

Welcome to EPFL Dialog 2010 Welcome to Swiss Tech Lausanne (EPFL)

a Leading Technological University



Rolex Learning Centre, May 2010

Quality Management at EPFL

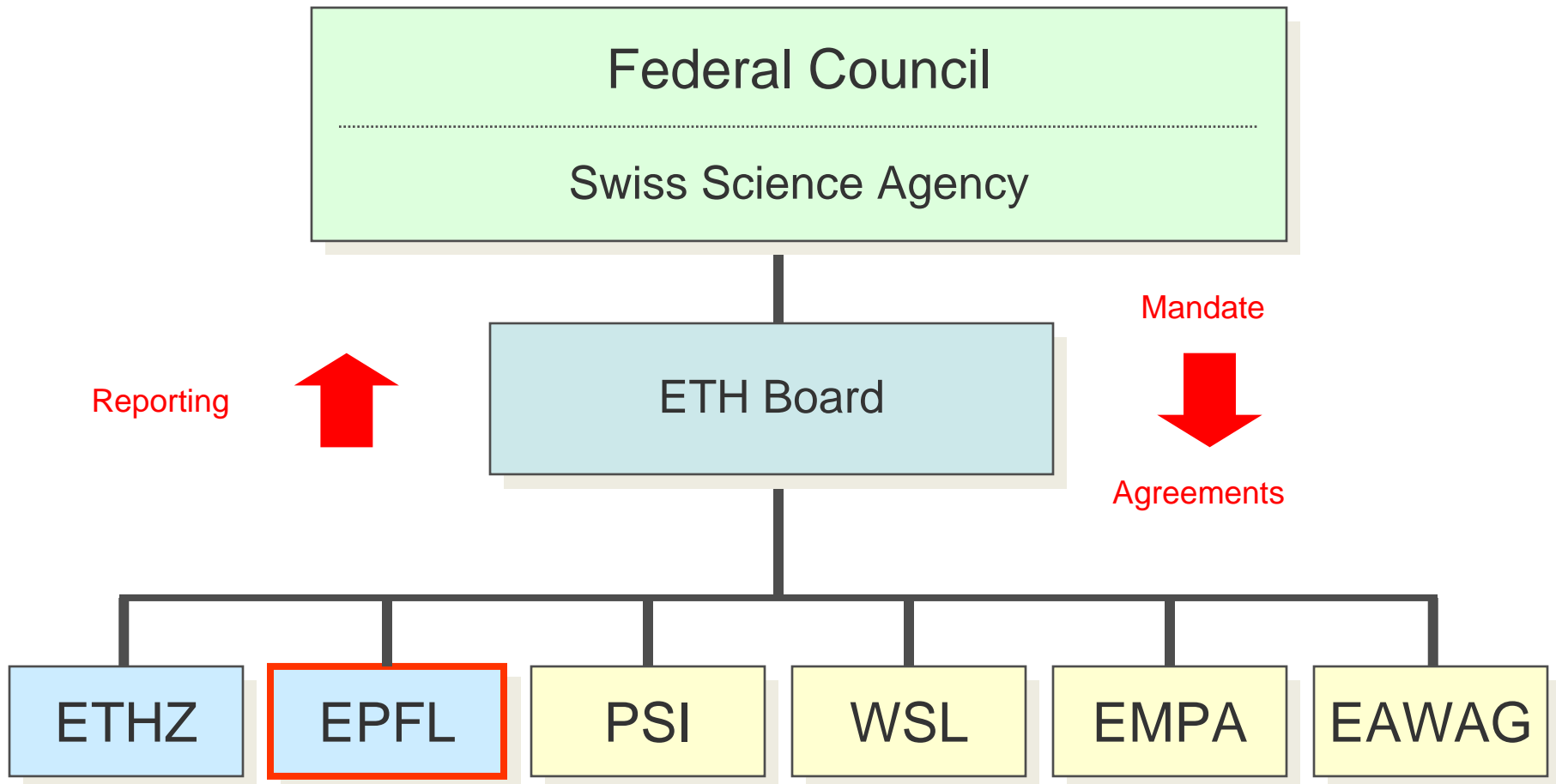
A dialectic approach

WSC Academic Week 2010, Geneva, 08th July 2010

Dr Michel Jaccard

EPFL International Affairs Management and Accreditation

The ETH system – Two Universities



1803 Napoleon Bonaparte "*Acte de médiation*"

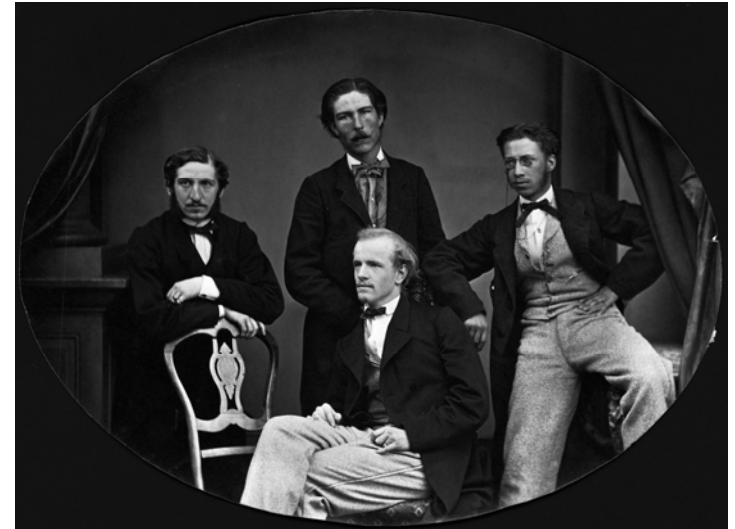
Canton de Vaud



1853 Ecole Spéciale de la Suisse Française, based on the *Ecole Centrale Paris* model

Founding members:

- Prof. Jean GAY
Academy of Lausanne, first President
- Prof. Henry BISCHOF
Academy of Lausanne
- Prof. Louis RIVIER
Ecole Centrale Paris
- Prof. Jules MARGUET
Ecole Centrale Paris
- Prof. Pierre-Joseph MARGUET
Ecole Polytechnique Paris



1969 The Ecole Polytechnique **Universitaire** de Lausanne becomes the
Ecole Polytechnique **Fédérale** de Lausanne

EPFL today



Campus	7'162	Students, including 1'785 PhD students
	327	Faculty *
	2'310	Staff (FTE)

Budget	548 Mio CHF Federal Budget (<i>expenses including recipes</i>)
	194 Mio CHF External Funding

Infrastructure: Main achievements

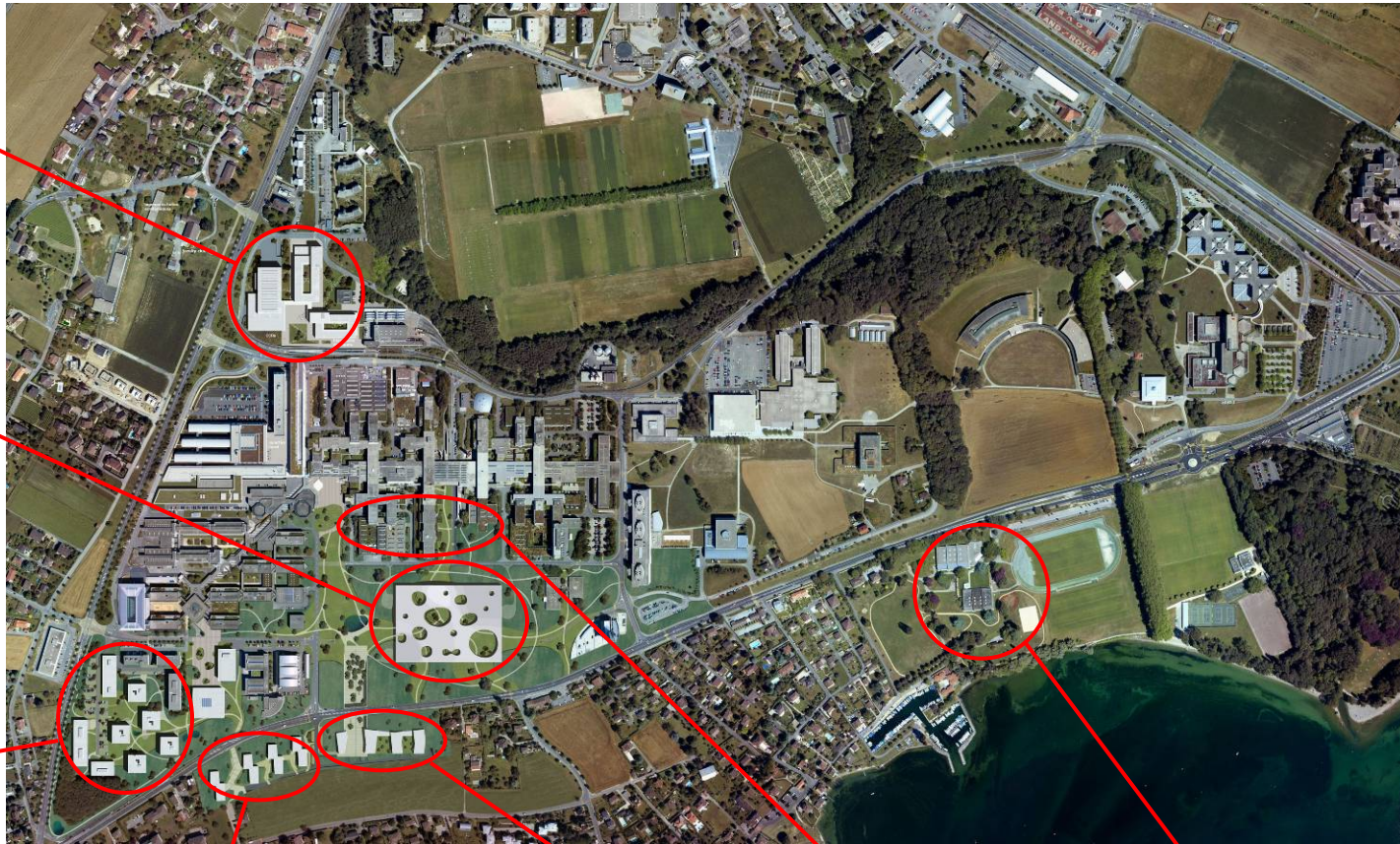
Conference Centre



Rolex Learning Centre



Innovation Square



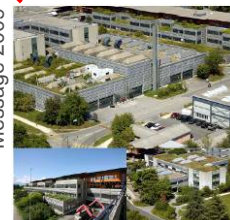
Students Housing



Hotel



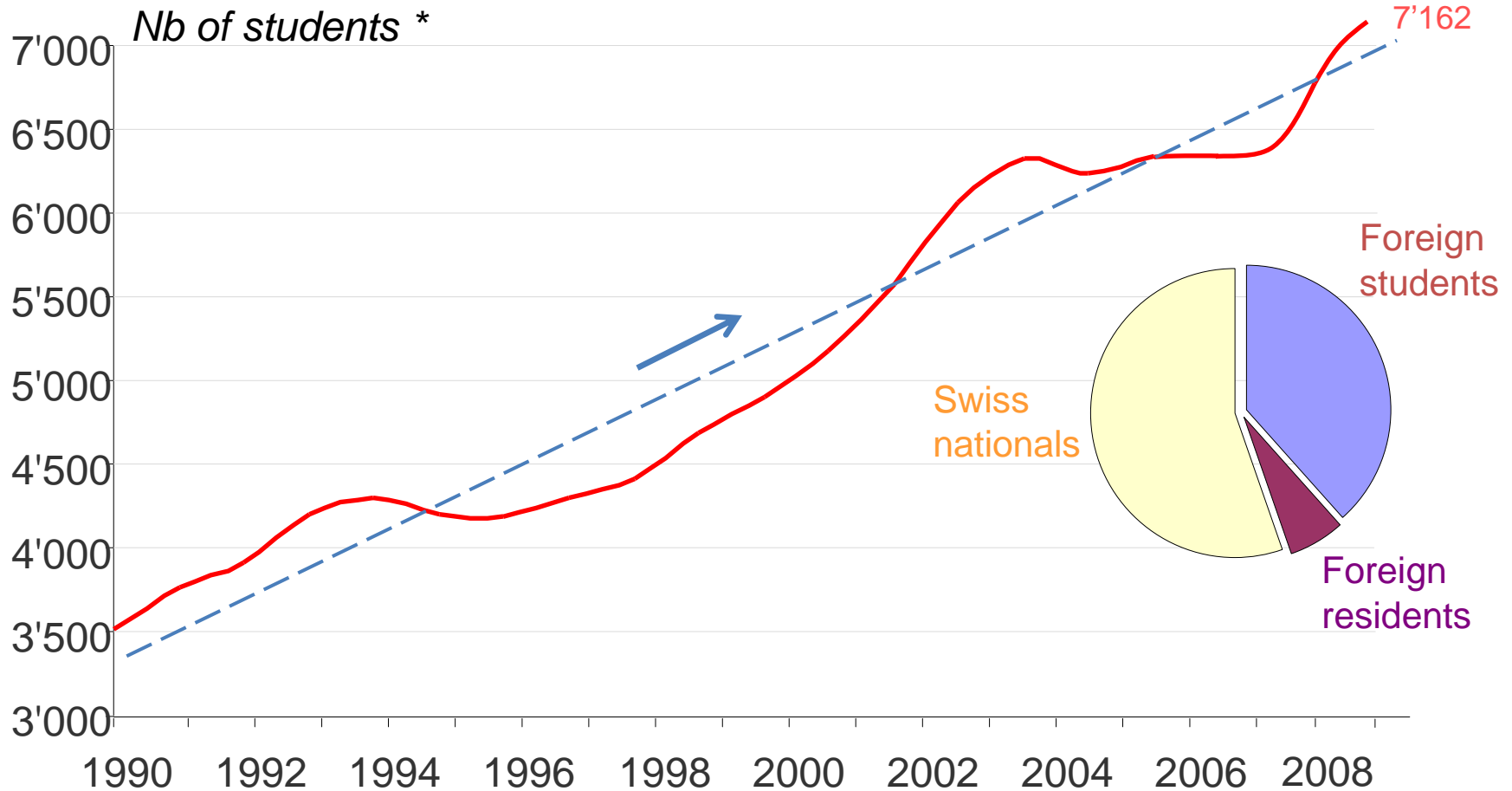
Message 2009



Sport centre



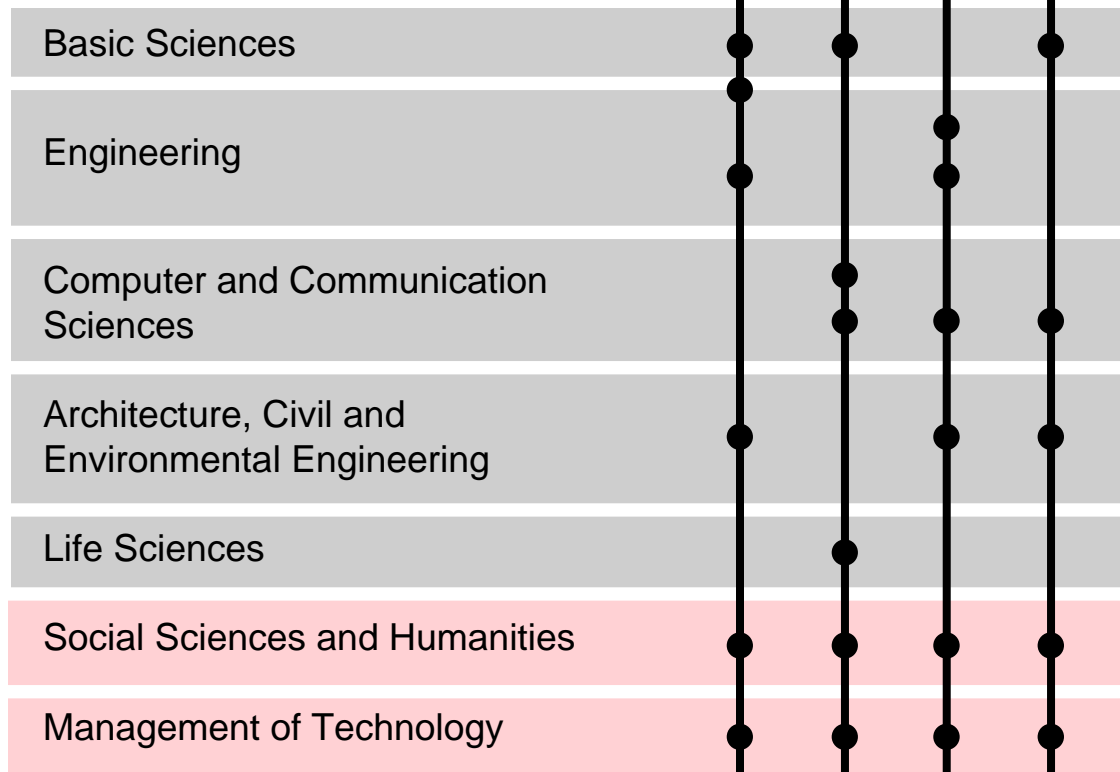
A steady increase



Anchor education in cutting-edge research

Schools and Colleges

Education programmes



B/M Sc. programmes

Physics/ Physics Eng.
Chemistry / Chemical Eng.
Mathematics/ Maths Eng.

Material Sciences
Electrical Engineering
Micro technology
Mechanical Engineering
Nuclear Engineering
Computer Sciences
Computational Sciences and Engineering
Communication Systems
Architecture
Civil Engineering
Environmental Sciences & Eng.
Life Sciences & Technology
Bioengineering and Biotechnology
Management of Technology
Financial Engineering

Leiden Ranking 2000-2007

EU Top-100 rank by CPP/FCSm : **Switzerland** at the top !

University		<i>P</i>	<i>C</i>	<i>CPP</i>	<i>Pnc</i>	CPP/ FCSm	<i>brute force</i>
UK	UNIV OXFORD	35,979	429,642	11.94	27%	1.69	60783
UK	UNIV CAMBRIDGE	37,972	438,892	11.56	27%	1.67	63345
CH	E P F LAUSANNE	10,650	67,908	6.38	34%	1.59	16938
CH	ETH ZURICH	20,798	184,434	8.87	28%	1.54	31987
DK	TECH UNIV DENMARK	10,474	78,996	7.54	29%	1.52	15952
CH	UNIV LAUSANNE	10,676	132,163	12.38	25%	1.50	16020
UK	IMPERIAL COLL LONDON	29,829	300,030	10.06	27%	1.48	44164
NL	ERASMUS UNIV ROTTERDAM	16,090	173,905	10.81	25%	1.47	23704
UK	UNIV EDINBURGH	18,734	190,753	10.18	28%	1.47	27520
UK	UNIV COLL LONDON	36,889	414,034	11.22	25%	1.46	53845
NL	DELFT UNIV TECHNOL	10,411	59,415	5.71	37%	1.41	14698
FI	UNIV HELSINKI	22,976	225,207	9.80	26%	1.41	32294
CH	UNIV BASEL	11,733	127,186	10.84	25%	1.41	16488
CH	UNIV GENEVE	13,534	146,726	10.84	26%	1.40	18919
NL	VRIJE UNIV AMSTERDAM	16,591	153,807	9.27	26%	1.38	22920
CH	UNIV ZURICH	19,056	193,299	10.14	27%	1.37	26149
DE	TECH UNIV MUNCHEN	17,015	144,167	8.47	30%	1.36	23082
NL	UNIV AMSTERDAM	21,471	198,018	9.22	27%	1.36	29127
NL	UNIV UTRECHT	25,299	232,033	9.17	26%	1.35	34267
UK	UNIV BRISTOL	17,692	149,926	8.47	27%	1.34	23644
UK	UNIV GLASGOW	15,918	143,741	9.03	28%	1.33	21247

CPP = average number of citations per publication calculated corrected for self citations

FCSm (mean Field Citation Score) = mean citation rate of the fields in which the institute/group is active

Academic Ranking of World Universities by Broad Subject Field - 2009

Shanghai Jiao Tong ARWU 2009

Engineering, Technology and Computer Science

1	Massachusetts Inst Tech (MIT)	USA
2	Stanford Univ	USA
3	Univ Illinois - Urbana Champaign	USA
4	Univ California - Berkeley	USA
5	Carnegie Mellon Univ	USA
6	Univ Michigan - Ann Arbor	USA
7	Univ Texas - Austin	USA
8	Georgia Inst Tech	USA
9	Univ California - San Diego	USA
10	Penn State Univ - Univ Park	USA
11	Univ Southern California	USA
12	California Inst Tech	USA
13	Univ California - Santa Barbara	USA
14	Univ Maryland - Coll Park	USA
15	EPFL	Switzerland
15	Univ Cambridge	UK
17	Purdue Univ - West Lafayette	USA
18	Cornell Univ	USA
19	University of Toronto	Canada
20	Tohoku Univ	Japan

Shanghai Jiao Tong University

Institute of Higher Education



EPFL in the top 20 in
Engineering,
Technology and
Computer Science

No. 1 in Europe !

A dual approach for most of them

- ***Quality Management System, based on a Internationally Accepted Standard***
 - Emphasis on Education, mostly at Bachelor and Master Level
 - ▪ *Continuous Improvement of Education Curricula, Mobility Enhancement of Students and Faculty Members*
- ***Periodical Analysis of Faculty and Colleges, based on the principle of Peer Review.***
 - Outstanding International Faculty Seniors audit Schools and Colleges
 - ▪ *Performance Improvement (Research, Ph.D. Programmes, Tech Transfer, International Visibility): PDCA cycle and **Breakthrough Management** (Reforms, etc.)*

Quality Standards - 4 examples

- ***ABET, Accrediting Board for Engineering and Technology (USA)***

- Emphasis on the accreditation of Bachelor's of Engineering
- Bachelor's Programmes Accredited in all Tech. Universities
- *Necessary for Engineers Working in the USA*

- ***ISO 9001***

- Used with ISO IWA2:2007 – QMS -- Guidelines for the application of ISO 9001:2000 in education
- Quality Criteria: Agility, Institution Autonomy, Security, Ethics
- *Especially Successful in Asia (SGS Accreditation, for instance)*

- ***ENQA: EU Standard related to Bologna Process***

- Influence of the Life Long Learning Programme
- *Mandatory for all Members of the EHEA (CH)*

- ***EQUIS: European Standard of Accreditation for Business Schools (a Must!)***

Excellence Models – 3 Examples



- ***Baldrige Award for Education (USA)***

- Performance Excellence Requirements Embodied in Seven Categories Defined in Criteria and Areas
- Assessment: Scoring System used with Criteria and Areas
- *Supported by the American Society for Quality (ASQ) and the National Institute of Standard and Technology (NIST)*



- ***EFQM Excellence model for Higher Education (Sheffield, UK, 2003)***

- Holistic approach, providing a Process of Self Assessment
- Takes into Account all Stakeholders
- *Fully endorsed by the European Foundation for Quality Management*



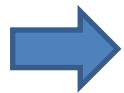
- ***Lignes directrices de la Commission des Titres d'Ingénieurs (CTI; F; 1934)***

- The European “Baldrige Model” of Technological Universities
- Fully Compatible with the EUR-ACE Framework Standard of Engineering Education
- *Facilitates professional employment in France and Europe*

A double system

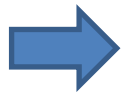
- ***Double Accreditation in 2006***

- Bachelor's and Master's Programmes by OAQ (based on ENQA standard).
- Master's Programmes (Engineering only) by CTI with EUR-ACE Label (more or less a Total Quality Standard).



- *Effects on the EPFL Visibility, the EPFL Attractivity for International students, Alumnis's Professional Employment and Continuous Improvement in Education and Teaching,*

- ***Evaluation of Schools and Colleges on a regular basis,*** reporting to the ETH Board according to the Rules of the Performance Agreement.



- *EPFL's Performance has generally improved*

Double accreditation

- Synthesis of the OAO and CTI (ENQA) Standards: 6 Areas, 250 Items
- Gives a fair Overview of the Key Activities of a Modern Technological University
- Optimizes and details the Support Processes
- Formulates Mandatory Specific and Generic Competences of Programmes (EUR-ACE), promotes Education Reforms
- Introduce the Deming Wheel PDCA for each area
- No Scoring System (should be introduced)

Schools evaluations: 5 main aims

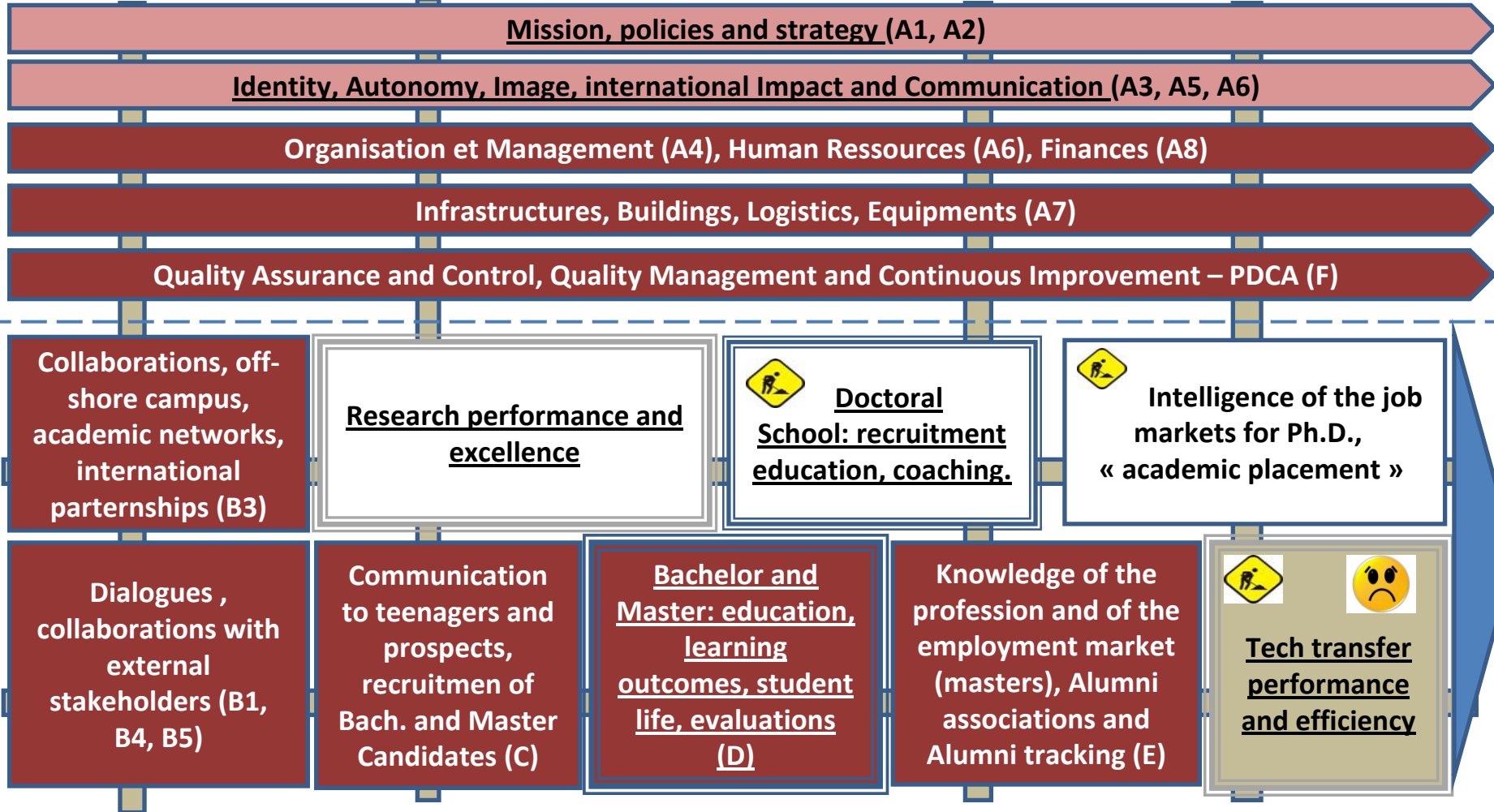
- To Convince the Stakeholders (especially the ETH Board) of the Accountability of EPFL .
- To provide fair Indications on the Performance Levels of the Schools and Colleges.
- To give Recommendations for the Continual Improvement of the Services (Ph.D. Programmes, Research, Tech Transfer).
- To suggest Key Reforms and Faculty Hirings
- To facilitate the Formulation and Implementation of Schools' and Colleges' Strategies (recommendations) – bringing some Neutral View and “Fresh Air”.

Several Themes





- Evaluation of Schools and Colleges: frequency – *every 4 or 8 years?*
- ***Aims of the Evaluation: Questions asked to the Committee***
- ***Selection of the Committee Members and President***
- **Contents of the Self-Assessment Documents – *towards a Standardization?***
- Evaluation Schedule and Duration – 3 or 5 days?
- Debriefing Impact– *a Credibility Test*
- Contents of the Experts' Report – *the Cardinal Role of the Redactor*
- ***Implementation of the Recommendations and their Control***

EPFL QMS "at a glance"

A TQM approach



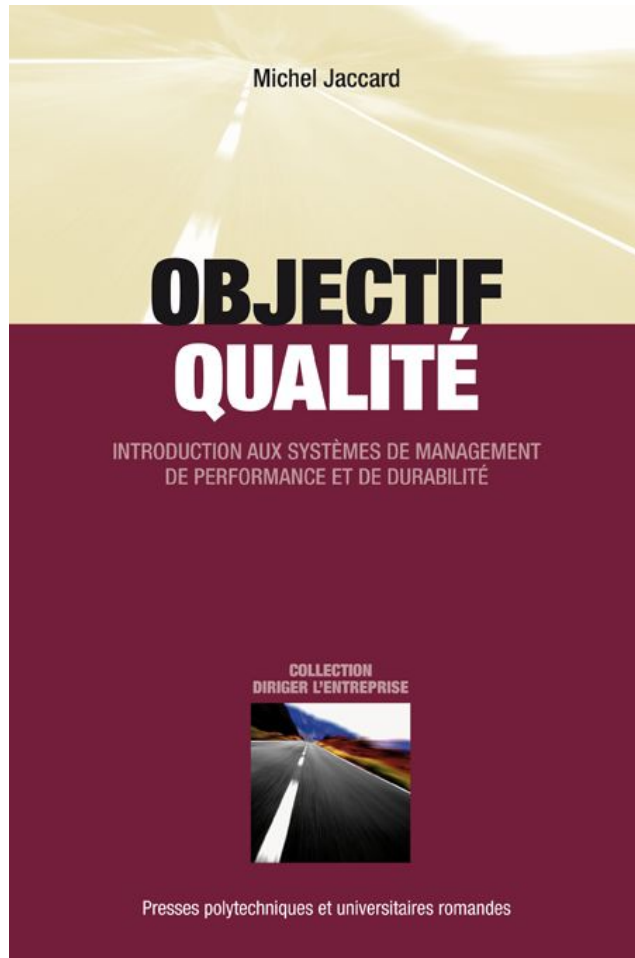
Letters correspond to criterias of the CTI standard

-  QMS control:
CTI and OAQ
Accreditations
-  QMS control:
Accreditations **and**
Schools/Colleges
Evaluations
-  QMS control:
Schools and Colleges
Evaluations only
-  No efficient
QMS control

Conclusions –Four Years of Experiences

...Positive if Senior Management has a Strong Leadership and Vision....

- For Curricula Accreditation, a QMS is mandatory
- Accreditation Process is rather straightforward and easy to implement
- Evaluations of Schools and Colleges is a delicate and complex Tool.
- Results gained by EPFL are rewarding and deliver a good Return on Investment.
- Faculty Members satisfied with the Process and the Content of the Expert Reports.
- Reforms and Projects initiated after both School Evaluations and Quality Audits – BUT, strong Support of EPFL Senior Management!!
- Many Recommendations implemented implemented with Success (Advisory Committees, Internships, Career Centre, RLC, Innovation Square, Student Dormitories, Office of Statistics), others planned (Implementation of Learning Outcomes, etc.)



Good Food, Good Life

... For a Deeper Immersion in French and EPFL Cultures...

Lets's give a brief Thank to the Sponsor...!



Thank you for your Attention