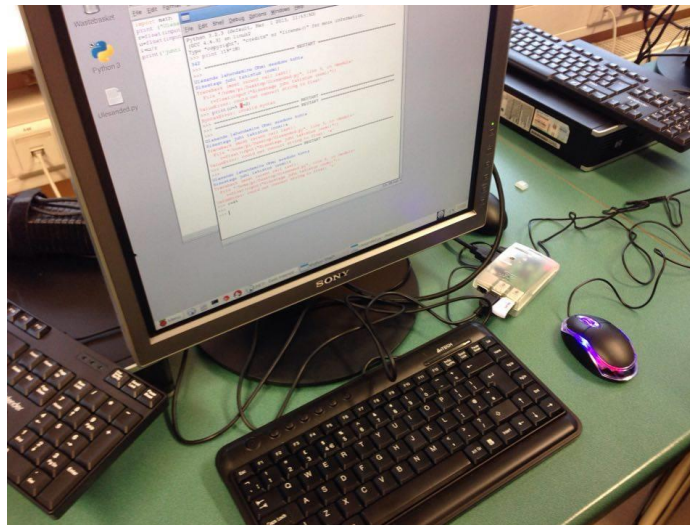
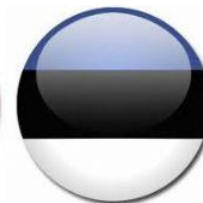
TransferWise



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Tallinn



# Raspberry Pi, Robotics - Võru...





# Introducing the Raspberry Pi

GAG 2.c klassi 1. Raspberry Pi tund



Raspberry pie - vaarika pirukas.

Pilt: [http://www.shockinglydelicious.com/wp-content/uploads/2011/08/IMG\\_0541.jpg](http://www.shockinglydelicious.com/wp-content/uploads/2011/08/IMG_0541.jpg)



Raspberry Pi - tilluke arvuti.

Pilt: <https://blog.adafruit.com/wp-content/uploads/2014/07/1914-01.jpg>



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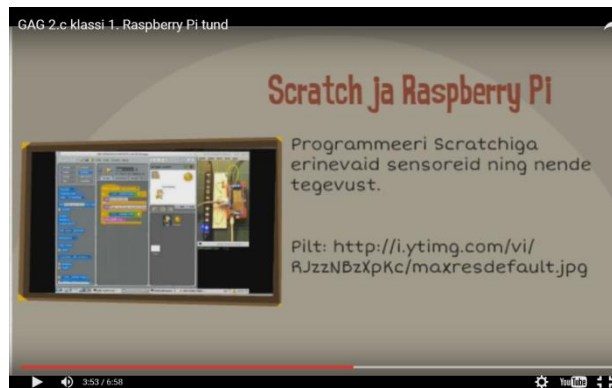
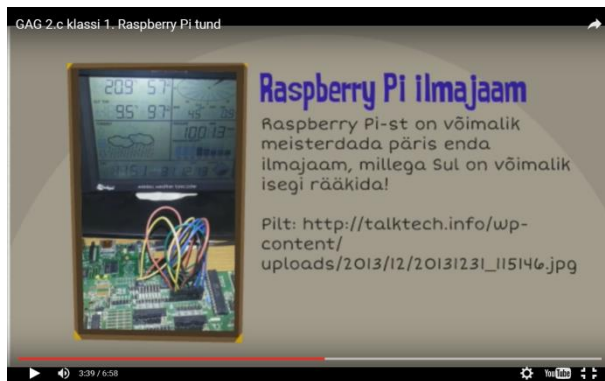
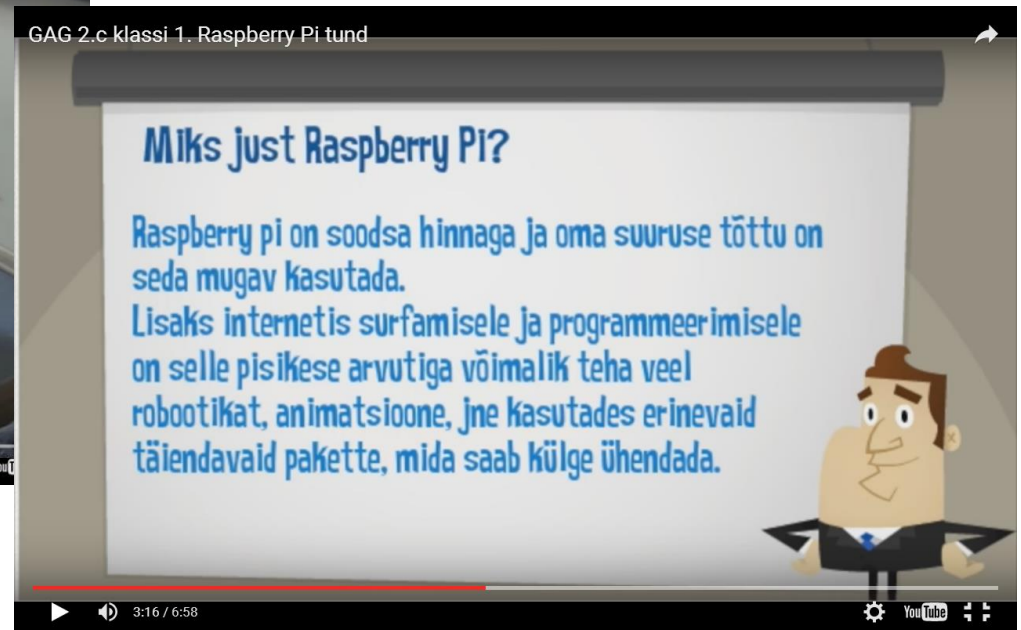
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YouTube



# Raspberry Pi how to do film, now shared across Estonian schools...





How can you help/get involved?



- Jam with Estonian schools/hubs/youth clubs?
- Skype chats with Estonian students
- Visit? Host a visit?
- Share ideas with Estonian tech teacher leaders
- If you're in EdTech, come into the Estonian/  
Nordic-Baltic market

Thank you!

Hopefully some interesting  
points to discuss/reflect on 😊

Questions?  
Arguments?  
Ideas?

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