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# What is the New Normal for education sector in Estonia?

- Strong partnership between government and private sectors for developing digital skills
- Wide school autonomy, encourging bottom-up approach
- Importance of networks and cooperation
- Evidence-based decision making principle
- The importance of development of digital skills is recognised in government policy design and budget over the years.


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# Outline

- What do we do for the development of digital skills?
- How do we strive for evidence-based education-system?
- How do we operate & HITSA's role?
- Conclusions

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## Computer coding taught in Estonian primary schools

**8 January 2014** Last updated at 08:28 GMT

EUROPE | INTERNATIONAL EDUCATION

The New York Times

## *Adding Coding to the Curriculum*

RDINER MARCH 23, 2014

LONDON — Estonia is teaching first graders how to create their own computer games and offering scholarships to entice more undergraduates into technology-driven disciplines. In England, an updated national curriculum will soon expose every child in the state school system to computer programming, starting at age five. The American "Hour of Code" effort says it has already persuaded 28 million people to give programming a try.

## Guess who's winning the brains race, with 100% of first graders learning to code?

J. O'DELL SEPTEMBER 4, 2012 11:39 AM

It's Estonia!

≡ WIRED.CO.UK

## Estonia brings in coding classes for its youngest schoolkids

TECHNOLOGY / 05 SEPTEMBER 12 / by KLINT FINLEY

148 shares
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Public schools in Estonia will soon have a curriculum for teaching web and mobile application development to students as early as their first year of school.

GIGAOM

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## Estonia's plan to get 6 year olds coding is a stroke of genius

Bobbie Johnson Sep 5, 2012 - 6:00 AM PDT

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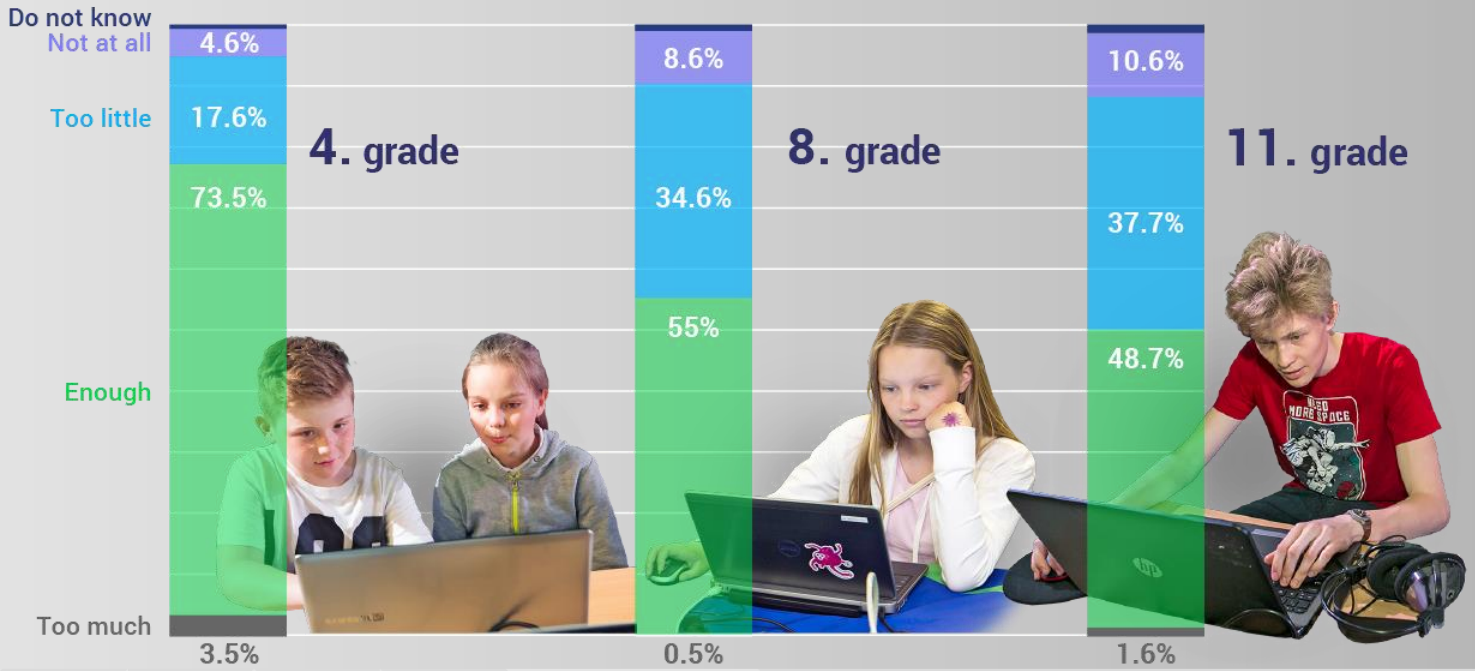
# How satisfied are students with the digital skills taught at school?




Source: Ministry of Education and Research

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# How do we manage ICT in education

No separate curricula for ICT

- Lifelong Learning Strategy 2020: digital focus as one of the five main goals. National programme „Digital Focus“ 2016-2020.
- National curriculum: general digital competency and cross curricular topic "Technology and Innovation“.
- Schools are autonomous in decisions how to teach ICT skills.


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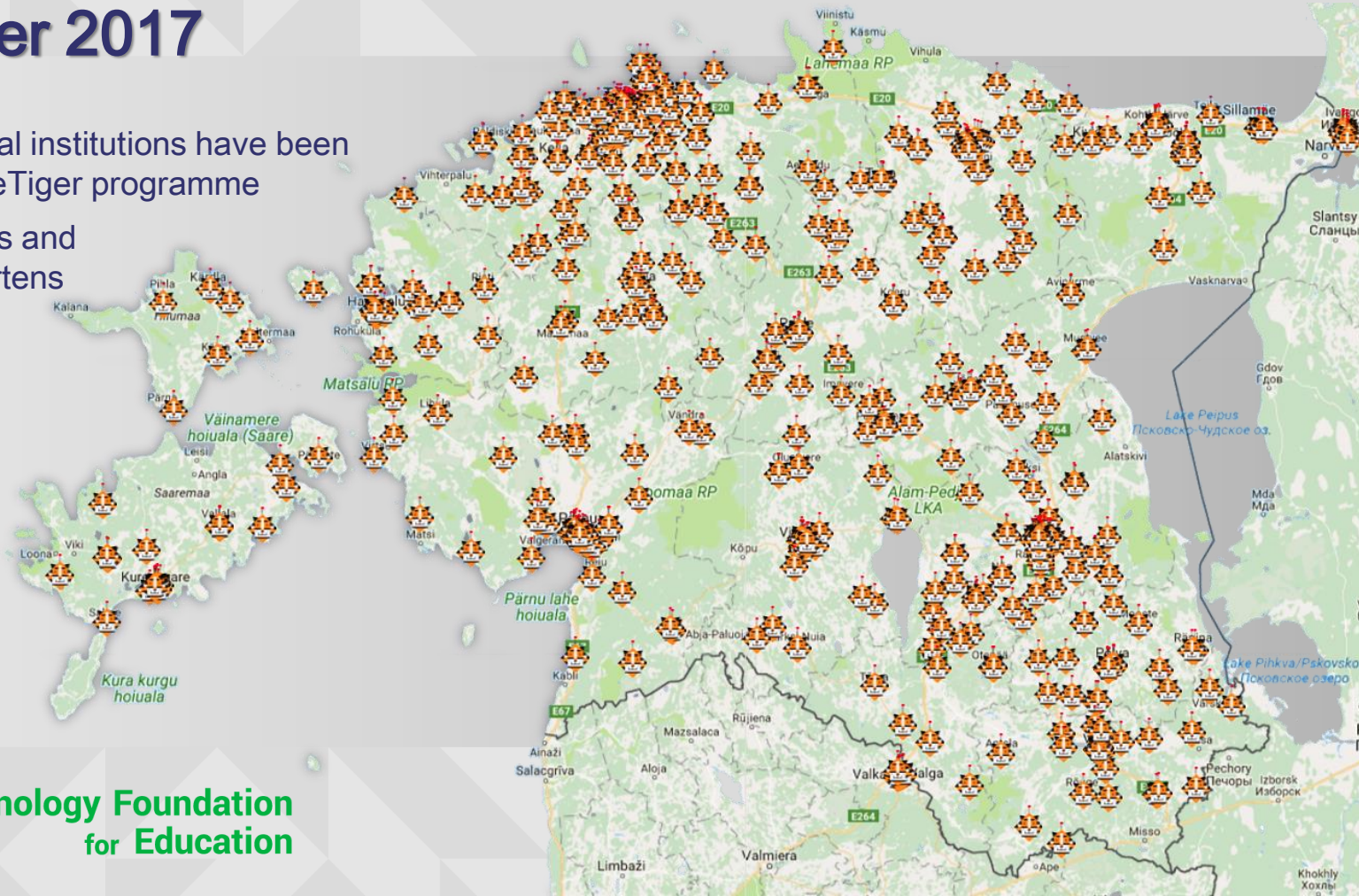
# Estonian education system

- 770 kindergartens, 550 general education schools, 40 vocational schools, 13 higher education institutions, research institutions
- General education: pre-school, basic and upper-secondary education. Basic school is mandatory.
- The national curricula – standards for basic and upper-secondary learning outcomes.
- School's running costs covered by local governments/ the state:
  - Municipal schools (over 80% of all schools)
  - State schools
  - Private schools
- 5,9% of the public sector expenditure is used for education (2016)

# ProgeTiger 2017

- 635 educational institutions have been active in ProgeTiger programme
- 85% of schools and 44% kindergartens

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# Tertiary level ICT field graduates (levels 5-8)

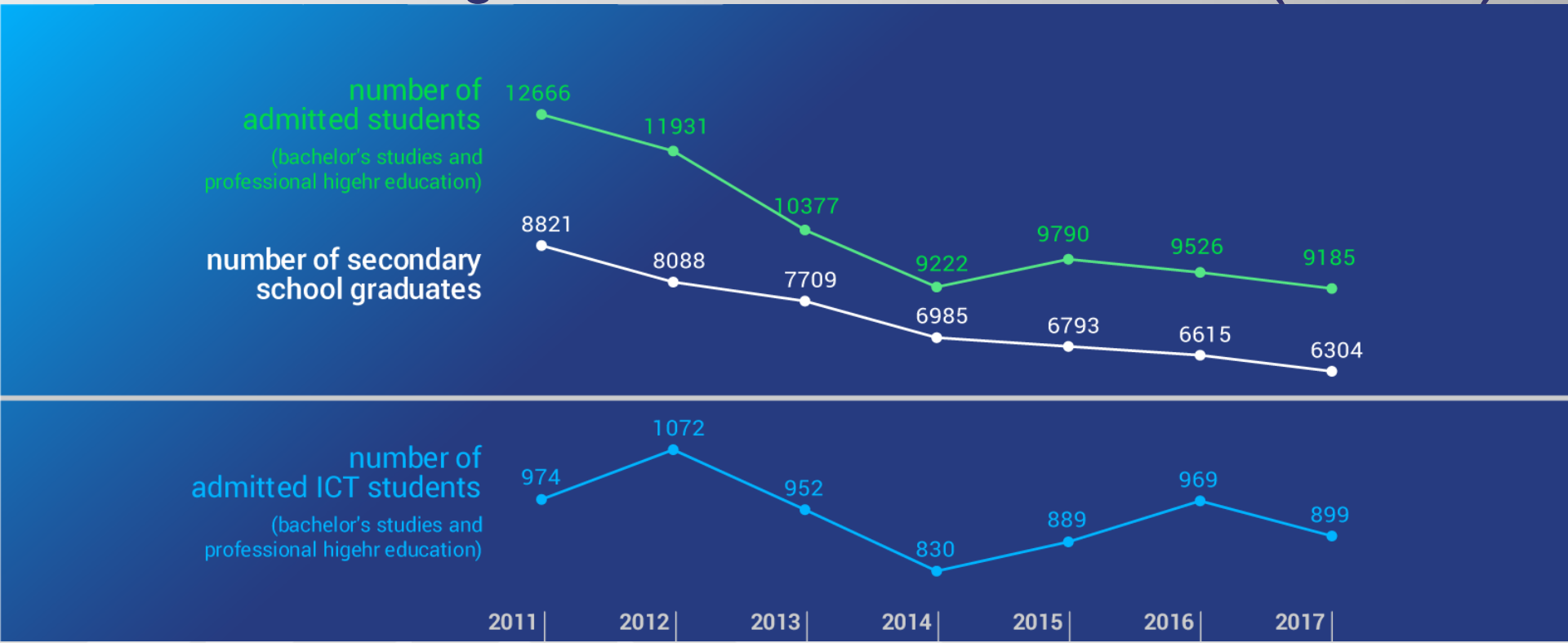
| | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|
| Finland | 6,7 | 6,6 | 6,7 | 7,1 |
| Estonia | 5,3 | 5,2 | 4,9 | 6,4 |
| Latvia | 3,6 | 4 | 4,4 | 4,8 |
| Lithuania | 2,1 | 2,1 | 1,8 | 2 |
| Sweden | 3,4 | 3,6 | 3,5 | 3,7 |
| Ireland | 4,9 | 5,4 | 4,9 | 7 |
| EU average (current composition) | ... | 3,2 | 3,5 | ... |

*Source: Eurostat, extracted 24.05.2018*

# We aim for

- Positive attitude towards technology at an early age
- Focused financial support to improve accessibility and quality of ICT studies
- Providing field related ICT competencies into curricula
- Providing full scale solutions
- Engaging context – ICT is cool!!!

# Admission to higher education and ICT studies (1st level)

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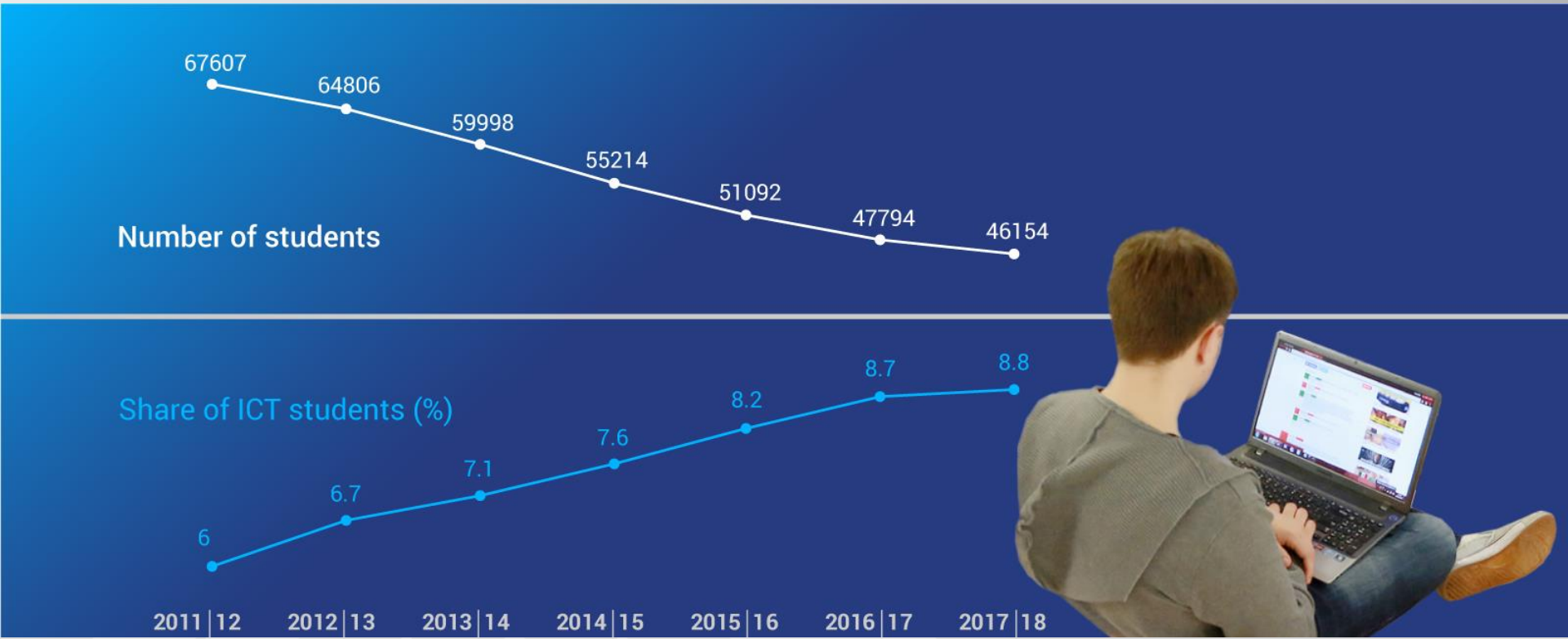
# Number of students

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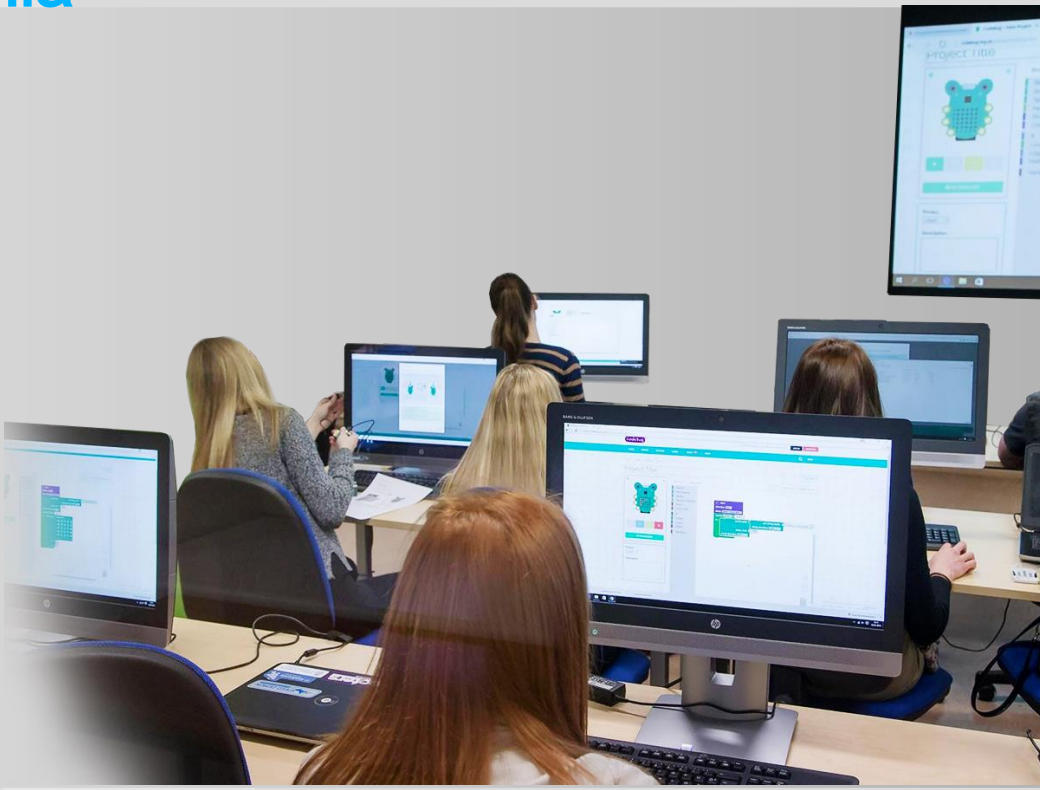
# Higher Education in Estonia

- 745 active curricula in Estonia, **36 are ICT**
  - Bachelor's studies 10
  - Master's studies 12
  - Doctoral studies 3
  - Professional higher education 11
- ICT curricula are in University of Tartu (UT), Tallinn University of Technology (TUT) and Tallinn University (TU)
- University of Tartu and Tallinn University of Technology are responsible for ICT higher education (in all levels)



# IT Academy Programme – background

- IT Academy's goal is to ensure labor force for ICT sector, help to create premise for economic growth by offering high level ICT education for Estonian and mobile students.
- Launched in 2012 in cooperation of state, universities and ICT enterprises
- Four specific objectives:
  - Estonia offers high level ICT higher education and graduates' knowledge and skills correspond to requirements of labor market
  - Estonian ICT graduates number correspond to the needs of Estonian economy
  - Estonia ICT is active in international cooperation and ICT higher education has good international reputation
  - Graduates of non-ICT fields of studies have field-specific ICT competences
- Broadbased steering committee, incl. ICT enterprises and ministries

# Data for better education system

- More than 80% of Estonian schools have joined the „eSchool system“ – data exchange hub between school and home - and it covers 90% of all students. 30% of the population uses eSchool on  monthly bases.

- Centrally managed information system EHIS launched already 2004. It contains data on education from the originaal source (core provider), has input from appr 2000 institutions: education institutions, publishers, other registers
  - Contains personalised (live) data
  - Is accessed only by ID-card
  - Cooperates with over 20 different information systems

# EHIS

- Contains information about early childhood education, general education, vocational education, higher education, hobby education, juvenile committee decisions, state examinations, etc.
- EHIS used for policy-making and funding decisions in education and education statistics.
- Is organised in six modules
  - Documents certifying education
  - Pupils and students
  - Teaching staff
  - Educational institutions
  - Textbooks
  - Curricula
- The general public sees the EHIS data via the Haridussilm *Education Eye* visual education statistics database

# Main X-road services with EHIS

- Directed towards individuals
  - Submitting application for VET and HE institutions
  - Applying for needs-based study allowance
  - Getting doscount in public transport: ID-ticket
  - Getting study loans via banks, etc
- Directed towards governmental organisations:
  - Local governments for planning school Network and calculating headcount money;
  - Health Insurance Fund for decisions about insurance cover
  - Social Insurance Board for calculating family benefiits
  - Citizenship and Migration Board for redidence data, etc

# Other developments for using EHIS data

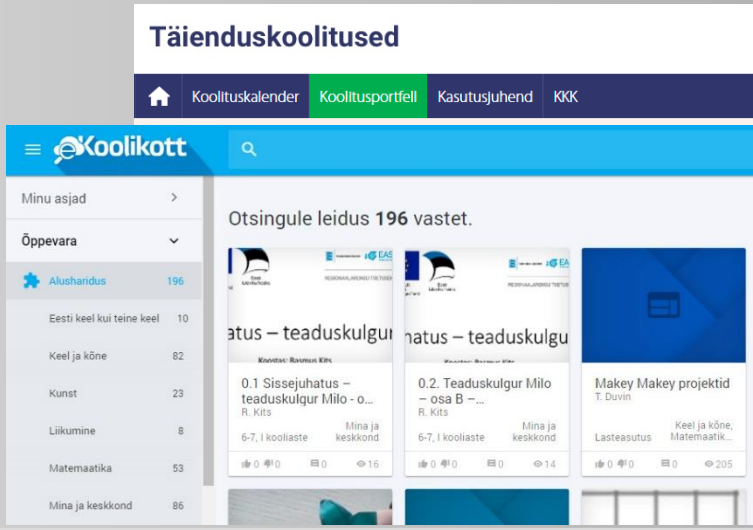
- Connections with other registers (EHIS and tax payers' register) for longitudinal analyses: informing public about graduates „success in labour market" years after graduation.
  - In cooperation with Statistics Estonia
- Connecting EHIS and ohter register data with PIAAC data for Nordic PIAAC data-base located in Statistics Denmark

# Information Systems for educational institutions

Main aim is to secure safe, effective and flexible environment which supports and automates study processes and facilitates the exchange of information between educational institutions and learners.

Examples of different information systems:

- SAIS – Admission Information System for universities
- ÕIS – Study Information System for universities of applied sciences and vocational schools
- E-Schoolbag – Digital learning materials
- Moodle – Learning management systems
- Training Management System
- Plagiarism Detection System – Urkund, KRATT

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# How did we get here?

**1960**
Institute of Cybernetics was founded

**1988**
First computers type JUKU reached schools

**1992**
EENet was founded

**1997–2013**
TigerLeap Foundation

**2000–2013**
Estonian Information Technology Foundation – for vocational and higher education

**2001**
**All schools connected to internet**

**Schools were provided with computers**

SchoolLife portal was launched

Look@World Foundation

IT College was established

**2002**
E-University Consortium for developing ICT in higher education

eSchool was founded

**2004**
EHIS

**2005**
International cooperation projects (eTwinning, Insafe)

e-Vocational School consortium

**2011–2015**
ICT Program to promote higher education in ICT

**2012**
IT Academy programme

ProgeTiger programme

**2013**
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**2016-2017**
New computers for school teachers

**2016-2020**
**Modernising internet connections in all Estonian schools**

2020

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# About us

- HITSA promotes the use of information and communication technology in education and supports the preparation of highly competent IT-specialists.
- Founded in 2013 by:
  - Estonian Republic
  - Tartu University
  - Tallinn University of Technology
  - Eesti Telekom (Telia)
  - Association of Estonian Information Technology and Telecommunications Companies
- Government dependent foundation
- Number of employees: 60

# About us

HITSA's goals:

- Promotion of smart use of ICT in learning process.
- Provide  educational institutions with the necessary IT services for studying, teaching and work organization.
- Ensure the development and stable operation of the optical backbone network and central services.

HITSA's target group:

- School staff
- Higher education institutions and research communities
- Students

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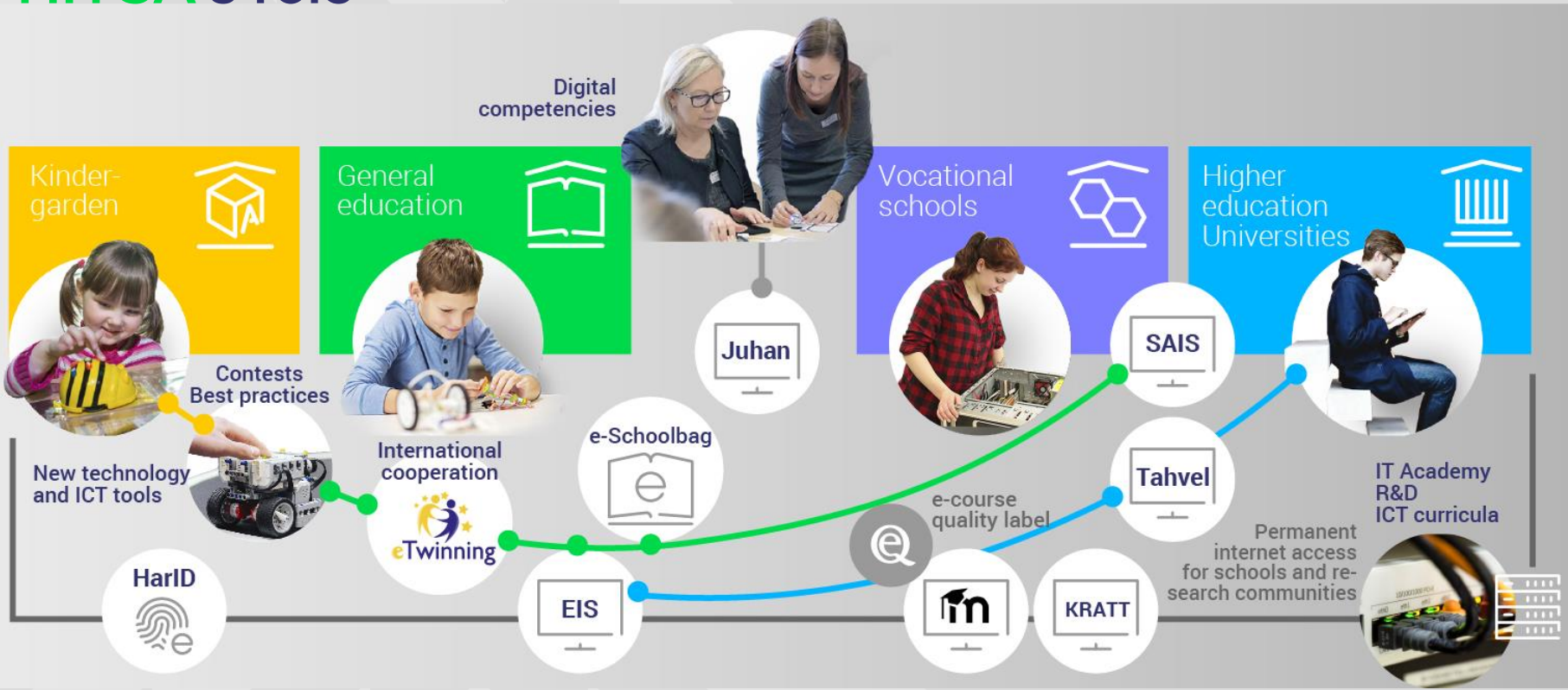
# HITSA's role

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# HITSA's focus areas

## EENet

- Permanent internet access
- Authentication
- Computing infrastructure

## Innovation Centre

- Technology programme ProgeTiger
- Teacher trainings
- Educational technology trends
- Supporting ICT higher education

## Development Centre for Information Systems

- SAIS
- Tahvel
- Juhan
- Kratt
- Moodle
- e-Schoolbag
- Echo360
- EIS

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- Online information: www.hitsa.ee

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