# education

The educational digital revolution in Estonia aims to implement modern digital technology more efficiently and effectively in learning and teaching, and to improve the digital skills of the entire nation. For example, it includes ensuring that every student receives the necessary knowledge and skills to access modern digital infrastructure for future use.

Estonia's success in the digital revolution can be seen in the educational landscape since twice as many students pursue IT careers in Estonia than the average in other OECD countries.

Estonian Education Information System

eKool and Studium

e-Schoolbag

Other e-school solutions


**1st**
in Europe in the OECD PISA test

**100%**
of schools use e-school solutions

**every 10th**
student sets out to study IT every year


THE TIGER LEAP PROGRAM WAS LAUNCHED IN 1996 BY TOOMAS HENDRIK ILVES, JAAK AAVIKSOO AND LENNART GEORG MERI.

3 PILLARS — COMPUTERS AND THE INTERNET, BASIC TEACHER TRAINING AND NATIVE-LANGUAGE ELECTRONIC COURSEWARE FOR GENERAL EDUCATION INSTITUTIONS.

TIGER LEAP FOUNDATION - 1997.

ALL SCHOOLS WERE PROVIDED WITH COMPUTERS BY 2000 AND BY THE YEAR 2001, ALL SCHOOLS WERE CONNECTED TO THE INTERNET.

THE LOCAL GOVERNMENTS, RECEIVED FINANCIAL SUPPORT FROM TIGER LEAP EQUAL TO WHAT THEY COULD INVEST THEMSELVES.

BASIC ICT COURSES FOR TEACHERS WERE ORGANIZED – IN 1997 NEARLY 4000 TEACHERS PARTICIPATED IN THE 40-HOUR COMPUTER BASIC TRAINING COURSE, WITH THOUSANDS MORE IN THE NEXT YEARS.

IN 1999, NEW COURSES IN ELECTRONIC COURSEWARE, ONLINE INFORMATION SEARCHES AND PREPARATION OF EDUCATIONAL MATERIALS WERE INTRODUCED.

IN 2000, THE ESTONIAN INFORMATION TECHNOLOGY FOUNDATION WAS ESTABLISHED

# TIGER LEAP PLUS


**ICT competences of students, teachers and educational staff. Its main activities included the creation of electronic educational materials, in-service training and support of teacher cooperation and experience exchanges**

Estonian e-Vocational School consortium, with the aim of developing e-learning and cooperation in vocational education

Estonian e-University consortium - diversification of higher education and the development of more flexible learning opportunities in institutions of higher education

Learning Tiger program - make e-learning a natural part of daily tutorial work, curricula and teacher training. Web-based learning management system and new learning environments (Moodle, VIKO), further developing teachers' ICT competencies, competitions for students and taking part in international cooperation through programs like eTwinning and Smartly on the Web.

DigiTiger, ScienceTiger, TigerRobotics, SewingTiger, TechnoTiger, AnimaTiger, TigerMath, VanKER (e-VET, almost all VET teachers participated).

# SMARTACADEMY

2,5-hour smart device and e-services training seminars in libraries all across Estonia.

ABC of smart devices (what is mobile data, what are applications, how to do a Google-search, how to use e-mail on a smart device etc) and how to use smart devices safely.

Test of smart device skills based on the DigiComp framework


## *Look@World*

Basic computer training for 102 697 people (10% of the adult population of Estonia)

11 693 courses organised

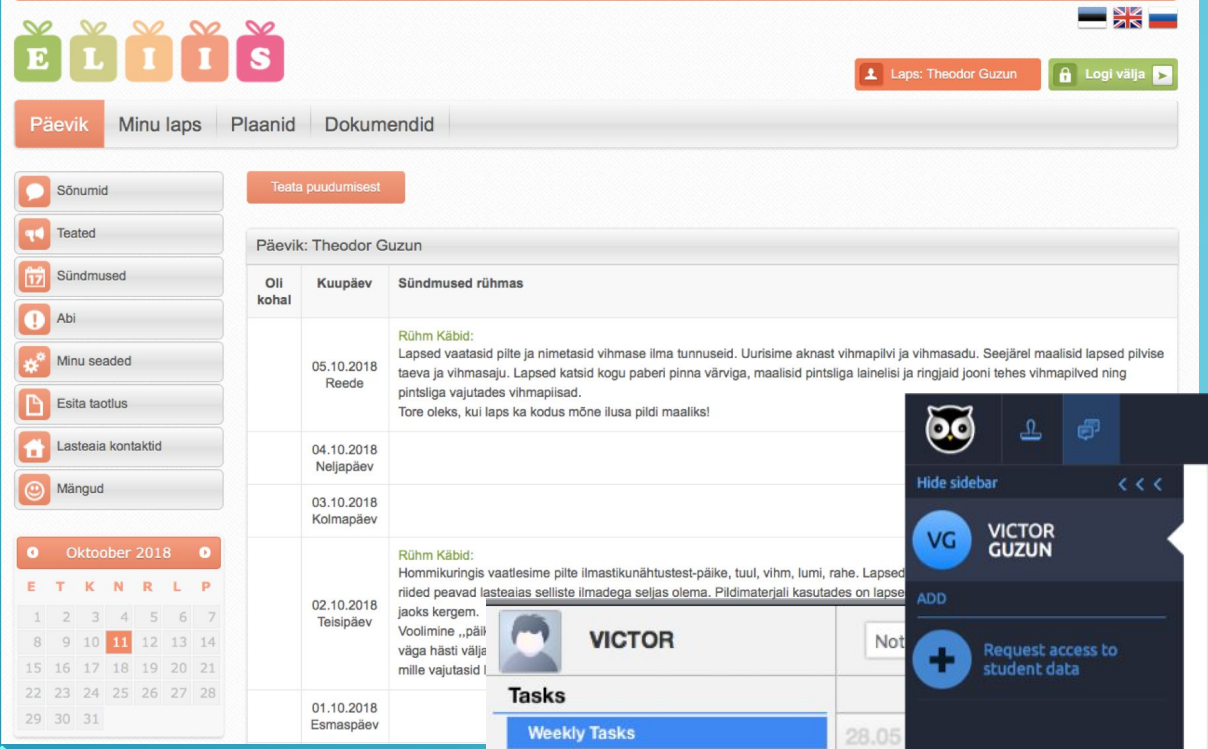
8 hour basic computer and internet training course for beginners free of charge

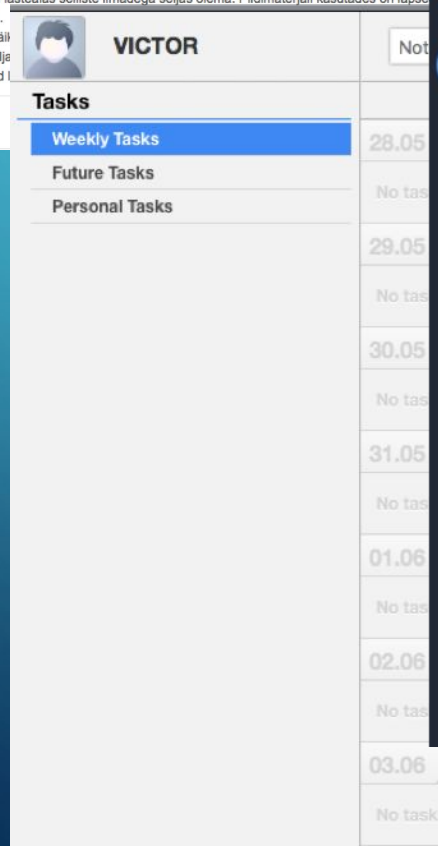
280 part-time educators who worked in 245 training classes were engaged

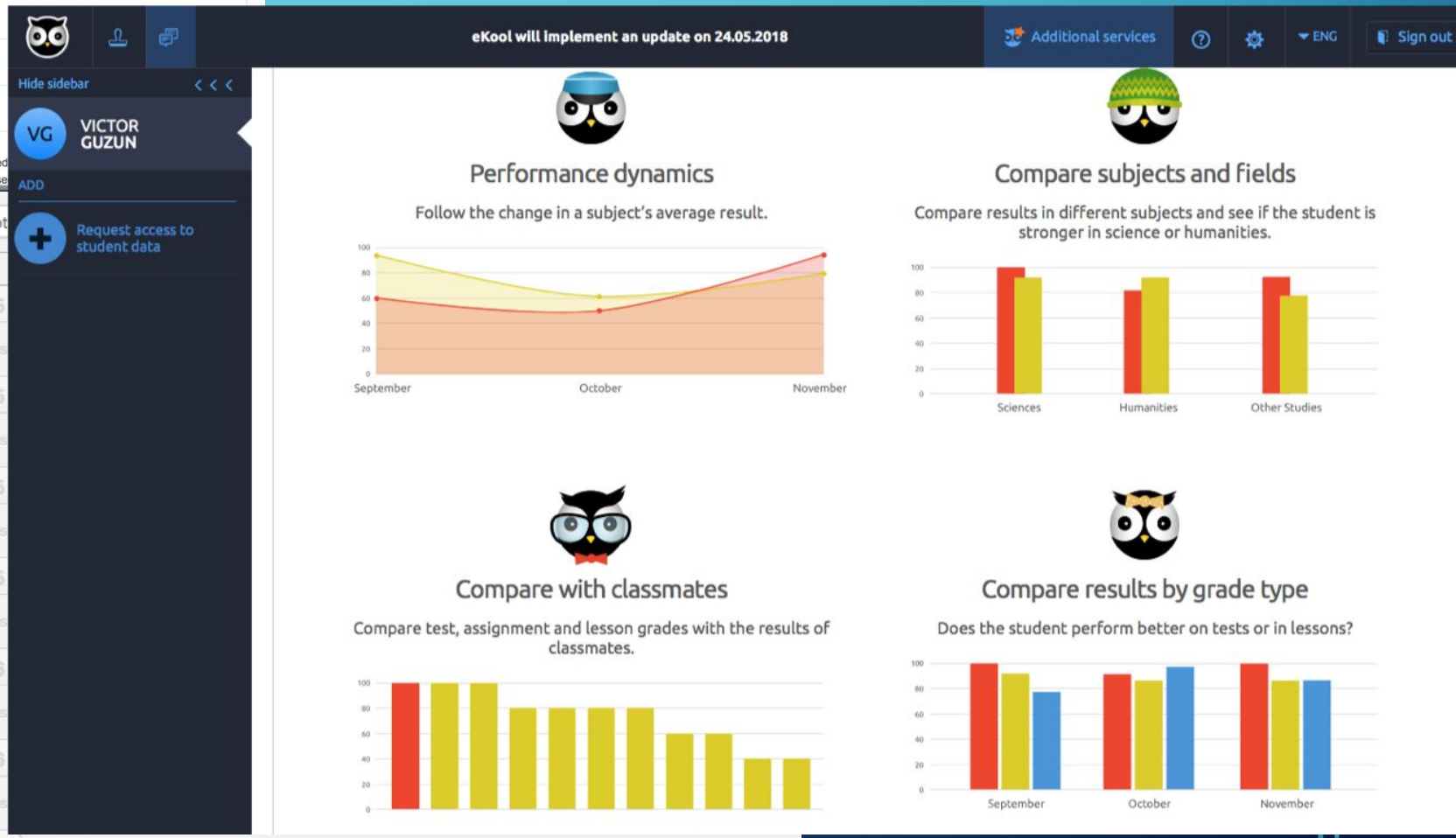
more than 70% of the participants started using the Internet

2 years (including the pilot training).

# ELIIS, E-SCHOOL



# 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.

# 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.

# 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)

# Number of students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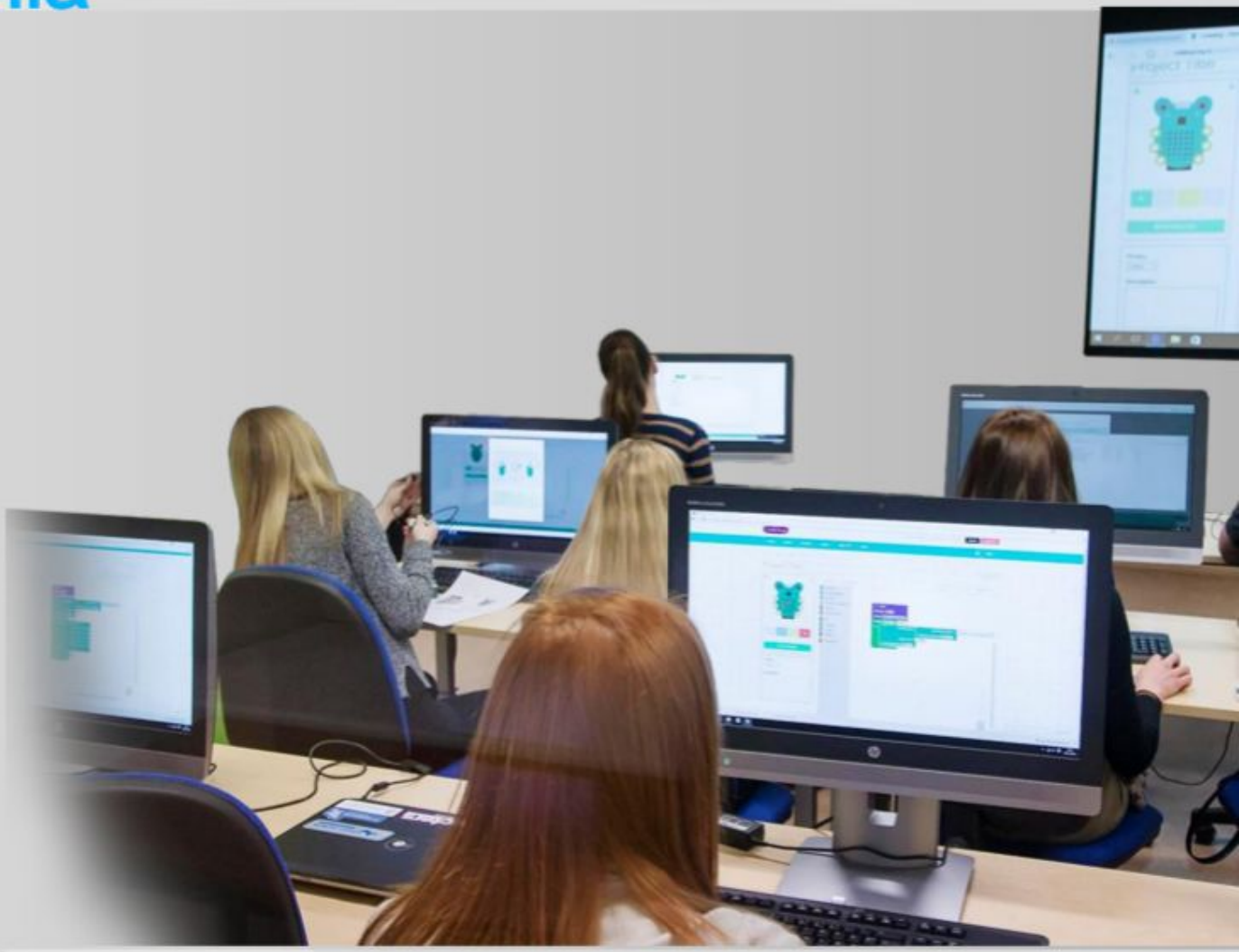
#HITSA

# 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)



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# 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

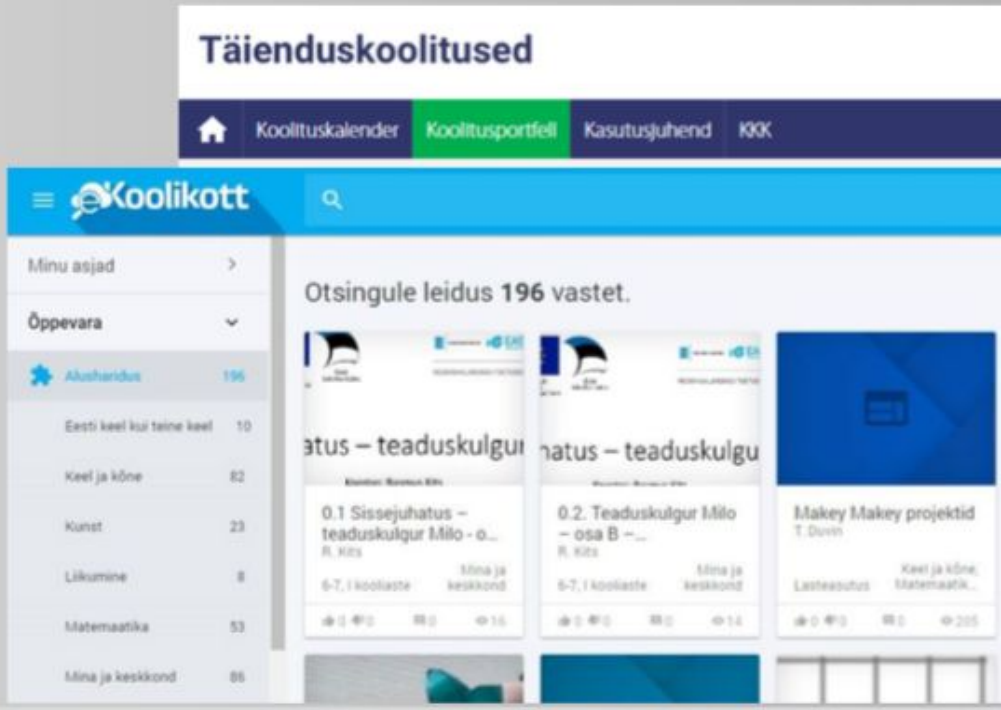
- Directed towards individuals
  - Submitting application for VET and HE institutions
  - Applying for needs-based study allowance
  - Getting doscount in public transport: ID-ticket
  - Getting study loans via banks, etc
- Directed towards governmental organisations:
  - Local governments for planning 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

# 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**
HITSA

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

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

2020

**Information Technology Foundation for Education**

# HITSA

- 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


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# HITSA

# 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

## 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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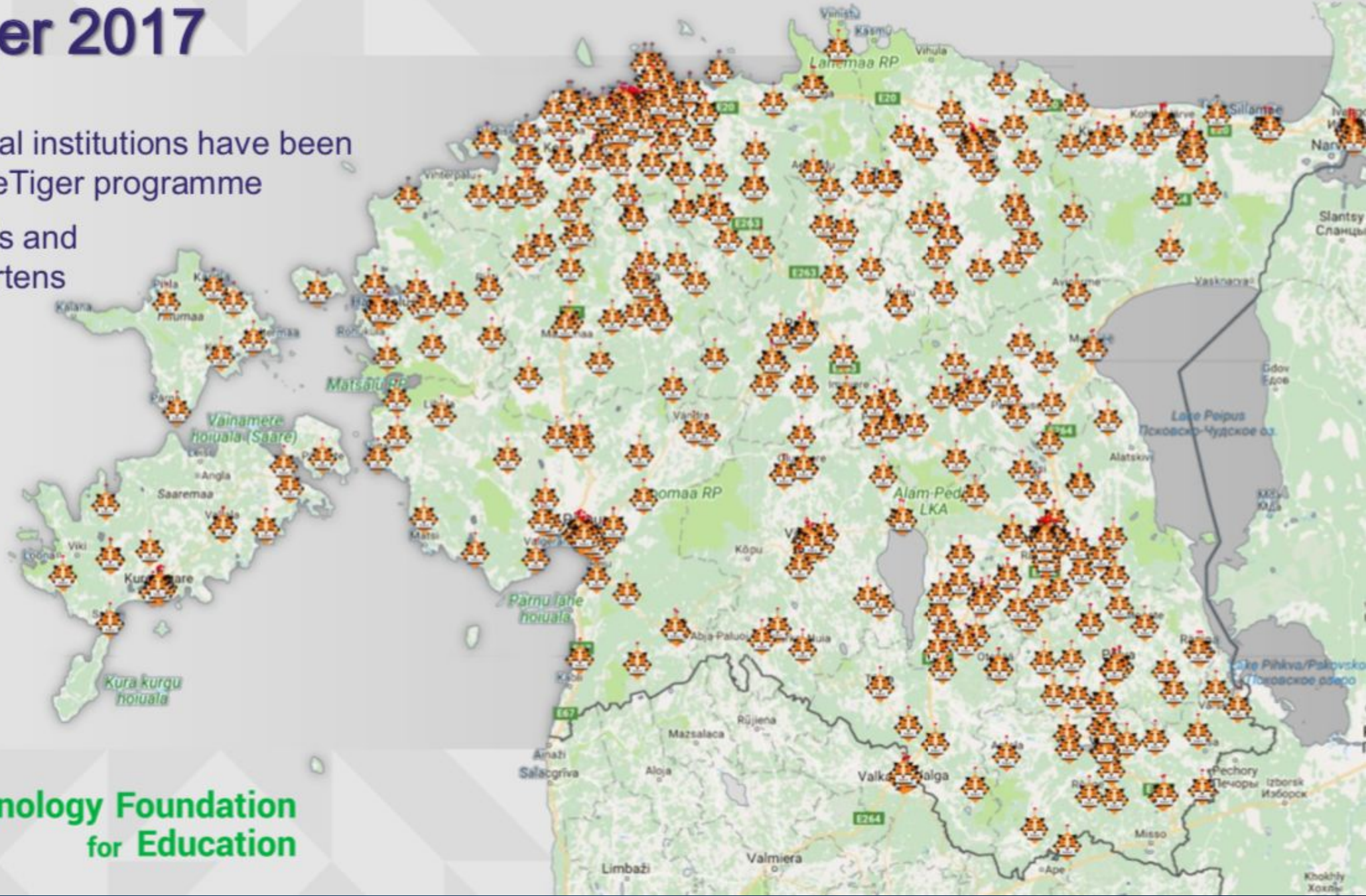
# ProgeTiger 2017

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

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- Some examples what our teachers do in schools:
- In preschool, teachers teach and use LEGO WeDo, Kodu Game Lab, tablets (apps), programmes to make animations etc.
- In primary school, teachers teach and use Kodu Game Lab, Logo MSW, Scratch, LEGO Mindstorms EV3, mobile app making programmes and environments, many different programmes and environments which are used for teaching various subjects (music, mathematic, physics, biology), e-labs etc.
- In high school and vocational education, teachers teach and use different programming languages (Python, JavaScript etc), Codecademy.com courses, 3D graphics, robotics, programmes to make games, web-pages and apps etc.

2015

# EESTI 2.0

- More Estonian school kids interested in technology. They should not be taken back by the fear that technology is only for the smartest or the best
- 3D printers and tools to Estonian schools
- e-Summer schools
- encouraging people to form teams that will put people with different skills together
- not only STEM (Science, Technology, Education, Mathematics) but STEAM: integrating the arts as well