



Science-Switzerland, February - March 2015

News on Swiss science, technology, education and innovation

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Ranking: 4 Swiss Companies in the Top 100 of the World's Most Innovative Companies

(Forbes, March 13, 2015)

The annual ranking of the world's 100 most innovative companies published by Forbes identifies the companies considered today to be the most dynamic in financial terms, and which are expected to remain so in future. Companies are ranked according to their innovation premium, which measures the future value of the company's activities based on expectations of its future innovative results. The main observations of the 2014 are as follows: US companies dominate the ranking with 38 companies classed among the top 100 and 6 companies in the top 10. European companies (all countries combined) account for a total of 29 entries among the 100 most innovative companies; of those French companies account for 8 entries (equal with Japan). China has a total of 6 companies listed, followed by India with 5. The UK and Switzerland each have 4 companies listed.

<http://swissinnovation.org/news/web/2015/01-150313-a6>

Rank	Company	Country	2014 Revenue (Mill. USD)	2014 Revenue (Mill. CHF)	2014 Revenue (Mill. EUR)
1	Microsoft	United States	84.4	81.7	74.4
2	Novartis Pharmaceuticals	United States	46.7	44.2	39.4
3	United Therapeutics	United States	14.5	13.7	12.4
4	United Therapeutics	United States	13.1	12.4	11.1
5	Novartis Pharmaceuticals	United States	45.9	43.3	38.7
6	Novartis Pharmaceuticals	United States	22.1	21.1	19.1
7	Novartis Pharmaceuticals	United States	22.1	21.1	19.1
8	Novartis Pharmaceuticals	United States	22.1	21.1	19.1
9	Novartis Pharmaceuticals	United States	15.1	14.3	12.9
10	Novartis Pharmaceuticals	United States	15.1	14.3	12.9
11	Novartis Pharmaceuticals	United States	15.1	14.3	12.9
12	Novartis Pharmaceuticals	United States	15.1	14.3	12.9
13	Novartis Pharmaceuticals	United States	15.1	14.3	12.9
14	Novartis Pharmaceuticals	United States	15.1	14.3	12.9
15	Novartis Pharmaceuticals	United States	15.1	14.3	12.9

1. Policy

Agreement on Partial Association to Horizon 2020 Signed

(Federal Administration, March 04, 2015)

Following the signing of an agreement by Federal Councillor Johann Schneider-Ammann in Brussels, Switzerland will be partially associated to the Horizon 2020 framework until the end of 2016, and fully associated from 2017-2020. The latter is on the condition that a solution regarding the free movement of persons, a benefit extended to Croatia, will be reached by February 2017. Association to Horizon 2020 includes a host of benefits including valuable research grants such as those from the Marie Curie Actions, funding through EU contributions, and participation in the Euratom and ITER research programmes. The federal government has agreed to directly fund projects in which Switzerland has third country status as part of the transitional measures adopted in June 2014.

<http://swissinnovation.org/news/web/2015/01-150304-9d>

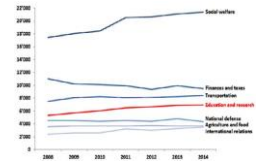
Federal Expenditure on Education and Research grew +4.5%

(Federal Administration, March 27, 2015)

Federal expenditure on education and research rose to CHF 6.95 billion in 2014. This amount corresponds to 10.9% of total ordinary expenditure, which makes this task area the 4th largest in terms of volume of expenditure after social welfare (33.5%), finances and taxes (14.8%) and transportation (13.2%). Compared to the previous exercise, expenditure on education and research has risen significantly less than expected (+0.8%). This is mainly



due to the fact that after the adoption of the mass immigration initiative, Switzerland lost its status as an associate partner in the European Union's framework research programme. Consequently, as it did not pay the full contribution planned for 2014, unspent balances can be seen. These balances will be disbursed in the coming years through Switzerland's participation on a project by project basis. Between 2008 and 2014, the compound annual growth rate in federal expenditure on education and research amounted to 4.5%.



<http://swissinnovation.org/news/web/2015/01-150327-c9>

Swiss Apprenticeship System Arouses Interest Worldwide

(Federal Administration, March 04, 2015)

Many countries seek inspiration from the Swiss vocational training system. They see it as a way of combating high youth unemployment. International cooperation in the field of vocational education (VE) is well established, but foreign delegations are showing growing interest in Switzerland's dual system and what lies behind its success. The system enables school and work in a company to be combined, and leads to a vocational diploma or certificate, or a federal certificate of proficiency. Many see Switzerland's low youth unemployment as proof that the system works. The State Secretariat for Education, Research and Innovation (SBFI) has launched pilot projects in Asia and Europe to show the benefits of vocational training. Switzerland is keen on promoting international recognition of vocational qualifications and securing markets for its exports.

<http://swissinnovation.org/news/web/2015/01-150304-bd>

Options to Increase Mobile Data Capacity

(Federal Administration, February 25, 2015)

The Federal Office for Communication recently undertook a study about how to increase capacity of mobile data networks. With the increasing popularity of mobile Internet sites and applications, together with affordable mobile data packages, the bandwidth requirements are ever increasing. Three general strategies can be used to increase bandwidth: use additional frequencies, implement new technology, or increase the density of antennas. The study also considered increasing the allowable limit for non-ionizing radiation, which would also help increase capacity. The study is the starting point for political debates on the matter.

<http://swissinnovation.org/news/web/2015/01-150225-08>

50% Reduction in Greenhouse Gas Emissions by 2030

(Federal Administration, March 04, 2015)

Switzerland aims to reduce its greenhouse gas emissions by 50% relative to 1990 levels by 2030. This objective reflects Switzerland's responsibility for climate warming and the potential cost of emissions reduction measures over the 2020-2030 period. At least 30% of this reduction must be achieved within Switzerland itself. The rest may be attained through projects carried out abroad. As a member state of the United Nations Framework Convention on Climate Change, Switzerland is going to announce its commitment to reduce its greenhouse gas emissions by 50% prior to the climate conference taking place in Paris in December 2015.

<http://swissinnovation.org/news/web/2015/06-150304-e9>

Statistics Yearbook

(Federal Administration, March 04, 2015)

The Federal Office for Statistics released its yearly Statistics Yearbook along with a summary publication, Statistical Data on Switzerland. The yearbook is a 600 page document that presents data across a wide range of economic and social topics. It has been published since 1891 and is in both German and French. The summary publication is 52 pages of the most important topics, making it more portable. It is published in the four national languages and English.

<http://swissinnovation.org/news/web/2015/01-150304-14>

Partnership: SFOE and Massachusetts Clean Energy Technology Center

(Federal Administration, February 13, 2015)

Walter Steinmann, director of the Swiss Federal Office of Energy (SFOE) and Alicia Barton, CEO of the Massachusetts Clean Energy Technology Center (MassCEC) have signed a Memorandum of Understanding on a partnership in the area of clean energy technologies. The focus of the joint efforts will be in energy efficiency, the electrical grid and the collaborative fostering of innovation. The first step in establishing the partnership between Switzerland and Massachusetts in the area of clean energy technologies took place last summer during the Swiss-US Energy Innovation Days 2014, co-organized by SFOE and swissnex Boston, the Consulate of Switzerland. The agreement aims to establish collaborations in a wide range of topics: from energy efficiency and architectural



technology to smart grids, intelligent metering and micro grids. The joint memorandum further envisions a strengthened exchange in the supportive frameworks for innovative start-ups in the field of clean energy technology.

<http://swissinnovation.org/news/web/2015/00-150213-09>

Importance of Disaster Risk Reduction Stressed

(My Science, March 16, 2015)

More and more people are threatened by disasters. To reduce the risk, precautionary measures must be taken early on. This message was underlined by Federal Councillor and head of the Federal Department of Foreign Affairs Didier Burkhalter in his speech at the Third UN World Conference on Disaster Risk Reduction in the Japanese city of Sendai. In his speech, Mr Burkhalter emphasised that responding to disasters is no longer enough and that preventive measures are needed to ensure better disaster preparedness. This requires political will, social commitment and economic instruments and innovations. "Disaster risk reduction measures are essential to ensure that what is achieved through development can be safeguarded for future generations," said Mr Burkhalter, adding that strengthening resilience to disasters remains a priority for Switzerland in its development cooperation.

<http://swissinnovation.org/news/web/2015/01-150316-86>

Scientists Hesitate to Become Politically Active

(SNF, March 16, 2015)

The latest issue of the "Horizons", published by the Swiss National Science Foundation focuses on the relationships between science and politics. Governments are ever more dependent on scientific expertise, but many researchers hesitate to become politically active themselves. Horizons offers three perspectives on this complex relationship, including an interview with the politician and physician Felix Gutzwiller, who argues in favour of having more researchers in parliament. Other articles analyse independence-seeking parties in Europe, explore the world's largest underwater caves, examine the history of crime in the US and explain how Switzerland assumed a central role in the fight against Ebola.

<http://swissinnovation.org/news/web/2015/01-150316-3c>



2. Education

Higher Education Qualifications and the Labour Market

(Federal Administration, February 24, 2015)

Among the various results published by the Federal Government in a recent report on the labour market and higher education qualifications, it was found that graduates of medicine, pharmacology, and technical sciences have the lowest rate of unemployment, unlike those with degrees in natural sciences (which have the highest rate). This longitudinal study, which ran from 2009-2013, also found that there was a fall in the unemployment rate in fields such as IT, economics, and architecture. Notably, the unemployment rate of PhD holders fell from 3.3% to 1.4%.

<http://swissinnovation.org/news/web/2015/02-150224-a3>

Student Life at Higher Education Institutes

(Federal Administration, March 04, 2015)

A recent study from the Federal Administration presents financial statistics about students at higher education institutes. According to the study, three quarters of students work during their studies, and income from their jobs make up, on average, 40% of their income. The remainder of income comes mostly from parental contributions and scholarships. In 2013, median income was 2000 Swiss Francs per month, and educational cost 1321 Francs per semester. Furthermore, students come from families across the socioeconomic spectrum, based on parents' educational attainment. Lastly, half of international study exchanges were organized through EU programs, such as Erasmus.

<http://swissinnovation.org/news/web/2015/02-150304-ca>

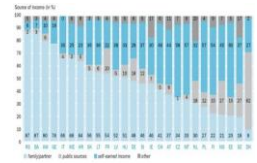
Switzerland Among Top Five Countries for Studying Conditions

(Federal Administration, March 06, 2015)

In 2013 three quarters of all students were employed during their studies. A comparison with European countries shows that, in Switzerland, those students' income from paid employment makes up a greater share of their overall



resources, while government study grants are proportionately lower. In 2013, students had a median income of CHF 2,000 per month, a slight increase compared to 2005 (CHF 1,867). The cost of studying was, on average, CHF 1,321 per semester and remained stable compared to 2005 (CHF 1,296). Although tuition studies had increased since 2005, other educational expenses, for example books and other materials, had declined. In an international comparison, Switzerland is one of five countries in which students rarely claim to have significant financial difficulties.



<http://swissinnovation.org/news/web/2015/02-150306-87>

3. Life Science / Health Care

Active Substance for Fatal Muscle Wasting in Male Children

(synthena.com, February 04, 2015)

Duchenne muscular dystrophy is a congenital disease which causes muscle degeneration and eventual death in teenagers. Recently, researchers from Bern developed an active substance, which they together with an international team tested successfully. The next step of the clinical trial is to test tricyclo-DNA in humans. The trial is coordinated by the spin-off enterprise Synthena AG of the University of Bern founded in 2012. The enterprise manufactures tricyclo-DNA and advances the development of a medication for Duchenne patients.



<http://swissinnovation.org/news/web/2015/03-150204-b4>

Creativity of Dementia Patients

(University of Zurich, February 24, 2015)

A research project lead by the Center for Gerontology at the University of Zurich engages patients suffering from dementia in a new and exciting way by taking them to a museum and letting them explore it with their creative minds. In group settings dementia patients are encouraged to tell stories inspired by abstract or otherwise ambiguous paintings the museum. This way a creative process is kick started, which allows participants to experience a bit of normalcy despite their disease. The project inspired a documentary as well as a book published by the University of Zurich both of which shine a light on the creative capabilities of people with dementia.

<http://swissinnovation.org/news/web/2015/03-150224-bd>

High-Throughput Method to Detect Structural Biomarkers

(ETH Zurich, March 04, 2015)

Researchers at ETH Zurich have developed a method to detect structural changes in proteins, identify drug targets, and perform quality control of protein drugs. The method combines proteolysis and mass spectrometry to rapidly make these detections. Structural changes, such as mis-folding, are linked with age-related diseases like Alzheimer's Disease and Lewy Body Dementia.

<http://swissinnovation.org/news/web/2015/03-150304-17>

Discovery of a Starch Synthesis Molecule

(ETH Zurich, March 04, 2015)

Researchers of Sam Zeeman, professor of plant biochemistry at ETH Zurich, discovered a specific protein that significantly influences starch formation in plant cells. They named this protein, PTST, that stands for Protein Targeting to Starch. This protein binds the enzyme, named Granular Bound Starch Synthase (GBSS) and takes it to starch granules. Starch is made up of amylopectin, a highly branched polysaccharide, and amylose, which is an essentially linear polysaccharide. Amylose serves as a binder and gelling agent in the food industry. It is also used for the production of biodegradable packaging. The new findings have been protected with a patent and they may in the future be used to manufacture pure amylose for industrial applications.

<http://swissinnovation.org/news/web/2015/03-150304-b5>



Novel Tissue Engineered Skin Grafts

(University of Zurich, March 04, 2015)

Lead by Ernst Reichmann, scientific director of the Novel Tissue Engineered Skin Grafts for Zurich (CRPP), researchers from the University of Zurich are attempting to create skin substitutes that can be transplanted from the petri dish to people with burns and skin conditions. Their endeavors are bearing fruit, with the first usable skin grafts currently undergoing clinical trials. They were recently able to use the artificial skin for children with burns. They are currently working on mimicking natural skin as closely as possible. Last year they notched up spectacular successes when they managed to generate blood and lymph capillaries in engineered skin substitutes.

<http://swissinnovation.org/news/web/2015/03-150304-3f>

New Approaches in the Treatment of Liver Cancer

(University of Zurich, March 04, 2015)

The liver, an organ unique when it comes to its ability to regenerate itself, is also the site of some of the most prevalent cancers. Professor Pierre-Alain Clavien and his colleagues at the University Hospital Zurich have been working on new ways to fight primary liver cancer and liver metastases. Their efforts are part of a clinical research program that bears the title "Liver Tumors – from palliation to cure". One promising project in the program is a new operating procedure that allows surgeons to cut out large parts of diseased liver tissue. While standard techniques do not allow removal of more than 70% of tissue, the new approach, which is done in two separate surgical steps, makes it possible to remove up to 90% of a patient's liver, opening new possibilities for surgical treatments. This together with other projects could lead to new treatments for diseases of the liver.

<http://swissinnovation.org/news/web/2015/03-150304-7e>

Sleep Patterns in a "Always-On" Society

(swiss-architects, March 04, 2015)

Sleep is a basic need like eating and drinking. Man needs both to replenish his physical and psychological energy reserves. Yet, our sleep is threatened. Our sleep is getting less, shorter and poorer in quality. New technology, digitalization, mobile modes of work, flexible lifestyles: Our rhythms of rest and quiet cannot evade the rapid changes of the 21st century. We are «always on» – just like our smart devices. The following six observations can be made about how our sleep patterns are changing currently: First, sleep will change from being a basic need to being a lifestyle. To sleep a lot will even become a new status symbol in the world of achievers and managers. Third, the power nap will establish itself as the new power snack. Fourth sleep increasingly shifting into the public sphere in this Switzerland. Overtiredness is the new overweight, and overweight has already been shown to be linked to bad sleeping patterns. Sixth, having access to sufficient sleep is becoming a key factor for success.

<http://swissinnovation.org/news/web/2015/03-150304-9b>

Garlic Agent to Block Bacterial Infection

(University of Zurich, March 04, 2015)

Leo Eberl and his group at the Institute of Plant Biology at the University of Zurich are working on a new tactic to fight against bacterial infection. Instead of trying to kill the bacteria, they are attempting to trick and neutralize them by blocking their communication with each other. The blocking agent, ajoene can be found in garlic. For a successful blockage though, such a high concentration is needed that ajoene must be produced artificially. The first clinical tests with artificial garlic have already taken place. The substance was directly administered into the lungs of patients with cystic fibrosis. It is too early to say if it made them healthy or not but things are pointing in the right direction.

<http://swissinnovation.org/news/web/2015/03-150304-fc>

The Doctor for Your Wrist

(University of Zurich, March 16, 2015)

It's in the wake of paraplegia, a stroke or multiple sclerosis that the strengths of the brain really come into play: To some extent it can compensate for deficiencies. Physicians and engineers on the Neuro-Rehab Clinical Research Priority Program (CRPP) at UZH are investigating the brain's plasticity and working on tailored training programs for the patients affected. Together with research groups at ETH Zurich they're designing high-precision sensors that are so intelligently programmed they can be fine-tuned to the needs of the individual patient. These sensors are integrated in a fitness band, which accurately records the patients' motion sequences. The commercial fitness bands don't capture data accurately enough. The data can be viewed on a mobile phone. On the one hand the data motivates the patient.



<http://swissinnovation.org/news/web/2015/04-150316-11>



End-of-Life Planning

(University of Zurich, March 16, 2015)

A living will, or advance directive, is a legal document in which a person states his or her wishes regarding life-prolonging medical treatments. In Switzerland, about ten percent of the population has completed one. According to medical ethics specialist Tanja Kronen, a living will cannot cover every eventuality at the end of life. Speaking at the University of Zurich as part of the Center for Gerontology's Lecture Series on aging, dying and death, she shared her experiences of dying and death in clinical practice. She explained why end-of-life planning involves more than just filling out a living will. Patients and family members need to receive professional advice and discuss what the patient wants. The will should be reviewed and updated regularly to reflect the patient's changing situation and wishes.

<http://swissinnovation.org/news/web/2015/03-150316-a5>

Evolutionary Dead-End Giant Seed as Success Model

(University of Geneva, March 16, 2015)

The coco-de-mer, the unique double coconut palm of the Seychelles, grows the largest and heaviest seeds in the plant kingdom (weighing up to 18 kg). Ecologists from the University of Geneva at ETH Zurich explain how these plants can survive despite low nutrient levels. The size of the fruit is remarkable because it represents an evolutionary dead-end for the palm. The heavy seed hampers the plant's dissemination, which seems wasteful. However, the palm has developed a clever system of funnels and gutters that redirect nutrients and water to itself and its offspring – resulting in large seeds. Like in other species on isolated islands, the competition for the transfer of the palm's own genes within the species fueled the race for even bigger seeds. The plant's future is at risk, due to the coconut trade.

<http://swissinnovation.org/news/web/2015/03-150316-16>

Bioprinters Improve Personalized Medicine

(ETH Zurich, March 16, 2015)

Bioprinting, 3D printing with cellular materials, is opening up new opportunities in personalized medicine. Researchers in ETH Zurich's Department of Health Sciences and Technology print cartilage transplants using the body's own cells. If a passenger's nose is shattered in a car accident, a 3D computer model of the nose is created to serve as a template for the bioprinter. A nose cartilage transplant is constructed using bioink made from the patient's own cartilage cells and a biopolymer. The risk of the body rejecting the implant is much lower than for traditional implants. Moreover, the cellular implant grows with the patient and is eventually broken down by the body. The challenge is to develop high-quality bioinks for use in transplants, and gain acceptance of the new technology from healthcare professionals.

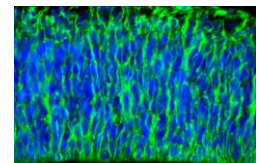
<http://swissinnovation.org/news/web/2015/03-150316-1b>

Exhibition on Stem Cells

(University of Zurich, March 16, 2015)

A single stem cell can become a complete human being: stem cells are the truly polytalented amongst the cells. A new special exhibition in the zoological museum of the University of Zurich illustrates how stem cells can heal and renew human beings, animals and plants. The exhibition can be visited by the general public for free until June 14 at the Zoological Museum of the University of Zurich.

<http://swissinnovation.org/news/web/2015/03-150316-5a>



4. Nano / Micro Technology / Material Science

Yarn Alternative from Animal Byproducts

(20 Minuten, February 04, 2015)

Researchers at ETH Zurich are developing a new use for slaughterhouse byproducts, namely a new type of yarn made from gelatin. The gelatin is made from the skin and bones of cows and pigs, and then pressed through tiny nozzles to form yarn. The yarn feels like very fine wool, and it traps tiny pockets of air, making it a good heat insulator. Laboratory tests will better characterize the material's properties, and a pair of gloves will be knit as a first test article.

<http://swissinnovation.org/news/web/2015/04-150204-75>



Supply Risk of Critical Materials

(Empa, March 04, 2015)

In addition to rare earth elements, gallium, germanium, indium, cobalt and platinum are considered as critical materials. They are crucially important for the economy but at the same time there is a relatively high supply risk. At a Technology Briefing at Empa, the Swiss Federal Laboratories for Materials Science and Technology, strategies for the sustainable use of critical materials were presented and discussed. Among others, a web tool developed by Ernst Basler&Partner and Empa researchers was presented. This tool enables the evaluation of supply risks for more than 30 metals, the environmental and social impacts associated with their production and the susceptibility of the company to supply interruptions.

<http://swissinnovation.org/news/web/2015/04-150304-dc>

Manipulating Microfluidic Droplets with Soundwaves

(ETH Zurich, March 04, 2015)

A new lab-on-a-chip technology developed at the Institute of Mechanical Systems of the ETH Zurich allows the contactless handling of microscopic droplets of fluids using acoustics. The so-called acoustophoresis method allows the manipulation of droplets via an acoustic force field made up of high intensity sound waves. The manipulations made possible by this novel technique are similar to the ones conducted in the macroscopic handling of fluids and include merging, sorting and storing of droplets. Microfluidic technologies allow for cheap, high throughput analysis of liquids while only using small sample sizes. Fields that could profit from this new development include many biological research areas such as drug discovery, diagnostics or genomics and proteomics as well as chemical processing and material synthesis.

Nanoparticles Explain Interface Behavior

(ETH Zurich, March 16, 2015)

Like charges normally repel each other. However, that is not the case at the negatively charged interface between air and water. ETH Zurich researchers observed an unusual phenomenon with nanoparticles, and found an explanation. The larger the negative charge of the nanoparticles, the closer they approach the interface. Enthusiastic researchers from Sweden, the US and Canada joined the team to analyze the findings, which are also applicable for interfaces between oil and water, or for bubbles in emulsions (e.g. cosmetics, yoghurt or dyes). The researchers hope to identify other applications, including in medicine, more specifically vaccines, where the active ingredient is often bound to nanoparticle carriers. Structural knowledge about nanoparticles could also help in terms of energy storage, the desalination of seawater or the purification of ground water.

<http://swissinnovation.org/news/web/2015/04-150316-d8>

Nano-Crystal Mesh in Chameleon Changes Color

(University of Geneva, March 16, 2015)

Many chameleons have the remarkable ability to make rapid and complex color changes when interacting socially, e.g. wooing a female or confronting another male. Researchers in the biology and physics sections in the Faculty of Science at the University of Geneva (UNIGE) have discovered the mechanisms governing this phenomenon. In the study published in Nature Communications, the group demonstrated that the changes occur by actively controlling a nano-crystal mesh present in a surface layer of skin cells, the iridophores. A deeper layer of iridophores, whose crystals are bigger and less organized, reflect infrared light. This superposition of two different types of iridophores is new in evolutionary terms. It allows chameleons to switch from effective camouflage to a spectacular parade in record time, and also provides passive thermal protection.

<http://swissinnovation.org/news/web/2015/04-150316-86>

Gliding Like Batman with a Novel Foil

(20 Minuten, March 20, 2015)

Intelligent materials are a major research focus of Swiss Universities and the Empa. These new materials have properties which afford completely new designs. For instance, with the novel foil with the ability to either be flexible or rigid depending on the electrical current running through the material which is currently being developed by the ETH Zurich and the Empa, airplanes and drones might be able to forgo the need for separate wing flaps and save on material and fuel costs. And this is only one among many futuristic materials being developed in Switzerland. Researches from the University of Freiburg have invented a material which is hard, when it's dry and soft, when it's wet. This could be used to create car tires which become softer and have more grip on wet roads.

<http://swissinnovation.org/news/web/2015/07-150320-74>



5. Information & Communications Technology

Non-Linear Stories for Computer Games

(20 Minuten, February 24, 2015)

Swiss game developer David Stark has been developing sci-fi computer games that break away from a linear story model. He has been developing games since age 17, and studied computer science at Cambridge University. His latest game, "Airships", has the player conquering cities and battling other players. He purposely added many complex elements to the game to make the gameplay evolve in unexpected ways, something which he finds of central importance.

<http://swissinnovation.org/news/web/2015/05-150224-8f>

Future-Proofing of Mobile Communication Networks

(University of Zurich, March 04, 2015)

The Swiss Federal Council has approved a report on the future-proofing of mobile communication networks. With the growth of Internet usage due to the rise of mobile devices and novel data plans offered by mobile service providers an unprecedented rise in data volume transported across mobile networks is expected in the near future. For the networks to be able to withstand this coming flood, changes in the infrastructure are needed. The proposals for ways in which the capacity of the networks can be augmented include the construction of new antennas, use of additional radio frequencies as well as elevating the permissible levels of non-ionizing radiation. The approved report will now serve as the basis for parliamentary debate on the subject.

<http://swissinnovation.org/news/web/2015/05-150304-02>

Collaboration ETH and MIT: First Big Data Application to Evaluate Trademark Law

(ETH Zurich, March 04, 2015)

Internet search engines display advertisements along with search results, providing them with a major source of revenue. The display of ads is triggered by the use of keywords, which are found in the searches performed by search engine users. The fact that advertisers can buy a keyword that contains a trademark they do not own has caused controversy worldwide. To explore the actual effects of trademark and keyword advertising policies, researchers from the ETH Zurich and the MIT used real-world data from a natural experiment in Europe. Following a decision by the Court of Justice of the European Union, Google relaxed its AdWords policy in continental Europe in September 2010. After the policy change, Google allowed advertisers to select a third party's trademark as a keyword to trigger the display of ads, with only a limited complaint procedure for trademark owners. Based on a data set of 5.38 million website visits before and after the policy change, the scientists find little average change. However, there is evidence that this lack of average effect stems from an aggregation of two opposing effects.

<http://swissinnovation.org/news/web/2015/00-150304-1d>

Confederation Invests in E-administration

(Alp ICT, March 04, 2015)

To promote the Swiss economy from 2016 to 2019, the Federal Council has decided to allocate nearly 18 million francs to supporting the development of electronic administration for SMEs. The Council's priorities are to support the economy and create jobs. The first item listed in its e-agenda for 2016-2019 relates to e-administration for business. Funding will be provided via a framework credit of CHF 17.7 million, representing an increase of 7.8 million over the current legislature. To justify this increase, the Federal Council explained that these funds will be used primarily to develop the Startbiz portal as the leading information source for business. The budget will also be used to improve electronic communications and develop support systems to ensure safety and prevent cybercrime.

<http://swissinnovation.org/news/web/2015/05-150304-2e>

Secure Smartwatch

(Alp ICT, March 04, 2015)

Paying at the mall, unlocking the doors of your house, starting your car or parking it are all possible using a single smartwatch. Smartwatches can store contacts, pictures, access codes and many more strictly personal data. BIOWATCH, the winning start-up of the International Create Challenge 2014 has developed a unique technology to make the use of smartwatches secure from criminals. BIOWATCH is the first biometric watch wristband that reads the unique pattern of wrist veins. The vein pattern of the owner is locally stored inside the wristband. For authentication, a simple push of the button is needed.

<http://swissinnovation.org/news/web/2015/05-150304-f1>



New Cloud-based Server Offering

(Alp ICT, March 16, 2015)

Green.ch has added new features to its Hyper-V ServerCloud solution and is offering additional packages with increased computing power. The Swiss provider of computer and internet services has worked on improving ease of use and flexibility, especially during the initial installation and operation of virtual servers. New features include using images of own servers, setting up VPN connections between the virtual servers and the customer's on-site infrastructure, as well as taking snapshots of the status of servers. The company has also launched five new packages for applications that require a lot of power. They include up to twice as many processor cores and are especially suited to tasks related to databases, and to ERP and CRM solutions.

<http://swissinnovation.org/news/web/2015/06-150316-bb>

New Smartphone for Professionals

(Alp ICT, March 16, 2015)

Silent Circle will soon market Blackphone 2, a smartphone designed for professional use and adapted to existing mobile device management systems like Citrix. The launch was announced at the Mobile World Congress, held in Barcelona. After launching its Blackphone for individuals in 2014, Silent Circle now wants to ensure corporate confidentiality. The new model has a faster processor, more RAM, a longer lasting battery and a larger display. A privacy-oriented tablet, called Blackphone +, is planned for later in 2015. Silent Circle also announced the acquisition of GSP Technologies, a joint venture owned by Silent Circle and Geeksphone. This makes Silent Circle the sole owner of Blackphone products. The company has raised about USD 50 million in a round of financing from private equity.

<http://swissinnovation.org/news/web/2015/05-150316-89>

Swiss Gaming Attracts Talent

(20 Minuten, March 16, 2015)

According to Swiss National Councillor Jacqueline Fehr, Switzerland could become a real Mecca for gaming. Gaming events could attract people to the industry in droves, creating attractive new jobs. Ms Fehr warned against relying on traditional economic sectors, like the ailing financial center, to maintain Switzerland's prosperity. She advised the Federal Parliament to support this sunrise industry that has considerable artistic, scientific and economic potential. The Swiss game developer scene is indeed flourishing, and many games have been nominated this year for several awards. Experts suggest that Switzerland comes top in terms of the number of nominated games per inhabitant. The Zurich University of the Arts offers a game design course that attracts an increasing number of applicants. More training opportunities and start-up programs would be welcome.

<http://swissinnovation.org/news/web/2015/05-150316-f4>

Virtual Reality Helmet Controlled by Thoughts

(Alp ICT, March 16, 2015)

EPFL startup MindMaze presented its augmented reality helmet at the Game Developers Conference in San Francisco. This innovative headset integrates a cap of sensors that can directly detect brain activity, including motor activities and emotions. This technology, developed through medical research and used for the physical rehabilitation of patients with defective limbs, is in the prototype stage. Called MindLeap, it uses embedded cameras that capture movements. Players can use it to control their characters solely by thinking. Video game developers can use it to develop augmented reality games controlled by neurons on several game consoles, including the xBox and Playstation, and on the iOS and Android operating systems.

<http://swissinnovation.org/news/web/2015/05-150316-85>

New App to Prevent Health Risks from Tick Bites

(My Science, March 16, 2015)

Researchers from the Zurich University of Applied Sciences have released an iOS App called "Zecke". The app is free and consists of two parts; one part for information on how to deal with a tick bite, including a diary which reminds the user to check the bite for potential borreliosis symptoms, and a second part displaying the current tick hazard potential in the area.

<http://swissinnovation.org/news/web/2015/05-150316-b9>





Digital Fabrication

(ETH Zurich, March 16, 2015)

Globe, the magazine of ETH Zurich and the ETH Zurich Alumni Association, is getting a makeover this spring. The new layout incorporates striking images, contemporary design and a reader-friendly structure to draw readers into the exciting world of ETH Zurich and its alumni. For the first time, it will also be available in English. The first issue of 2015 will focus on everything to do with digital fabrication. Digital technologies are changing our everyday lives, and research at ETH Zurich is playing a major role in this transformation. Globe showcases how ETH Zurich researchers are putting digital technologies to a wide range of uses as they develop forward-looking solutions: realistic film animation, houses built by robots and implants manufactured using 3D printers.

<http://swissinnovation.org/news/web/2015/05-150316-bd>

6. Energy / Environment

Solarimpunles: Without Fuel Around the World

(20 Minuten, March 04, 2015)

Solar Impulse, an airplane using exclusively solar energy, is a Swiss invention. After more than ten years of testing, making a world-tour with it has become reality. The tour starts from Abu Dhabi and is going to take five months altogether. The optimal route depends on weather and wind conditions, therefore the pilot has to rely on his colleagues on the ground. The cockpit is rather small and the pilot needs an oxygen mask as well as special clothes to support temperatures as low as minus twenty degrees during the flight. The green airplane is not ready to take passengers yet, but according to Bertrand Piccard, the initiator of Solar Impulse, nothing is impossible.

<http://swissinnovation.org/news/web/2015/06-150304-fd>

Inexpensive, Simple Glass Electrodes for Twice the Battery Power

(ETH Zurich, February 04, 2015)

Today's lithium-ion batteries are good, but not good enough if our future energy system is to rely on electrical power. Chemists and materials scientists at ETH Zurich have developed a type of glass that can be used as an electrode material in lithium-ion batteries – likely making a vast improvement in these batteries' capacity and energy density.

<http://swissinnovation.org/news/web/2015/06-150204-37>



Quantifying 'Grey' Energy

(ETH Zurich, February 23, 2015)

The recent 'Energy instead of Tax' referendum suggests that products made using non-renewable energy resources such as oil and coal should be taxed so as to promote renewable energy and reduce CO2 emissions. Ideally, this tax would also account for 'grey' energy - the energy impact of production. However, as Dr. van Vliet writes in the ETH Zurich Zukunftsblog, quantifying this grey energy would present a very large challenge. Considering the life cycles of products as varied as sausages and smartphones, he admits that although standardised data can be taken from Life Cycle Analysis (LCA) databases, this is still no mean feat and may be impractical for thousands of items.

<http://swissinnovation.org/news/web/2015/06-150223-18>

Sustainability Experts on the Job

(ETH Zurich, February 24, 2015)

Every year, more than a hundred students finish as sustainability experts at the ETH Zurich. In spite of the fact that sustainability is a key issue for companies nowadays, they are not hiring sustainability experts as such. When a representative of a food company was asked for the underlying reasons he answered that sustainability is present in all departments, therefore a specialist could not oversee all the aspects. Another representative even said that sustainability comes so naturally that it is "encoded in our DNA". It is to note that legal issues or accounting are also present in all departments but nobody ever came to the conclusion that lawyers or accountants would be unnecessary.

<http://swissinnovation.org/news/web/2015/03-150224-1c>



Highway Traffic Reduction Solution

(ETH Zurich, February 25, 2015)

To combat the daily traffic jams on Swiss highways, scientists from EPFL have suggested a system consisting on dynamic speed limits and metered inflow to reduce traffic waiting time by up to 30%. The speed limit would be varied according to the level of traffic on the road. The inflow metering would use signals to control how many cars enter the highway, similar to systems in place in California. If the system will be tested on the roads depends on the government's view of the study.

<http://swissinnovation.org/news/web/2015/06-150225-9b>

Earthquake Safe Cities of the Future

(ETH Zurich, February 26, 2015)

The risk that earthquakes pose can be great in terms of loss of life and economic impact, but manifests itself through our infrastructure. With properly built infrastructure, the risk is minimal, but in many cities the risk is high. Often, this is due to a lack of understanding of the dangers that are present. For example, in Switzerland, earthquakes are rare, with the last significant ones happening hundreds of years ago. A professor at ETH Zurich is advocating for better awareness and planning around these black swan events. One step in this direction is the university's continued participation in the Global Earthquake Model project, which aims to characterize the risk worldwide.

<http://swissinnovation.org/news/web/2015/06-150226-d1>

"Power to Gas" Stakeholder Dialog on Renewable Fuels

(Federal Administration, March 04, 2015)

To safeguard our energy supplies, there is an urgent need to minimize CO2 emissions and switch from fossil and nuclear fuels to renewables. The car industry is a key player. As well as designing vehicles with new power supplies, its key challenge is to find suitable fuel. Empa is exploring possible ways forward with representatives from politics, industry and research. Cost-effectiveness is a major factor. Swiss legislation covering CO2 emissions, and related sanctions, ensure that there is a strong business case for the automobile industry to implement wide-ranging CO2 reduction measures. Hydrogen-powered vehicles, and natural gas- and biogas-powered vehicles, hold great promise with improving ranges and performance with no increased safety risk. The results of the dialog are summarized in an Empa report.

<http://swissinnovation.org/news/web/2015/06-150304-ca>

New Theory on Gold Ore Formation

(ETH Zurich, March 04, 2015)

South Africa's Witwatersrand Basin has the world's largest and richest gold deposits. It extends over 200 kilometers and provides 40% of the world's gold supply. Yet, geologists are unsure how these huge deposits formed. The current placer theory states that gold was transported and concentrated through movement by rivers and similar action. The opposing hydrothermal theory states that gold was chemically dissolved in hot fluid and passed into the sediment layers half a billion years ago. Christoph Heinrich, professor of geology at ETH and the University of Zurich, has investigated the conflicting theories and developed a new theory that combines the two. His explanation that the gold was concentrated by flowing rivers, but in a chemically dissolved form, has been published in "Nature Geoscience".

<http://swissinnovation.org/news/web/2015/06-150304-94>

Power Hungry Internet

(ETH Zurich, March 04, 2015)

As global Internet usage and the associated data volumes exchanged between devices keeps growing, so does the power consumption of the associated systems. While personal computers are significant consumers of electricity in the global network, there are other power hungry components that make up the World Wide Web. Beyond mobile devices and displays, communication networks, internet routers and data centers with their servers and associated cooling units are also part of the infrastructure of the Internet. It is estimated that the Internet with all its associated systems made up for roughly four percent of world energy consumption in 2012. This percentage is estimated to grow even further in the coming years as consumers expect better and faster web connectivity in a way that outpaces our ability to make the systems underlying it more energy efficient.

<http://swissinnovation.org/news/web/2015/06-150304-37>



Hybrid Overhead Power Lines

(ETH Zurich, March 16, 2015)

The Swiss "Electricity Networks Strategy" identifies the strengthening of the electricity transmission grid as essential for securing the transmission capacity between national and international generation units and electricity consumers. In particular, the reorientation towards a greater integration of renewable energy will require an increase in energy imports from remote sources, as well as in storage capacity. Both aspects rely on adequate capacity and flexibility of the transmission grid, which the existing infrastructure is unable to provide. One option of achieving significant power transmission increases is through the conversion of existing 380 kV overhead transmission lines in Switzerland to hybrid AC/DC transmission systems (i.e. conventional high-voltage alternating current (HVAC) and high-voltage direct current (HVDC) on the same tower). As it stands, HVDC is very likely to be one of the key technologies in a potential pan-European supergrid.

<http://swissinnovation.org/news/web/2015/06-150316-20>

Increased Land Use in Switzerland

(Federal Administration, March 16, 2015)

Changes to the Swiss landscape reflect an evolving economy and society. Over 24 years, the per-capita and per-job settlement area have increased by an average of 6.5%. However, there are considerable regional differences. Residential areas alone have increased by 44%, twice as quickly as the population. At 2.2 m² per second, cultivated land loss in the plain region is twice the national average. These are some of the results from in-depth analyses of the Land Use Statistics, conducted by the Federal Statistical Office (FSO) as a contribution to the International Year of Soils.

<http://swissinnovation.org/news/web/2015/10-150316-0e>

7. Engineering / Robotics / Space

Drones: From Technology to Policy, Security to Ethics

(ETH Zurich, March 04, 2015)

The recent accidental crash landing of a drone at the White House heightened the international debate on the regulation of commercial drones. A conference at ETH Zurich addressed the fact that drone technology comes with controversial applications. The event provided a forum for passionate discussions: As engineers, humanitarians, ecologists, political scientists, business leaders, and even a former US Army Ranger shared their views on the application of drone technology, a common and connecting thread emerged – fear.



We are not afraid of drones, but of the possibility that they may be used for sinister purposes. The fundamental question is whether or not we choose to employ drone technology for the benefit or the detriment of mankind.

<http://swissinnovation.org/news/web/2015/07-150304-12>

Learning from Space Industry

(Federal Administration, March 04, 2015)

This year's Lift Conference in Geneva, one of Europe's key events focusing on innovation and digital technologies, was held in conjunction with the European Space Agency's annual ARTES Applications Workshop in an effort to encourage businesses to exploit space infrastructure for the development of their technologies. The potential of applying space infrastructure to every day life is massive, for example, in the development of unmanned air transport of goods or clearing mines. Equally, the space community stands to benefit from expanding their network to include entrepreneurs who can transform their ideas into potential products and services. Switzerland contributes roughly CHF 160 million to the European Space Agency's activities on an annual basis as a founding member, which helps fund cutting-edge research and the development of prototypes, industrialisation, and applications.

<http://swissinnovation.org/news/web/2015/07-150304-26>

Increase in Total Road Motor Vehicles

(Federal Administration, March 04, 2015)

The Federal Statistics Office recently published the 2014 results of road vehicle registrations in Switzerland, most notable of all being the number of newly registered road motor vehicles (396,588), which fell by 1.4% compared to



2013. However despite this decrease, the total number of road vehicles increased to approximately 5.8 million. Electric and hybrid engines continue to gain popularity, but diesel engines remain the most common.

<http://swissinnovation.org/news/web/2015/07-150304-64>

First Mission to Pioneer Re-Entry from Space Completed

(Federal Administration, March 04, 2015)

The European Space Agency opened a new chapter in its space exploration programme on February 11. For the first time, a steerable spacecraft from Europe carried out a mission to explore the possibilities of re-entry into the atmosphere. ESA's Intermediate eXperimental Vehicle flew a flawless reentry and splashed down in the Pacific Ocean just west of the Galapagos islands. During the reentry, it recorded a vast amount of data from more than 300 advanced and conventional sensors. Systems and components from Switzerland are also on board the spacecraft.



<http://swissinnovation.org/news/web/2015/07-150304-d0>

Jumping Roly-Poly Soft Robot

(20 Minuten, March 16, 2015)

A team of engineers at the ETH Zurich have developed a fully untethered and combustion-actuated soft robot powered by nitrous oxide-propane/butane gas mixtures. Since the specific energy content of hydrocarbons is significantly higher than that of batteries (comparing energy per weight), the design demonstrates a simple geometry taking advantage of the latest development in soft robotics. This design includes a roly-poly toy geometry enabling equilibration into an upright orientation after each jump event. Upon gas ignition, the robot (diameter 18 cm, weight 2.1 kg) jumped and covered distances of 0.5 m with a single hop-and-roll movement and an apex of up to 0.2 m.



<http://swissinnovation.org/news/web/2015/07-150316-c0>

Ever More Intelligent and Adaptive Robots

(20 Minuten, March 16, 2015)

At the Institute for Dynamic Systems at ETH Zurich, robots learn from each other and adopt ever more human qualities. From 1999-2005, the Institute's robot teams took part in RoboCup, the robot World Cup, winning the title three times. The Institute's robotic expert, Raffaello D'Andrea, is co-founder of Kiva Systems, a robotics company that develops warehouse robots. The company was bought by Amazon in 2012 for USD 775 million. D'Andrea also develops drones that communicate with each other. Compared with humans, mechatronic devices are more compact, learn more quickly and can reach inaccessible places. They will certainly make our lives easier in many areas, but may make us redundant for some tasks. That is indeed robotics experts' main concern – not that robots will take over the world.

<http://swissinnovation.org/news/web/2015/07-150316-38>

“Stellvertreter” - Shoes

(20 Minuten, March 28, 2015)

The stellvertreter shoes convey the feeling to be close to a person who is somewhere else by transferring the activities of the distant person's shoes into the shoes of others. The stellvertreter shoes consist of two components: a pair of input shoes and a pair of output shoes. The input shoes are equipped with two pressure sensors each, which can record the movements of the wearer. Inflatable silicone cushions are embedded into the output shoes. According to the movements of the person wearing the input shoes, the cushions in- and deflate. Imagine the possibilities: What if you could feel the activity of your loved ones while they travel the world? How would it be to step into the shoes of your favorite sport star? How would the enhanced experience of watching a ballet feel like?

<http://swissinnovation.org/news/web/2015/07-150328-0a>



8. Physics / Chemistry / Math

Laser-Based Instrument to Detect Ash Clouds

(20 Minuten, February 04, 2015)

Ash clouds from volcanoes pose a danger to aircraft and their engines. Although the clouds can be seen, they look the same as water clouds, creating a difficulty for pilots in avoiding them. Now, researchers at the Northwest Switzerland University of Applied Sciences have developed an instrument that uses laser to measure the composition of clouds and discriminate between water and ash. The instrument has proven successful in the laboratory and will be tested at the Jungfrauoch research station this summer.

<http://swissinnovation.org/news/web/2015/06-150204-07>

9. Architecture / Design

New Apartment Complex Based on Market Concept

(swiss-architects, February 23, 2015)

The city of Zurich is redeveloping the Leutschenbach neighborhood and has selected a winning architectural proposal for the project that includes 400 apartments, a kindergarten, and offices. The proposal is titled "Souq", which is an Arabic word for market, and the inner courtyard resembles a market. The city council will finish its financial planning for the project by 2017 with a popular vote on the matter foreseen in 2018. If approved, the development will be ready for residents by 2021.

<http://swissinnovation.org/news/web/2015/09-150223-fd>

Cutting edge Master in Architecture and Digital Fabrication

(ETH Zurich, March 04, 2015)

The Master of Advanced Studies ETH in Architecture and Digital Fabrication is a new continuing education programme initiated by the National Centre of Competence in Research (NCCR) Digital Fabrication and ETH Zurich. Starting in September 2015, students on the 12-month full-time course will be taught the fundamental methods and technologies of digital fabrication and how they can be applied in architecture. In the NCCR's unique robotic fabrication facilities, the students will also have the opportunity to research digital design and construction processes, and to implement these directly in large-scale prototypes. Anyone interested in the MAS programme can submit their application immediately, the deadline is April 30.

<http://swissinnovation.org/news/web/2015/09-150304-c2>



Robotics Set to Revolutionize Building Sites

(ETH Zurich, March 16, 2015)

Digital technologies have already transformed the economy. Construction is the next sector set to change, due to the need for more efficient processes, new materials and more varied houses. Japan took some initial successful steps towards automation on building sites in the 1990s, bringing serial mass production from factories to building sites. Today the objective is to rationalize processes, while allowing customization. The trend in robotics is to bring technology to areas that are less structured, and need more flexibility and reactivity. The construction industry is ideal, because building sites are less well-structured than factories, yet more structured than the world of service robots. ETH Zurich has just launched a MAS Digital Fabrication program to train the people needed to master these new technologies and lead this transformation.

<http://swissinnovation.org/news/web/2015/09-150316-8a>

Opening Swiss Brand Museum

(swissbrandmuseum.com, March 31, 2015)

The Swiss Brand Museum opened on 22 April 2015 in Berne. The federal capital thus has a new institution near the BearPark with a one-of-a-kind view of Switzerland as a production centre. Forgotten inventions, incomparable innovations and one-of-a-kind products can be admired and experienced within the historical walls of the old tollhouse, which is protected by UNESCO. The old tollhouse is open to the public for the first time in over 150 years. The history of the tollhouse is part of the Swiss Brand Museum concept, which establishes the





«View of the City» as a «View of Switzerland». The location of the BearPark as a top tourist destination and Berne as the federal capital provide the best possible conditions.

<http://swissinnovation.org/news/web/2015/09-150331-03>

10. Economy, Social Sciences & Humanities

Scientific Negotiation of Migration Quotas

(ETH Zurich, February 24, 2015)

Last year, the Swiss voted to impose immigration quotas. This law, however, conflicts with the EU agreement on the freedom of movement of people, and so negotiations are underway to find a solution. ETH Zurich researchers in negotiation and conflict management are proposing to apply a technique they have been developing, called negotiation engineering. The approach attempts to fit the negotiation in a mathematical framework and have participants agree to the parameters of a solution within it. The researchers also propose a safeguard clause as an alternative to strict quotas. This would limit immigration when it exceeds a limit based on immigration across the EU and on labor market conditions.

<http://swissinnovation.org/news/web/2015/10-150224-fb>

Plan to Strengthen Competitiveness of Swiss Economy

(Federal Administration, March 04, 2015)

The Federal Council approved a plan for 2016-2019 aimed at increasing the competitiveness of the Swiss economy. This comes at an especially critical time given the recent removal of the fixed Franc-Euro exchange rate. Its main instruments include prioritising small-medium enterprises, improvements in tourism policy, and facilitating sustainable regional development through increasing productivity, encouraging innovation, and making full use of existing infrastructure, labour, and networks. The plan will be submitted for parliamentary approval and is valued at approximately CHF 400 million.

<http://swissinnovation.org/news/web/2015/10-150304-35>

Wealth Management - Online

(20 Minuten, March 04, 2015)

Nowadays, most people manage their money transfers on the internet. Based on this idea True Wealth, a start-up company from Zurich came out with an online platform helping investors to create a portfolio in line with their individual risk profile in a relatively short time. As a consequence, True Wealth became a competitor for large banks, offering wealth management solely in person. Due to its objective decision making and its low price, True Wealth has made considerable progress. The rapid success has made big companies and investors aware of the young start-up. Swisscom even showed interest in buying them. Founders of the company say they want to stay independent and are expecting further growth.

<http://swissinnovation.org/news/web/2015/10-150304-28>

Transparency in Precious Metal Trade Statistics

(Federal Administration, March 04, 2015)

For the first time the Federal Customs Administration has published statistical data on Swiss foreign trade in gold, silver and coins in a new format that breaks down the information by country of origin and destination. This new format is a direct consequence of a decision taken by the Federal Council in 2013, to adhere more closely to the international statistical standards and thus contributing to more transparency in the trade of precious metals. In addition to the now published monthly country-based data for 2014 and 2015 historical annual country-based data from 1982-2013 has also been made available. In addition a detailed monthly country-based data for the years 2012 and 2013 will be made available by the end of May 2015.

<http://swissinnovation.org/news/web/2015/10-150304-03>

Counterintuitive Development of Rental Fees

(swiss-architects, March 04, 2015)

As domestic fuel prices keep falling and benchmark interest rates for housing keep skydiving a dip in rents on the Swiss housing market is widely expected. But according to Beat Wicki of the Lucerne Tenants Organization the opposite, a significant rise in rents, may be what will end up happening. Reasons for such an, at first



counterintuitive, rise in rents can be traced back to the weak Euro and low interest rates on mortgages, both of which change the behavior of property fund investors. Beat Wicki sees a change in the way real estate is handled these days. Housing is not seen as a place for people to live and develop anymore but rather as mere positions on a portfolio. Such an abstraction can lead to unfavorable developments and ultimately in a worst case scenario bring real estate markets into turmoil.

<http://swissinnovation.org/news/web/2015/10-150304-bf>

Economic Situation of Switzerland in 2014

(Federal Administration, March 04, 2015)

Switzerland's goods exports grew by 3.5% in 2014 to reach CHF 208.3 billion, thereby exceeding the record set in 2008. In contrast, imports stagnated as in the previous year. As a result, the trade surplus reached a new record of CHF 30.0 billion, that is CHF 6.4 billion more than in 2013. Exports grew for the fifth year in a row. Chemicals and pharmaceuticals accounted for 60%, or CHF 4.4 billion, of the increase in exports. Foreign trade with the USA and China climbed to a record high. Imports from Europe fell for the third time in a row.

<http://swissinnovation.org/news/web/2015/10-150304-9c>

500th Birthday of Konrad Gessner, a universal genius

(University of Zurich, March 04, 2015)

When Konrad Gessner was born on March 26, 1516 in Zürich, Switzerland, Zurich counted merely 7 000 inhabitants. He was an universal genius, with interests scattered over plants, animals, and literature. His five-volume *Historiae animalium* is considered the beginning of modern zoology, and his earlier *Bibliotheca universalis* became the foundation of literature referencing as it is practiced in modern science. In his third major opus, the *Historia plantarum*, Gessner used his drawing skills to depict over 1000 plants - drawings other authors used for two centuries after his death. Gessner in 1551 was the first to describe brown adipose tissue; and in 1565 the first to document the pencil. In 2016, events honouring the scholar are going to be held.

<http://swissinnovation.org/news/web/2015/10-150304-f1>

The Future of Democracy

(University of Zurich, March 16, 2015)

In a conference celebrating the 20th anniversary of the Ethics Centre of the University of Zurich, a group of thought leaders discussed the future and the challenges of the democracy in Switzerland and the world. The conclusion: the democratic system faces many challenges and has to develop itself. While the democracy in Switzerland is strong, the speakers fear that on a global level transnational cooperations are increasingly acting outside of the sovereignty of the state. Another, internal challenge is the power of the party elite to choose their candidates in certain countries such as the United Kingdom or Italy. However the speakers also found that, direct democracy as it is practiced in Switzerland is still one of the best ways of violence free conflict resolution as mistakes of the government can be corrected by public votes.

<http://swissinnovation.org/news/web/2015/10-150316-6e>

Effective Leadership through Reflection and Negotiation

(ETH Zurich, March 16, 2015)

Teaching at ETH Zurich is breaking new ground: in one project, students solve real challenges set by businesses. Another project uses lively debates to help participants look beyond their own disciplines and develop solid arguments. The students learn independently, gaining the necessary specialist knowledge, leadership and management skills by implementing a project in a company. Professors serve as coaches. The students learn that they need to use reflection, management and negotiating skills as much as scientific or engineering know-how to handle contradictory information and differing expectations. To make progress, they need to constantly adapt their role and their strategy. Six innovative teaching projects have so far been supported via the ETH Zurich's Innovedum Fund that aims to foster active, interdisciplinary education.

<http://swissinnovation.org/news/web/2015/10-150316-31>



11. Technology Transfer / IPR / Patents

Zurich Becomes Europe's Silicon Valley

(20 Minuten, February 04, 2015)

Zurich is supposed to become the digital capital of Europe. The idea is to establish a conurbation for companies of the digital sector that would benefit also the financial sector since the digitalisation affects all sectors. The plan: In Zurich digital talents from tomorrow would be trained, start-ups would be hosted and politics would create favourable conditions for this purpose.

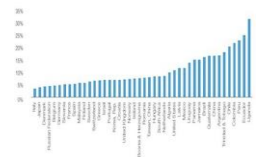
<http://swissinnovation.org/news/web/2015/11-150204-52>



Advanced Economies Losing Ground in Entrepreneurship

(World Economic Forum, February 04, 2015)

Many advanced economies are missing out on the full benefits of entrepreneurship owing to insufficient ambition, innovation, or number of entrepreneurs, according to a report launched by the World Economic Forum. Only Colombia and Chile perform highly across all the dimensions of entrepreneurship examined in the report. All other countries miss out on at least one variable: Dynamic economies such as the United States, Israel and Ireland have a large share of highly ambitious entrepreneurs who anticipate fast growth, but they show only average or lower rates of early-stage entrepreneurial activity. A large number of Latin American countries, including Brazil, Ecuador, Mexico, and Peru have high rates of early-stage entrepreneurial activity, but only a small portion of their entrepreneurs are ambitious or innovative. Most highly competitive European economies – including Germany and Switzerland, Sweden, Finland and Norway as well as Greece, Italy, Portugal and Spain – don't have many entrepreneurs, and even fewer ambitious and innovative ones.

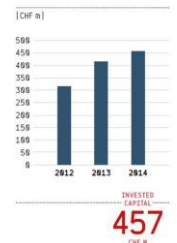


<http://swissinnovation.org/news/web/2015/11-150204-31>

10% more Money for Startups in 2014

(VentureCapital.ch, February 24, 2015)

According to the most recent report published by the Swiss Private Equity & Corporate Finance Association in collaboration with the news portal startupticker.ch, investment in Swiss startups has continued to increase. This year, CHF 457 million was invested, a 10% increase from 2013. More than half of this was invested in startups from Canton Vaud, putting it in first place ahead of Zurich. In the spirit of complete transparency, data on every financing round, investors, and invested sums can also be found in the report which is accessible online free of charge.



<http://swissinnovation.org/news/web/2015/11-150224-cb>

“Power to Gas” Stakeholder Dialog on Renewable Fuels

(Empa, March 04, 2015)

To safeguard our energy supplies, there is an urgent need to minimize CO2 emissions and switch from fossil and nuclear fuels to renewables. The car industry is a key player. As well as designing vehicles with new power supplies, its key challenge is to find suitable fuel. Empa is exploring possible ways forward with representatives from politics, industry and research. Cost-effectiveness is a major factor. Swiss legislation covering CO2 emissions, and related sanctions, ensure that there is a strong business case for the automobile industry to implement wide-ranging CO2 reduction measures. Hydrogen-powered vehicles, and natural gas- and biogas-powered vehicles, hold great promise with improving ranges and performance with no increased safety risk. The results of the dialog are summarized in an Empa report.

<http://swissinnovation.org/news/web/2015/11-150304-35>

New Platform to Trade early stage Startup Shares

(Federal Administration, March 04, 2015)

The Cantonal Bank of Berne (BEKB) is now offering a new service on its own electronic trade platform OTC-X where the shares of early stage startups can be traded. This helps to attract investors searching for companies with a huge trade potential. Because the shares are traded "over-the-counter", the exchange laws don't apply. Switzerland has approximately 112'500 publicly traded companies, and about 320 of these companies are traded over the OTC-X platform.

<http://swissinnovation.org/news/web/2015/10-150304-3a>



Drug Overdose and Climate Change Startup get Award

(Venturekick, March 04, 2015)

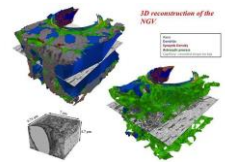
Two ETH Zurich spin-offs won CHF 130,000 each from Venture Kick, an organisation comprised of startup experts across Switzerland that provides startups with pre-seed capital, coaching, and access to investors. One of the winners, Versantis, has been pioneering an innovative dialysis approach to remove toxins from the blood that build up as a result of a drug overdose. This simple and efficient technique has the potential of saving many lives, especially in developing countries where detoxification therapies are not commonly available. The other winner, Adaptricity, has developed a simulation software for operators of the energy grid that will prove indispensable in ensuring system stability as Switzerland moves towards using more renewable energy as part of its 2050 Energy Strategy. Since the inception of its programme in 2007, Venture Kick has supported approximately 350 projects with almost CHF 14 million in pre-seed capital, thereby fostering strong links between investors and research.

<http://swissinnovation.org/news/web/2015/10-150304-2c>

Next Generation VR: Reality Substitution Machine

(20 Minuten, March 30, 2015)

Until recently, virtual reality's widespread use, both commercially and in scientific research, has been hampered by the need to develop custom virtual worlds using labor-intensive 3D animation. Researchers and engineers from EPFL's Laboratory of Cognitive Neuroscience and the W Science Initiative are unveiling a Reality Substitution Machine prototype at The Brain Forum that could change all of that. The project, known as RealiSM, has developed an easy-to-use virtual world creator that captures real-world situations to be played back in head-mounted displays (HMD). The system will soon be employed in the lab to study memory and peri-personal space (the space defined by what is within one's reach) and will have numerous clinical uses for treating phobias and PTSD therapy.



<http://swissinnovation.org/news/web/2015/11-150330-1d>

12. General Interest

Switzerland: Top of the Retirement Security Country List

(The Boston Globe, February 12, 2015)

The United States ranked 19th in the world for retirement security, according to an annual ranking of 150 countries by Natixis Global Asset Management. It has held that spot for three years. This year, it is ahead of Slovenia and just behind France. Switzerland topped the list for the second year. Researchers compiled data and scored each country in four categories: finances in retirement, health, quality of life, and material well-being. Natixis then combined the scores for an overall ranking. In the United States, about half of workers aren't covered by a workplace retirement plan, the study notes. That lack of access makes it more difficult for workers to save, because it isn't as easy for them to have savings automatically deducted from their paychecks and stashed into a savings account.

<http://swissinnovation.org/news/web/2015/12-150212-83>

Sociologist Kurt Imhof Dies at 59

(20 Minuten, March 04, 2015)

Renowned sociologist and University of Zurich Professor Kurt Imhof died on March 1 after a battle with cancer at the University of Zurich Hospital. Many colleagues, students, and media professionals have since paid tribute to one of the most prolific contributors to the fields of sociology and media studies in Switzerland. Imhof was known to be critical of the quality of the Swiss media and never shied away from difficult issues. He remained enthusiastic about research despite suffering from cancer, and will be remembered as one of the most engaging academics of journalism.

<http://swissinnovation.org/news/web/2015/12-150304-93>

“Solar Impulse” Swiss Commemorative Coin

(Federal Administration, March 09, 2015)

The solar powered aircraft “Solar Impulse” recently set off for its around-the-world flight. The project was started by Swiss explorers and engineers Bertrand Piccard and André Borschberg to promote sustainable energy. In support,



Switzerland is minting a special 20-Franc silver coin as a limited-edition commemorative coin, available on www.swissmintshop.com.

<http://swissinnovation.org/news/web/2015/12-150309-1c>

Expansion of ETH Zurich Over the Next Decade

(ETH Zurich, March 16, 2015)

Roman Boutellier, Vice President for Human Resources and Infrastructure, takes 30 seconds to review the development plan of the ETH Zurich for its locations over the next decade. ETH Zurich is growing. With student and staff numbers rising, space is becoming increasingly scarce at the Zentrum and Hönggerberg campuses. This issue of space can be solved only through expansion. Yet, the basic idea is to focus on consolidating the Zentrum and Hönggerberg campuses over the next 10 years, says Boutellier. The city of Zurich has recently issued the building permit for a new construction project at both campuses. This will enable the expansion of the university district in close collaboration with the city, canton and the University of Zurich. Moving closer together and consolidation continue to be the order of the day.

<http://swissinnovation.org/news/web/2015/12-150316-82>

13. Calls for Grants/Awards

Bilateral Call: Swiss-US Energy Innovation Days 2015

(energiaplus.com, March 17, 2015)

US Ambassador, Suzi LeVine, and Walter Steinmann, Director of the Swiss Federal Office for Energy (SFOE) announced the 2nd Swiss-US Energy Innovation Days, which will be held in Zürich from August 18 to 21, 2015. The second edition of the Swiss-US Energy Innovation Days 2015 will focus on Integrated Building Systems: Representatives from Swiss and US universities, companies, state institutions and organizations will examine 4 topics: Energy Technologies, Architecture & Space, Mobility and Society. They will explore innovations and new business opportunities in workshops, site visits and evening receptions, which will be jointly organized by the Swiss Society of Engineers and Architects (SIA), the Zurich University of Applied Sciences (ZHAW), and the Massachusetts Clean Energy Center (MassCEC).



<http://swissinnovation.org/news/web/2015/00-150317-4f>

Call: Join Swiss Pavilion at largest BIO Convention in Philadelphia

(Swiss Biotech Association, February 04, 2015)

Bio International Convention- the Global Event for Biotechnology in Philadelphia - is the largest global event for the biotechnology industry and attracts the biggest names in biotech, offers key networking and partnering opportunities and provides insights and inspiration on the major trends affecting the industry. Bio International Convention 2014 The 2014 Bio Exhibition featured more than 1,800 exhibitors and covered a surface of 160,000 square feet. The event included 55 state, regional and country pavilions who in turn hosted many companies from their regions. BIO offers biotech's largest partnering event, hosting a record breaking 29,000+ partnering meetings in 2014.



<http://swissinnovation.org/news/web/2015/13-150204-bf>

Call: Swiss Pavilion at Biotechnica 2015 in Hanover

(Swiss Biotech Association, February 04, 2015)

Biotechnica - Europe's No.1 event for biotechnology, life sciences and lab technology - is the only trade fair that covers the complete value-adding chain in biotechnology from basic research to finished product. This allows the show to put the different areas of research in touch with one another and forge links between industry and the academic world. A total of 616 exhibitors from 28 different countries were 2013 in Hanover. Switzerland was in the spotlight since it was announced the official Partner Country of Biotechnica 2013. This drew a lot of attention to the Swiss exhibitors, which will profit from the lasting impression they left in 2013. The submission deadline is April, 30 2015.



<http://swissinnovation.org/news/web/2015/13-150204-75>



Call: Swiss Summer School on "Democratic Innovations"

(NCCR-Democracy, January 05, 2015)

The 2nd Swiss Summer School in Democracy Studies will take place at the University of Zurich in June 2015. The Summer School "Democratic Innovations" brings together academics from all over the world with a common interest in how established democracies adapt to new challenges. Institutional innovations in citizen participation, new forms of political behavior and public deliberation as well as the effects of digital technologies in reaching out to the public will be addressed in five one-day sessions. The Summer School gives doctoral students from political science, media and communication science, political philosophy and related disciplines the unique opportunity to discuss their research projects with renowned experts from their field and to establish valuable contacts for their academic future.

<http://swissinnovation.org/news/web/2015/02-150105-d8>

Call: Opportunities for Researchers from the Socio-economic Sciences and Humanities

(net4society, October 15, 2014)

The NET4SOCIETY, a transnational co-operation among National Contact Points for Socio-Economic Sciences and the Humanities (SSH), published the opportunities for researchers from the socio-economic sciences and humanities within the framework of Horizon 2020. The document comprises almost 40 calls with different sub topics. Application requirements and deadlines differ among the individual topics.

<http://swissinnovation.org/news/web/2014/13-141015-d6>

Call for Grants: Technology Fund

(Startupticker, October 24, 2014)

Swiss small and medium-sized enterprises developing and marketing innovative technologies that reduce greenhouse gas emissions, support the use of renewable energy or conserve natural resources can apply for guarantees of up to 3 million for a duration of 10 years at most. The Technology Fund is a federal climate policy instrument falling under the responsibility of the Swiss Federal Office for the Environment (FOEN). The first loan guarantees are expected to be issued at the beginning of 2015.

<http://swissinnovation.org/news/web/2014/13-141024-d2>

Call: SNSF Professorship

(SNSF, September 30, 2014)

The SNSF professorships address young and promising researchers who aim to pursue an academic career and start their own research team. An SNSF professorship includes the researcher's salary, a research grant, salaries of employees, as well as a contribution to infrastructure costs. The funding period is 4 years and may be extended by no more than 2 years. The submission deadline is May 1, 2015.

<http://swissinnovation.org/news/web/2014/13-140131-b1>



Upcoming Science and Technology Related Events

START Summit

April 17-18, 2015

<http://www.startsummit.ch/>

Startups

St. Gallen

EPFL - MicroNanoFabrication Annual Review Meeting

May 5, 2015

<https://cmi.epfl.ch/>

Micro & Nano Technology

Lausanne

labotec 2015

May 6-7, 2015

<http://www.easyfairs.com/labotec-lausanne-2015>

Life Sciences

Lausanne

Crossing National and Cultural Borders within the Healthcare Industry"

May 7, 2015

<http://goo.gl/YHOQRU>

Life Sciences

Lugano

The Human Right to Science: New Directions for Human Rights in Science

May 22, 2015

<http://goo.gl/pTe5up>

Human Rights

Bern

New frontiers of automated content analysis in the social sciences

July 1-3, 2015

<http://goo.gl/36J9bO>

Social Science

Zurich

2015 NTN Swiss Biotech Innovation Day

August 19, 2015

<http://www.swissbiotech.org/events#event:1261>

Biotech

Zug

9th European Congress on Tropical Medicine and International Health

September 6-10, 2015

<http://www.ectmihbasel2015.ch/ectmih2015/home.html>

Biotech

Basel

ScienceComm'15

September 24-25, 2015

<http://www.sciencecomm.ch/index.php/en/sciencecomm-15>

Life Science

Solothurn

15th Annual Biotech in Europe Forum

September 29-30, 2015

<http://www.sachsforum.com/basel15/index.html>

Biotech

Basel

Swiss Biotech Fall Day 2015

October 15, 2015

<http://goo.gl/ryKkMp>

Biotech

Monthey

Changing Paradigms in Drug Development: Company Strategy

November 17, 2015

<http://goo.gl/qjohkC>

Biotech

Bern

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