

FACTS AND STRATEGIES, 2010



Budapest University of Technology and Economics, BME

World famous personalities

Nobel laureates:

Dénes GÁBOR (1900 - 1979) Holography, in 1971



Jenő WIGNER (1902 - 1995) Theoretical physics, in 1963

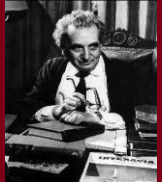


György OLÁH (b:1927) Organic chemistry, in 1994

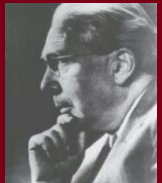


Former students:

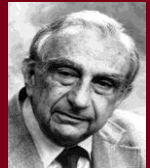
Theodore von KÁRMÁN (1881-1963) Aeronautical Engineer & Mathematician



Leo SZILÁRD (1898-1964) Physicist



Ede TELLER (1908- 2004) Physicist



Former graduates:

Károly ZIPERNOWSKY (1853-1942) inventor of transformer



Donát BÁNKI (1859 - 1922) inventor of carburator



Ernő RUBIK (1944 -) inventor of Rubik's cube



BME in Figures

1782 Institutum Geometricum – Hydrotechnicum

2000- Budapest University of Technology and Economics

former Technical University of Budapest (1949-2000)

8 Faculties,

77 Departments

Faculties:

- Civil Engineering (1782)
- Mechanical Engineering (1871)
- Architecture (1873)
- Chemical and Biotechnology (1873)
- Electrical Engineering and Informatics (1949)
- Transportation Engineering (1951)
- Natural Sciences (1998)
- Economic and Social Sciences (1998)

▪ **21 822 Students**

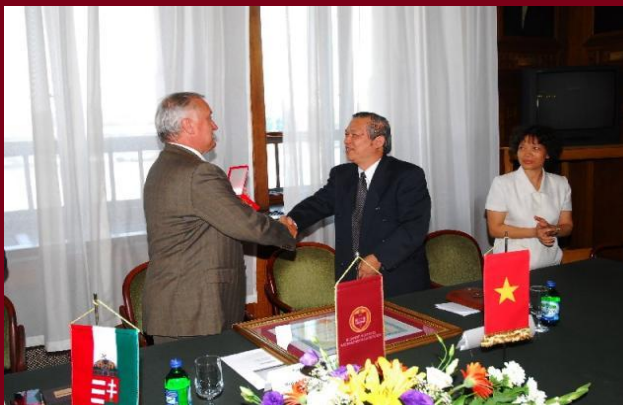
▪ **Academic Staff: 1300, with scientific qualification: 700**

▪ **Web Popularity Ranking: 81st in Europe (2007)**



Golden Quality Prize in Higher Education

(Ministry of Education and Culture, Hungary, 2007)



Friendship Order

(Ministry of Education and Training, Vietnam, 2007)

Based on the decision of the Former President of the Socialist Republic of Vietnam, His Highness Tran Duc Luong the Budapest University of Technology and Economics was awarded the Friendship Order for its active contributions to the training of human resources for Vietnam, contributing to the development of the friendship relationship between the Socialist Republic of Vietnam and Hungary.



Elite-Research University Award

(Ministry of Education and Culture, Hungary, 2010)

Focus areas:

- Sustainable energetics
- Vehicle technology, transportation, logistics
- Nanophysics, nanotechnology, material science
- Biotechnology, health and environment protection
- Intelligent environment and e-technologies

BSc/BA Programmes

/7 semester BSc programs (210 credits)/

Faculty of Civil Engineering (EMK)

**Faculty of Mechanical Engineering
(GPK)**

Faculty of Architecture (EPK)

**Faculty of Chemical Technology and
Biotechnology (VBK)**

**Faculty of Electrical Engineering
and Informatics (VIK)**

Faculty of Transportation Eng. (KSK)

Faculty of Natural Sciences (TTK)

**Faculty of Economic and
Social Sciences (GTK)**

• **Civil Engineering (8 semesters)**

• **Mechanical Engineering (7)**

• **Energy Engineering (7)**

• **Industrial Design Engineering (7)**

• **Mechatronics (7)**

• **Architecture (8)**

• **Chemical Engineering (7)**

• **Bioengineering (7)**

• **Environmental Engineering (7)**

• **Electrical Engineering (7)**

• **Computer Science and Engineering (7)**

• **Transportation Engineering (7)**

• **Mathematics (6)**

• **Physics (6+1)**

• **Management in Engineering (7)**

• **Business and Management BA (6+1)**

• **International Business BA (6+1)**

• **Applied Economics BA (6)**

• **Communication and Media Sciences BA (6)**

2 year MSc/MA Programmes from 2008

/4 semester MSc programs (120 credits)/

ENGINEERING MASTER PROGRAMMES

EMK Structure Civil Engineer (1,5 years, 2009)

EMK Infrastructure Civil Engineer (1,5 y, 2009)

EMK Geodesy & Geoinformatics (1,5 y, 2009)

GPK Mechanical Engineer

GPK Mechatronics Engineer

GPK Mechanical Engineering Modeling

EPK Architecture (5 years)

VBK Chemical Engineer (2009)

VBK Bioengineer (2009)

VBK Environmental Engineer

VIK Electrical Engineer

VIK Computer Engineer

VIK Biomedical Engineer (2009)

KSK Transport Engineer

KSK Logistics Engineer

KSK Vehicle Engineer

OTHER MASTER PROGRAMMES

TTK Applied Mathematics

TTK Physics

GTK Economics

GTK International Economy

GTK Regional and Environmental Economy

GTK Marketing

GTK Master of Business Administration

GTK Financial

GTK Accounting

GTK Management and Organisation

GTK Cognitive Sciences

GTK Technical Manager (2009)

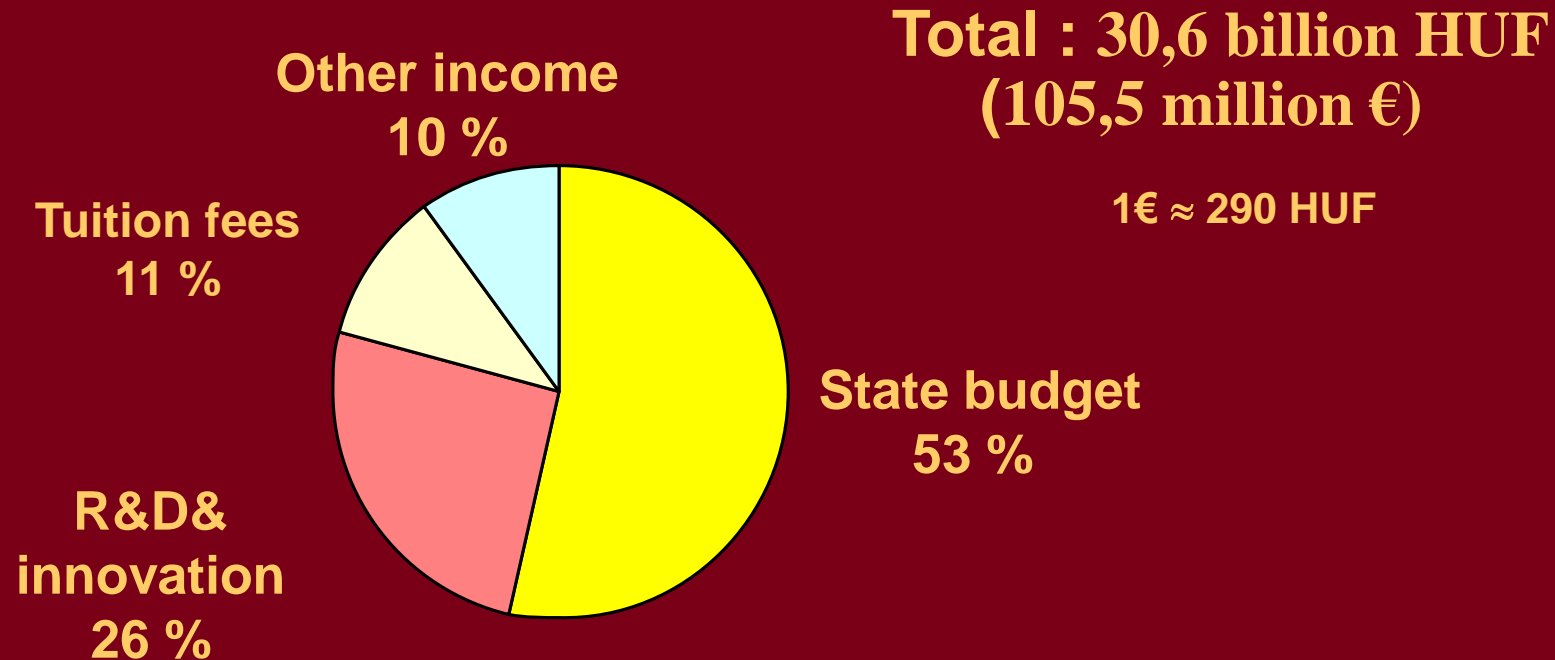
GTK Engineer-Teacher

Doctorate Schools (PhD/DLA)

/3 years/ ~900 PhD students/candidates

- | | |
|--|--|
| Faculty of Civil Engineering | • Civil Engineering Sciences |
| | • Earth Sciences |
| Faculty of Mechanical Engineering | • Mechanical Engineering Sciences |
| Faculty of Architecture | • Architectural Art (DLA) |
| | • Building Sciences |
| Fac. of Chemical Technology & Biotechnology | • Chemistry and Chemical Engineering |
| Faculty of Electrical Engineering & Informatics | • Electrical Engineering |
| | • Information Technology |
| Faculty of Transportation Engineering | • Transport Science |
| | • Vehicle, Mobile Machines Engineering |
| Faculty of Natural Sciences | • Mathematics and Computer Science |
| | • Physics |
| Faculty of Economic & Social Sciences | • Economy, Management and Organizations |
| | • Psychological Sciences |
| | • History of Technology and Science |

Budget 2009



Budget 2010

**Total : 33,3 billion HUF
(119 million €)**

1€ ≈ 280 HUF

BME, a Research University

- ❖ **Competition and grants for basic and applied research**
 - National (National Office for Research and Technology)
 - International (EU's RTD Framework Programmes)
- ❖ **R&D for the industry and government**
 - Bilateral strategic agreements, incl. e.g.:
 - Bilateral specification-based contracts, partly based on Contribution for Innovation by Act
- ❖ **Activity of the Scientific Workshops**
 - Doctorate Schools (15), departmental research groups
 - Research groups (12) of Hungarian Academy of Sciences at the BME
- ❖ **BME University Research Centers Consortia**
 - 3G/4G Mobile Communications R&D&I Centre
 - Information Technology Innovation and Knowledge Centre
 - Inter-University Cooperative Research Centre for ICT
 - Advanced Vehicle Control Knowledge Centre
 - Biomedical Engineering Knowledge Centre
 - Biomechanical Cooperative Research Centre
 - Cooperative Research Centre for Intelligent Materials

Activities of the BME R&D&I

	In 2005 [Million HUF]	Number	Maximum 5 Million HUF	Above 5 Million HUF
National Tenders	3 144,722	362	111	251
International Tenders	781,544	89	16	73
EU 5th Framework Program from above figures	114,683	14	0	14
EU 6th Framework Program from above figures	500,259	53	7	46
The R&D activities for non-BME orders (including entrepreneur)	969,296	273	214	59
Total:	4 895,562	724	341	383

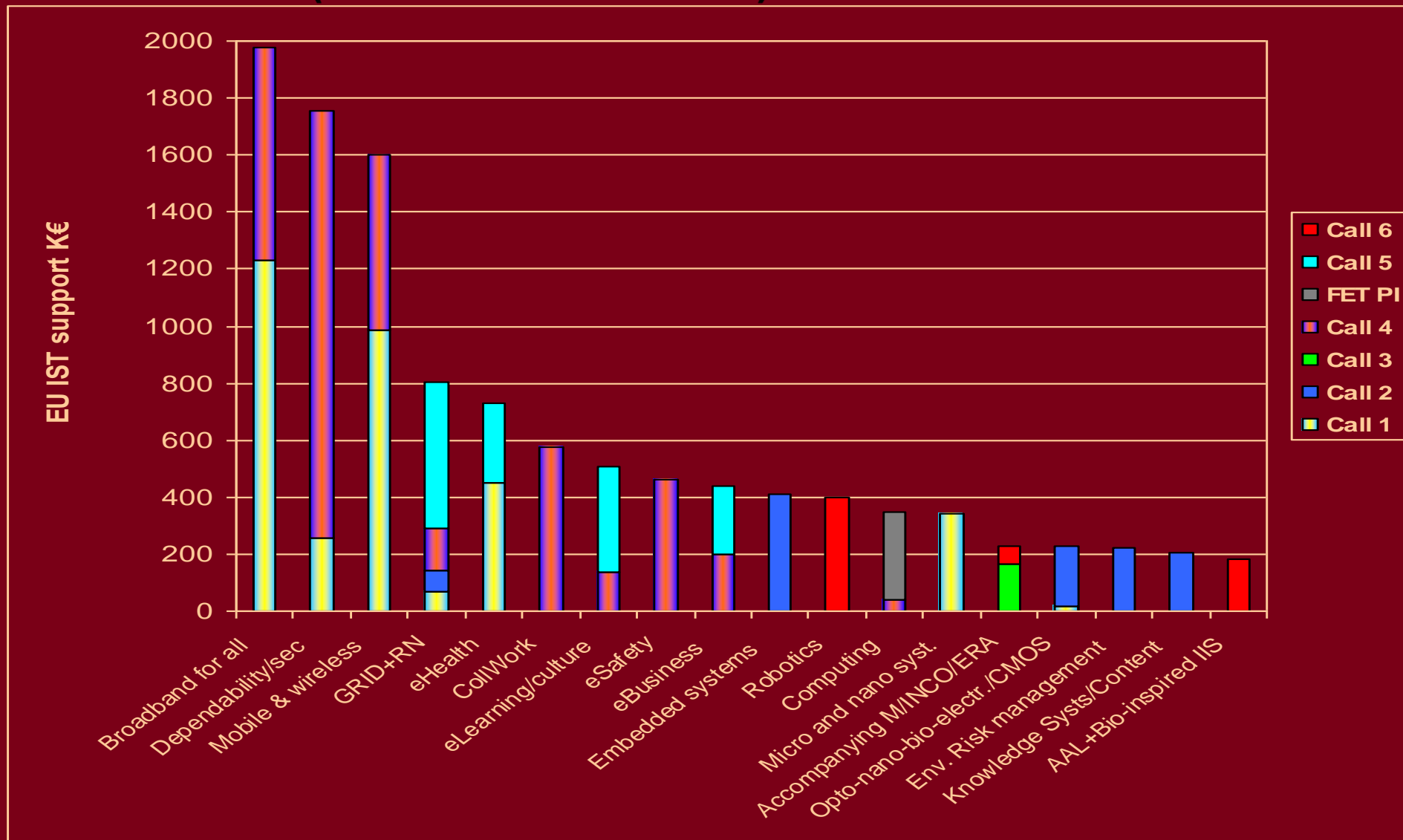
Budget of FP 6 Projects

Year (and number of projects)	Budget BME project in FP6 (EUR)
2003 (52 projects)	7 331 542
2004 (15 projects)	1 756 368
2005 (29 projects)	4 583 536
2006 (25 projects)	1 188 465
In all (121 projects)	14 859 911
Average/projects	140 000

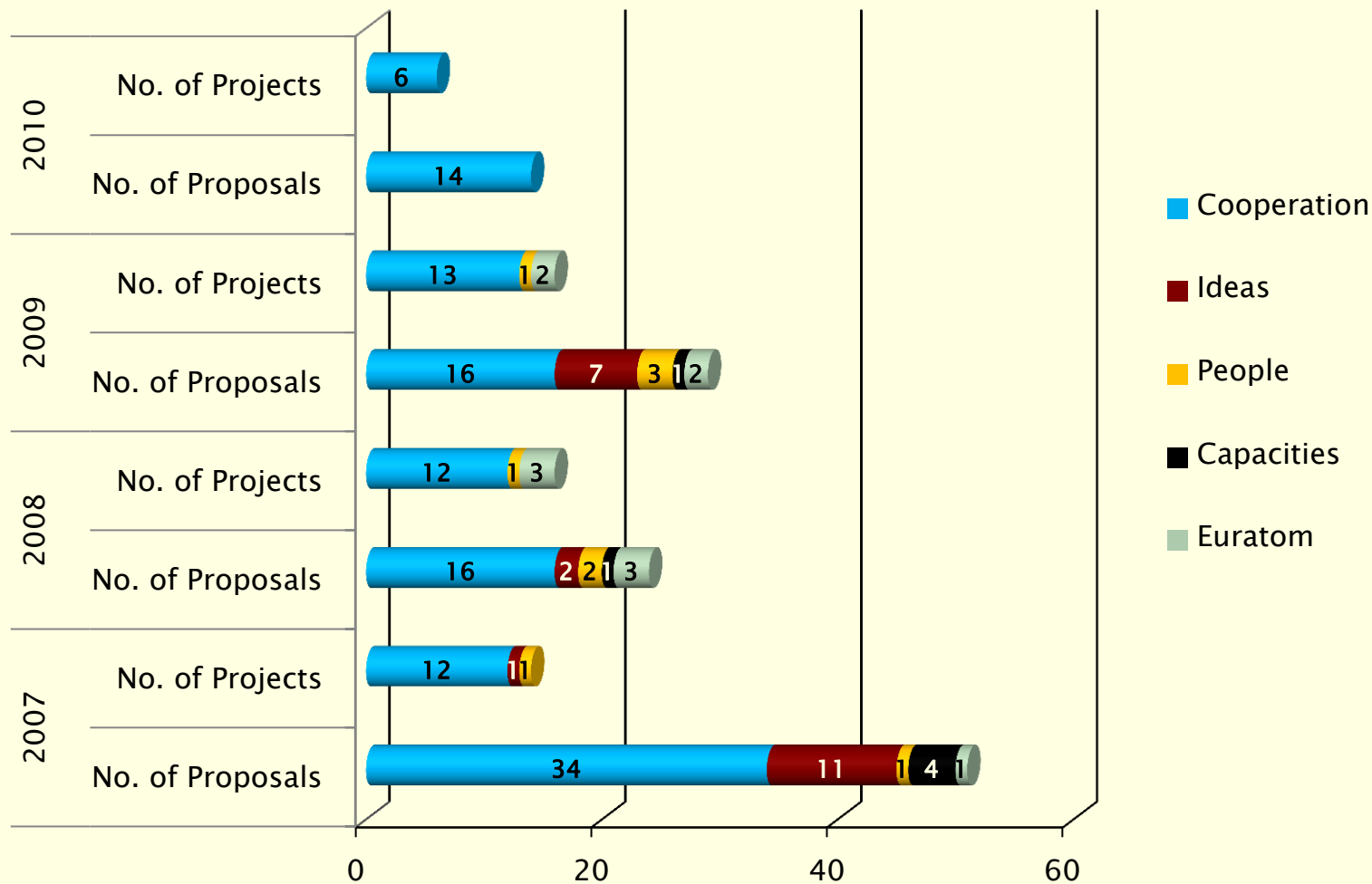
Participation in the supported FP6 projects

Thematic areas and fields of activity	Number of projects
Life sciences, genomics and biotechnology	3
Information Society Technologies:	60
Nanotechnology and nano sciences, knowledge-based, multifunctional materials, new production processes and devices:	10
Aeronautics and space research	4
Food quality and safety	2
Sustainable development (Ecosystems, energy systems, surface traffic)	10
Citizens and governance	1
Specific activities	7
Structuring of European Research Area (ERA)	8
Marie Curie Actions	12
Euratom	4
Total	121

BME results at the FP6 IST program: 56 Projects, 57 Participants, 11,42 M€ (30% of the total HU)



FP7 Proposals and projects in numbers

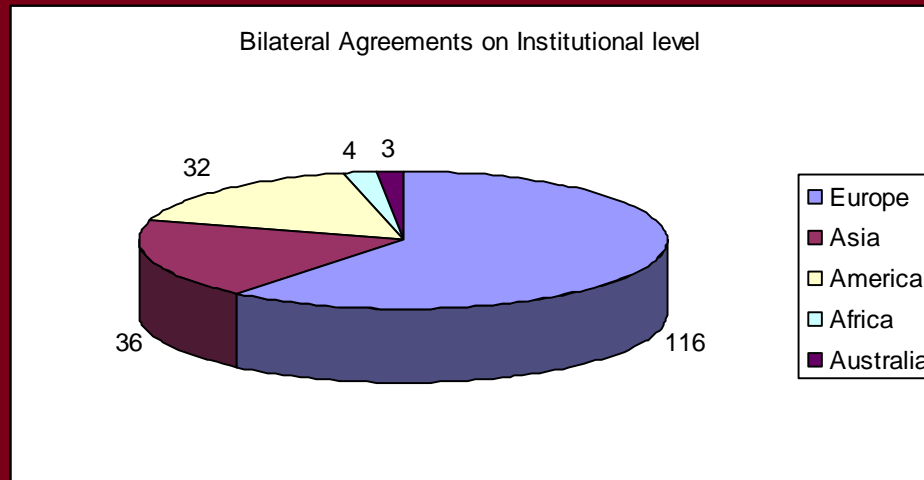


Strategic relations – Multinational and *national* companies

- Alcoa
- Audi
- Bosch
- Budapest Gas Works
- Continental Temic
- EGIS
- E.ON
- Ericsson
- Flextronics
- General Electric
- Hewlett-Packard
- Hungarian Electric Works
- Hungarian Oil Co. (MOL)
- Hungarian Posts
- Hungarian Telekom
- IBM
- Intel
- Knorr-Bremse
- Mentor Graphics
- Microsoft
- Nokia
- Oracle
- Paks Nuclear Power Plant
- Pannon Mobile
- Richter Gedeon
- SAP
- Sanofi-Aventis (Chinoin)
- Siemens
- Visteon

International Relations Strategical Objectives

- ❖ Strengthening the ambitious partnership with EU countries.
- ❖ Making valuable efforts to hold the principal streamline towards universities, excellence in technology and economics in the world.
- ❖ Drawing a considerable attentiveness towards the universities of the neighbouring countries.
- ❖ Establishing new connections with Far Eastern universities.
- ❖ Promoting the most widespread student mobility.



Institutional memberships in international organisations & networks

EUA (European University Association)

CESAER (Conf. of European Schools of Advanced Engineering Education and Research)

SEFI (European Society for Engineering Education)

CRP (Conference of Rectors and Presidents of European Universities of Technology)

4TU League (Regional cooperation of BME, CTU in Prague, SUT in Bratislava, TU Vienna)

AUF (Agence Universitaire de la Francophonie)

WITEC (European Association for Women in Science Engineering and Technology)

ENEN (European Nuclear Education Network)

EDEN (European Distance Learning and E-Learning Network)

EAIE (European Association for International Education)

INEER/ICEE (International Network of Engineering Education and Research/International Conference on Engineering Education)

IAUP (International Association of University Presidents)

EUNICE (European Universities Network for ICT)

Cooperation Platform of the Metropolitan Universities of Technology from Central and Eastern Europe

Inter-Academia Community (Shizuoka University, Japan - Partnership)

Professor & Student Mobility Programmes

ERASMUS Mobility Programmes

Leonardo da Vinci Mobility Project

CEEPUS (Central European Exchange Program for University Studies)

ERASMUS MUNDUS and External Cooperation Window

ATHENS Network (Advanced Technology Higher Education Networks/Socrates)

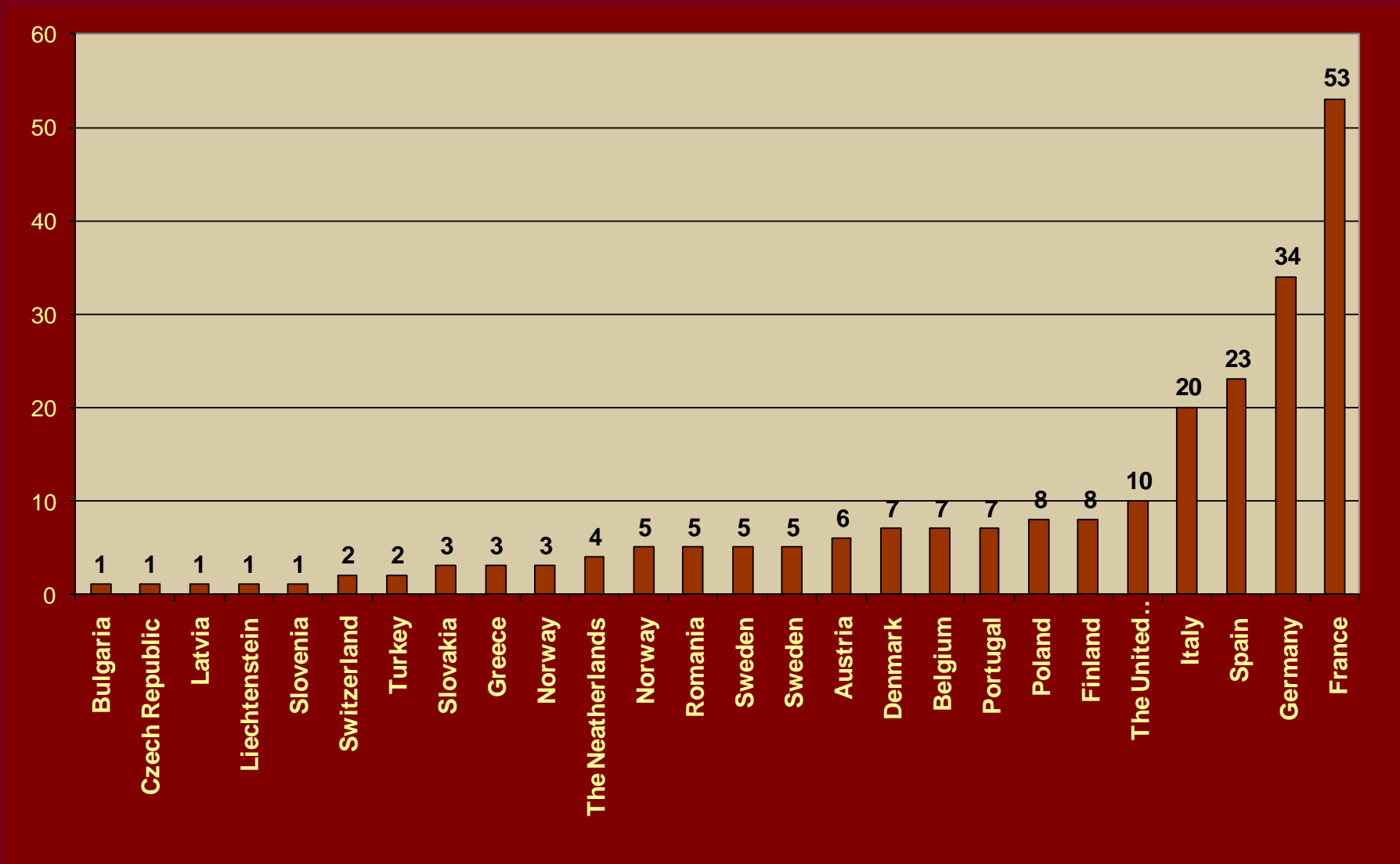
T.I.M.E. Association (Top Industrial Managers for Europe)

„n+i” Engineering Institutes Network, EduFrance

Strasbourg Club (for new and future member states of the European Union)

International Visegrad Fund

Number of ERASMUS Agreements (2007-2008)



Some of the major University Bilateral Agreements

- Vienna University of Technology, Graz University of Technology, **Austria**
- Aalto University School of Science and Technology, **Finland**
- Katholieke Universiteit Leuven, **Belgium**
- Norwegian University of Science and Technology, **Norway**
- Zhejiang University (Hangzhou), **China**
- Delft University of Technology, **The Netherlands**
- University of Virginia, FloridaTech, University of New Hampshire, **USA**
- RWTH Aachen, Karlsruhe Institute of Technology, Berlin Institute of Technology, **Germany**
- Czech Technical University in Prague, **Czech Republic**
- Slovak University of Technology in Bratislava, Technical University of Košice, **Slovakia**
- National University of Singapore, Nanyang Technological University, **Singapore**
- Technion Israel Institute of Technology, Haifa, **Israel**
- Indian Institute of Technology, Mumbai, **India**
- University of Tokyo, Hokkaido University, Waseda University, Osaka University, **Japan**
- Tallinn University of Technology, **Estonia**
- Moscow Power Engineering Institute, St. Petersburg State University of Aerospace Instrumentation, **Russia**

The BME Strategic Objectives

***A EUROPEAN CENTRE OF EXCELLENCE IN THE CREATION
AND TRANSFER OF ENGINEERING AND BUSINESS KNOWLEDGE***

- **Strong basic education and differentiated, high quality master education, aiming at prestigious BSc/BA and MSc /BA degrees, resp.**
- **PhD/DLA education and scientific qualification in technical and natural sciences, partly in economic sciences**
- **High-level research, development and innovation in cooperation with academic and business partners, by contracts, agreements and participation in national and European projects;**
- **Training flexibility corresponding to changing social and professional needs, the extension of curricula in English**
- **Perceptible contribution to the technical development of Hungary**
- **To be a valuable member of the European Research and Higher Education Area, harmonising theory and practice.**

Thank you for your kind attention!



Budapest University of Technology and Economics, BME
www.bme.hu