

SPG Mitteilungen Communications de la SSP

Auszug - Extrait

SATW Industrial Advisory Board: One Year of Operation

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The Swiss Physical Society (SPS) and the Swiss Academy of Engineering Sciences (SATW) decided rightly and independently to strengthen the connection between research and industry (see editorial in the *SPG Mitteilungen* Nr. 69 on page 3¹). In line with this strategy SATW set up an *Industrial Advisory Board* which became officially installed at the SATW Annual Meeting in April 2023.

From SPS side Andreas Fuhrer of IBM, formerly responsible for the section 'Physics in Industry' at the SPS Executive Board, is a valuable member. Other members are R&D heads of large and small companies as well as start-up companies. Members are from various branches of industry: medical devices, sensors, communication, photonics, biotechnology, laboratory automation, actuators, and machine industry. The board also includes executive board members from Swissmem, Swiss Engineering and Switzerland Innovation Park.

The SATW Industrial Advisory Board is complementary to the SATW Scientific Advisory Board. It brings in the perspective of Swiss companies competing on the world market by innovation.

New technology is a prime driver of product innovation. However, it takes time from technology development to the launch of the mature product on the market. Machines and production technology have to be developed, and quality standards and market regulations to be fulfilled. This is the engineering process and it is here where companies are good at.

In its first year the Industrial Advisory Board worked on 3 focal points.

The first point is the *Technology Outlook* of SATW, a very valuable document which describes latest technologies and their importance in relation to Switzerland. The Industrial Advisory Board pointed out that the needs of Small and Medium Enterprises (SMEs) have to be covered as well. SMEs have limited R&D means and have to apply new technology in a mature state.

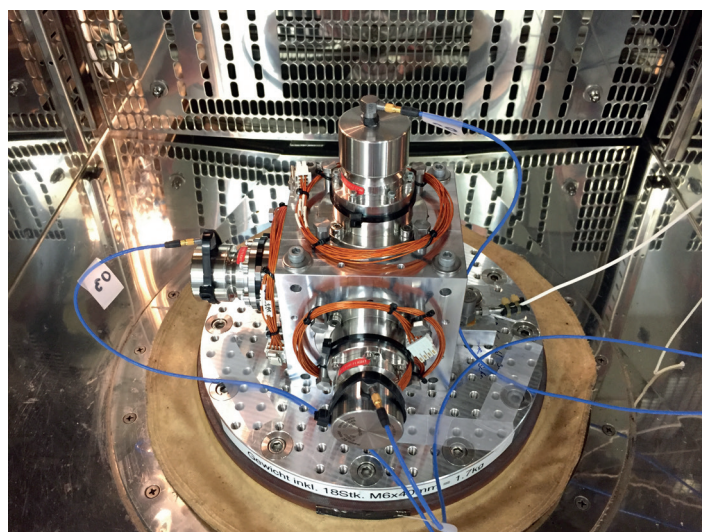
The second focal point is to rank the importance of various technologies for industry. In the first place all companies are interested to get an understanding of the possibilities of new groundbreaking technologies, like artificial intelligence and quantum technologies, and to find out what type of products can be derived from these new technologies. It is indispensable for almost all SMEs to deal with the possibilities of digitalized and automated processes, advanced manufacturing technologies, internet of things, data handling and cybersecurity, semiconductor sourcing, as well as the reduction of waste, water and energy consumption.

The third focal point is to get an understanding of the large Swiss public research landscape. Swiss companies have a clear advantage in that they have access to internationally leading institutions like ETHZ, EPFL, EMPA, PSI, CSEM, universities, universities of applied sciences, and Innosuisse. Start-up companies have first rate access to Innosuisse, Venturekick, and important foundations and investors. Nevertheless the Industrial Advisory Board sees a lot of possibilities to further improve the interaction of the Swiss public research network and industry.

The physics-based industries (PBI), or in general hightech-based industries play an important role in the Swiss economy, comparable to that of the manufacturing or trade sectors. The economic efficiency of PBIs even exceeds that of manufacturing (see *SPS Focus* No. 2²). The SATW Industrial Advisory Board is therefore ideally suited to optimize the flow of knowledge from and to the SATW member societies.

To conclude: The Industrial Advisory Board proposes two action items, one for research institutions and one for industry:

- 1) Research institutions should consider to have industry representatives in steering committees of large research projects, for example quantum technologies. This helps to generate a better understanding of the research part and of the engineering part and to accelerate innovation.
- 2) Industry companies should continuously work on the assessment of new technologies, as part of their yearly R&D budget (the main part of R&D budget is product development and maintenance). Although this is risk investment and often subject to cost cutting in economic downturns it is an investment in company growth 10 years ahead.



Vibration test of Mars 2020 DC motors at maxon Space Lab in Sachseln / Obwalden. The development of the motors took several years due to extensive qualification tests. The motors drive robot arms inside the rover Perseverance filling rock samples into caches. The caches are presently deposited on Mars for later sample return missions.

¹ <https://www.sps.ch/fileadmin/doc/Mitteilungen/Mitteilungen.69.pdf>

² <https://www.sps.ch/artikel/sps-focus/sps-focus-2>