

SWISS CYBER RISK RESEARCH CONFERENCE

May 20, 2016

**Welcome to Ecole Polytechnique
Fédérale de Lausanne**

EPFL

Karl Aberer, Vice-president for Information Systems

EPFL History

1968 – Act on the Federal
Institutes of Technology

1853



Maison Bischoff
rue Saint-Pierre
In Lausanne

1946



Ancien Hôtel Savoy
29-33 avenue de Cour
In Lausanne

Today



Ecublens-Dorigny



Ecole spéciale
de Lausanne

EPUL

EPFL

Students	11	399
Faculty		

1,293	9,921 (2014)
56	338 (2014)

EPFL today

Campus (2014)

9,921 students, of whom 2,032 PhD students

338 faculty

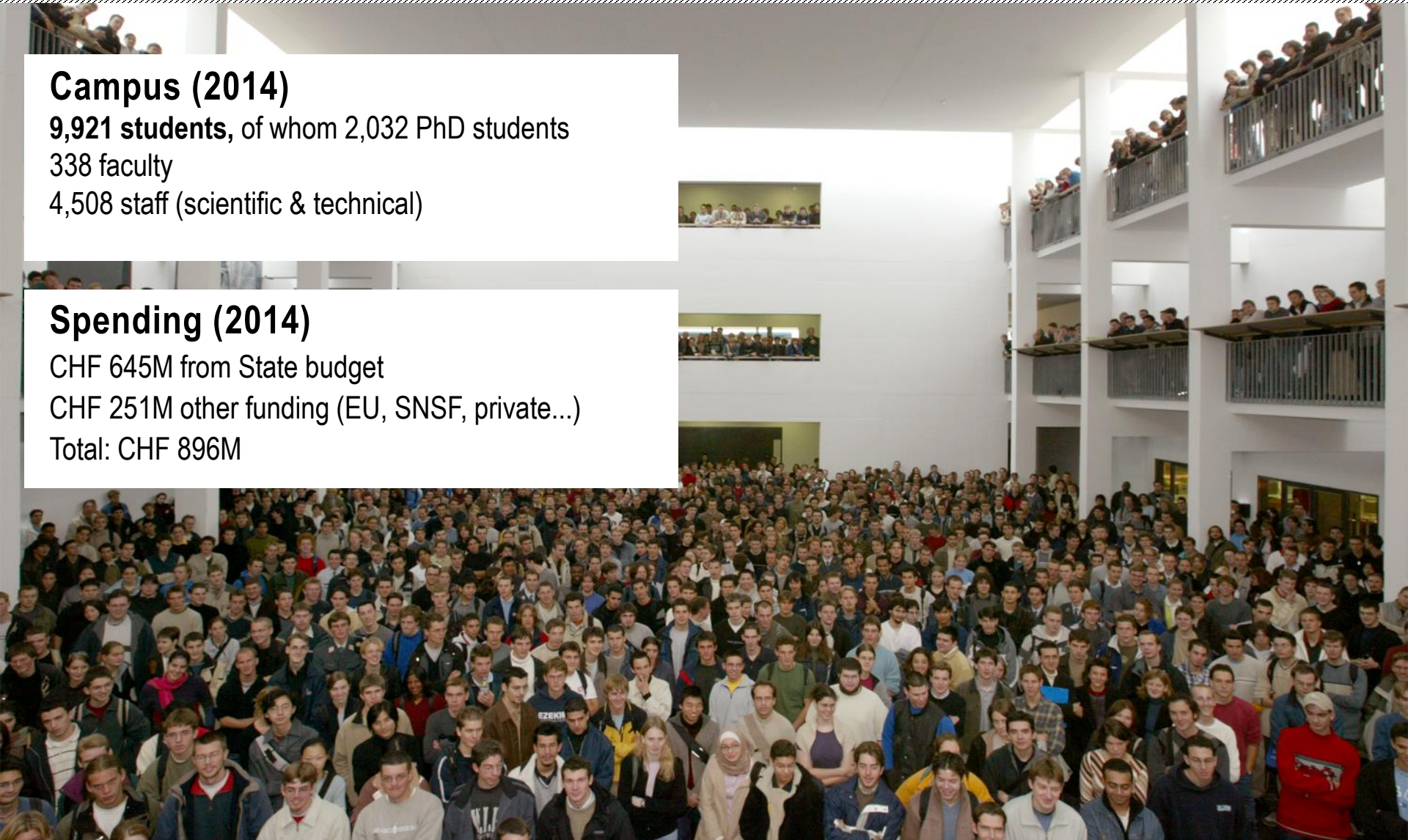
4,508 staff (scientific & technical)

Spending (2014)

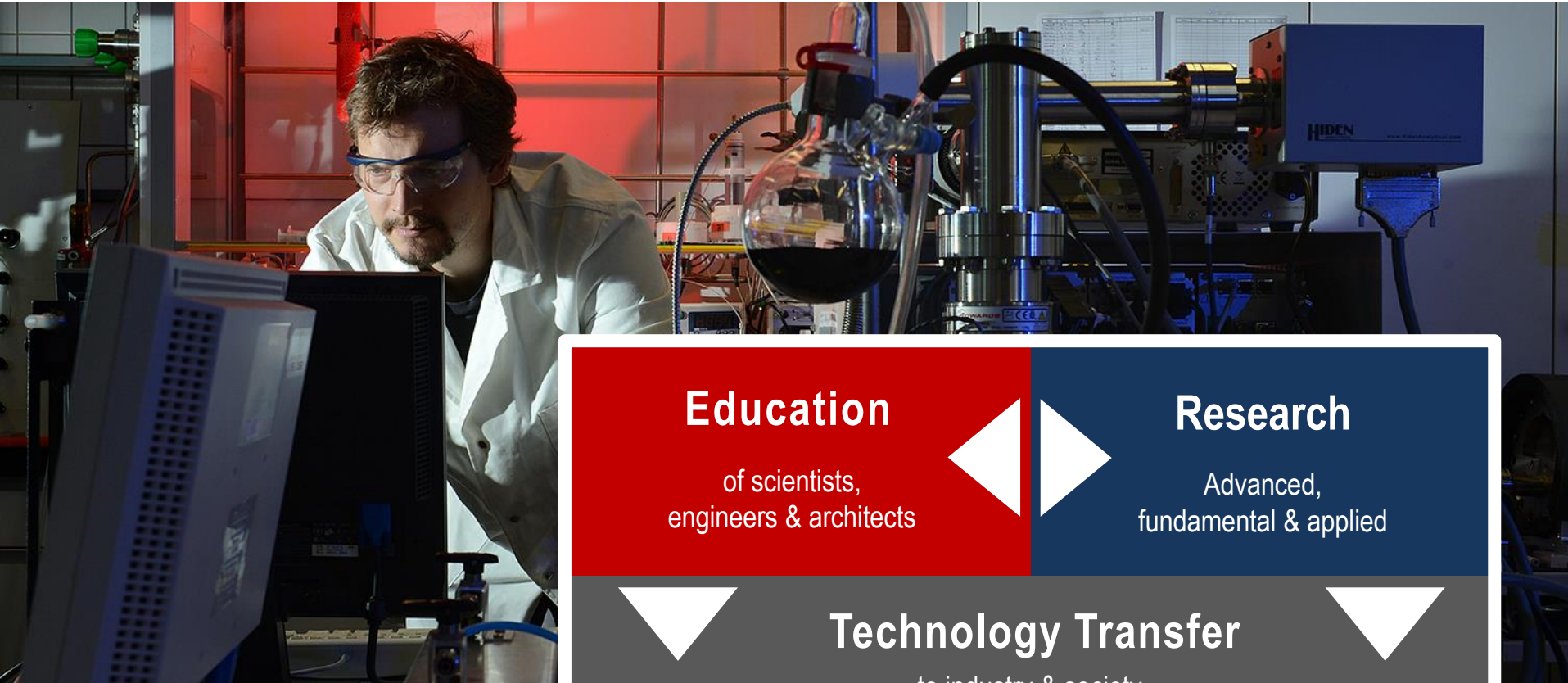
CHF 645M from State budget

CHF 251M other funding (EU, SNSF, private...)

Total: CHF 896M



EPFL's three missions according to the Federal Act



Education

of scientists,
engineers & architects

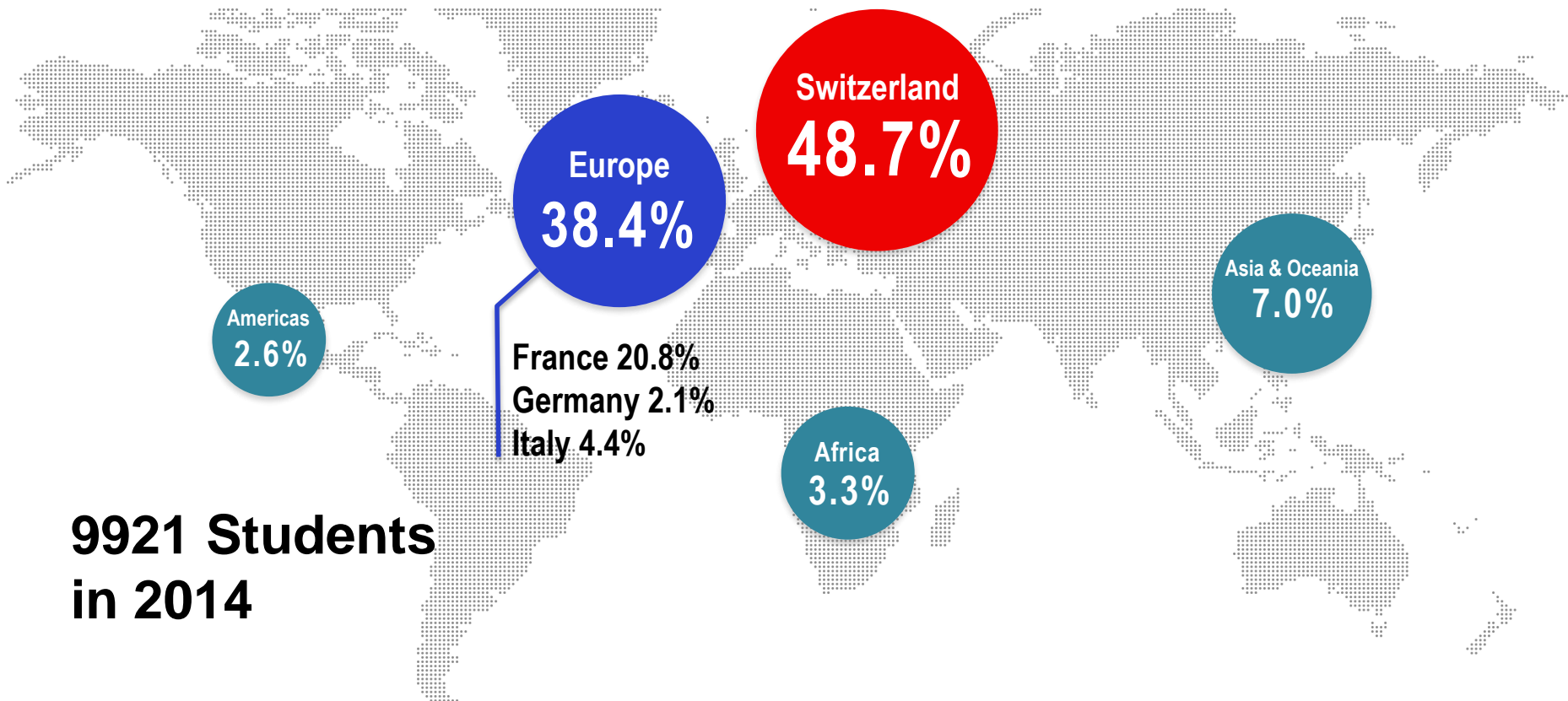
Research

Advanced,
fundamental & applied

Technology Transfer

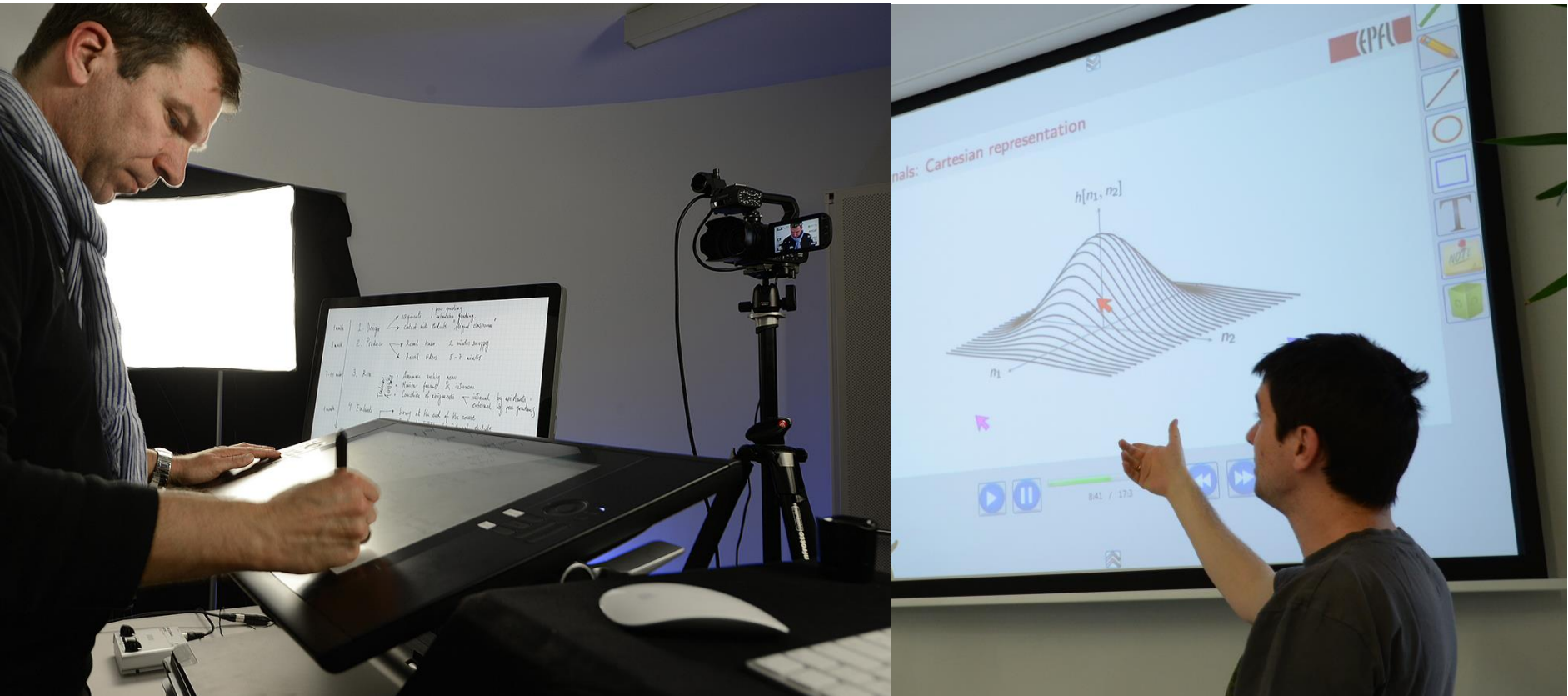
to industry & society

Origin of Students (Bachelor+Master+PhD)



MOOCs (Massive Open Online Courses)

September 2012 – February 2016 : **1'173'888** registered participants in **186** countries
58'077 users passed EPFL MOOCs with statement of accomplishment



Rankings 2015

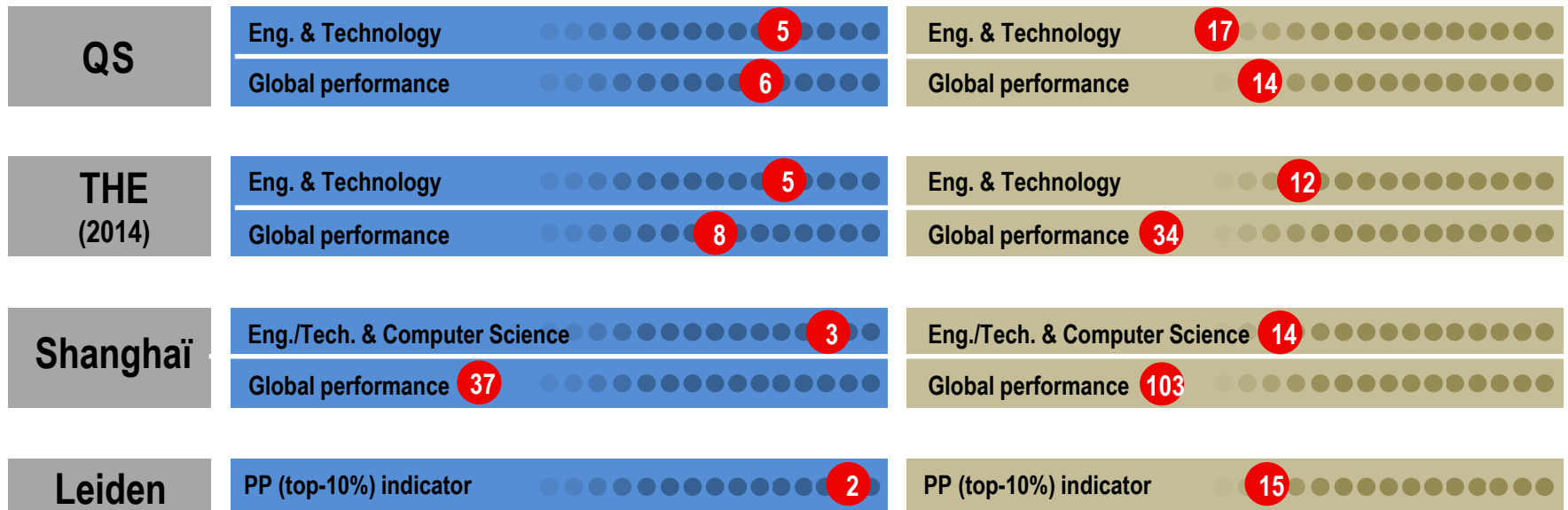
THE under 50: 1^{er}



EPFL: best young university in the world

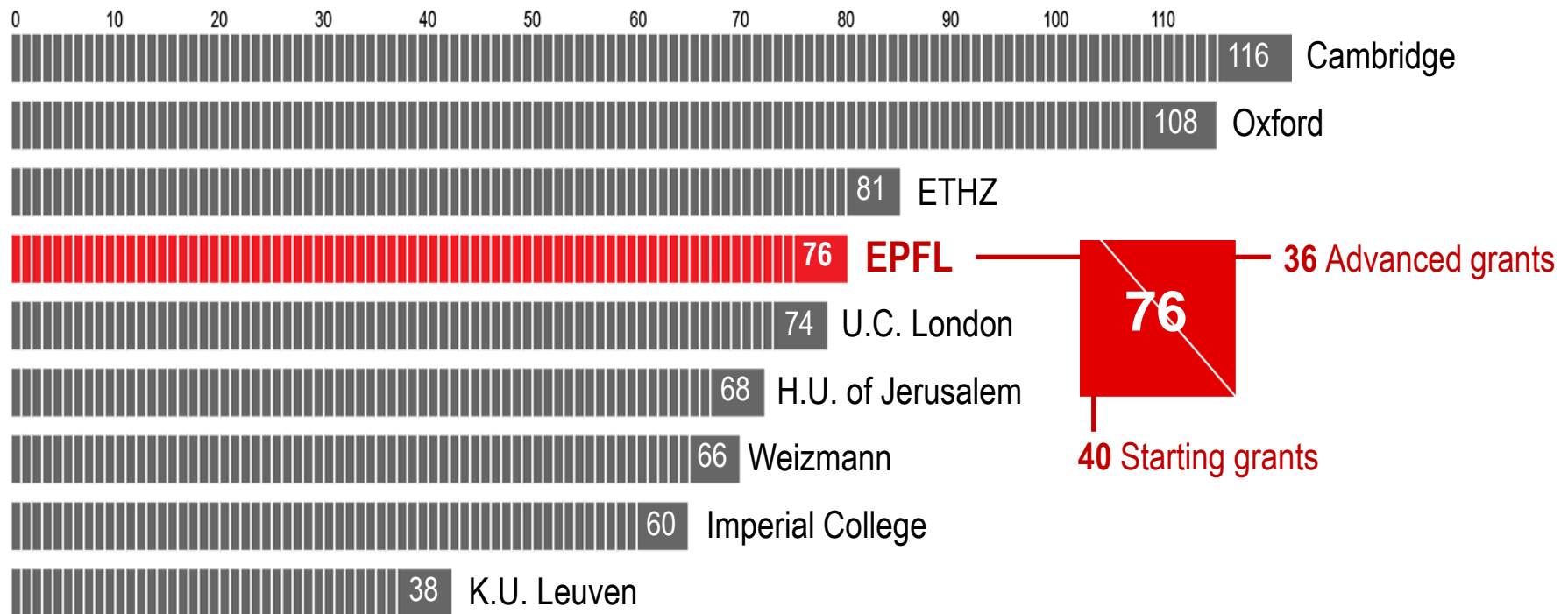
EUROPE

MONDE



European Recognition - ERC Grants (European Research Council)

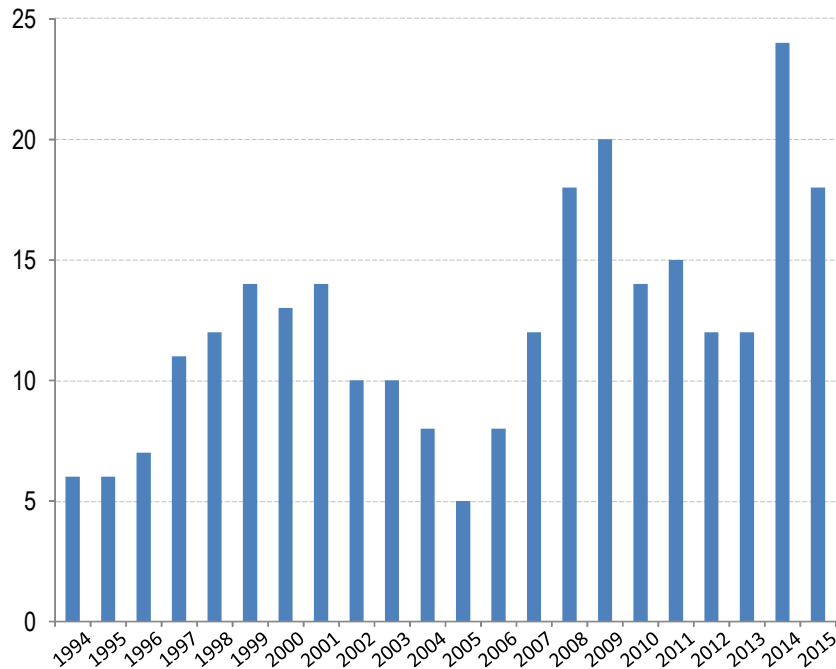
EPFL 4th in Europe, cumulative data for 2007-2013



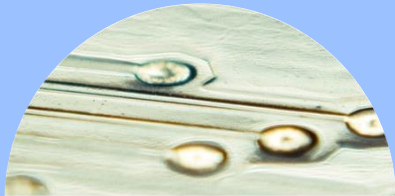
Development of EPFL start-up

217 start-up

created between 2000 and 2015

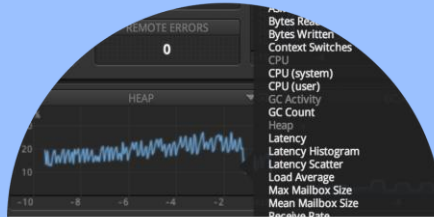


A culture of start-ups – a few EPFL success stories



KANDOU TECHNOLOGIES

Ultra-fast electronic buses
\$10M from private investors
Founded in 2011



TYPESAFE

Scala Language used by Twitter,
\$21M since May 2011 with US VCs
Founded in 2010



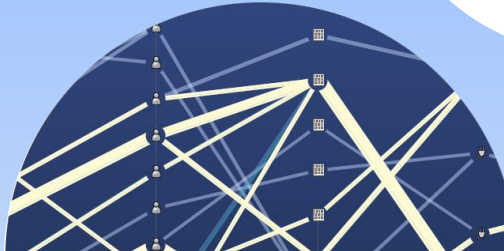
ALEVA

Electrodes for neurosurgery
Raised **CHF14M** with Swiss
Venture Capital
Founded in 2008



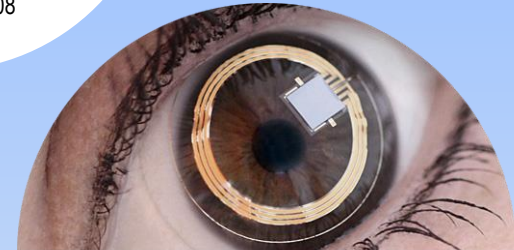
SIRI

EPFL Licence,
Acquisition by Apple in May 2011
Founded in 2008 in Silicon Valley



NEXTHINK

Software for businesses
More than **CHF16M** with Swiss and French VCs
More than 60 employees
Founded in 2004



SENSIMED

Active lenses for glaucoma prevention
Raised **CHF45M** with Swiss & German VCs
Founded in 2003

EPFL Innovation Park

INFORMATION TECHNOLOGY
FINANCE
COMPUTING



HEALTH
NUTRITION



ENGINEERING, TRANSPORT,
MATERIALS



... and over 110 start-ups



Big Data and Digital Science

Challenges for Universities

Education

Digital revolution in education: massive open online courses (MOOCs), data-driven education

Educating for the Digital Revolution: new profiles needed: Data Scientists, Digital Medicine, Cyber-Security etc.

Research

Big Data for Research (data-driven science): affecting all disciplines (Humanities, Health, Environment)

Research for Big Data: cloud computing, machine learning, cyber-security

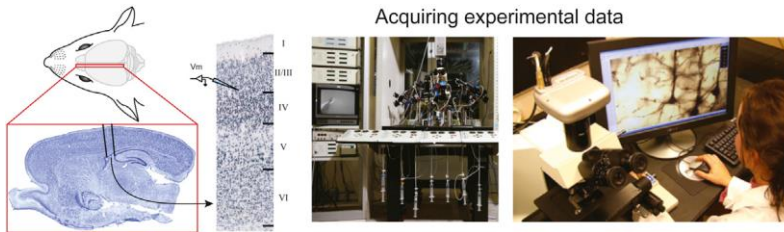
Impact

Needs

Strategic Projects in Data-Driven Science

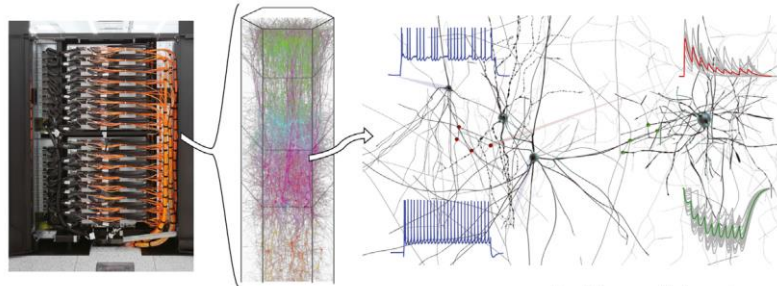
Human Brain Project

- EU FET Flagship project
- 1 billion € budget
- Consortium: 400 researchers, 113 institutions from 24 countries



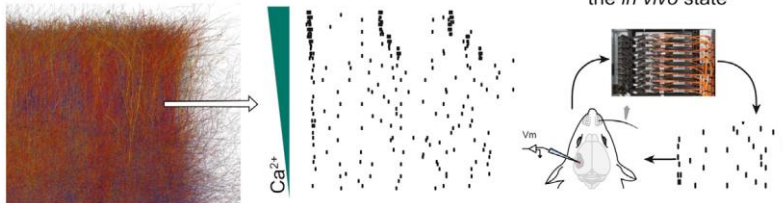
Acquiring experimental data

In silico reconstruction of cellular, and synaptic anatomy and physiology



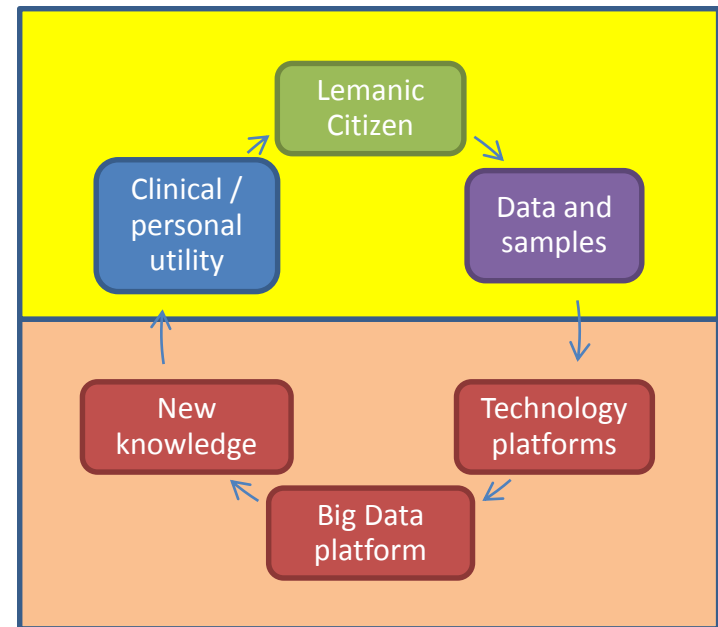
Simulation revealed a spectrum of activity states

In silico predictions for the *in vivo* state



Health 2030: The Lemanic Center for Personalized and Digital Health

- Sequencing 10'000 genomes
- Combine with factors influencing personal health: from environment to media
- Data-driven clinical research and personalized health care
- Important privacy problems with medical and genomic data

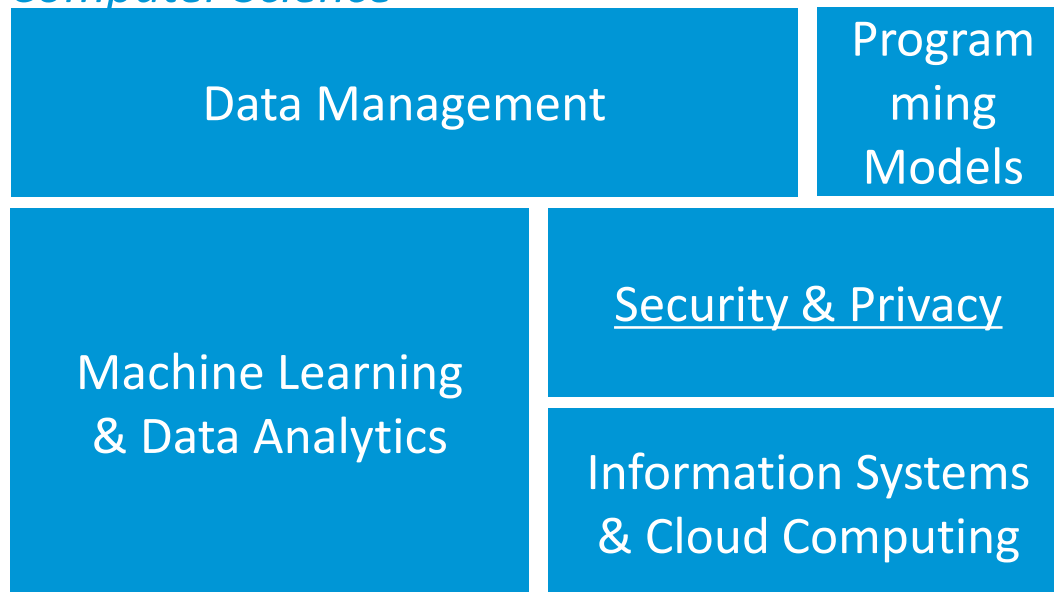


Swiss Data Science Center

Initiative of the ETH Board

- Support for developing digital science in different research disciplines
- 60 Mio investment for 2017- 2020
- Data science education at master level

Computer Science



Mathematics



Enjoy the Conference and the Campus!

