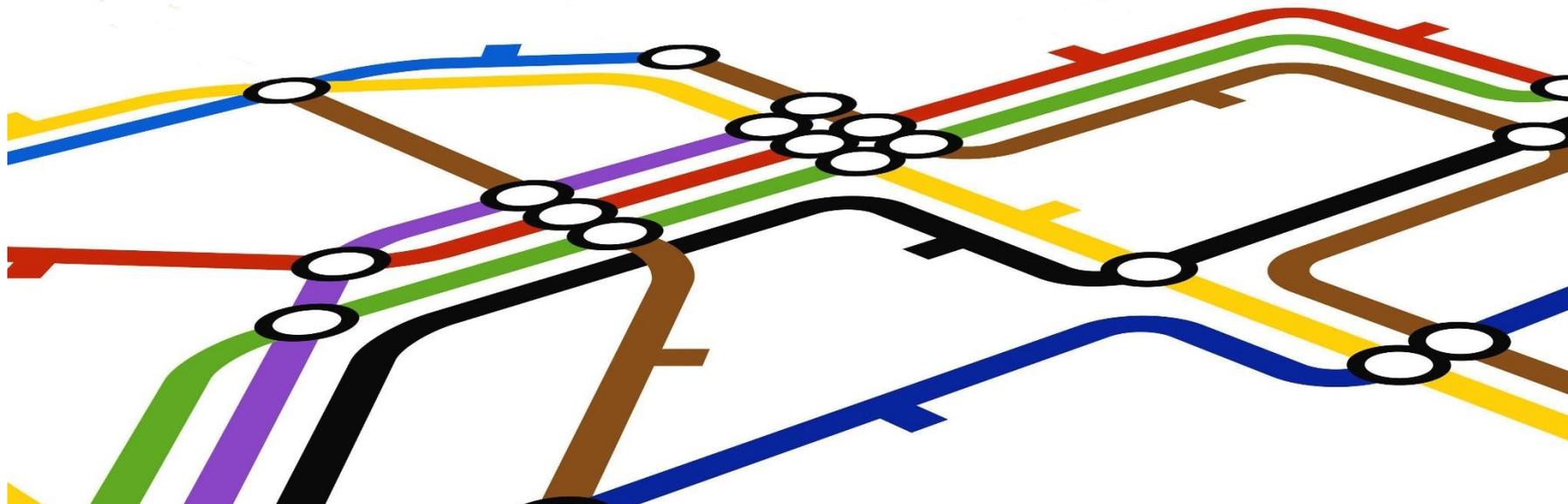


QUIZ: how is this vehicle powered?





SCCER Mobility 2014-2016

A review by the Management Office

Annual Conference
16 September 2016, ETH Zürich

SCCER Mobility 2014-2016

- Achievements 2014-2016
- Management office activities 2014-2016
- (Some) lessons learned for phase II

Achievements 2014-2016

In the field of:

- Capacity building
- Fostering (interdisciplinary) cooperation
- Innovation for the energy transition *

* Overview, more details will be presented later, by the individual Capacity Areas.

Capacity Building

Within SCCER Program “capacity building” refers to increase the number of researchers **at the higher education institutions** dedicated to the topics that are relevant to successfully address the challenges of the Energy Strategy 2050.

In **quantitative terms**, our capacity building is on track:

- By the end of 2015, we created **27 full-time positions with SCCER funds** and reported another 61 FTEs financed with matching funds.
 - 160 researchers are involved in SCCER-Mobility related activities
- CTI-SCCER funding **entailed considerable matching funds**, in particular own funding at Universities of Applied Sciences (1.1 MCHF in 2015).

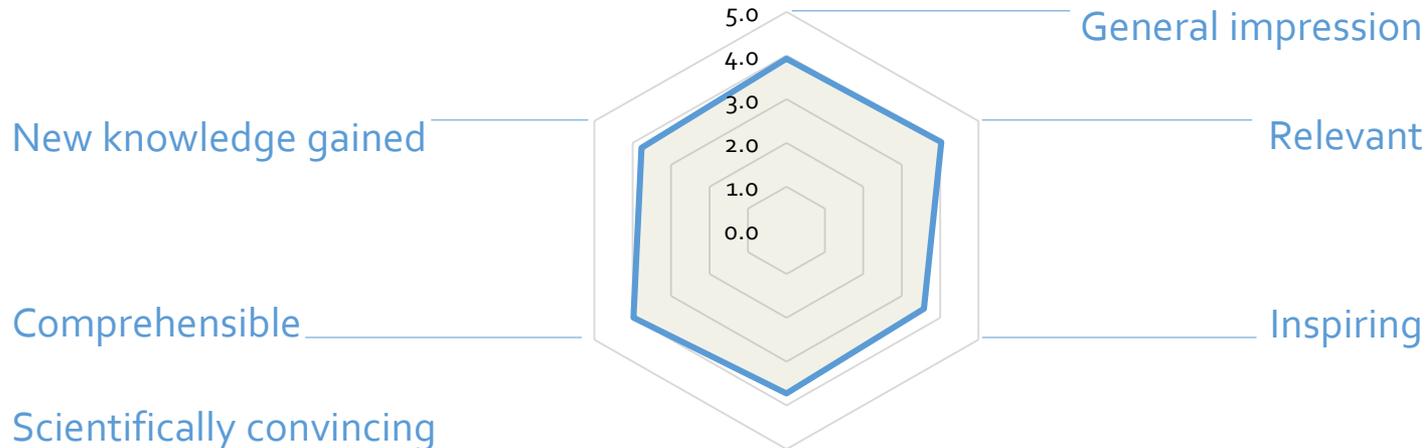
Capacity Building

In **qualitative terms**, we initiated a number of complementary teaching or exchange forums that **foster the systemic perspective and focus in solutions** and **provide interdisciplinary skills and knowledge, particularly to the younger members of SCCER Mobility**, but also to external stakeholders:

- Roadmap Workshop (2 days)
- Young Talent Development Workshops
- Seminar Series
- SCCER Summer School
- MAS | CAS in Mobilität der Zukunft (in preparation)

Capacity Building

We **evaluated some of our teaching activities**, with quite positive results, for example the 1st **SCCER Summer School on Energy Storage in Batteries**:

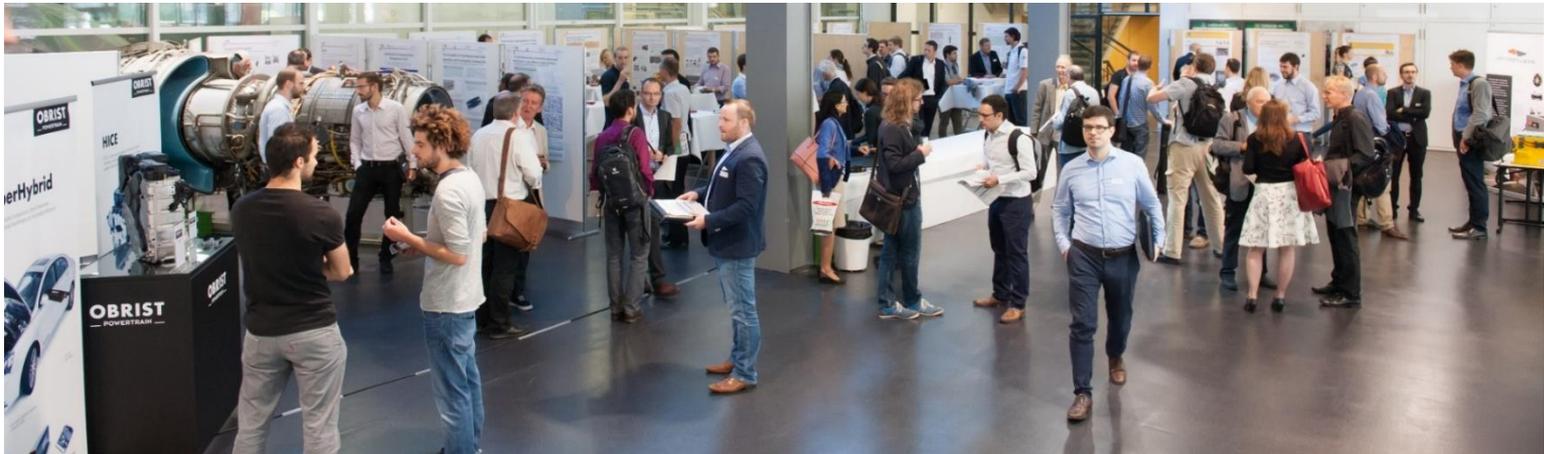


How much the SCCER summer school **satisfied participants' expectations** on a scale from 5 (absolutely) to 1 (not at all)

Cooperation

Measuring collaboration and its effects is difficult, but:

- Several **collaborative projects** with more than one SCCER Mobility research group initiated since 2014 (e.g. SwissTrolley+, goEco!, NextICE, more in preparation)
- New **forum for industry-academia dialogue** (first edition autumn 2015)
- **Joint report** on possible visions for Swiss mobility 2050 (in preparation)



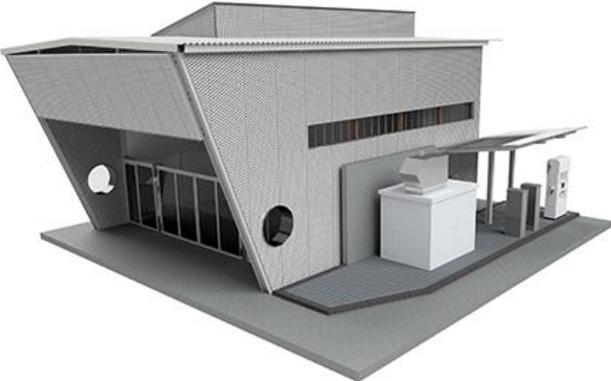
Annual Conference 2015

Innovation for the Energy Transition (2014-2015)

- Several patent applications
 - Advanced heat and water management for FC (A2.1: PSI – Boillat)
 - Splitted fuel admission for ICE (A2.2: Empa – Soltic, Biffiger)
 - Dual swirl technology for better controlling the compression stroke in ICE (ETHZ – Schmitt)
 - A process for forming roughened micron size anisotropic platelets (A3.2: ETHZ – Studart, Libanory et al.)
- 3 spin-offs: Betteriewerk, Suncar HK, Virzsense



Innovation for the Energy Transition (2014-2015)

- 68 new research projects, out of which 45 with industry partners
 - 19 Mio CHF total project funds raised (most projects will be still ongoing in 2017)
 - 1 Mobility demonstrator
- 
 A 3D architectural rendering of a modern, angular building. The building has a prominent, slanted facade and a flat roof. It features large windows and a series of vertical panels. In the foreground, there are several smaller, white, rectangular structures that appear to be part of a demonstrator or research setup. The entire scene is set on a dark grey base.
- Plenty of scientific publications & speeches in more than 100 scientific / technical events

Monitoring, Reporting, Fundraising

- 1 **monitoring** and 2 **financial monitoring reports** per year
- 1 **site visit** per year
- 1 **report on the fulfillment of requirements** per year
- 1 **SCCER funding application** submitted, 4 (smaller) additional applications in preparation (for Joint Activities)



Governance

- Governance regulations established in 2014
- 10 Executive Committee Meetings, next in preparation
- 3 Board Meeting
- 2 Advisory Board Meeting



Panel discussion with SCCER Mobility Advisory Board member and invited speakers, 2015

Communication

- SCCER Mobility website and SharePoint platform
- Newsletter
- SCCER Mobility poster and leaflet
- Presentation of the competence center at various occasions:
Site Visit BR D. Leuthard, SBB CEO A. Meyer, Swiss Mobility Days, Delegations from TÜBİTAK (TUR) and Shanghai Jiao Tong University (CHN) etc.

HOME | CONTACT | LINKS | SEARCH | INTRANET

ABOUT US | ROADMAP | CAPACITY AREAS | SUPPORTING MEASURES | PUBLICATIONS

In cooperation with the CTI

Energy funding programme
Swiss Competence Centers for Energy Research

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra
Swiss Confederation
Kommission für Technologie und Innovation KTI

SCCER Mobility

The Swiss Competence Center for Energy Research - Efficient Technologies and Systems for Mobility (SCCER Mobility) aims at developing the knowledge and technologies essential for the transition of the current fossil fuel based transportation system to a sustainable one, featuring minimal CO₂ output and Primary Energy Demand as well as virtually zero-pollutant emissions.

Innovation Field A deals with components and devices. Capacity Area CA A1 aims at new battery technologies, CA A2 at optimal use of renewable chemical energy carriers for fuel cells and combustion engines and CA A3 at the minimization of vehicular energy demand (lightweighting and thermal management). Innovation Field B comprises of CA B1 targeting infrastructure, logistics and ICT-systems and CA B2 covers the assessment of the transportation system.

The program aims at creating synergies at the interfaces of these five Capacity Areas serving as virtual research teams, composed of new and redeployed key research positions from ETH-Domain and the Universities of Applied Sciences. Many relevant Swiss and foreign companies are actively involved in various SCCER Mobility research projects.

Events

System Models in Life Cycle Assessment
September 5, 2016
Summer school on system models in life cycle assessment, - September 5-9, ...

Energy Storage in Batteries: Materials, Systems and Manufacturing
July 11, 2016
Summer School 11-15 July 2016 in Moschberg, Switzerland organized by SCCER ...

Mission

The SCCER Mobility aims at developing the knowledge and technologies essential for the transition of the current fossil fuel based transportation system to a sustainable one, featuring minimal CO₂ output and primary energy demand as well as virtually zero-pollutant emissions.

Research, Development and Innovation

Socio-Battery Research Platforms

- Knowledge areas in operation by battery systems for HEV, PHEV, BEV, FCV, power-to-transport, hydrogen as energy carrier

Chemical Energy Carriers

- Development of fuel cell systems
- Development of internal combustion engines

Minimization of Vehicular Energy Demand

- Light weight design and optimization
- Powertrain optimization
- Thermal management

Integration, Operation and Optimization of Mobility Systems

- System architecture and optimization
- System integration and optimization
- System integration and optimization

Integrated Assessment of Mobility Systems

- Energy assessment and energy efficiency
- Life cycle assessment

Advanced Training, Networking and Communication

- Master or advanced diploma (MSc) courses
- Summer school on system models in life cycle assessment
- Summer school on system models in life cycle assessment

Partners

ETH Zurich, EPFL, SBB, KTI, etc.

In cooperation with the CTI

Energy funding programme
Swiss Competence Centers for Energy Research

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra
Swiss Confederation
Kommission für Technologie und Innovation KTI

Swiss Competence Center for Energy Research
Efficient Technologies and Systems for Mobility

Research Areas

The Competence Center includes five Capacity Areas covering two innovation fields. Innovation Field A deals with components and devices for e-mobility (Capacity Area A1), fuel cell technology and internal combustion engines (Capacity Area A2), lightweight structural components and improved thermal management of vehicles (Capacity Area A3). Innovation Field B addresses mobility systems with special focus on infrastructure integration, intelligent transport systems, urban planning, monitoring and user communication (Capacity Area B1), as well as integrated assessment of mobility systems (Capacity Area B2).

Mission

In Switzerland, the transportation sector accounts for approximately one third of total energy consumption and greenhouse gas emissions. The Swiss Competence Center for Energy Research - Efficient Technologies and Systems for Mobility (SCCER Mobility) develops knowledge and technologies essential for the transition of the current fossil fuel based transportation system to a more sustainable one, featuring minimal CO₂ output and primary energy demand as well as virtually zero-pollutant emissions.

The Competence Center aims at understanding the complex dynamics of mobility and transportation, including their interdependencies with the overall energy system. It serves as a platform for the integration of a broad range of research areas to provide a coherent framework to identify, assess and develop the most promising research directions that result in sustainable and efficient interventions.

KTT Events

- 1st Industry-Academia Dialogue on *Energy Storage on Locomotives* (October 2015)
- Seminars on *Adoption of Disruptive Transportation Technologies and E-Mobility* (November 2015 and May 2016)
- 3 Annual Conferences
- BAV Weiterbildungstag, Novatlantis Bauforum, MITei Workshop etc.



Annual Conference 2014



Novatlantis Bauforum 2015

Education and Equal Opportunity

- **Young Talent Development** workshop (1 event)
- **1st SCCER Summer School** on *Energy Storage in Batteries* (organized with SCCER HaE)
- **SCCER-f roundtable** (2 events) and **interview series** with distinguished female scientists



SCCER Summer School 2016



LCA Workshop 2015

MAS | CAS in Mobilität der Zukunft

- **Interdisciplinary, 2 years part-time advanced training for managers and technical decision-makers**
(starting January 2017)

« *The technologies are ready – we need to bring together innovative people from different disciplines to use them for the benefit of all.* »

Dr. Peter de Haan, MAS docent

➔ www.mas-mobilitaet.mavt.ethz.ch

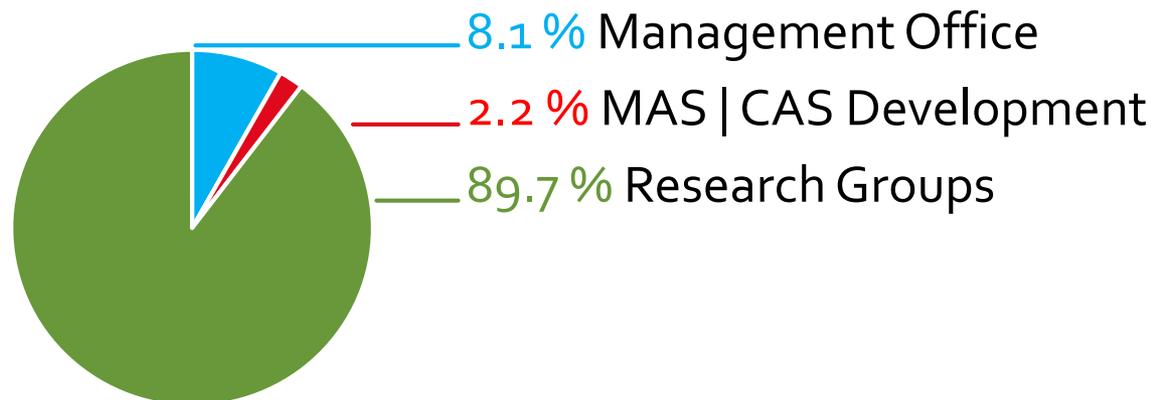


Cost of the Management Office (2015)

Distribution of total SCCER funds (incl. own, federal, 3rd party)

- 4.4 % for Management Office
- 0.7 % for MAS | CAS Development
- 94.9 % for Research Groups

Distribution of CTI-SCCER funds only:



Lessons Learned for Phase II

The **overarching goals of the SCCER program** are very broadly defined.

- ➔ Within the given framework, we should constantly **review our own (qualitative) objectives for capacity building, collaboration, and innovation.**
- ➔ A **clear idea of what we expect to live on after 2020** would help to focus our efforts.
- ➔ **Less is more:** SCCER Mobility should be an opportunity for its members and not a (administrative) burden.

Lessons Learned for Phase II

Capacity Building

→ Think of capacity building even more in qualitative rather than in quantitative terms

How can we make sure that, in 2020, young researches funded by SCCER Mobility are ready to make a significant contribution to building a sustainable and reliable future mobility and transportation system?

→ Capacity Building understood as a way to adapt to changing circumstances while keeping the overarching goal in focus.

Lessons Learned for Phase II

Collaboration

→ Collaboration is just a means to an end

The very raison d'être of the SCCER program is (interdisciplinary and inter-university) collaboration.

However, as is true with any other resource, time spent to collaborate should be spent efficiently and target-oriented.

→ Facilitating bottom-up cooperation is important while maintaining a top-down integrative function.

Lessons Learned for Phase II

Innovation

➔ **Fostering innovation is a highly ambitious undertaking and SCCER Mobility is not the only player in the field**

What can SCCER Mobility reasonably contribute to support its members bring their research to the market?

Instead of aiming for specific deliverables that are difficult to plan quantitatively* SCCER Mobility should concentrate on creating an innovative environment that has a positive and lasting effect for the community (including industry) and the Energy Strategy 2050.

* because they depend on 3rd party funding we don't have yet or on highly unpredictable research outcomes



Reminder

Trying hard to do better job, we appreciate if you don't forget to **give us your feedback on the Annual Conference** by filling out the **questionnaire** we distributed and **posting it at the reception desk**.

Thank you.