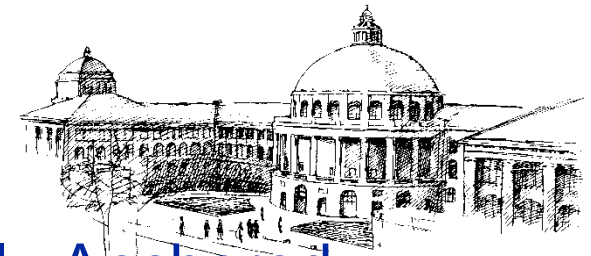


Annual Report 2013 of the BWI Center for Industrial Management

—

Logistics, Operations, and Supply Chain Management

Prof. Dr. Paul Schönsleben and Prof. Markus Baertschi



International University ... Nationally Anchored

The top ranking university in continental Europe

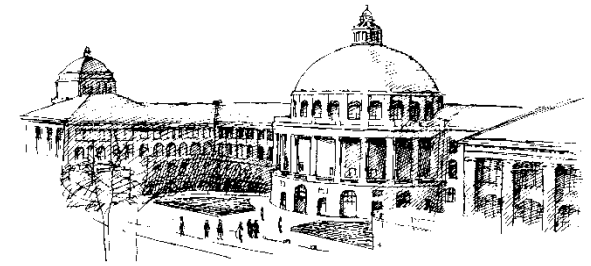
(Shanghai Jiao Tong University: Academic Ranking of World Universities)

- Staff members from 80 nations
- about 60% of the PhD-students from abroad
- > 60% of the professors from abroad
- 85% of the undergraduate students from Switzerland

21 nobel laureates - Examples:

- Chemistry 1939: Leopold Ruzicka
- Physics 1945: Wolfgang Pauli
- Chemistry 1975: Vladimir Prelog
- Chemistry 1991: Richard Ernst
- Chemistry 2002: Kurt Wüthrich



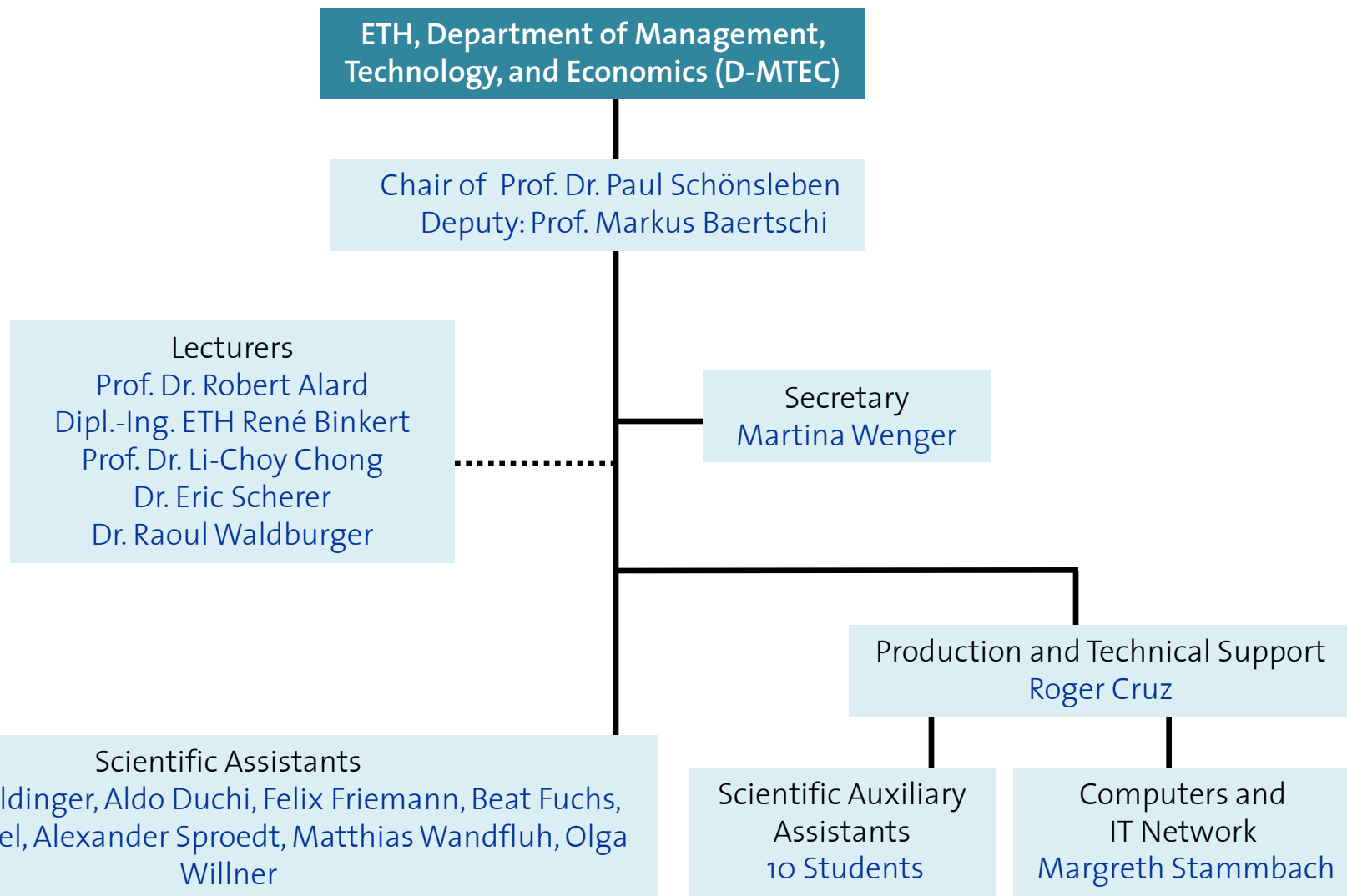


16 Departments

Architecture and Civil Engineering	Engineering Sciences	Natural Sciences and Mathematics	System-oriented Natural Sciences	Management and Social Sciences
Architecture	Mechanical and Process Engineering	Mathematics	Earth Sciences	Management, Technology, and Economics
Civil, Environmental and Geomatic Engineering	Inf. Technology and Electrical Engineering	Physics	Environmental Systems Science	Humanities, Social and Political Sciences
	Computer Science	Chemistry and Applied Biosciences	Health Sciences and Technology	
	Materials Science	Biology		
	Biosystems Science and Engineering			



Organizational Structure and Position within ETH



Statistics on collaborators

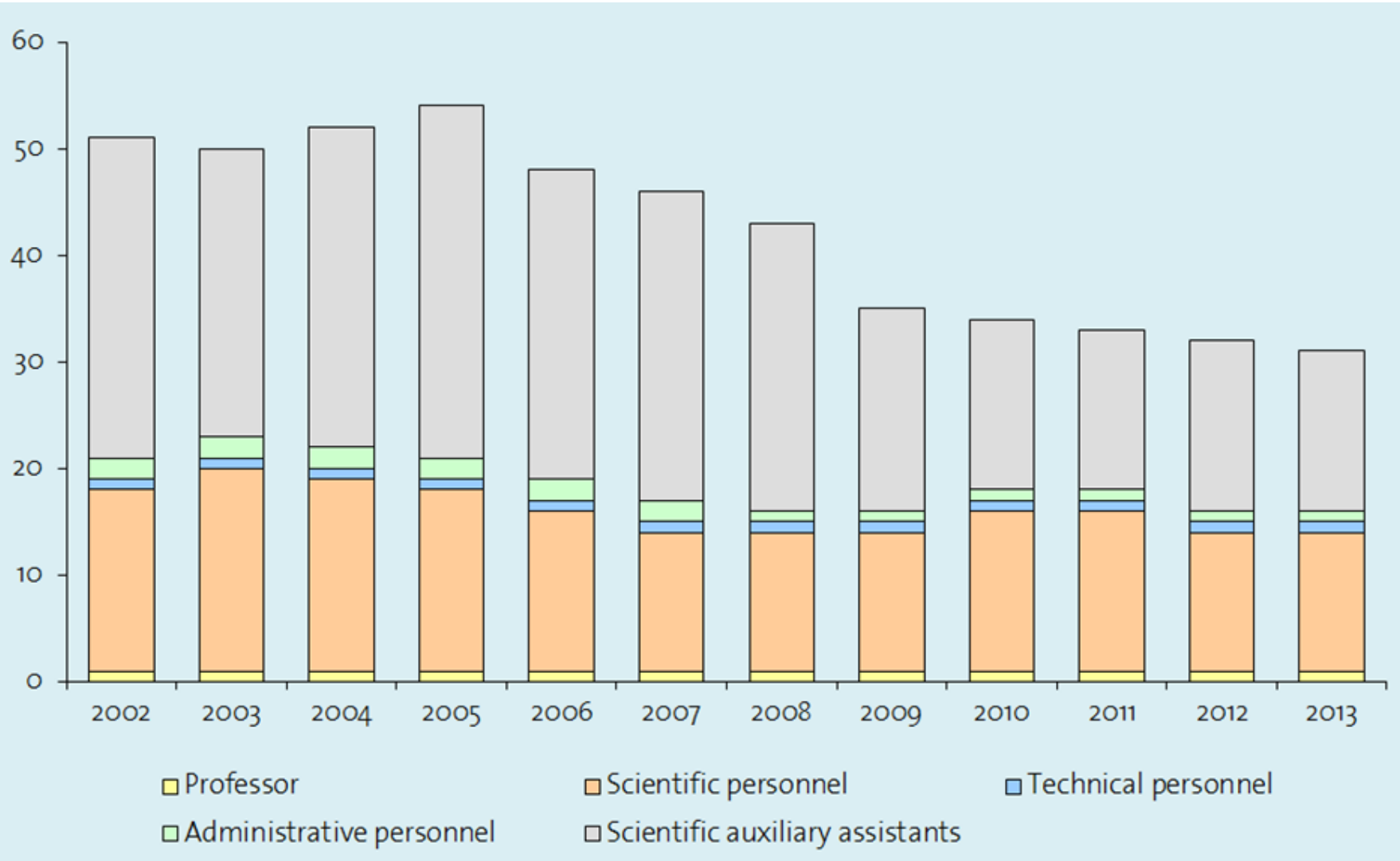
Statistics on collaborators

Our Team



Statistics on collaborators

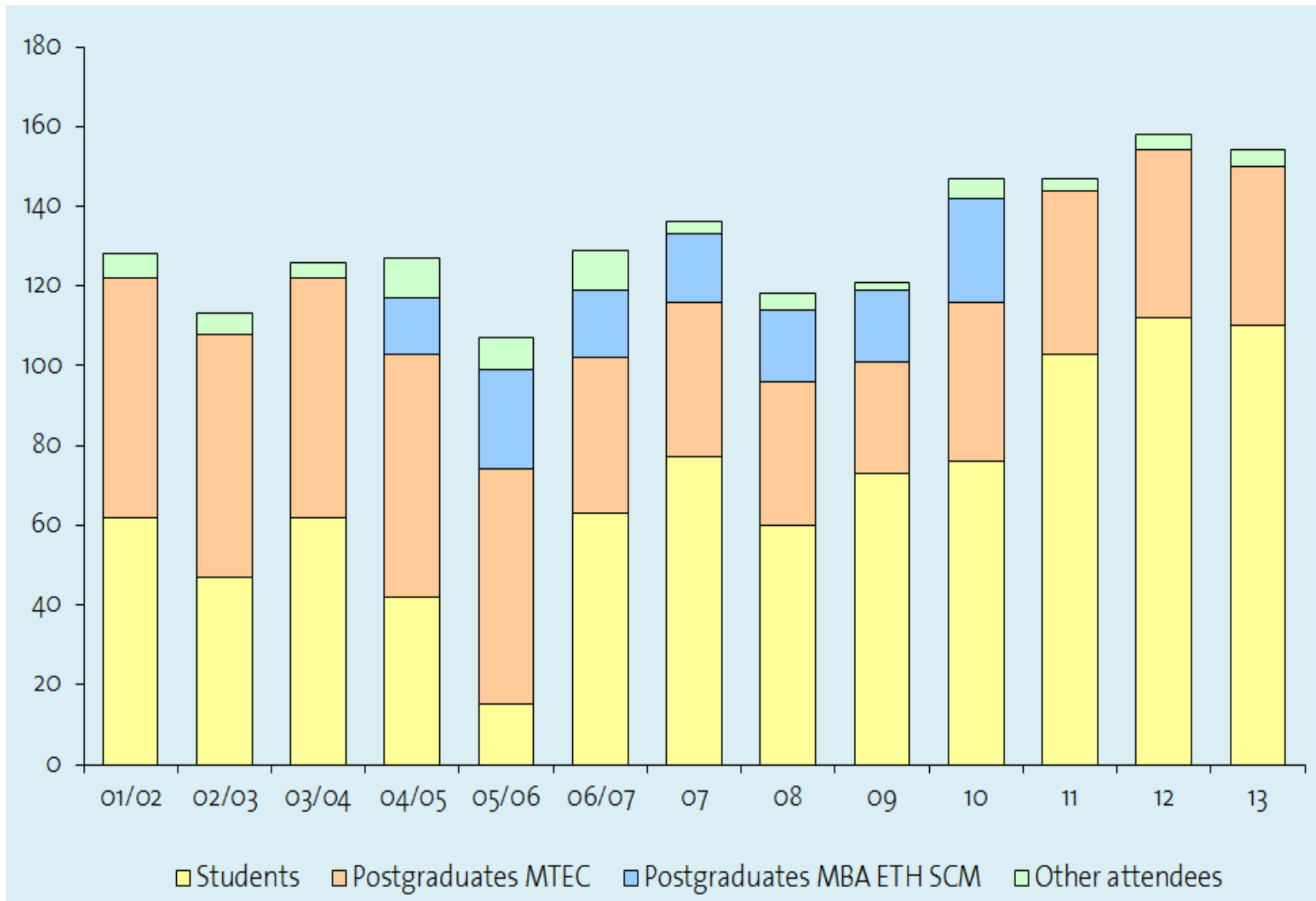
Situation at the End of a Calendar Year



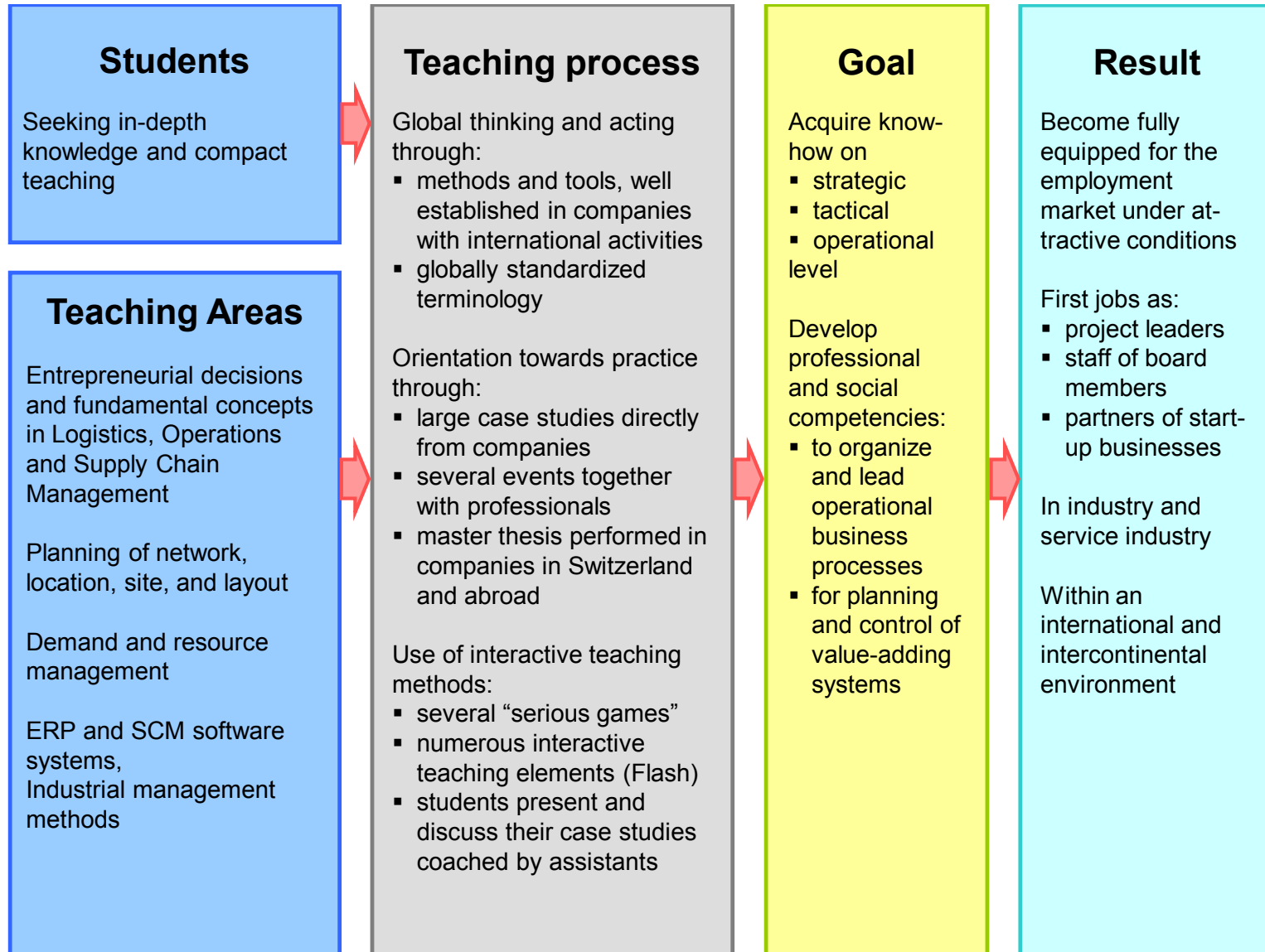
Statistics on collaborators

Education

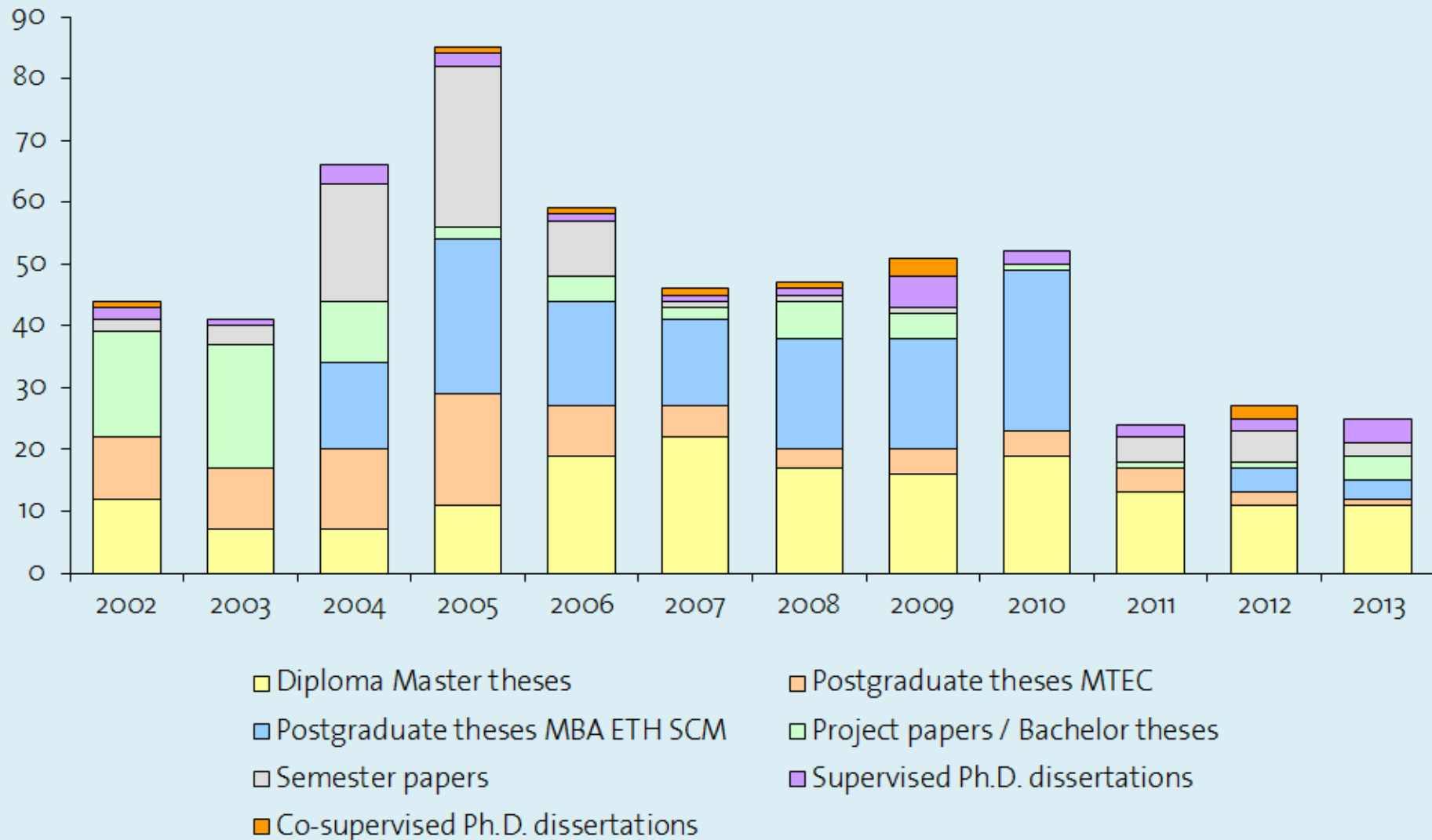
Statistics on Students



Teaching Strategy



Statistics on Student Papers



Research

Research areas and cross-sectional areas

Production &
Logistics
Management

Supply Chain
Management

Services







Asia / Emerging Markets

Risk Management

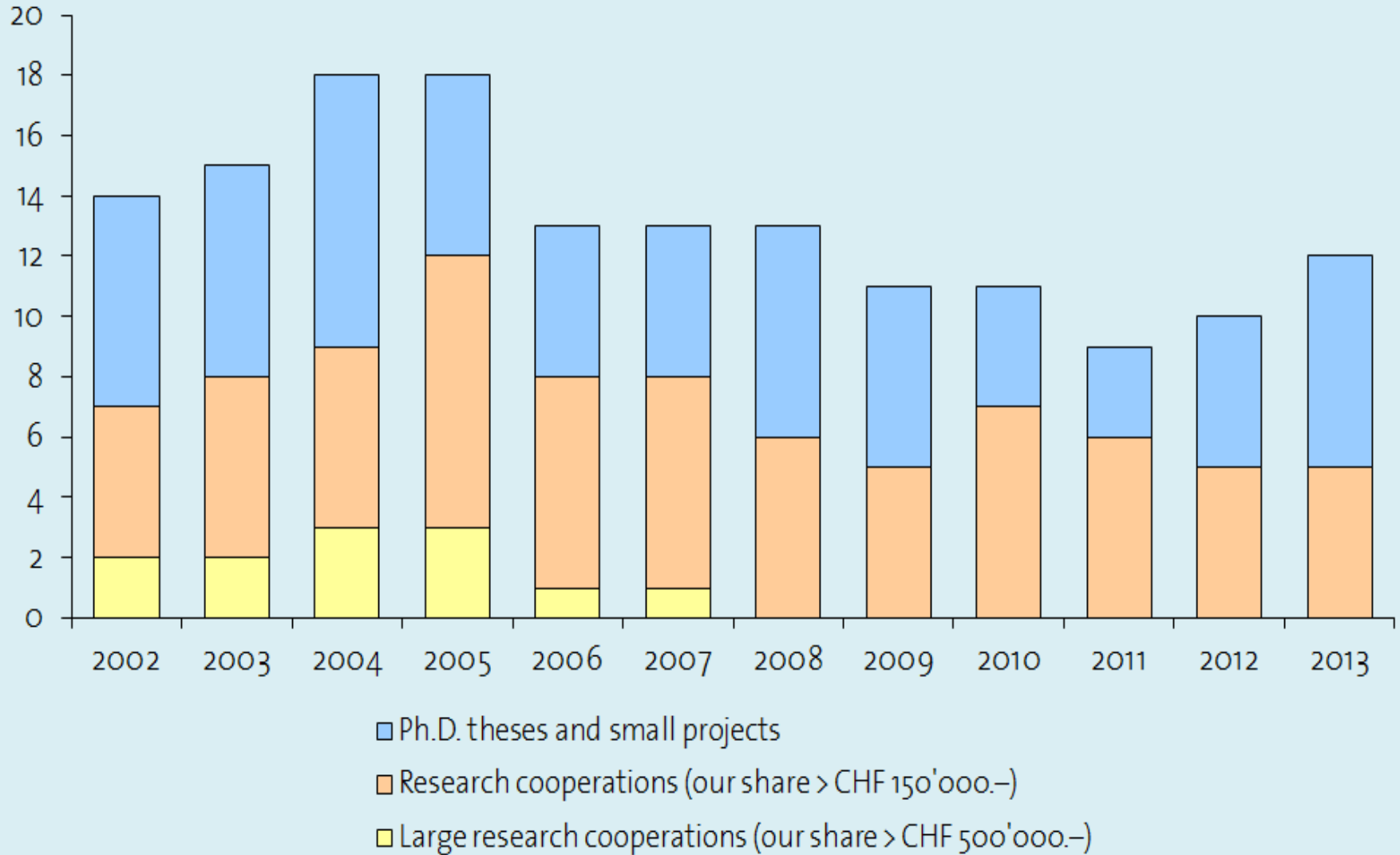
Lean & Green Product Life Cycle Management

Systems Engineering

Research Projects

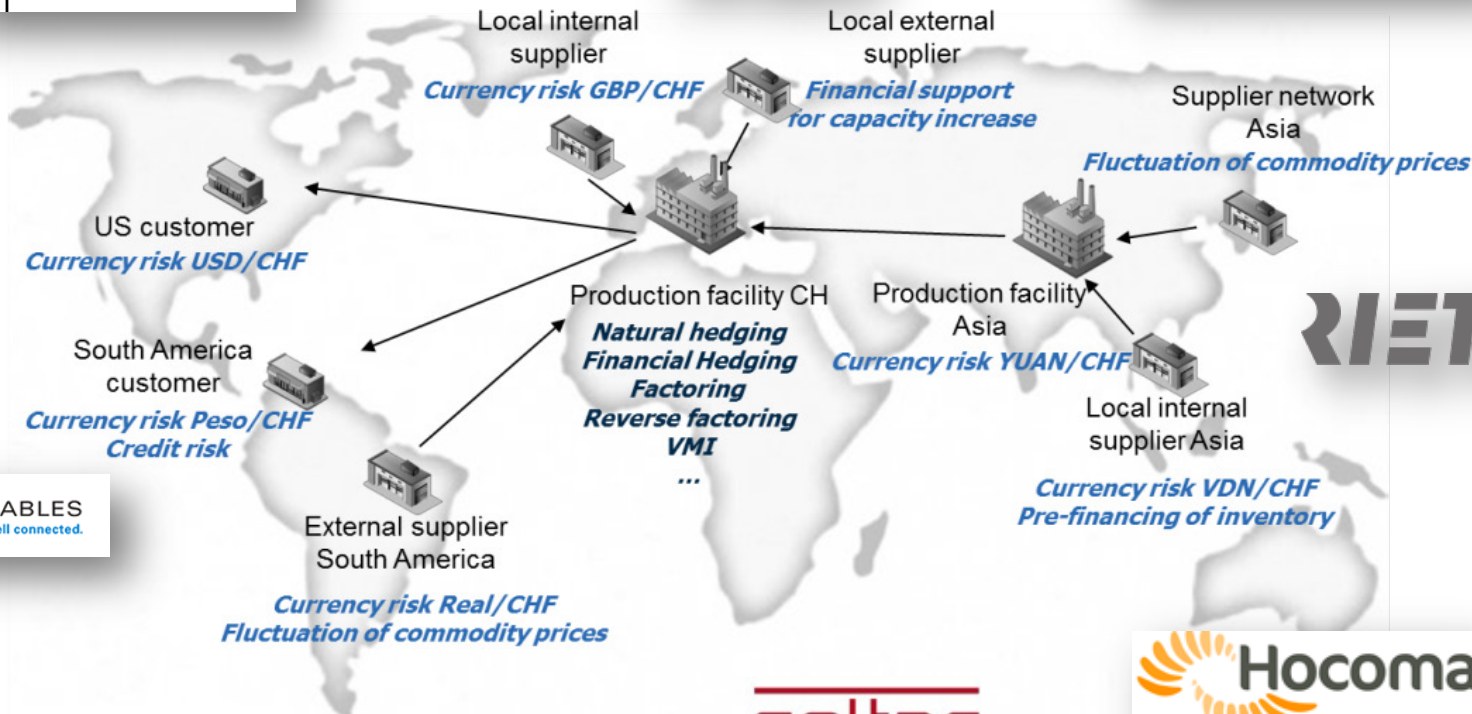
Projects	Production & Logistics Management	Supply Chain Management	Services	Asia / Emerging Markets	Risk Management	Lean & Green	Systems Engineering
1 AsPlanned - Robust planning of after-sales field service networks in the machinery and equipment industry (CTI No. 12164.1 PFES-ES) 	X	X	X	X	X		X
2 EcoFactory – Simultaneous ecological and economical optimization of production systems (CTI No. 13857.2 PFES-ES) 	X			X		X	X
3 C-FISH – Collaborative Financial Supply Chain Management (CTI No. 13857.2 PFES-ES) 	X	X		X	X		X
4 FastETO – Methods and tools that support a fast and efficient engineer-to-order process (ETO) for parameterized product families (CTI No. 15021.1 PFES-ES) 	X	X		X			X
5 GaLA – Game and Learning Alliance (EU-IST-ICT 258169) 	X	X					X
6 Long-Range planning of Logistics capacities in the process industry	X	X		X			X
7 Developing a global manufacturing footprint corresponding to volatile environments	X	X		X	X		X
8 Additively – Connect & Manufacture – Platform supporting companies interested in additive manufacturing <i>new</i> 	X	X					X
9 Industrial Field Service Network Conceptualization <i>(diss.) new</i>			X		X		X
10 Industrial Field Service Network Planning <i>(diss.) new</i>			X		X		X
11 Eco-Efficiency Performance Measurement System <i>(diss.) new</i>	X					X	X
12 Decision-support for Eco-efficiency Improvements in Production Systems Based on Discrete-event Simulation <i>(diss.) new</i>	X					X	X

Research Projects



Research Project: C-FISH

Collaborative Financial Supply Chain Management
(CTI-Nr. 13857.2 PFES-ES)



Research Project: FastETO

Methods and tools that support a fast and efficient engineer
to-order process (ETO) for parameterized product families

(CTI-Nr. 15021.1 PFES-ES)

FastETO



intelligent systems solutions GmbH

Research Project: EcoFactory

Simultaneous ecological and economical optimization of production system (CTI-Nr. 12402.1 PFES-ES)

Motivation and Industrial Relevance

- Increasing need for manufacturing companies to improve their environmental and economic performance (Eco-Efficiency) due to altering demands from:
- customers with an increasing demand for environmentally friendly products;
 - legislation by new regulations, forcing companies to reduce their emissions;
 - supply market by confronting companies with resource scarcity and increasing energy and raw material prices.

Overall Commercial Objective

Support manufacturing companies with a decision support process to identify optimal improvement measures to increase the Eco-Efficiency of their production processes

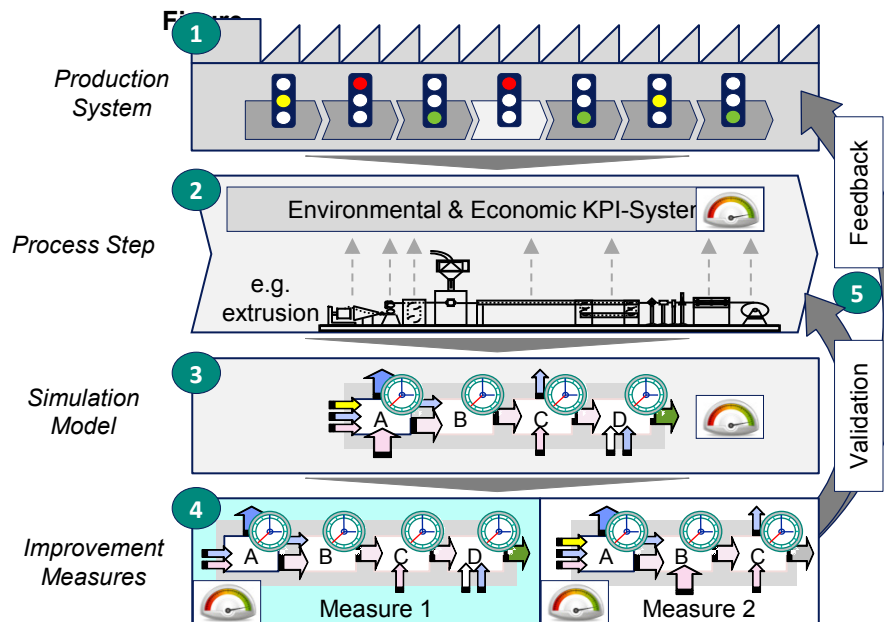
Scientific Objectives

- Holistic procedure model to improve Eco-Efficiency of production processes:
- Comprehensive environmental and economic key performance indicator (KPI) system
 - Simulation model combining Discrete Event Simulation (DES) and Material Flow Analysis (MFA)
 - Detailed analysis of suitability of Eco-Efficiency improvement measures in production systems

Project Approach

EcoFactory will address the following aspects to develop a unique procedure model to increase Eco-Efficiency in production systems:

- 1 Rough Analysis of production systems to identify process step for improvement
- 2 Development of an environmental and economic KPI system & assessment of identified production step
- 3 Modeling and Simulation of identified process step using a combination of DES and MFA
- 4 Evaluation of potential improvement measures (Technology, Production Planning & Control, Process Design) using DES and MFA
- 5 Validation of identified measure in process step and feedback to production system



Expected Project Results

- Holistic procedure model improving Eco-Efficiency in production systems

Researcher BWI

Prof. Markus Baertschi
Johannes Plehn
Alexander Sproedt

Research Partner

Swiss Federal Laboratories for Material Science and Technology (EMPA)
University of Applied Sciences (HTW) Berlin

Industry Partner

Taracell Schweiz
HUBER+SUHNER AG
Knecht & Müller AG
Chocolat Frey AG

Dissemination Partner

Effizienzagentur Schweiz AG
Verband der Schweizer Maschinen-, Elektro- und Metallindustrie (SWISSMEM)
Sustainable Engineering Network Switzerland (SEN)
BWI Management Weiterbildung

Website

www.ecofactory.ethz.ch

Funded by

Commission for Technology and Innovation

(CTI-Nr. 12402.1 PFES-ES)

Research Project: AsPlanned

Robust planning of after-sales field service networks in the machinery and equipment industry CTI-Nr. 12164.1 PFES-ES

Context

- After-Sales-Services (ASS) have become a major competitive factor. Companies profited from higher profit margins, but increasing complexity and costs in world wide operations represent new challenges for Swiss companies.

Motivation and Industry Relevance

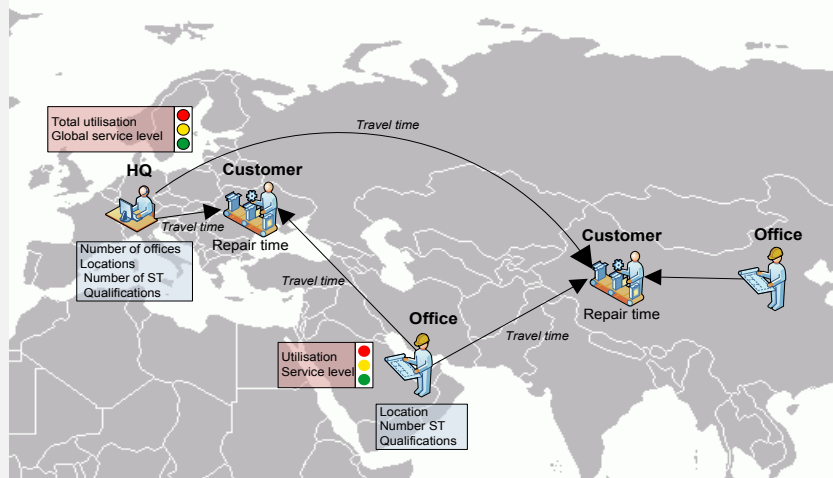
- Swiss companies are dependent on ASS for differentiation and superior customer satisfaction.
- ASS networks become more difficult to design and operate.
- Complexity of the ASS business especially in strategic network planning and resource allocation has led do suboptimal configurations.

Overall Commercial Goal

- Support decision-making in strategic planning of ASS networks
- Reduce operative costs incurred by improving strategic planning and resource coordination
- Enhance transparency and efficiency in planning and operation

Scientific Objectives

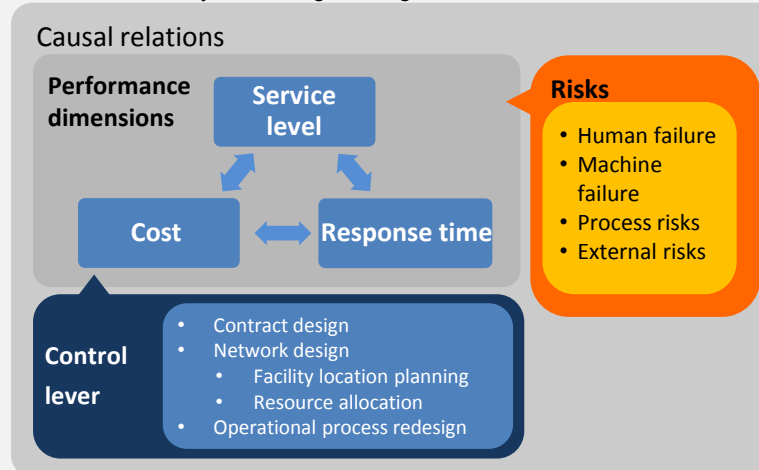
- General process framework for ASS networks
- Discrete event simulation for ASS networks



After-Sales-Service Network Simulation and Optimization

Approach

- Research method: Systems Engineering



Expected Project Results

- ASS-network simulation and optimization tool
- Case studies and benchmarking with industry partners



Researchers

Prof. Markus Baertschi
Gandolf Finke (gfinke@ethz.ch)
Philipp Hertz (phertz@ethz.ch)



Industry Partners

Schindler Aufzüge AG
GF AgieCharmilles
Siemens Schweiz AG
Feintool AG
Hocoma AG
e-switch Solutions AG



Dissemination Partner

Association For Services Management International (AFSMI)
Zellweger Management Consultants AG
BWI Management Weiterbildung



funded by

CTI (Innovation Promotion Agency, Switzerland)



Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Research Project: GALA (EU/FP7)

EU-IST-ICT 258169 Game and Learning Alliance

BWI
ETH ZURICH



GaLA – Game and Learning Alliance



ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

BWI
ETH ZURICH



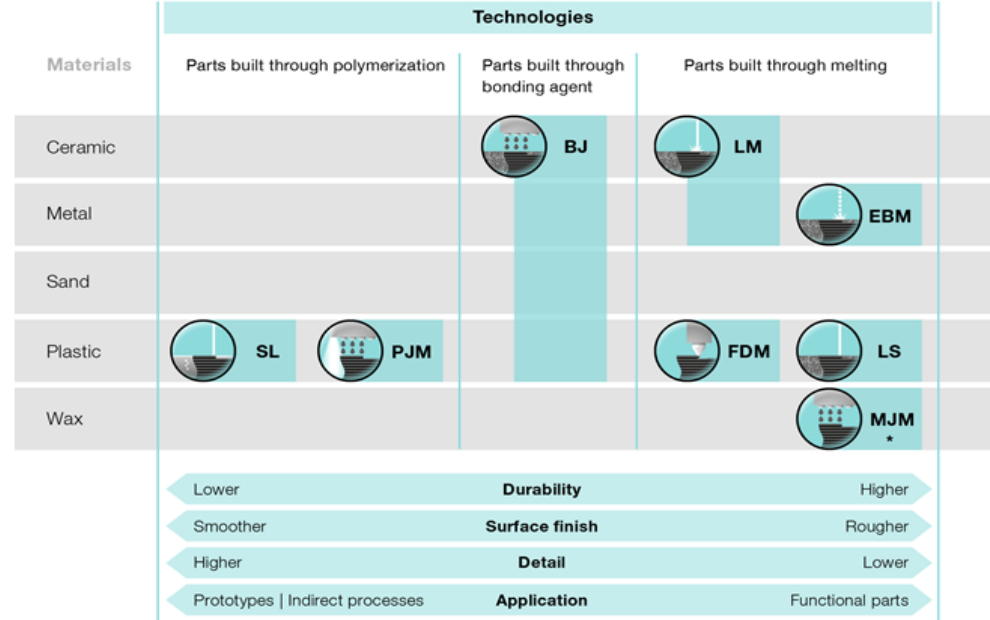
Research Project: Additively – Connect & Manufacture – Platform supporting companies interested in additive manufacturing



Platform supporting companies to realise their 3D printing projects

Key challenges to realise parts:

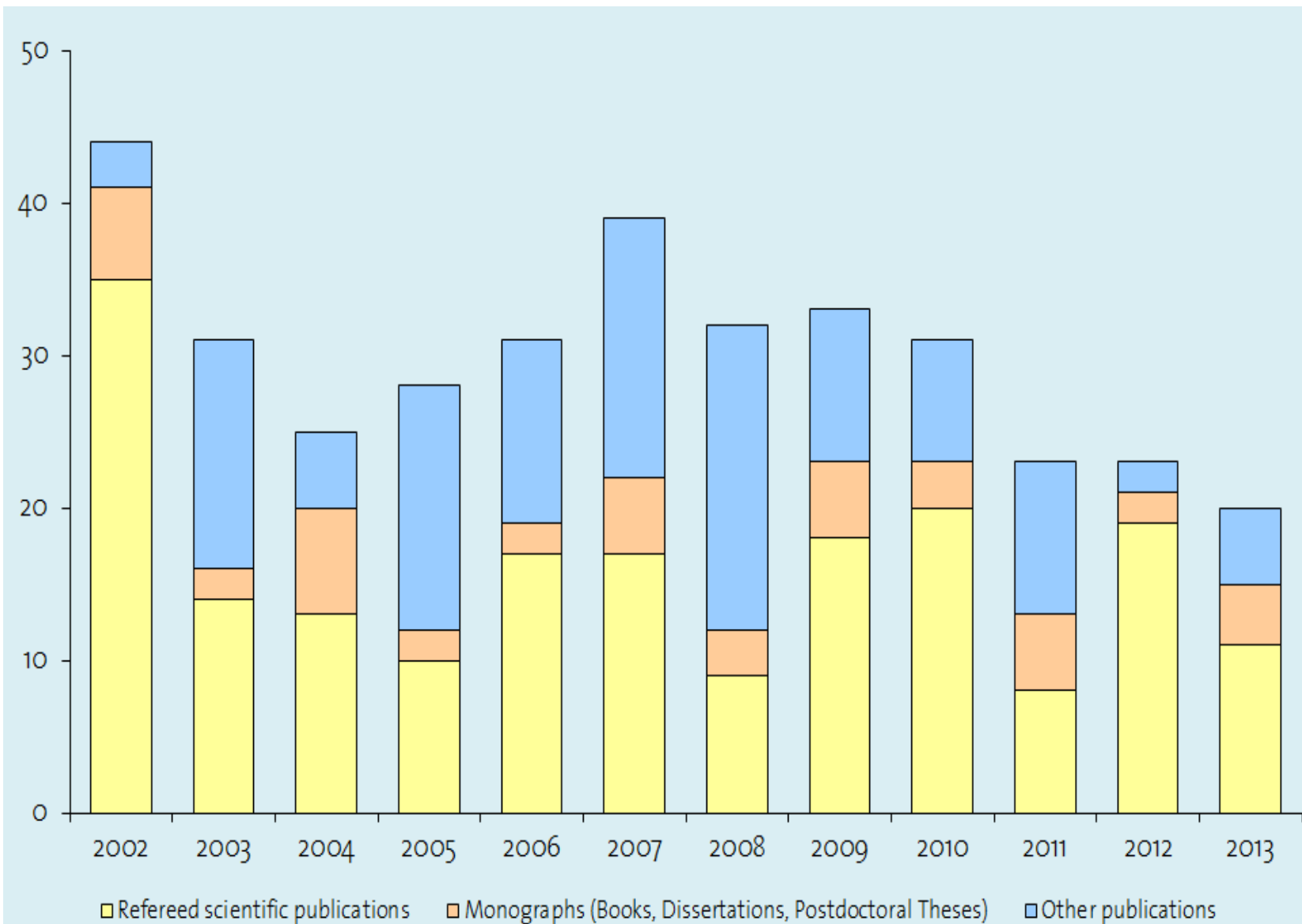
- Selection of the right 3D printing technology to meet the requirements
- Selection of the right service provider to produce the parts



* MJM achieves smooth surface finish and high detail

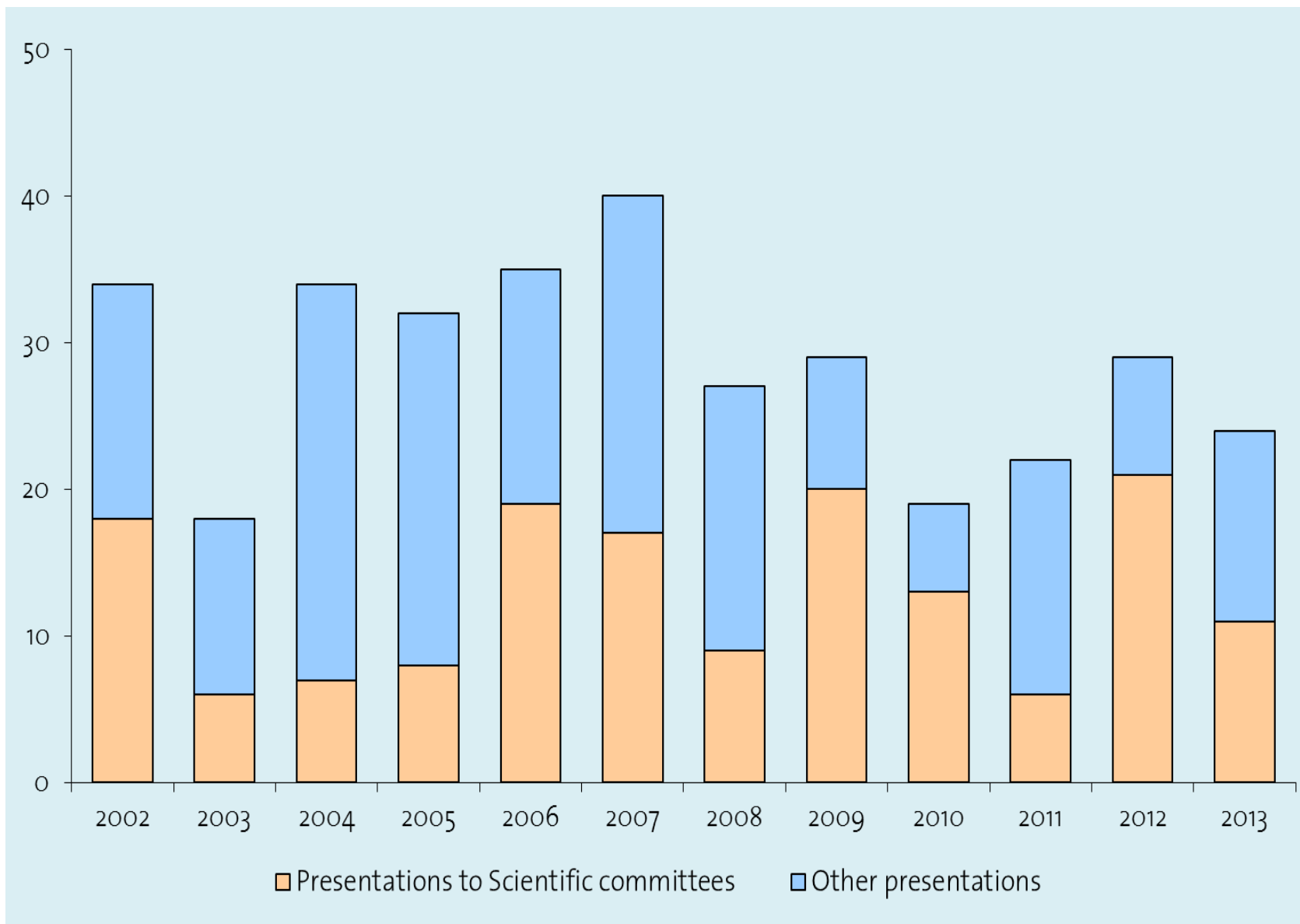
Publications

Publications



Presentations

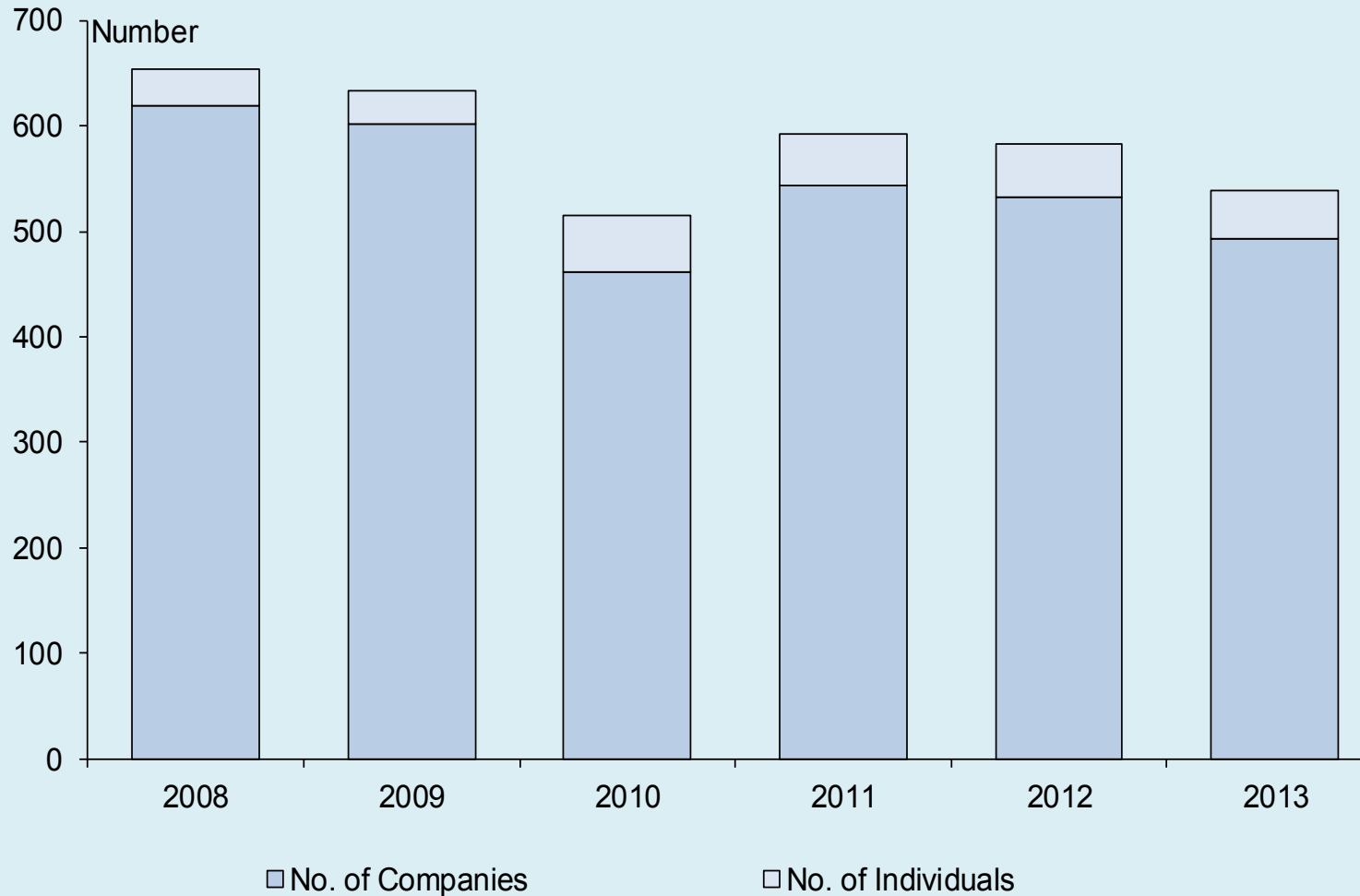
Lectures and Presentations



Statistics on events

Our Impact in the Industry

Number of companies or individuals that contracted our services to the amount of 200 CHF and more



Our Impact in the Industry

BWI / ETH Zürich: Aussenwirkung nach Firmen, Jan. bis Dez. 2013

Bereich Prof. Dr. Paul Schönsleben / Prof. Markus Baertschi

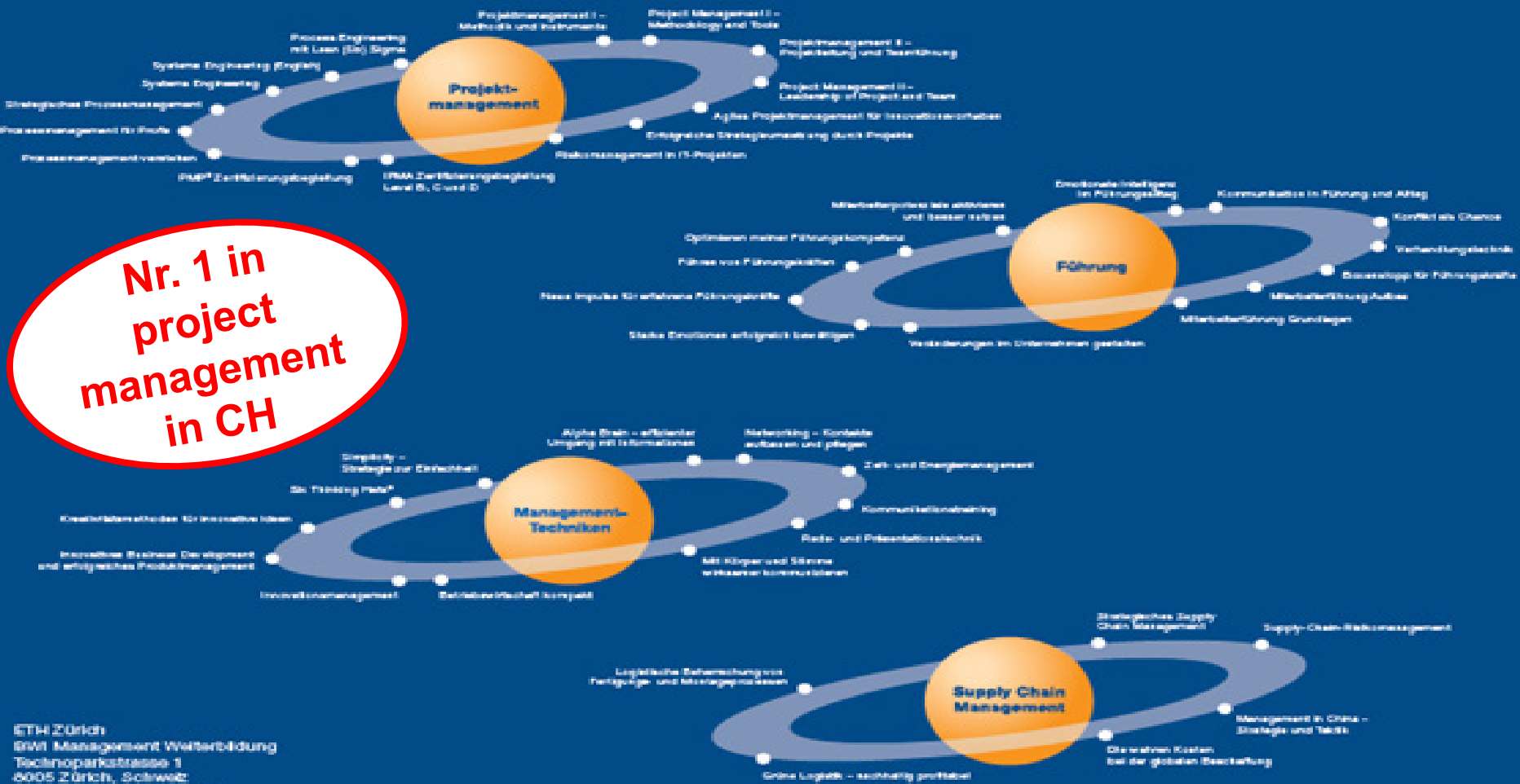
Quelle: SAP ETH (berücksichtigt sind nur Leistungen mit mindestens 200.- Fr. Umsatz)

Zusammenzug der Ergebnisse:

Anzahl Positionen:	904	Total Betrag in SFr.:	2'449'660
Anzahl Positionen Forschungsprojekt:	8	Total Forschungsprojekt:	216'591
Anzahl Positionen Beratungsprojekt:	3	Total Beratungsprojekt:	5'989
Anzahl Positionen MBA-SCM:	0	Total MBA-SCM:	0
Anzahl Positionen Seminar und Tagungen:	55	Total Seminar und Tagungen:	38'080
Anzahl Positionen BWI Man. Weiterbildung:	804	Total BWI Man. Weiterbildung:	2'076'128
Anzahl Positionen Erfa-Gruppe PIM:	5	Total Erfa-Gruppe PIM:	34'324
Anz. Pos. Übriges (z.B. PA/DA, Lehrveranst., Verk.Dok):	29	Total (Übrige Einträge):	78'549
Anzahl Zeilen (PA / DA.):	4	Total PA / DA:	4'851
Anzahl Zeilen (Logistik Veranst.):	18	Total (Logistik Veranst.):	3'600
Anzahl Zeilen (Entgelte Drittmittel(Herausgeber):	2	Total (Entgelte Drittmittel(Herausgeber):	57'555
Anzahl Zeilen (Verkäufe Wiss.Dokus):	5	Total (Verkäufe Wiss.Dokus):	12'543
Anzahl Firmen / Institutionen:	460		
Anz.Firmen / Instit. (inkl. Firmen von Erfa-Gruppe PIM):	493		
Anzahl Privat Personen:	45		

Positionen detailliert

Datum	Firmen / Institution Name	Firmen / Institution O	PLZ	Land	Transaktionsart	Betrag in (CHF)	Fonds-Bezeichnung
10.01.2013	ABB SCHWEIZ AG	BADEN	5401	CH	BWI Man.Weiterb	3'150.00	Management Weiterbildung SCH
17.04.2013	ABB SCHWEIZ AG	BADEN	5400	CH	BWI Man.Weiterb	2'100.00	BWI Management Weiterbildung
02.05.2013	ABB SCHWEIZ AG	BADEN	5401	CH	BWI Man.Weiterb	680.00	BWI Management Weiterbildung
07.05.2013	ABB SCHWEIZ AG	BADEN	5405	CH	BWI Man.Weiterb	2'100.00	BWI Management Weiterbildung
22.05.2013	ABB SCHWEIZ AG	BADEN	5400	CH	BWI Man.Weiterb	3'150.00	BWI Management Weiterbildung
22.05.2013	ABB SCHWEIZ AG	BADEN	5400	CH	BWI Man.Weiterb	3'150.00	BWI Management Weiterbildung
29.05.2013	ABB SCHWEIZ AG	BADEN	5405	CH	Seminar und Tagu	780.00	A+W 06
08.08.2013	ABB SCHWEIZ AG	BADEN	5401	CH	BWI Man.Weiterb	3'150.00	BWI Management Weiterbildung
08.08.2013	ABB SCHWEIZ AG	BADEN	5401	CH	BWI Man.Weiterb	2'300.00	BWI Management Weiterbildung
08.08.2013	ABB SCHWEIZ AG	BADEN	5401	CH	BWI Man.Weiterb	2'100.00	BWI Management Weiterbildung
05.09.2013	ABB SCHWEIZ AG	BADEN	5400	CH	BWI Man.Weiterb	3'150.00	BWI Management Weiterbildung
03.10.2013	ABB SCHWEIZ AG	BADEN	5400	CH	BWI Man.Weiterb	2'100.00	BWI Management Weiterbildung



Nr. 1 in project management in CH

Excerpt of our Reference List

ABB Corporate Research Ltd, Baden
ABB Hochspannungstechnik AG, Zürich
ABB Industrie AB, Turgi
Alcatel AG, Zürich
Ascom Business Systems, Solothurn
Bundesamt für Gesundheit, Bern
Bundesamt für Verkehr, Bern
Canon Schweiz AG, Dietlikon
Cargologic AG, Zürich-Flughafen
Clariden Leu, Private Banking, Zürich
Credit Suisse Group, Zürich
Die Schweizerische Post, Bern
Elan Florian Weber AG, Menziken
Emmi Käse AG, Emmen
Helsana Versicherung AG, Zürich
Hirslanden Holding, Zürich
F. Hoffmann-La Roche AB, Basel
Jura Elektroapparate AG, Niederbuchsiten

Kernkraftwerk Gösgen-Däniken AG
Migros Genossenschafts-Bund, Zürich
Novartis Pharma, Basel
Philips AG, Zürich
PricewaterhouseCoopers AG, Zürich
Ringier AG, Zürich
SBB AG, Bern
Schweizerische Nationalbank, Bern
Siemens AG, Zürich
Sony AG, Schlieren
Sunrise / TDC Switzerland AG, Zürich
Swiss International Airlines, Basel
Swisscom AG, Bern
Synthes GmbH, Oberdorf
Universität St.Gallen, St.Gallen
V-Zug AG, Zug
Zurich Financial Services Group, Zürich

- Target customers:
 - ◆ focus on lower and middle management,
 - ◆ mainly with technical /natural scientific background,
 - ◆ of industry, service industry, public sector,
 - ◆ particularly also from technology-oriented SME.
- Suppliers:
 - ◆ a network of about 50 independent trainers ,
 - ◆ with long-standing experience in their domain and in the network.

www.bwi.ch:
Our Way of Advertising

Karriere

BEWEGEN ERLAUBT
Im Büro der Zukunft arbeiten
alle überall
SEITE 87

SURFEN VERBOTEN
Facebook und Co. sind in
vielen Büros unerwünscht
SEITE 92

Anblick Seite 89
Die Bundeskunstsammlung
leiht Bilder fürs Büro aus
Einblick Seite 90
Prominente zeigen,
wo sie arbeiten
Ausblick Seite 95
Eine Bank zieht ins höchste
Bürogebäude der Schweiz

85



Delegieren Sie Ihre Weiterbildung an uns.

Range of Seminars offered	08	09	10	11	12	13
Number of Public Seminars Held	74	61	71	83	77	76
Number of Public Seminar Days Held	166	142	159	183	181	178
Number of Company-Internal Seminars Held	83	92	84	99	81	69
Number of Company-Internal Seminar Days Held	212	220	203	264	183	138

