



**>>venture foundation>>**  
*Annual Report 2017*

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## Editorial

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Dear Reader,

What makes a good startup founder? This is a question I have asked myself repeatedly. Based on my experience of 13 editions of >>venture>> my answer is this: what is required is an almost split personality; the entrepreneur must be able to combine steely determination with almost boundless flexibility. The development of this character trait is something we encourage and test at >>venture>>. The coaches and jurors confront the young entrepreneurs with feedback, and in turn they must decide where best to apply the advice and where to adhere to their own ideas.

I recommend reading the testimonials on page 22, where the founder, the juror, and the coach of the startup Reflectus review their experience of a >>venture>> competition. The key to success, according to the coach, is correct “triangulation.” The young entrepreneur must distil the essence from a whole range of opinions—mostly in a situation of uncertainty, where critical information is still missing.

The coaches and jurors are the grandmothers and grandfathers of the startups. They roll up their sleeves, immerse themselves fully in the business ideas and plans, and prime the young participants for success. In 2017, they gave 1,200 hours of their time, unpaid, to >>venture>>. You can find a list of their names on page 46.

Besides the coaches and jurors, I would like to express my deepest gratitude to the sponsors—all 32 of them. The huge support and growing interest from major corporations in this country encourages me to believe that we are indeed providing a valuable service to modern Switzerland. I would also like to extend a warm welcome to Ute Lepple, CEO of Bosch Switzerland, François Gabella, CEO of LEM, and Severin Moser, CEO of Allianz Switzerland, the new members of the Advisory Board.

“The major Swiss companies started in the nineteenth century,” Martin Vetterli says in the interview on page 8, before asking, “What are their twenty-first-century equivalents?” The EPFL president, who himself won second place in the first >>venture>> edition in 1998, is on a mission to promote innovation in Switzerland. The engineer also knows Silicon Valley from the inside. Which is perhaps precisely what prompted him to issue the following warning: “It would be a mistake for every last village to want to become some Silicon-whatever: there is only one Silicon Valley and it’s in California. You have to develop an innovation culture of your own, or you will be forever two steps behind.”

Former >>venture>> participants have created around 7,000 jobs in Switzerland, and two alumni companies have become sponsors of the competition (Molecular Partners and Covagen). This essentially makes them part of the Swiss business establishment. Two alumni firms (Molecular Partners and Sensirion) have been listed on the stock exchange, and I’m sure it’s only a matter of time before we can celebrate the first >>venture>> alumnus in the SMI.



In 2018, the >>venture>> award ceremony will be held in Lausanne. As Martin Vetterli so rightly said, “it’s about time.” I, for one, am greatly looking forward to celebrating this occasion in the beautiful EPFL.

Thomas Knecht,  
founder of >>venture>>

# NEW WS S 2018



## **FIRST AWARDS CEREMONY AT EPFL**

The biggest event in the >>venture>> calendar is taking place at EPFL for the first time. On June 25, 2018, the best business ideas and plans will be honored at the SwissTech Convention Center on the EPFL campus. André Kudelski will give the keynote speech in front of an audience of prominent figures from business and science. Read more about the first awards ceremony in Lausanne in the interview with Martin Vetterli, president of EPFL, on page 6.

## SENSIRION IPO

The >>venture>> winner from 1998 went public on March 22, 2018. Sensirion is a leading provider of environmental and flow sensors. The Staefa-based tech company has just under 700 employees. The issue price of the SENS shares was CHF 36. It is the second IPO of a >>venture>> alumnus company: Molecular Partners has been trading on the SIX since late 2014.



## NEW MEMBER OF THE FOUNDATION BOARD

Longtime member of the >>venture foundation>> Walter Steinlin (in the picture) is retiring. >>venture>> would like to express its heartfelt gratitude for his dedication and commitment. Steinlin has also stepped down as president of Innosuisse, the Swiss agency for innovation promotion (formerly called CTI). He took up the office in 2010. André Kudelski has now taken up Steinlin's seat on the board of the >>venture foundation>>. The Vaudois engineer is CEO and chairman of the board for the family business Kudelski and is also Steinlin's successor at Innosuisse. >>venture>> wishes him a very warm welcome!



## NEW ADVISORY BOARD MEMBERS

>>venture>> would like to welcome the new members of the Advisory Board. In 2018, Allianz (Severin Moser), Bosch (Ute Lepple, picture above), and LEM (François Gabella) will be joining the board. >>venture>> is particularly pleased to welcome the third woman on its board.



## Martin Vetterli

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# “It’s about time”

For the first time the »venture« award ceremony will be held in Lausanne. The new president of the École polytechnique fédérale de Lausanne (EPFL) Martin Vetterli praises the startup competition, enthuses about Swiss high-tech computer mice, calls for the military to invest more in innovation, and recommends reading Rousseau.

### **Mr. Vetterli, what role does**

#### **>>venture>> play for Switzerland?**

It is the country’s most visible startup competition and provides a good overview of what’s happening on the scene. It is Thomas Knecht’s lifetime achievement. >>venture>> cannot be praised highly enough. I have known >>venture>> since the first award in 1998 when I took part with a startup myself.

#### **You came second place with the company Ares.**

At the time I was a little disappointed but it was Sensiron who came first—and they have close to 700 employees today. Ares is also still around, but it is now called Dartfish, and is much smaller with around 50 employees.

#### **The award ceremony 2018 will be held at EPFL for the first time. What does that mean for French-speaking Switzerland?**

To be honest, it’s about time (*laughs*).

Seriously though, it provides recognition of Romandy as a startup location. According to the Swiss Venture Capital Report 2018, 32 percent of venture capital today is invested in Vaud. Zurich is in second place with 29 percent, and Basel is third with 9 percent. According to this study almost 300 million Swiss francs have been invested in our canton in the past year.

#### **We had no idea the competition between Lausanne and Zurich was still so strong ...**

(*Laughs*) Now you’ve got me. And you are right, I’m not interested in the rivalry between ETH Zurich and EPFL. We should invest our energy in joining forces against foreign competition.

#### **But is there really room for two top technical universities in Switzerland?**

That’s such a Swiss question. At an ETH Day in Zurich, Severin Schwan, the head of

### **Martin Vetterli**

has been president of EPFL since January 2017. For the past ten years he has worked and conducted research as an electrical engineer in the United States at Columbia University, New York and the University of California, Berkeley. Martin Vetterli (60) received his Dipl. El.-Ing. (Diploma in Electrical Engineering) at ETH in 1981, followed by a Masters in Stanford, and completed his PhD at EPFL in 1986. His research has resulted in around 50 patents which have benefitted numerous tech companies and startups. From 2013 to 2016 he presided over the Swiss National Science Foundation. Vetterli is married with two adult children.

Roche, told me how glad he was that EPFL existed. We need the competition, he said, to keep people on their toes. But that doesn't mean that we don't work together. 2017, we launched the Swiss Data Science Center in a 50-50 cooperation with ETH Zurich. So we work together very well.

**If you compare the competition with international equivalents, how can we make »venture« more attractive?**

The prize money could be higher, which would raise visibility and make it more attractive.

**Between 1973 and 1996 there were at most seven EPFL spin-offs per year.**

**Then »venture« started and the numbers increased dramatically. A coincidence?**

It's obviously difficult to prove the causality here, but there is definitely a correlation.

»venture« anticipated the startup trend in Switzerland and reinforced it.

**What would you prefer: if an EPFL alumnus won a Nobel Prize or founded a unicorn firm, worth over a billion dollars?**

EPFL was only founded in 1969 and so far it has not produced any Nobel Prize winners—so of course, that would make me happy. However, we already have a unicorn with Mindmaze. But it's not an either/or question: entrepreneurs and researchers tend to be very different types of people.

**Stanford, your Alma Mater, has earned more than a billion dollars from its spin-offs in four decades. Does EPFL share in the success of its spin-offs?**

That's an area where there could be some expansion, but we are already profiting from the success of companies that emerged from EPFL. In general, like most educational institutions, we don't have shares in the spin-offs but we do own the patents that the startups base their ideas upon, and so we get the license fees in return.

**Having been at Stanford, you know Silicon Valley very well, the oft-cited role model for innovation. Does it still deserve this reputation?**

Yes and no. Silicon Valley is small, like Switzerland, with around three million inhabitants and two excellent technical universities; it's also extremely international and focused on innovation. But that's where the parallels end. It would be a mistake for every last village to want to become some Silicon-whatever: there is only one Silicon Valley and it's in California. You have to

“>>venture>>>  
cannot  
be praised  
highly  
enough.”

develop an innovation culture of your own, or you will be forever two steps behind.

**So what is our unique selling proposition?**

Silicon Valley is a monoculture: with a few exceptions, everyone there is basically good at software. We have a lot more range, with expertise in different areas. Today I spent the afternoon at Logitech, the computer appliances producer and an EPFL spin-off. Among other things the company produces specialized ultra-fast computer mice for gamers. Computer science plays only a minor role at Logitech—the rest is high-precision mechanics.

**Aside from mechanics, what other areas have potential in Switzerland?**

I can think of pharmaceuticals, finance, food, and also perfume. These areas are defined by their complexity, narrow margin for error, and reputation. The US company Medtronic produces pacemakers here—I don't know if it would be possible anywhere else. Medtronic also develops new products here, and only when they have gotten through all the growing pains do they start producing them elsewhere.

**What's lacking in Switzerland?**

Our major companies started in the nineteenth century. I'm thinking of Nestlé, the Schweizerische Kreditanstalt (today Credit Suisse), UBS, BBC (today ABB), Ciba-Geigy (today Novartis), and Roche. That's all great, but it's a long time ago now. What are their twenty-first-century equivalents?

**What should we do?**

Many of the areas I mentioned are being digitized and software is not our strong-

point, mainly because we lack the IT talent. From a startup point of view, aside from the pharmaceutical industry, we lack big international investors capable of supporting a company with financing rounds worth 50 to 100 million. And what makes this so annoying is that, as a result, the startups we should be holding on to keep moving away.

**In the startup strongholds of the US and Israel, pension funds and the military are strongly involved in financing young firms, but this doesn't happen here. Does this put Switzerland at a disadvantage?**

The military should definitely be investing a lot more of its five billion budget in innovation. And the same goes for pension funds: for a few years now they have been allowed to invest in venture capital but few actually do so—they first have to learn that it works differently from traditional investments.

**What should we explicitly not adopt from Silicon Valley?**

The prohibitively expensive cost of education. The low cost of university education in Switzerland is a huge competitive advantage: it means we do not lose talent just because a person cannot afford a university education.

**Alongside the United States, a major startup scene has emerged in China. What can we learn from this development?**

Most of the young Chinese companies are focused on the domestic market—which has little relevance for us. China, however, could learn a lot from Switzerland, particularly when it comes to political systems.

**China currently has only half the amount of unicorns as the US—the ratio stands at 59 to 113. Is this about to change?**

Yes, China will become as dominant as the US, if not more so.

**And Europe?**

We have to position ourselves clearly. Today we are a digital colony of the US—which is not good. We need to cut ourselves free. We have to invest in the areas I mentioned. But it's not just about money: we need more technology students, and above all we need more women in the field.

**What's the best way to foster new talent?**

In the USA people complained for ages that there were no engineers. Then suddenly, wonder of wonders, Google finds them. Why? Because it pays well and provides interesting work. I believe in meritocracy. If people want to get ahead then they should be able to do so. This attitude is deeply entrenched in Silicon Valley. In Europe, on the other hand, background and schooling play an important role.

**How do we get more women to study physics, math, and computer science?**

By sensitizing them to it at an early age. In concrete terms this means making university lectures less intimidating, and making sure they are more applicable to real life and have plenty of examples of interesting work. Furthermore, the courses should not only be about developing technical prowess but also about competencies in communication, creativity, and social issues. This is already happening successfully in some colleges in the United States.

**The Internet was invented at CERN, or at least co-invented there, so why has Switzerland not produced any major Internet companies?**

It's unbelievable, isn't it? Computer science was not an issue at the beginning of the 1980s. People didn't really believe in it and, aside from that, researchers at CERN are conducting basic research. They want to win Nobel Prizes, not found a company.

**You're a tech guy, but you are also very interested in the humanities. How come?**

Technology is nice but it has to serve society, not the other way around. This is something we must never forget. Technology is too dominant today. Social media companies should not be able to define global regulations for the private sphere. Do we really want the world to work like this? We cannot allow ourselves to be naïve.

**Your doctoral thesis began with a quote from Jean-Jacques Rousseau. Why?**

He asked the right questions, and as a thinker he invented the modern Western world. I think about the importance of education, the democratic organization of the state, and equality among people or in the social contract. Before the French Revolution, between 3 and 5 percent of the nobility essentially owned 95 percent of the capital. We all know how that ended. We are not far removed from such a situation today. We should start reading Rousseau again if we want to avoid another revolution.

*INTERVIEW Simon Brunner*

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*TITION*



*17*

# 2017 Business plan winners

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Place 1–5



*From left: Christian Buhl (Geberit), Andreas Schmocker (Lumendo), and Federal Councillor Johann Schneider-Ammann.*

**1. Lumendo<sup>1</sup>** has developed a technology for inserting centimeter-sized implants in the body via an access channel of less than half a millimeter in diameter. The procedure can be used for almost any type of polymer-based, filler-like implant. Such implants are material constructs that are surgically inserted inside the body in open surgical procedures. These are performed up to a million times every day.

Lumendo is currently focusing on a dental root canal treatment, a fiddly and slow procedure that neither dentists nor patients enjoy, which is performed some 700,000 times in Switzerland alone each year. Lumendo has developed a process using specific materials and an illumination device

<sup>1</sup>Name changed from Lumigbo

whereby, after cleaning the root canal, a material is introduced in a minimally invasive manner that can reduce treatment time by up to 30 minutes while increasing the treatment's efficiency. The ETH/EPFL spin-off currently holds patents for three prototype products. Lumendo's goal is not to conquer only Switzerland: "The US market is key for our products," said Andreas Schmocker, founder of Lumendo, during a business development trip to Boston.

Corinne John, member of the >>venture>> Jury Committee, is convinced of Lumendo's potential. In her appraisal John noted, "Andreas Schmocker and his team have built an innovative medical technology platform offering significant potential in multiple areas such as dental, orthopedic, and neurovascular markets. The initial focus is on the dental market, which is the fastest to reach. Lumendo creates value for dentists thanks to the significantly faster and more convenient solution compared to state-of-the-art products."

Corinne John is herself a successful biotech entrepreneur; she co-founded the award-winning ETH spin-off Redbiotec. She is confident that Lumendo can protect its intellectual property: "The technology is covered by various patents originating from both ETH and EPFL and backed by a technically strong team. All in all, Lumendo's package is a true >>venture>> Top 5 Business Plan."

**[Industry Medical Technology/Life Sciences/Pharmaceuticals & Biotechnology](#)** **[Location Lausanne](#)** **[Affiliation ETH Zurich/EPFL](#)**  
**[Mail andreas.schmocker@epfl.ch](mailto:andreas.schmocker@epfl.ch)**

**2. Haelixa** has developed a DNA-tracer methodology that helps to generate a high-resolution map of geothermal or oil reservoirs. Operators can track and monitor fluids in various environmental and industrial settings. The jury's verdict: "This is very relevant for the exploration industry, as trying to predict the location and quality of reservoirs can be challenging and expensive. The DNA tracers are also environmentally friendly and comparatively cheap."

**Affiliation** [ETH Zurich](#)  
**Mail** [info@haelixa.com](mailto:info@haelixa.com)

**3. Rainbow Biosystem** has devised an automated fish cell impedance-based biosensing system for detecting water toxicity. Current methods raise ethical questions of animal welfare or require manual intervention. The jury is excited: "The straightforward business plan and market entry plan for Switzerland and China offer a realistic and promising business opportunity."

**Affiliation** [Eawag, HES-SO Valais-Wallis](#)  
**Mail** [vivian.lu.tan@rainbowbiosystem.com](mailto:vivian.lu.tan@rainbowbiosystem.com)

**4. Vibwife**, co-founded by a midwife, has developed the world's first active mobilization system for women giving birth, replacing the normal mattresses found in today's birth beds. The jury writes, "Vibwife's system can reduce significantly the number of cesareans, births take less time, and they require less anesthesia, which can mean huge savings for hospitals."

**Affiliation** [Switzerland Innovation Park Biel/Bienne](#) **Mail** [mail@vibwife.com](mailto:mail@vibwife.com)

**5. ASTROCAST** aims to provide a global machine communication (M2M) and Internet of Things (IoT) network for remote monitoring, predictive maintenance, intelligent data, and geolocation services. The jury writes, "With capex/opex 1000 times lower than mega-constellations, Astrocast takes bold steps. Smarter and faster, it represents an entry-level service. We cannot wait for this."

**Affiliation** [EPFL](#) **Mail** [sthakur@else.io](mailto:sthakur@else.io)

# 2017 Business idea winners

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Place 1–5



*From left: Julian Bertschinger (Covagen), Sergio Sanabria (Reflectus), Federal Councillor Johann Schneider-Ammann, and Orcun Goksel (Reflectus).*

**1. Reflectus** is developing a new device for quantitative breast cancer diagnosis. X-ray mammography is the current choice for breast screening, but it involves radiation exposure and causes discomfort. Ultrasound, on the other hand, is safe, but conventional images based on tissue scattering do not allow viewers to differentiate between benign and malignant breast lesions.

Tumors are firmer than the surrounding tissue and this means sound travels faster through them. Consequently, Reflectus can measure the local speed of sound and infer if any part of the breast contains cancer cells or just normal tissue.

Reflectus has developed a hand-held apparatus that uses a conventional ultrasound probe on one side of the tissue and a passive reflector on the other. With this setup, Reflectus measures the travel time along multiple wave paths, and uses mathematical techniques to reconstruct what are known as “speed of sound images,” which successfully delineate stiff tissue locations with over 95 percent accuracy.

One in eight women will develop breast cancer during her lifetime, with 5,600 new cases per year in Switzerland and 1.5 million cases worldwide. The current diagnostic methods for breast cancer have several negative implications such as radiation exposure and high costs. Reflectus’s low-cost technology can bring handheld breast screening to individual doctors’ offices and provide a primary care breast cancer diagnosis during the first consultation. In the fight against breast cancer, speed and the availability of screening devices are crucial.

The technology was developed by Sergio Sanabria and Professor Orcun Goksel of ETH’s Computer-Assisted Applications in Medicine group (see their story on page 20).

“The current gold standard of X-ray mammography has its handicaps and limitations,” says Arnd Kaltofen-Ehmann, member of the >>venture>> Jury Committee. “Reflectus is aiming to improve the quality of early breast cancer diagnosis. The new ultrasound technique developed by Reflectus may provide doctors and patients with a radiation-free, reliable, and cost-effective alternative.”

**2. Struckd** is a platform that enables gamers to build, share, and play their own games and turn advertisements into an experience. This helps facilitate the growing interest in gamification for businesses and user-generated content. The founders are specialists in the area of game design. As the jury wrote, “We were impressed by the number of monthly active users, the number of installs, and the brands they have begun to collaborate with even before the full launch of their product planned for this summer.

*Affiliation* n/a *Mail* [flurin@struckd.com](mailto:flurin@struckd.com)

**3. PeakProfiling** offers physicians an effective tool for diagnosing levels of depression and other mental diseases based on the sound of the human voice. As the jury says, “This new and innovative method offers extremely promising initial clinical results. It was developed by a very experienced team and could secure an immediate treatment based on objective data.”

*Affiliation* n/a *Mail* [info@peakprofiling.com](mailto:info@peakprofiling.com)

**4. TWIICE** has developed a modular exoskeleton that can be customized to the needs of each user, enabling those who cannot use standard solutions to walking, sitting, and climbing stairs. “A multi-disciplinary team of material scientists, engineers, and doctors have patented their ideas and developed a design and manufacturing methodology,” the jury explains. “The results are complex, tailor-made geometries, high levels of performance, and quality at a lower price.”

*Affiliation* EPFL *Mail* [info@twiice.ch](mailto:info@twiice.ch)

**5. Komp-ACT** is targeting the growing market of actuators for the aerospace industry. The firm has introduced a novel design for lightweight electro-mechanical devices that can replace heavy and energy-consuming pneumatic and hydraulic actuators, thus saving up to 40 percent of fuel. The jury is optimistic: “The team has a great deal of experience and their plan is very promising.”

*Affiliation* EPFL

*Mail* [salvatore.debenedictis@komp-act.com](mailto:salvatore.debenedictis@komp-act.com)

“It put us into another league”

**Reflectus has developed a technology to diagnose early-stage breast cancer without irradiation. Taking part in >>venture>> helped turn an idea into a company with major potential. Three of the protagonists tell their story.**



**PARTICIPANT**

*“When the director heard about our success at >>venture>>, things suddenly started moving forwards.”*

**Sergio Sanabria**

**The 33-year-old is the Reflectus CEO. He also works as a senior assistant and postdoc researcher at ETH Zurich. He holds a PhD in Telecommunications (ETH).**

“Winning the Business Idea category brought us a huge amount of attention and put us into another league. For a long time we’d been looking to work with a Japanese ultrasound manufacturer who was doing R&D in Switzerland. But until now it felt like we were banging our heads against a brick wall. When the director heard about our >>venture>> success, things suddenly started moving—he supplied us with a hardware platform. >>venture>> also helped us with valuable coaching—e.g., from Marcos [see right]. Drawing on the feedback of the jurors and coaches, we were able to develop an initial presentation for Reflectus, and the idea kept on growing till it became a company. This spring we founded an AG. Now we need to start looking for investors. Our vision is to improve the early-stage detection of breast cancer. To achieve this, we plan to upgrade the ultrasound machines produced by different manufacturers around the world by adding Reflectus; we’re already in discussion with a number of companies about potential collaboration.”

*“You get inundated with good and not so good advice. What are you supposed to do?”*



**COACH**

## Marcos García Pedraza

The 48-year-old entrepreneur has an MSc in Life Sciences (ETH) and a PhD in Business Economics (HSG).

As a >>venture>> coach, I've been supporting startups in leveraging their business ideas for almost ten years. The goal is to help young entrepreneurs develop a business plan that will be convincing for both investors and the jury. This time round Reflectus really grabbed me. I'm fascinated by this kind of technology and products that have a major medical effect and impact the healthcare sector in a cost-effective way; I call this “hacking healthcare costs.” Together with Orcun Goksel at ETH, Sergio [see left] invented a technology that fits this bill, and he wowed me with the Reflectus spirit. He has the gift to triangulate, which I think every young entrepreneur should have. You get constantly inundated with good and not so good advice. As a scientist and young entrepreneur you have no clue about business—how are you to know what you're supposed to do? You ask different experts and come up with your own formula, triangulated from all the opinions they give you. In the end, you, the founders and entrepreneurs, take the final decision, but also the risk. And you must always walk the thin line between questioning the advice you receive and remaining open to it.”



**JUROR**

*“The technology is excellent and the potential market huge”*

## Arnd Kaltofen-Ehmann

The 57-year-old venture capitalist has an MBA (Kellogg/WHU) and a postgraduate degree in Computer Science (TU Munich). He is also an MD (Ulm University).

“I can identify the potential in a business plan fairly quickly. I'm a medic originally and have invested a good deal in the healthcare sector via the Venture Incubator Fund. With Reflectus I immediately knew that this idea had potential. The technology is excellent and the target market huge. They were also able to produce a preliminary validation of their method in a practical setting—it wasn't just an idea dreamed up at a desk. Of course, I also had a few questions: Where do they want to apply their innovation in the medical process, in hospitals or among gynecologists? Mammography is the gold standard for breast cancer diagnosis. How does Reflectus position itself here? Can doctors use the technology with their existing ultrasound equipment or will they have to purchase a new machine? Do they actually market a device or rent it out as a service? And finally, what's the business case behind it? That's a lot of questions, but that's perfectly normal at the beginning. They will find answers. My prognosis is positive: a valuation of above a hundred million is possible.”

>>venture>> 2017 in Numbers

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>>venture>> 2017  
*supported ...*

95

business ideas  
submitted

108

business plans  
submitted

235

teams registered

*... and delivered*

198

coach—team relationships

21

events with more than ...

1200

attendees

506

jury feedbacks to  
participating teams  
for their submitted  
projects

320

1-on-1 meetings at  
Investor Day

**Business plans** *Submission numbers have remained at a high level since the change to an annual rhythm.*

Number of submitted business plans per >>venture>> edition

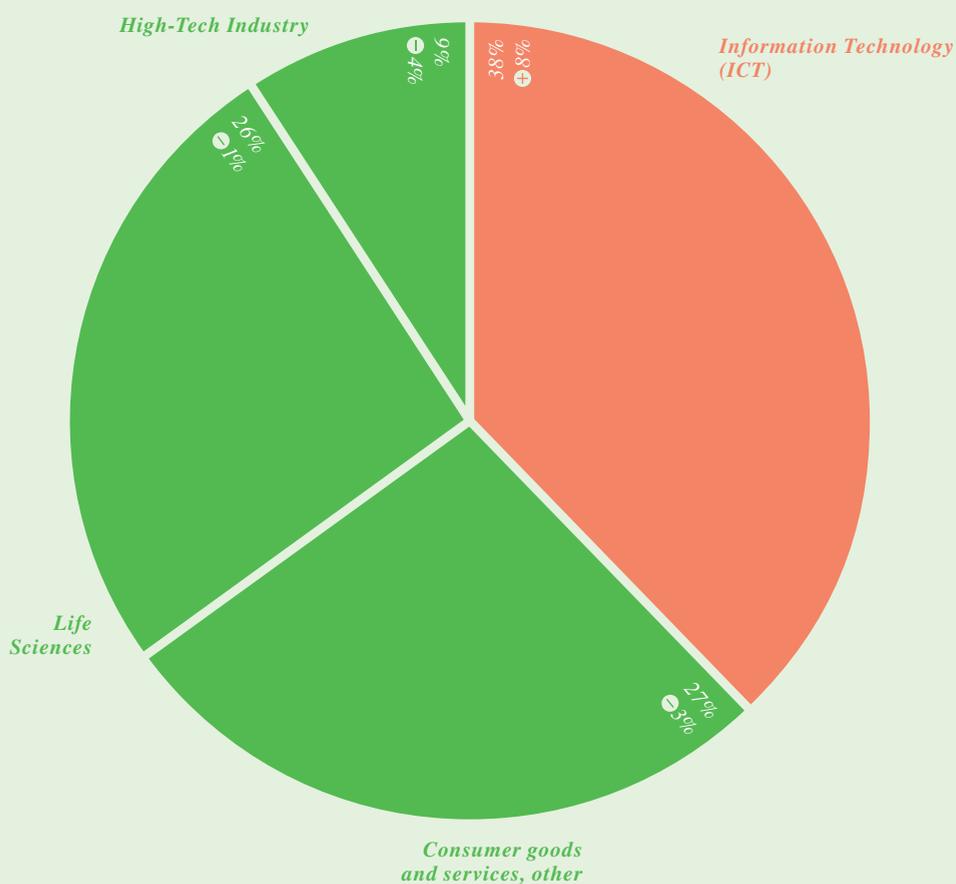


**Business ideas** *For the first time, there were more business plans submitted than business ideas.*

*Industry mix Teams are active in four major fields, with ICT showing the highest growth rate.*

**Project submissions**

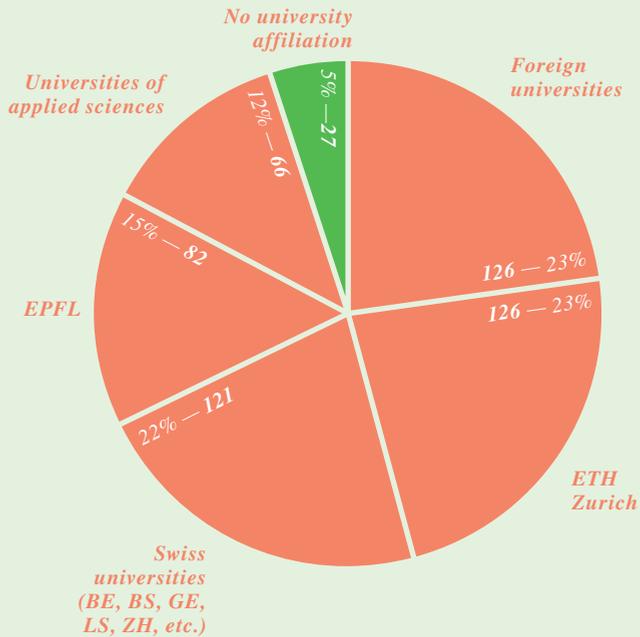
100% = 203



## University background *95% of the participants have a university background.*

### Number of individuals

548 = 100%



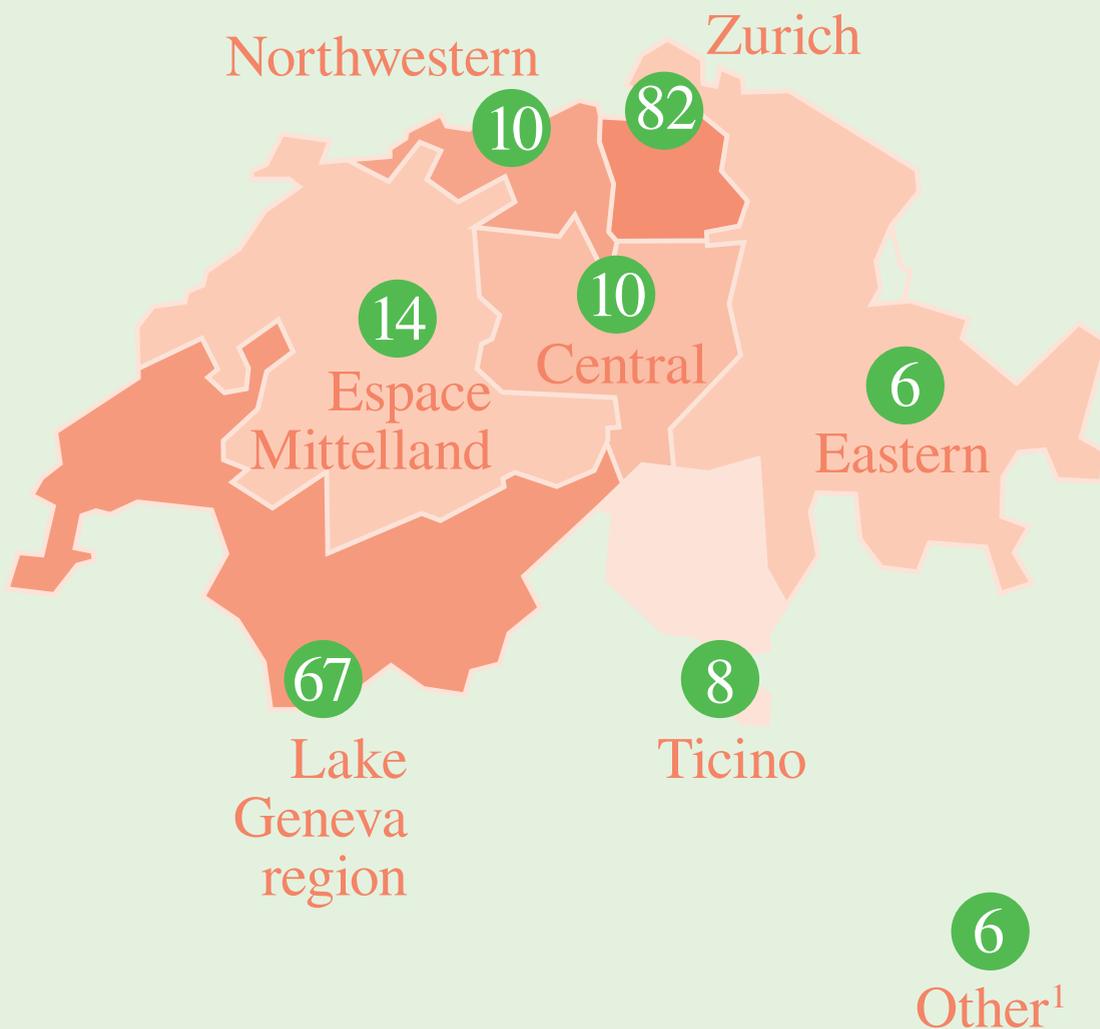
## Gender *One out of five participants is female.*

### in percent



*Geography >>venture>> is a truly Swiss competition with participating teams from all parts of the country.*

Number of submitted projects, total: 203



<sup>1</sup>Projects submitted from abroad by teams planning to incorporate a company in Switzerland

# M E D I A

## **MEDIA REACH**

>>venture>> 2017 enjoyed broad coverage across the Swiss media. The competition, winners, and alumni were featured in the national and local media on television, radio, in print, and online. The combined media presence reached over 2.8 million people.

## L'AGEFI

### STARTUPS IN ROMANDY STILL ON TOP

The audience was very excited by one particularly visible innovation that can provide hope to paraplegic people: the exoskeletons designed by the TWIICE project. [...] Teams from the arc lémanique region were again overrepresented compared to the population of this area. And even compared to the size of its technical universities, the success of this region seems disproportional.



### BEST IDEAS AWARDED

>>venture>> presented this year's winners during the startup competition's Award Ceremony. Out of 203 participating teams, Lumigbo submitted the best business plan and ReflectUS the best business idea. TWIICE was the winner of the Audience Award. A total of CHF 170,000 in prize money was awarded.

## NZZ

29

### TODAY'S HEROES

“Thomas, don't play the boy scout.” And as one CEO told me, “Are you crazy, I am supposed to help young talent to do top-level research at a startup instead of in our own R&D department?” These were the comments I [Dr. Thomas Knecht, founder of >>venture>>] heard twenty years ago when we first founded >>venture>>, today's most important startup competition in Switzerland. It's important to remember that in the 1990s Switzerland was a startup desert.

## SRF

### WINNING STARTUPS

Federal Councilor Johann Schneider-Ammann was in attendance as outstanding business ideas and business plans developed by startups received prizes at ETH Zurich on Monday evening. The total amount of prize money added up to CHF 170,000. [...] The Audience Award of SRF and RTS—provided by the >>venture>> foundation—was presented for the first time. The winning team was selected by means of an online vote on SRF and RTS.

## Events



- 1 At the kickoff of >>venture>> 2017 in EPFL's Rolex Learning Center, EPFL President Martin Vetterli (see Interview page 6) leads a podium with Déborah Heintze (Lunaphore), Hans Mattias Larsson (SUINCol), Brigitte Baumann (Go Beyond) and Romain Boichat (Corpus Health).
- 2 BKW's Suzanne Thoma and Geberit's Christian Buhl in conversation at the Advisory Board meeting.
- 3 On the roof-deck of ETH, federal chancellor and keynote speaker Johann Schneider-Ammann celebrates the winners with Thomas Knecht (Knecht Holding) and Lea Firmin (>>venture foundation>>).
- 4 After the 2017 award ceremony, the >>venture>> community gathers on the stage of the Audi Max at ETH Zurich.
- 5 Full house at the EPFL speed dating event on March 22, 2017.



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Captions read from left to right

3



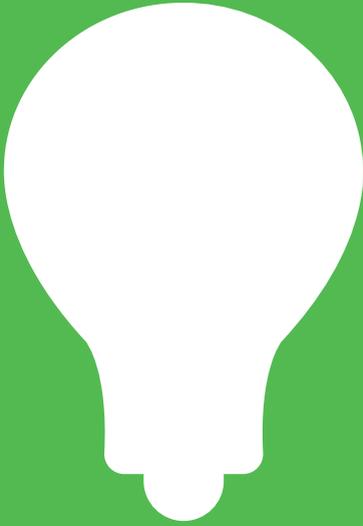
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5



1



# *SUCCESS STORY*

**Arktis Radiation Detectors**

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*2006 — First place, business plan competition*

# SOUNDING OUT NUCLEAR WEAPONS OF MASS DESTRUCTION

— Continuity is the exception rather than the rule when it comes to startups. Arktis Radiation Detectors, however, is the exception that proves the rule. Rico Chandra, Giovanna Davatz, and Mario Vögeli, all of them now 40-ish met early on in their professional careers. Physicists Chandra and Davatz worked at both ETH Zurich and CERN, the European Organization for Nuclear Research in Geneva, on detecting neutron and gamma radiation and discovered a shared obsession with this complex phenomenon. At the time their friend Mario Vögeli was working as a business economist and quality manager for large companies like General Dynamics as well as for startups. The three joined forces in 2007 to found the company Arktis Radiation Detectors.

More than ten years later the original ETH Zurich and CERN spin-off still exists and is highly successful to boot—something that cannot be taken for granted in the fast-paced tech world. More unusual still is that all three young entrepreneurs and founders are still on board. CEO Rico Chandra comments dryly on this: “Our team has shown itself to be effective.” When asked whether he had ever considered selling the company, he replies, “We have yet to fully achieve the objectives we set ourselves when we founded the company, which is to dominate the global market for radiation detectors via the United States. We are still working on it.” The



Giovanna Davatz and Rico Chandra aiming high with their next-generation radiation portal monitors

company has 25 employees in Switzerland as well as others in the United States and Great Britain. The US site is currently under expansion. To date different investors have supported Arktis with around 20 million Swiss francs. One reason the company has maintained its headquarters in Switzerland is the proximity to ETH and CERN. While the European business is key for Arktis, its presence in the US is being ramped up dramatically.

When you visit Arktis Radiation Detectors in Zurich, it is not immediately obvious that the company is working with hazardous radioactive material. These radioactive sources are far more common than people assume. In Europe and the United States alone 2.3 million radioactive sources have been in use for different purposes over the past 50 years. They are deployed in industry, medicine, research, and agriculture. And these sources are frequently “orphaned,” as the experts say, often as a result of negligence or criminal and terrorist activities. Arktis has tasked itself with detecting these radioactive materials to stop them being smuggled and used to develop “dirty bombs.”

During their time at CERN Chandra and Davatz developed new types of sensors for detecting gamma and neutron radiation. “Our aim is to develop and constantly improve the sensors to make them faster and more reliable in distinguishing between dangerous sources and harmless material or naturally occurring radioactivity,” says CEO Chandra. To ensure this happens, it is critical to have detectors in use on a daily basis in, for example, large ports, at national borders, and on airfields. Radiation detectors can also be used at large events such as the Olympic Games and G20 summits to

screen shipping containers, trucks, and other means of transporting goods. In sensors fitted with older technology, the radioactive alarms can be triggered by materials such as cat litter, thawing salts, bananas, or other harmless products due to the naturally occurring radioactivity that emanates from them. Such false alarms often have expensive consequences.

Arktis detectors are in use all around the world. The port of Antwerp, for example, has seven portal monitors that check all trucks entering or exiting the area. The Zurich firm also works for the US Defense Department. The highly sensitive Arktis detectors can be installed permanently as monitoring portals and also used portably, like the detectors in vehicles used by the ABC Spiez Laboratory, which was commissioned by the Swiss Federation to combat weapons of mass destruction. The organization operates a van equipped with Arktis sensors that can monitor traffic throughout Switzerland for radioactive sources.

In 2006 Arktis Radiation Detectors won a >>venture>> award for its business plan. “I don’t know if we would even exist if it wasn’t for the prize. The award allowed us to focus clearly and progress along the path we had outlined,” says Rico Chandra. Twelve years down the line, Arktis is well on the way to taking another big step that it sketched out at that time. The company is positioning itself for a major contract for the US government. The Department of Homeland Security wants to install the latest generation of monitoring portals at numerous border crossings to improve US security. The task presents Arktis with huge challenges. The systems on the southern border to Mexico, for example, have to withstand

## ARKTIS RADIATION DETECTORS TIMELINE

### 2006

First place in the >>venture>> business plan category

### 2007

Founding of Arktis Radiation Detectors by Rico Chandra, Giovanna Davatz, and Mario Vögeli

### 2014

Arktis Radiation Detectors Ltd. announced it had been awarded a contract from the US Defense Advanced Research Projects Agency (DARPA) to develop the next generation of neutron detectors

### 2017

Twenty-five employees in Switzerland and more in the United States and Great Britain. To date, Arktis has raised around 20 million Swiss francs





intensive exposure to the sun and temperatures of up to 55 degrees Celsius. On the northern border to Alaska, on the other hand, they must be able to resist the arctic cold.

The entire fleet of the 1,800 systems currently in use in the United States is due for renewal. The average purchase price per unit lies in the range of USD 250,000. Then come the costs of maintenance, software updates, and other services, which would also need to be performed by Arktis. In contracts of this scale, it's no wonder that the little Zurich company faces tough international competition. But Chandra and his team are used to stepping into the race as outsiders. To date, Arktis has primarily provided its technology to governmental organizations buying large-scale systems. For Chandra the future lies in integrated systems of large and small-scale monitoring equipment. "The systems are most effective when monitoring takes place permanently and in as many places as possible," he explains.

Founded in 2007, Arktis might sound more like a company that makes cooling products rather than high-tech detectors. At the start, the team of three was indeed working with the noble gas argon (abbr. Ar) and extreme low temperatures, but as things developed, this proved untenable. In the meantime, the detectors use naturally available helium (He4) and the cooling has been replaced by pressure. \_\_\_\_\_

*TEXT Erich Aschwanden*

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Young entrepreneurs are full of ideas and zest for action. But few could have formed thriving companies without the guidance of some 180 jurors and coaches who spent countless hours supporting >>venture>> participants—for free.

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