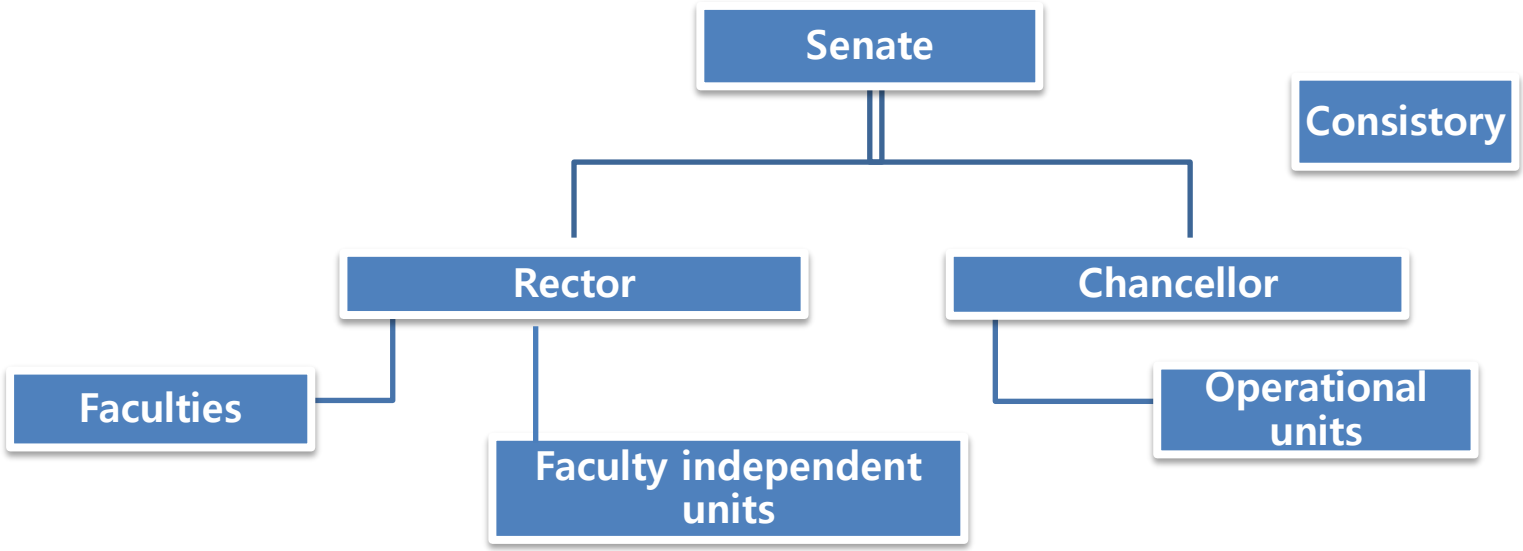

EÖTVÖS LORÁND TUDOMÁNYEGYETEM — EÖTVÖS LORÁND UNIVERSITY

International Alumni Workshop Innovation on Healthcare
Budapest, 3-5 October 2018

# Improving innovation potential: new research directions and cooperations of the ELTE Eötvös Loránd University

Prof. Dr. Péter G. Szalay
Vice-Rector for Research

# ELTE AND ITS GOVERNANCE




***8*** faculties

***28,000*** students, ***1,800*** academic staff

***38*** bachelor programs,

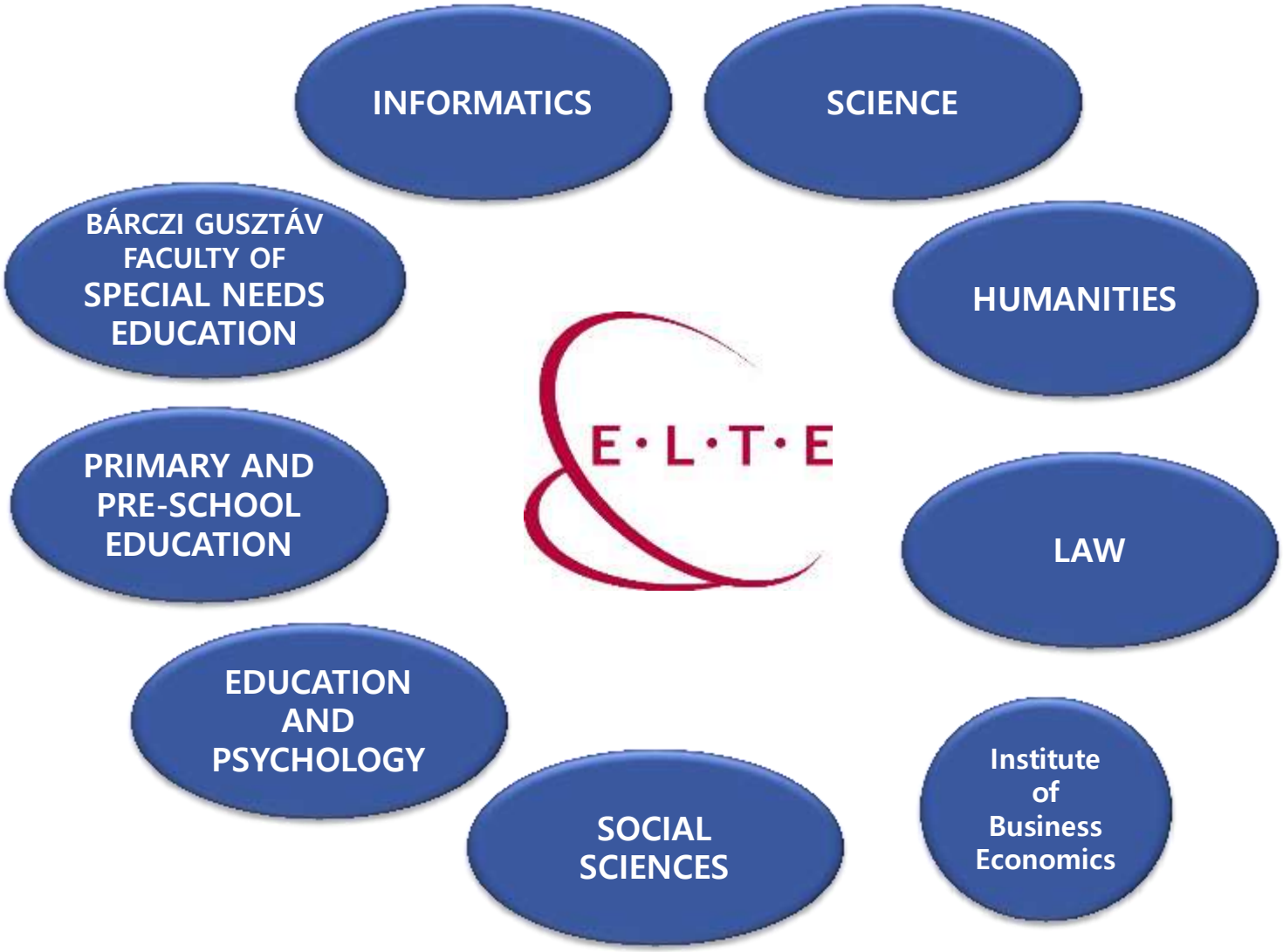
***80*** combined undergraduate-graduate teaching programs

***96*** master programs

***62*** degree programs in foreign languages (mainly in English)

***126*** doctoral programs in ***16*** doctoral schools

# FACULTIES


INFORMATICS
SCIENCE
BÁRCZI GUSZTÁV FACULTY OF SPECIAL NEEDS EDUCATION
HUMANITIES
E·L·T·E
PRIMARY AND PRE-SCHOOL EDUCATION
LAW
EDUCATION AND PSYCHOLOGY
SOCIAL SCIENCES
Institute of Business Economics

# HUNGARY'S MOST PRESTIGIOUS UNIVERSITY

**In the TOP 5% of Higher Education Institutions worldwide**

**Named after a Hungarian physicist, Baron Loránd Eötvös**

Among the top

**500**

higher education institutions, the best Hungarian university (ARWU, 2015)

Among the top

**250**

higher education institutions in Europe (Leiden Ranking, 2015)

**5**

Nobel Laureates

**The oldest university operating continuously since its foundation in 1635**

EÖTVÖS LORÁND TUDOMÁNYEGYETEM — EÖTVÖS LORÁND UNIVERSITY

# RESEARCH UNIVERSITY

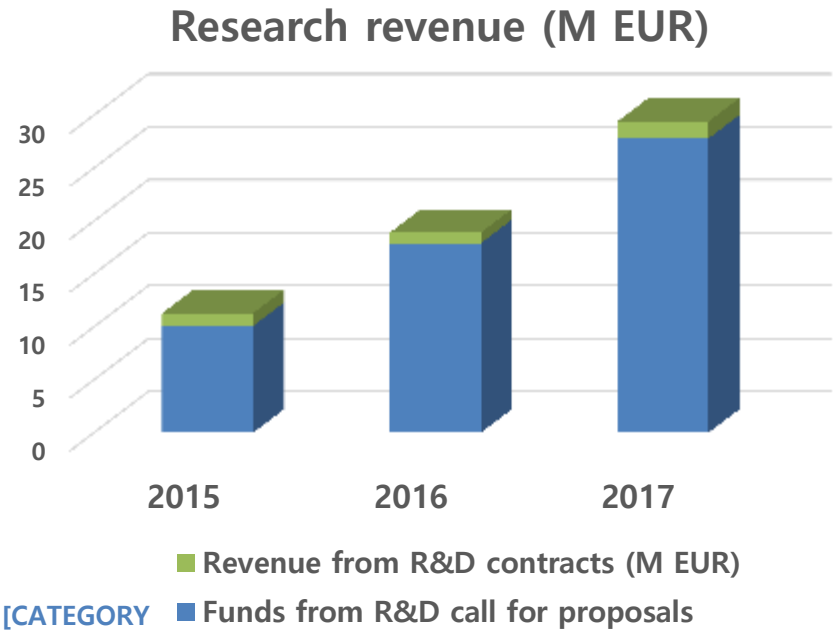
- **75%** **of the staff have scientific qualifications** (highest rate among Hungarian universities)
- Research staff: **~ 160 FTE**
- **234** **professors, with** **80** **being member of the Hungarian Academy of Sciences (20% of all academics)**
- **27** **research groups** in collaboration with the Hungarian Academy of Sciences
- Publications: **~3.500/year**

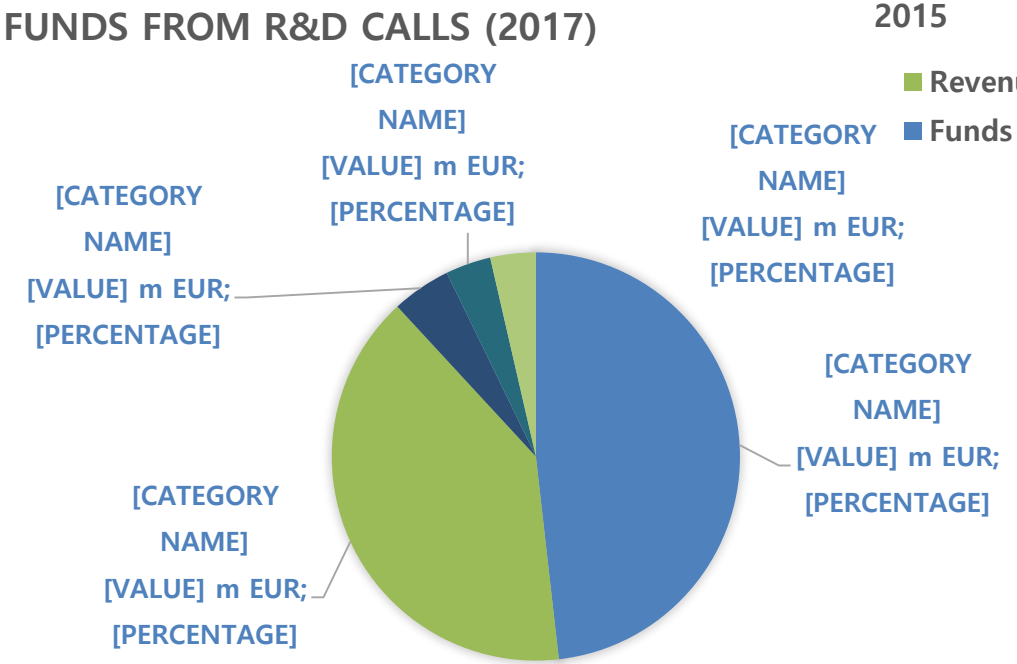
# FINANCIAL FACTS

ELTE is public university, the main source of its funding is the government

**Overall Budget:**

**~86 million EUR**



# CAMPUSES IN BUDAPEST

# CAMPUSES OUTSIDE BUDAPEST

- **SZOMBATHELY CAMPUS:**
  - **From February 2017**, Savaria Campus in Szombathely with an outstanding infrastructure for higher education.
  - Main areas of education: **mechanical engineering, sports science and health promotion, as well as pedagogical training**.
  - **Mechanical engineering – Dual education system** with the prominent stakeholders of regional industry.

- **MARTONVÁSÁR interdisciplinary research institute**
  climate-adaptive and sustainable agriculture

# RESEARCH FACTS FOR ELTE I.

## Our most important research fields:

- **Physics**: Astronomy, Astrophysics
- **Chemistry**: Theoretical Chemistry, Protein Chemistry
- **Mathematics**: Graph Theory, Networks, Applied Mathematics
- **Informatics**: Data science, Programming Languages, Cybersecurity
- **Biology:** Immunology, Ethology, Biotechnology
- **Health Sciences**: Psychology, Biomarkers, Health Economics
- **Literature**, Linguistics and Modern Languages
- **Philosophy**
- **Archeology** and History
- Pedagogy and Sociology




# RESEARCH FACTS FOR ELTE II.

| 2018 | | ELTE rank |
|---|---|---|
| Academic Ranking of World Universities (ARWU) | | 501-600 |
| Global Ranking of Academic Subjects (ARWU) | Mathematics | 151-200 |
| | Physics | 201-300 |
| | Psycology | 201-300 |
| | Ecology | 301-400 |
| | Earth Sciences | 401-500 |
| QS World University Rankings by Subject | Natural Sciences | 291 |
| | Arts and Humanities | 321 |
| | Archaeology | 151-200 |
| | Philosophy | 151-200 |
| | Linguistics | 151-200 |
| | Agriculture & Forestry | 201-250 |
| | Mathematics | 251-300 |
| | Physics & Astronomy | 301-350 |

# RESEARCH FACTS FOR ELTE III.

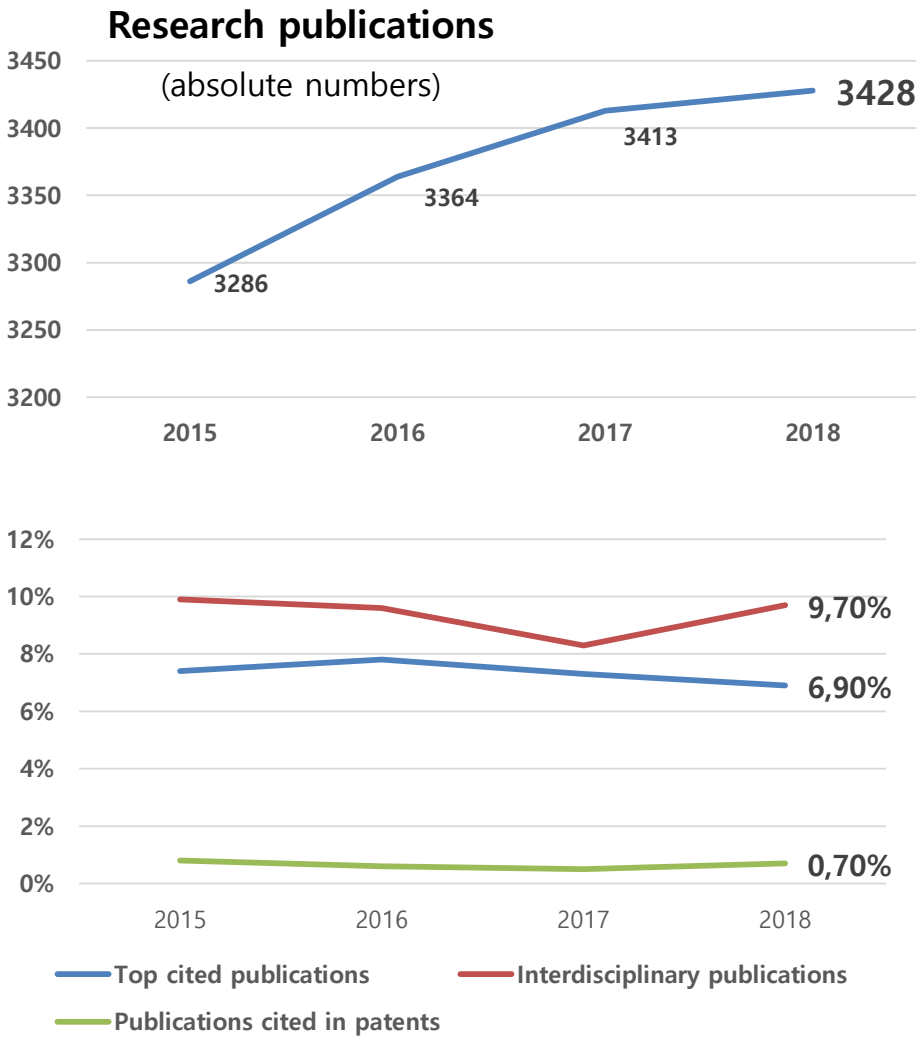
**Increasing number of new research groups:**

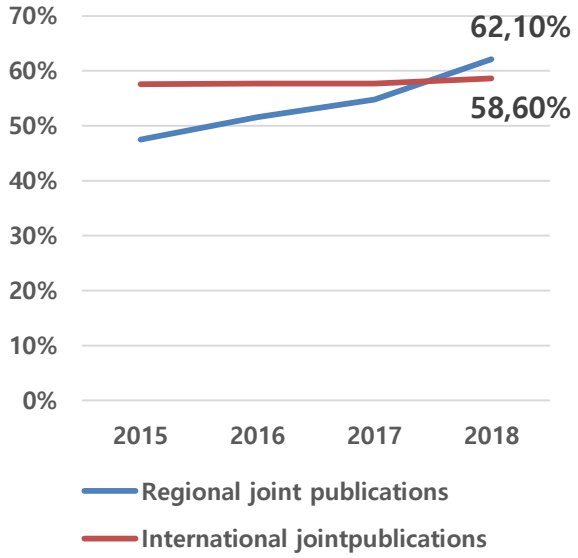
- **Research groups with Hungarian Academy of Sciences**
  - **14** MOMENTUM groups
  - **27** ELTE-HAS research groups lead by ELTE professors

- Excellence research groups founded by the National Research, Development and Innovation Office

- Internationally founded research groups:
  - **3** ERC StG research groups
  - **15** granted H2020 projects (mostly Faculty of Science)

# RESEARCH FACTS FOR ELTE IV.

# INTERNATIONAL COOPERATION

- **Active member of 8 prestigious international university organizations**

- **Partnership with LERU as member of CE7** group

# CENTRAL EUROPE LEUVEN STRATEGIC ALLIANCE

CELSA
Central Europe Leuven Strategic Alliance

KU LEUVEN

CHARLES UNIVERSITY IN PRAGUE

University of Ljubljana

**CELSA** was founded in 2016 by seven prestigious universities in four innovative European cities:

- **KU Leuven (Belgium)**
- Budapest (Hungary): 3
- Prague (Czech Republic): 2
- Ljubljana (Slovenia): 1
- Tartu (Estonia): 1 (joined in 2017)

**CELSA** aims at

- Promoting collaboration between its members
- Organizing common research projects and training courses
- Preparing collaborative EU research projects, like H2020
- Exchange practice at both policy and operational level: in research assessments, open science, knowledge transfer

CZECH TECHNICAL UNIVERSITY IN PRAGUE

MŰEGYETEM 1782

TARTU ÜLIKOOL 1632 UNIVERSITAS TARTUENSIS

EÖTVÖS LORÁND TUDOMÁNYEGYETEM — EÖTVÖS LORÁND UNIVERSITY

# ELTE'S FLAGSHIP PROJECTS

- **EIT Digital, Budapest node**

- **Research Center for Autonomous Road Vehicles**

# ELTE'S FLAGSHIP PROJECT

FIEK BIOTECHNOLÓGIA

**Development of molecular biomarker research and service center**

- **New example of university-industry collaboration**
- **In the program for promoting university-industry cooperation**
- **Supported by National Research, Development and Innovation Office**
- Project size: appr. **8,5 million EUR.**

E·L·T·E

mta ttk

SERVIER

CLINICAL RESEARCH UNITS HUNGARY

NATIONAL RESEARCH, DEVELOPMENT AND INNOVATION OFFICE HUNGARY

PROJECT FINANCED FROM THE NRDI FUND

*MOMENTUM OF INNOVATION*

# ELTE'S FLAGSHIP PROJECT

**The three pillars of the sustainable operation of ELTE Biotechnology FIEK:**

1. **a service providing molecular biomarker laboratory;**
2. **the development of new molecular biomarkers;**
3. **RDI services based on the biotechnological knowledge and instruments of the research teams.**





# ELTE'S FLAGSHIP PROJECT

## Mission of ELTE Biotechnology FIEK

### General goals:

- become a competitive biotech research organization at international level within the next 2–3 years
- receive and successfully fulfil domestic and international (Central Europe and Asia) requests
- Financially sustainable

### Educational goals:

- Pharmaceutical Biotechnology MSc from autumn 2018
- MSc program in Bioinformatics from autumn 2019.

# EXCELLENCE PROGRAM FOR HE INSTITUTIONS

**Research focus with industrial and societal ties:**

- Diagnostics and Therapy
- Astro and Particle Physics
- Material Sciences
- Problem-solving Societal Systems

E·L·T·E
RESEARCH UNIVERSITY

**This program has been**

- supported by the Hungarian Government
- started this year
- has a yearly budget of about **6.5 million EUR**

INNOVÁCIÓS ÉS TECHNOLÓGIAI MINISZTÉRIUM

EÖTVÖS LORÁND TUDOMÁNYEGYETEM — EÖTVÖS LORÁND UNIVERSITY

# VISION FOR THE NEAR FUTURE

Target is a modern 21st century university:

- ELTE **strengthens the link between training and research, as well as in a wider sense their link to the third mission**.
- ELTE participates in the development of **the Open Science and Open Access** to scientific publications.
- ELTE aims at increasing the number of **research cooperation in H2020.**
- ELTE **strengthens its industrial and social relations**, builds its positions in the development and innovation ecosystem.
- ELTE focuses on **developing its research areas** in order to preserve and develop domestic and international excellence.

E·L·T·E
RESEARCH UNIVERSITY

# Thank you for your attention!

# 3. RESEARCH, TECHNOLOGICAL DEVELOPMENT AND KNOWLEDGE TRANSFER

**Research infrastructure**

- **Mixed picture:** there are state-of-the-art tools and obsolete instrument parks as well.

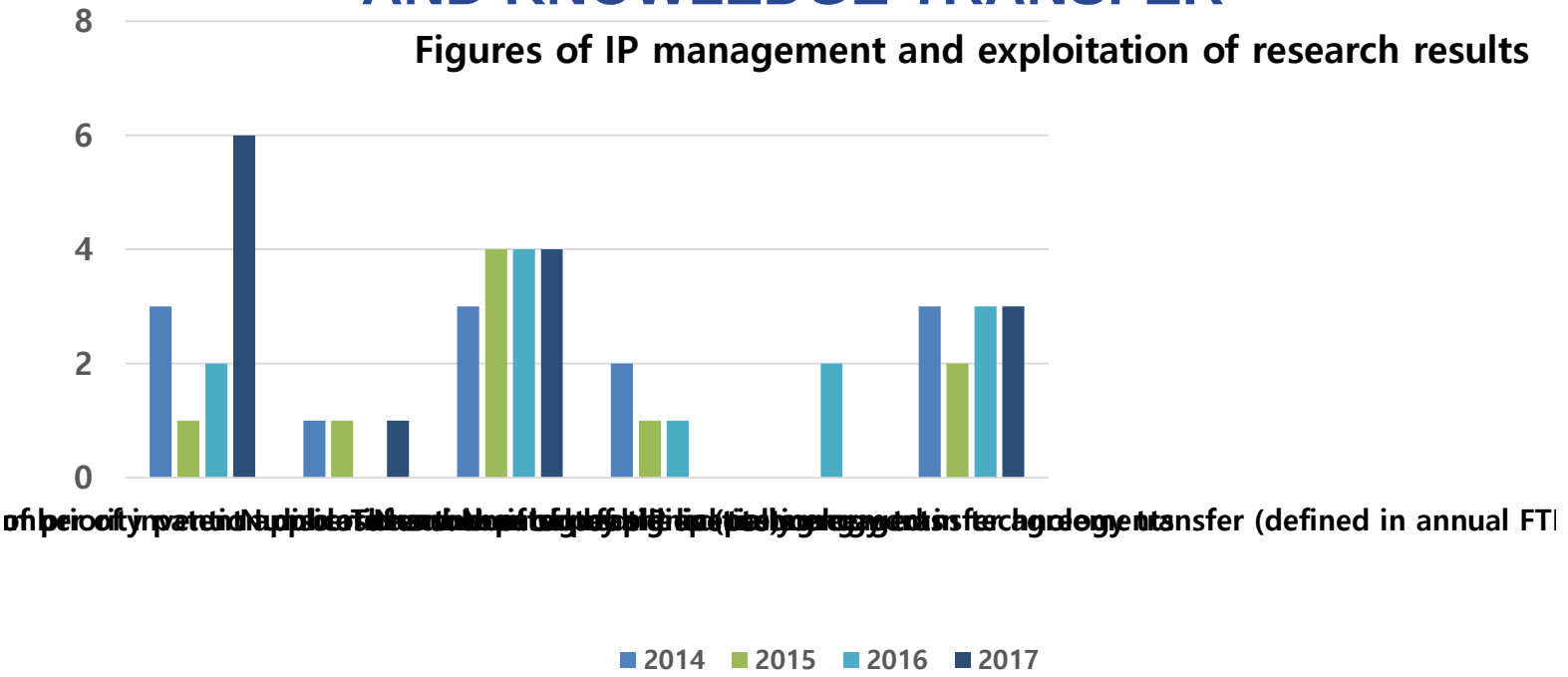
**Technology transfer and intellectual property**

**Innovation Center**:

- supports the establishment of **start-up companies** and new businesses
- delivers **training programs** and **workshops** for the researchers
- introduces an innovation intensive approach in the **education**
- The Center successfully applied for the mentoring and capacity building services of PROGRESS-TT consortia in 2016
  - 1 of 15 supported offices from Europe.
  - The collaboration included an intensive coaching and mentoring in order to develop capability, capacity, opportunity, and to build a more supportive TT environment.

PROGRESSTT
CAPACITY BUILDING FOR TECHNOLOGY TRANSFER

# 3. RESEARCH, TECHNOLOGICAL DEVELOPMENT AND KNOWLEDGE TRANSFER




- 2017: **signed IP license agreements: 10**
- 2017: **signed technology transfer agreements: 2**
- 2015 – 2018: institutional **revenue from IP utilization: 50-100.000 EUR**.
- 2014 – 2017: ~ 80 R&D assignments were given to the university; in 17 cases, the client was an international partner.

**R&D and innovation prizes**

- Researcher of the Year Prize (since 2009)
- The Innovative Student Idea Contest

# 4. ENTERPRISE DEVELOPMENT AND ENTREPRENEURSHIP

| University spin-off companies | 2017 |
|---|---|
| Number of spin-off companies* | 11 |
| Number of spin-offs with some institution ownership | 1 |
| Number of spin-offs without ownership of the university | 10 |
| Estimated turnover of ELTE of all active spin-off activities | ~ 30.000 EUR |

*Most companies operate in the field of natural sciences

- 3 in biotechnology,
- 1 in IT,
- 1 in pharmacy,
- 1 in social sciences.

# 4. ENTERPRISE DEVELOPMENT AND ENTREPRENEURSHIP

## STUDENT START-UPS – INNOVATION LAB

- designed **to assist the innovative entrepreneurial ideas** of students and lecturers
- develop entrepreneurial **ideas originated from their own research/ study** (thesis, doctoral diss.) – **entrepreneurial skills** and knowledge
- participants can start their own start-up projects or may join other start-ups of the program,
- gain key – academic or market-oriented –, practical experience in their career

### Indicators for the Lab:

- 10-15 people selected and trained from dozens of applicants/year
- In the two completed cohorts:
  - 2-4 people **have founded startups**,
  - 3-5 people got **early hires by startup companies**,
  - at least 2 companies **were co-founded by Lab participants**,
  - 4 participants were admitted **to EIT Digital's Master School**,
  - 2 other have been involved in **EIT Digital innovation projects.**

Chatler Pulmoment

# VISION FOR THE NEAR FUTURE

***"Research:***

***serving the future by discovering the present and the past."***

Amongst the strategic objectives, – set in the Institutional Development Strategy (2016–2020) – it is a priority

**"to strengthen excellence in research and to develop some missing elements of the R&D&I chain",**

**„to develop university-level research and education management, to systematically monitor the University's performance (by developing a suitable method), as well as the implementation of performance based evaluation."**