



# ACES

ACADEMIC ENTERPRISE AWARDS EUROPE

## THE 2011 FINALISTS

ACES CONFERENCE & AWARDS GALA  
SWISS FEDERAL INSTITUTE OF TECHNOLOGY, ZURICH  
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To encourage public dialogue about innovation policy in Europe, the Science|Business news service, INSEAD and ESADE, with the support of Microsoft and BP, created a panel of leaders in industry, academia and policy.

The Science|Business Innovation Board meets twice a year to debate important aspects of European innovation policy, and to formulate recommendations for policy action. The aim: to use the collective experience of the board members to improve the climate for innovation in Europe. The Board serves as final jury for ACES.

Science|Business is an independent news and events service, focused on R&D investment and policy in Europe. Science|Business publishes online daily at [www.sciencebusiness.net](http://www.sciencebusiness.net), and produces numerous special print reports, studies and conferences.

It was founded in London and Brussels by Richard L. Hudson, former managing editor of the Wall Street Journal Europe, and Peter Wrobel, former managing editor of Nature, and works with a professional team of communicators and journalists to facilitate communication between the disparate worlds of academia, industry and policy. It works with a network of professional organisations and top European universities. Its mission: To promote enterprise in science.

## Innovation Board members

**J. Frank Brown**, Dean, *INSEAD*

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**John Wood**, Secretary-General, *Association of Commonwealth Universities*

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## ACES - THE BACKGROUND

On 10 June 2008, meeting at INSEAD, the Science | Business Innovation Board agreed to launch the first pan-European awards for academic enterprise – researchers who see starting companies and working with industry as an important part of their scientific or engineering careers. The purpose: to encourage enterprise in European academia.

Now in its third year, the ACES awards programme has recognised the achievement of 36 outstanding individuals or start-up teams across Europe and countries affiliated with the European Commission's Framework 7 research programme. Organisations representing 27 European universities and research institutes nominate entrepreneurs and assist in the selection process, and the Science|Business news service gathers nominations from them and others.

Sponsors for this year's awards include GE, Foley & Lardner LLP, ETH Zurich, the Office for Economy and Labour of the Canton of Zurich and the Swiss Innovation Promotion Agency of the Swiss Confederation. This year's ACES event is supported by the European Institute of Innovation & Technology (EIT).

On 3 December, the ACES Selection Committee met at ESADE's Creapolis technology and innovation park in Barcelona to sort through the 120 nominations received. The committee comprised representatives of many of the participating research institutes and sponsors. It selected three finalists for each of six categories. The finalists were invited to join us in Zurich on 3 February, expenses paid, to participate in the Academic Enterprise Day organised by Science | Business and the Swiss Federal Institute of Technology (ETH Zurich).

After the Innovation Board's decision in its private meeting, 3 February, the winners will be announced at a ceremony and awards dinner at that evening.



*Photo: The Innovation Board meets in Paris to decide on the winners of ACES 2009/10*

## CATEGORY: LIFE SCIENCES

**Nominee:** Prof. Sabine Bahn and Chris Lowe  
**Company:** Psynova Neurotech Ltd,  
University of Cambridge  
Founded: 2005

**Investment:** The company has raised around £5 million from seed venture capital funds Porton Capital, the Cambridge Enterprise Seed Fund and other funds. Psynova is the lead partner in an 8-member consortium that has been awarded a €2.75 million European Commission Framework 7 grant to develop minimally invasive, low-cost molecular assays for the early diagnosis of schizophrenia and other psychiatric disorders.

**Business progress:** The company's first product, VeriPsych, was launched by its partner, Rules Based Medicine Inc. in the US in 2010 and is generating the first stream of revenues. VeriPsych is the first and only blood test to aid a psychiatrist in the diagnosis of recent-onset schizophrenia. The company has an exclusive research and licensing agreement with Roche to collaborate on the discovery, development, validation and commercialisation of diagnostic immunoassays to aid the clinical treatment of schizophrenia. Psynova is working with pharmaceutical companies to explore the use of its biomarkers in drug discovery and development through a collaborative project funded by the Innovative Medicines Initiative public-private partnership.

**Summary:** Psynova is focused on the commercial development and exploitation

of novel biomarkers for neuropsychiatric and other mental illnesses, addressing the need for improved diagnosis of psychiatric disorders. The company is initially concentrating on developing in vitro diagnostic tests for schizophrenia, bipolar affective disorder and major depressive disorder. "The originality is very high and the commercial success is already there. One test is trademarked and sold through a company. The potential social impact is high," concluded one selection committee member.

Disorders such as schizophrenia are currently poorly and subjectively diagnosed, and there is a need for objective blood-based tests that can identify the disorders at first onset or even at the pre-symptomatic stage. The number of individuals with schizophrenia and bipolar disorder is rising globally, from 33 million in 2000 to 36 million in 2015.

Psynova has a portfolio of around 20 patent families on which Prof. Bahn is the lead inventor, most of which have been licensed from Cambridge University. The company's second generation of diagnostic products aims to develop tests that will predict the efficacy and safety of drugs for the treatment of such disorders. The company is currently making a loss as it is investing heavily in R&D on new products. "The entrepreneur made a strong impression with 20 patent families and a collaboration with Roche. The established industry contacts lower the risk," a judge noted.

A life sciences expert on the selection committee pointed out that Psynova does not have a clear test for schizophrenia. The aim is to characterise certain elements based on a blood test which could be an indicator. “The biomarkers should help psychiatrists to find the right therapy. It’s not a specific gene, it’s a mix of parameters. What’s being looked at is correlation between clinical interviews and the test.”

**Nominees:** Dr. Jan Lichtenberg, Dr. Jens Kelm, Dr. Wolfgang Moritz, ETH Zurich

**Company:** InSphero AG

**Founded:** April 2009

**Investment:** First round of financing of €1.4 million completed in July 2010.

**Business progress:** In its first year of operation InSphero won customer contracts with seven global pharmaceutical and cosmetic companies. Currently, a portfolio of six cancer microtissues is available off-the-shelf for customers developing new chemotherapeutic compounds. The technology is protected by three patent applications, one of which has been granted already.

**Summary:** InSphero develops and produces three-dimensional, biological microtissues, which resemble native tissue (like liver or heart muscle) in cellular structure and functionality. These microtissues permit more reliable assessments of new drugs already in the lab (in vitro) in terms of their efficacy and potential toxic side effects, resulting in potential savings on the significant development costs (time and money), that the pharmaceutical industry must currently endure, as well as reducing the number of

necessary animal tests. “The technology is low risk; the commercial success proven. The team is convincing,” concluded one selection committee member. “It’s a solid service based company. It’s impressive how quickly they have brought the product to market,” said another.

Because of their three-dimensional configuration, InSphero’s liver microtissues maintain their tissue-specific functionality over weeks, while standard liver cultures lose them already after days. This allows for the first time to emulate liver toxicity over weeks in vitro. “Shape is a critical determinant in this area. If you can make spheres instead of other shapes, it’s key,” a selection committee member pointed out. InSphero’s microtissue technology is the only one on the market that is compatible with laboratory standards (96-well plates) and produces scaffold-free microtissues.

The current state-of-the art tissue equivalents require an additional matrix (or “scaffold”), which re-aggregate the cell in 3D, but interfere with the compound testing. InSphero uses a unique patent-pending technology to form tissues in hanging drops, negating the need for scaffolds. A selection committee member noted: “This is novel three-dimensional cell culture technology with very natural tissue characteristics. Normally if you do tissue cultures, there are non-natural effects. InSphero’s cultures can be used in cancer research and in vitro testing for chemical study.”

**Nominee:** Jan De Backer, University of Antwerp

**Company:** FluidDA nv

**Founded:** November 2005

**Investment:** FluidDa will lead the computational fluid dynamics work package in the recently approved EC Framework programme project entitled Airprom, with a total budget of €12 million.

**Business progress:** The company's revenue has increased over the past four years by approximately 400 per cent with an average profit of around 25 per cent. FluidDA's clients include many large pharmaceutical companies such as GSK, Novartis, Chiesi, AstraZeneca and others. The company holds a number of granted and pending patents.

**Summary:** FluidDA's focus is on medical imaging – the company has developed a proprietary image analysis workflow, called “functional imaging”, using computer methods. The technology is designed to reduce the risks and costs associated with drug development, predominantly in the field of respiratory medicine, where costs are estimated at €1.2 billion per product. “It's a solid business model with revenues and strong business development,” said one selection committee member.

Functional imaging combines classical imaging modalities such as CT or MRI scans and advanced engineering methods like computational fluid dynamics. The imaging outcomes are more detailed than current alternatives and provide greater detail on the product under development at an earlier stage. A recent study by FluidDA

has shown that by using imaging outcome parameters, the number of patients required in clinical trials could potentially be reduced by 95 per cent, leading to a significant cost savings.

The company's technology targets development of drugs for asthma and chronic obstructive pulmonary disease (COPD). Asthma affects an estimated 300 million people today and COPD 210 million. FluidDA is the first entity to successfully combine classical imaging tools with advanced engineering in such a way that the method can be used in larger groups of patients and can be considered as a clinical outcome parameter, helping determine efficacy at an early stage and reducing the number of patients needed for clinical trial by a factor of 20. It has a series of patents granted and pending. “The IP is there – it is a service company with a very large potential market. It is already commercially successful,” said another selection committee member.

## CATEGORY: ICT

**Nominees:** Dr. Jonathan Bloor, Jonathon Shaw, SETSquared, Bristol University

**Company:** Doctor Communications Solutions Ltd (DocCom™)

**Founded:** 2007

**Investment:** Approximately £1 million of seed investment through Eden Ventures and a range of angel investors. Support equivalent to €25,000 has also been provided by Microsoft UK in recognition of the company winning the Microsoft BizSpark competition.

**Business progress:** DocCom has so far signed up 12 UK healthcare organisations representing 13,000 professionals, and its small but active sales team is acquiring new customers at a rate of one a month. Turnover is still under £1 million.

**Summary:** DocCom is an enterprise networking company for healthcare. The company's aim is to address a gaping hole in NHS internal communication that threatens patient care. DocCom Connect is a web-based system that enables healthcare organisations and their workers to communicate bilaterally and effectively.

The platform enables organisations to target critical information to relevant staff, triangulating text, email and online networking technology to deliver information by the most appropriate channel for individual users. It provides professionals with a virtual in-tray through which they can store information and network with both colleagues and users

of other DocCom networks. "Technically the solution is less novel than others, but the application domain clearly is novel – the interaction between physicians and patient. It is a practical solution to a key problem in health care – I think it looks very promising," said one selection committee member.

DocCom Locum is the first application to address NHS staff shortages using an enterprise networking platform, and DocCom Alerts is the first system to establish a direct communication link between the National Patient Safety Agency and healthcare professionals. The DocCom Locum application will save a typical NHS trust £500,000 a year in agency fees and administration costs. "Doctor Communications addresses an important issue and has collected a lot of money. They have a good perspective," noted one judge.

Another pointed out that the application goes way beyond basic social networking applied to hospitals. "It addresses a handover from one shift change to another using multi-level platform tools. It's not only about patient records. It's a lightweight communications infrastructure for healthcare professionals," the selection committee member said.

**Nominee:** Christian Voegeli, ETH Zurich  
**Company:** Dybuster AG  
**Founded:** February 2007

**Investment:** So far, Dybuster AG has raised investments of CHF1.6 million. For research projects with ETH Zurich, it obtained grants of a total of CHF800,000.

**Business progress:** The first product was launched in May 2007 with more than 4,500 copies sold to parents and therapists. In Switzerland alone, this generated revenues of almost CHF 1 million. The school licence, released in spring 2010, already has several thousand users, bringing the total amount of Dybuster users to 15,000.

**Summary:** Dybuster AG provides therapy software for learning disabilities and neurological deficits, uniquely combining computer science with neuropsychology. Using data processing and student modelling theories, the company mathematically models the learning process for sufferers of such disabilities, taking its lead from analysis of the latest findings in neuropsychological research and validating its results with user studies.

The Dybuster therapy software for dyslexia allows effective dyslexia therapy without professional assistance. The concept is independent of language and age. The software works on an interactive basis, whereby textual input from the user elicits an immediate visual or auditory response from the program, so that each symbol or sequence of symbols is associated with a colour, shape or musical melody. The current general status of dyslexia therapy is dominated by empirical, inefficient

and personnel-intensive methods. The software's USP thus is effective dyslexia therapy at low cost and high convenience. "This is a very strong candidate. They already make a good chunk of revenue. Ten per cent of society is affected by dyslexia. The application was well written," said one selection committee member.

Dybuster AG was spun out of ETH Zurich in 2007 by Christian Vögeli and Prof. Dr. Markus Gross. So far, Dybuster AG has raised investments of CHF1.6m. The technology is patented with one patent granted and one patent under review. The first product was launched in May 2007 with more than 4,500 copies sold to parents and therapists in Switzerland (total revenues of CHF1.0 million.)

A prototype of dyscalculia software is being constructed, and further application fields for our approach are old age dementia or recovery from strokes.

"Dybuster is a very nice story of science and education coming together to solve a big problem," concluded another ICT expert on the selection committee. "The technology has been patented and more than 4500 copies sold. School licences have produced 15,000 users already."

**Nominee:** Lars Brohne, Chalmers University of Technology, Sweden

**Company:** Time Critical Networks (TCN)

**Founded:** 2008

**Investment:** The company has so far secured SEK3 million in capital from venture capital, prize money and soft loans.

**Business progress:** TCN plan to launch the first product in 2011 – this will be the first product of its kind, giving TCN the opportunity to create a strong position in the exponentially growing industrial Ethernet market.

**Summary:** Time Critical Networks has developed a software tool based on a unique patent-pending technology enabling full determinism to standard Ethernet networks in latency, jitter and no packet drops. The company's technology enables industry for the first time to benefit from switched Ethernet networks without compromising data delivery reliability.

Determinism is the level of predictability in the network, in terms of successful delivery rates and punctuality. Industrial networks have much stricter data delivery and redundancy requirements compared with many traditional networks we are used to (e.g., a factory network going down for five seconds could force a reset of the whole plant and a halt in production for a couple of hours – this type of network is "critical"). These strict requirements for industrial networks necessitate the use of a completely different technology from the relatively unreliable Ethernet (the standard network in other fields) – the downsides of these alternatives include cost and

performance.

Noted one ICT expert on the selection committee: "Ethernet is widely used in normal business applications with existing protocols – but you can't make time guarantees about the network connections. Time Critical Networks has been addressing this market gap and developing modelling tools – with significant benefit for designing when networking."

"There is big business in reducing the cost of networking in an industrial setting," added another ICT judge. "It's one of those things where we see real cash savings. They don't have large overhead base."

## CATEGORY: CHEMISTRY/MATERIALS

**Nominee:** Prof. Vladimir Kolosnitsyn

**Company:** OXIS Energy Limited, Academy of Science Ufa in Bashkiristan, Russia and University of Southampton

**Founded:** Dec. 2005

**Investment:** OXIS has secured two important grants from the UK Technology Strategy Board and the Carbon Trust over the past year. The first revenue flows are expected in 2013, from a forecast shipment of 40,000 battery packs. The company should become EBIT positive in 2014. In 2010 OXIS doubled its workforce and will more than double again over the next two years.

**Business progress:** The plan from 2010 to 2012 is to move towards pre-production models of the battery systems. Currently, OXIS is engaged with 3 European electric two wheeled vehicle manufacturers, and two European automotive manufacturers. All are signatories to a non-disclosure agreement, so cannot at this stage be named. However, a public announcement is likely at the Geneva Motor Show in March 2011. We expect pre-production battery systems, powering electric vehicles using the new technology, to hit the European roads in Q4 2011.

**Summary:** OXIS Energy has developed breakthrough chemistry that will lay the foundation for the next generation of rechargeable Lithium batteries. The patented technology meets the high

safety requirements of the auto industry and provides power for long-distance driving. It is non-toxic, bio-degradeable and cheaper than existing Lithium-Ion battery technology.

OXIS Energy is commercializing a new generation of polymer lithium sulphur rechargeable battery technology that is safe to use in electrically powered automobiles. The new chemistry would provide the necessary gravimetric energy required to power vehicles in excess of 500 kilometres, and at the same time would be biodegradable, unlike current lead acid and Lithium-ion battery technology.

The technology will make a direct contribution to reducing pollution, both by precipitating a decrease in current consumption of petrol and diesel, as well as being non-toxic. The technology is unique in that it makes use of a method of making lithium metal safe, using sulphur as a fire retardant. No other company in the world has yet developed a safe lithium rechargeable battery that can withstand severe disruption (short circuit, thermal runaway) and not suffer catastrophic failure in energy performance.

The company was originally founded in 2000, but was re-structured and re-named OXIS Energy in 2005. It was at this time OXIS decided to focus on the development of next generation battery technology, based on Polymer Lithium Sulphur and technologies developed by Prof. Vladimir

Kolosnitsyn at the Academy of Science Ufa in Bashkiristan Russia.

OXIS is currently involved in commercialising new e-bike batteries on new bike technology, new EV battery technology using polymer lithium sulphur and in ensuring the general deployment of the new batteries into the international markets. The company has patents in its unique formulation of electrolyte and other materials.

“It’s a very interesting business with a potential target market of billions,” said an energy expert on the selection committee. “You can puncture the battery and it is still safe. The company has raised a lot of money so far but the technology development is capital intensive.”

“Batteries for electric vehicles are a real pain point in the market. OXIS addresses long-distance application – and one thing I really liked is the fact that the batteries are biodegradable.”

“It’s high in originality with nine families of patents so there is protection for their IP. They are getting market traction through partnerships with two electric auto companies and two electric bike companies and a Chinese manufacturer of dump trucks,” said another judge.

**Nominee:** Gisele Ostereng, Norwegian University of Science and Technology (NTNU)

**Company:** Dynamic Rock

**Founded:** October 2008

**Investment:** The company has so far received €2 million in seed investment.

**Business progress:** The company has 20 customers worldwide and expects to become profitable in 2011. At the time of the nomination, the first large orders were expected in November 2010, and revenues in 2013 were projected to be €15 million.

**Summary:** Underground mining has always involved pushing new boundaries by digging deeper and deeper, which increases the risk of rock falls and accidents. Dynamic Rock Support supply a revolutionising new kind of rock bolt for use in deep underground mines and tunnels globally. The product, the D-Bolt, increases safety in mines and increases the speed of operations, thereby increasing the revenues and profits of the mining companies, as well as the lifespan of the mines themselves.

“It is a bolt that has higher tensile strength and can withstand rockslides,” said one selection committee member. “We’ve seen problems recently in mines in Chile, China, New Zealand. As companies bore deeper and deeper – we are seeing a lot of cave-ins.”

The D-Bolt is a novel ductile rock bolt for efficient and reliable rock reinforcement in squeezing and burst-prone strata. It is applicable for all rock conditions, and dramatically increases the safety of miners. Installation tests were carried out in two Canadian mines. The tests show that D-Bolts can be installed as easy as rebar bolts on the mines’ bolters. The sole difference is that D-Bolts have to be SPUN into the hole.

A D-Bolt reinforces the rock in such a way:

The anchors are loaded when the rock dilates and then the smooth sections between the anchors become stretched. The load in the smooth sections increases quickly with a small increase in the rock dilation until the yield load is reached. After that, the sections elongate at a high load level until final failure. For a D-Bolt made of steel, its static ultimate elongation can be up to 20 per cent. The D-Bolt fully mobilises the strength and deformation capacities of the metal material.

The smooth sections of a D-Bolt independently provide reinforcement functions to the rock. Failure of one section would not affect the reinforcement function of other sections of the bolt. Therefore, the D-Bolt has a more reliable reinforcement effect than two-point anchored bolts. The D-Bolt is characterised by its large load-bearing and deformation capacities.

“Twenty customers have recognised the innovation and are testing the product,” said one selection committee member. “The company has raised two million euros to date – a reflection of the gravitas around what they are proposing and logic behind investment.”

**Nominees:** Dr. Carlos Ludlow, Prof. Howard Chase, University of Cambridge

**Company:** Enval Ltd

**Founded:** August 2005, commenced operations June 2006

**Investment:** Over £800,000 in private investment and £200,000 in grants

**Business progress:** Enval is currently optimising its first pilot plant, which has

a capacity of approximately one-third of a commercial plant. The plant produces clean aluminium from a variety of packaging laminate and is being used to demonstrate the effectiveness of the process. Strong interest by potential industrial customers has led to tests carried out under commercial contracts. Annual revenue in 2010 is expected to be around £200,000 from demonstrations and consultancy services.

**Summary:** Enval is focused on developing and commercialising waste recycling and environmental technologies which will provide financially attractive and environmentally beneficial alternatives to landfill. Currently there are no technologies in the world that can successfully recycle the materials that Enval is targeting. The company’s proprietary technology involves recycling laminated packaging waste, such as that used in toothpaste tubes, coffee packaging, or cosmetic product sachets, by recovering clean aluminium ready for resmelting and hydrocarbons suitable for energy generation or chemical feedstock.

“Enval is a broad brush recycling company with an innovative method of breaking down materials for recycling. It targets laminated materials such as toothpaste tubes – they have an approach for recycling that. There is real social impact here,” said a selection committee member. “They’ve got partnerships in place and have raised 1 million pounds.”

Using Enval’s technology, 100 per cent of the aluminium from plastic/aluminium laminate waste can be extracted and the plastic converted into useable oils and

gases. The process is based on a process called microwave induced pyrolysis which allows the waste to be treated in the absence of oxygen. As opposed to incineration, pyrolysis takes place without the combustion of the material (in this case the waste) avoiding the production of greenhouse gases or toxic emissions. Furthermore, since the Enval process uses microwave energy as the source of heat, by using renewable or green electricity, the process is potentially carbon neutral.

The company has an exclusive worldwide licence for this technology, and a patent has been filed and granted in a number of territories. “Enval solves a significant societal problem and has overcome investment challenges,” said a judge.

## CATEGORY: GE SMART GRID AWARD



**Nominee:** Prof. Yoram Valent, Bar Ilan University

**Founded:** 2009

**Investment:** GridON is now working with Wilson Transformer Company, a shareholder and partner, on making this exciting technology available for utilities around the world.

**Business progress:** GridON is projecting sales of over 2,000 FCL systems during the coming ten years. This represents around 10 per cent of the total market potential for FCL installations in distribution and transmission grids, and in power generation plants. With a list price range between \$500,000 and \$2,000,000 per FCL system, the business potential for GridON can reach total revenues of over 2 billion dollars over the next ten years.

**Summary:** Short circuit current levels are constantly rising as electrical networks expand to address increasing energy demand and the connectivity of distributed power generation and intermittent energy sources. These may result in power disruptions, equipment damage and major outages, which have been estimated to cost billions of dollars a year. To date fault current limiting solutions are bulky and expensive with a yet-to-be proven value proposition to the network operator.

GridON introduced an innovative Fault Current Limiter (FCL) that offers unmatched control of fault currents on distribution and transmission grids. The FCL's competitive advantage lies in its unique design which achieves effective current limiting, and the fact that it is more compact, simpler and less expensive to manufacture, while offering superior performance. It is a fail-safe, highly reliable current limiting device that does not entail reactive losses and voltage drops, offering the most cost-effective commercial solution for mid-to-high voltage networks.

Selection committee members noted two strengths: "GridON's technology for fault current management is important because when you operate close to capacity, intermittent flows shut down the system and you have to reset the relay. GridON's product sits in the system and when there is a fault current, it throws up massive resistance. What's impressive is that it can handle massive fault loads. There is a significant market for these technologies."

**Nominee:** Alberto Cavicchiolo, University of Milan

**Company:** Umpi R&D

**Founded:** 2006

**Investment:** Umpi R&D does research and development in products and technical solutions in fields such as information and technology, energy, environment, automation and telecommunications.

**Business progress:** the Minos Box has produced sales of over \$2 million in the last twelve months.

**Summary:** Good management of public lighting has important implications for city administrations in terms of both image and economic return. Until now, adequate planning and control tools have been difficult to find. The Minos Box can operate on each power system's box and each streetlight across town, at any distance, using any computer connected to the Internet and the existing public lightings power lines as channels of communication.

With the adoption of Minos System, with its astronomical clock matched and twilight sensor, it is possible to make maximum use of the residual brightness at dusk and the early brightness at dawn. This helps save about an hour of energy per day, the equivalent of 10 per cent of the total hours of operation. The system can also precisely identify failures in each lamp's cooler. This avoids any additional charge in electricity bills due to faulty power factor correction of lamps.

Furthermore, real-time information about the state of order of each component of the system enables maximum utilisation throughout their working life, targeted and timely interventions and documented monitoring of the effectiveness of substitutions. So it allows cost reductions for technical staff, supplies and spares, vehicles and equipment, activation of installations and identification of faults. "This system offers a simple and elegant solution for saving energy right now," said

one selection committee member.

**Nominee:** Dr. Ing. Philipp Schramek  
**Company:** Solar Tower Systems Gmbh, Technische Universität München and University of Sydney  
**Founded:** 2009

**Investment:** Solar Tower Systems (STS) is currently financed by private investors. The next financing round of €2 million is about to begin and co-investors for 50% of this sum already have been secured.

**Business Progress:** STS has designed a heliostat field for the Gemasolar solar tower plant currently under construction in Andalusia, Spain, by the consortium Torresol Energy which would be 40% smaller than the original heliostat field. The company has filed patents to protect its intellectual property and signed industry partnership agreements with worldwide industry players for production of heliostats. Solar Tower Systems has closed a contract for a heliostat field delivery in Saudi Arabia and is about to sign other contracts for solar tower plant customers in the USA and Greece.

**Summary:** Solar Tower Systems researches and develops system components for concentrated solar tower plants (CSP). It was launched around the vision of co-founder and Chief Technology Officer Philipp Schramek, to improve the economics of solar tower power plants. The company's technology improves the optical efficiency of heliostats fields – the largest component in the cost structure. The key focus of the company is the optimization of heliostat fields through architecture and suitable

heliostats.

The global market for concentrated solar power is forecast to grow to between €18 billion and €20 billion by 2015. The company estimates CSP tower technology, which is more efficient than trough technology, will represent 60% of that huge potential market. “Solar towers collect sunlight, direct it onto a lens and use it to generate heat and electricity,” explained one selection committee member. “The nature of this invention is a heliostat or mirroring device which reduces the footprint of the reflected field by 40%. It may be a very young company, but it’s interesting. The capital costs for solar towers should come down – as this technology delivers the same amount of power out with a smaller footprint.”

A German consortium has launched a major industrial initiative which could accelerate the development of the market for concentrated solar power. The shareholders of the DESERTEC Foundation industrial initiative including ABB, RWE, MAN Solar Millennium, Deutsche Bank, E.ON, Munich Re and Siemens, aim to invest €400 billion over several decades to build and operate concentrated solar plants in the deserts of Middle East and North Africa and a high-voltage smart grid to transmit the power efficiently. The consortium’s goal is to tap concentrated solar power to cover a substantial part of the energy needs of the Middle East and North Africa as well as 15% of the EU electric energy supply by 2050.

## CATEGORY: THE FAST START

**Nominee:** Samuel Mueller, ETH Zurich

**Company:** Mirasense AG

**Founded:** November 2009

**Investment:** Mirasense has won the following entrepreneurship competitions: Venture Kick I (CHF 10K), Venture Kick II (CHF 20K), Venture Kick III (CHF 100K), Volkswirtschaftsstiftung (CHF 100K), Venture Leaders 2010 and US Market Entry Camp 2010/2011.

**Business progress:** The company started licensing the technology to major companies in summer 2010, thereby starting to generate first significant cash flows after less than a year. October 2010 marked the next big milestone: the successful launch of the Scandit application in the US consumer market.

**Summary:** Mirasense develops and markets technology and mobile applications for interacting with everyday products. The company has developed and marketed Scandit – a barcode-based social shopping application for iPhones and Android smartphones to shop, share and compare products right at the point of sale. With its next-generation barcode scanner, seamless social network integration and comprehensive product data, Scandit lets consumers easily scan product barcodes, compare prices, read reviews and solicit feedback from their friends.

“This company is a lot of fun,” said one selection committee member. “It’s a mobile

barcode scan application for Android. If combined with social features it means you can scan the bar code, get a review of product and comments on it. This kind of application could develop a large customer base as iPhone use grows.”

Mirasense has significantly improved the core barcode scanning technology and made it available to additional mobile platforms. Scandit not only scans faster and more accurately than competing technologies, it also successfully scans barcodes that are sideways, upside-down, curved, and even those that are scratched or blurry. This technical advantage – along with social shopping features and extensive product data – sets Scandit apart from similar mobile applications.

**Nominee:** Tim Hart, University of Oxford

**Company:** Zyoxel Ltd

**Founded:** 2009

**Investment:** Zyoxel has secured £1.1m in seed investment and is now looking to raise £2 million at a higher valuation. The company has also secured 4 grants to date, bringing in over £90,000 over the past 12 months and has 5 other grants pending. The company has started to procure small sales (£10,000) with big pharma companies.

**Business progress:** The company currently holds one granted European patent on the technology, with three further global applications pending. It has a growing order book and forecasts sustainability in three

years.

**Summary:** On average, 46 per cent of drugs in the clinic fail due to toxicity and efficacy issues. Zyoxel is providing technology to enable routine human tissue-based testing much earlier in the drug discovery and development process. The aim is to help reduce drug attrition rates later in development.

Zyoxel's primary business is to develop and supply human tissue culture and testing technology. The technology is primarily for small-scale preclinical in vitro drug safety and efficacy testing. The key unique part of the technology is the "microbioreactor", which is manufactured from a specific polymer that gives a range of functional advantages over current alternatives. This makes the reactors particularly suitable for routine, small-scale 3D perfused human cell culture.

Zyoxel Ltd was founded in mid 2009, based on technology that was in development within the University of Oxford for more than seven years prior to that date. "Zyoxel has developed a unique microbioreactor and it already has sales," said one selection committee member.

**Nominee:** Christoph Gebald, ETH Zurich

**Company:** Climeworks LLC

**Founded:** November 2009

**Investment:** The company has received CHF130,000 through winning the three rounds of the Swiss initiative Venture Kick. Further funding has been granted by Gebert-Ruf-Stiftung for a joint two-year product development between

Climeworks, ETH Zurich and Empa (Swiss Federal Laboratories for Materials, Science, and Technology).

**Business progress:** The composition and structure of the sorbent material, as well as a novel characteristic of the process, have been filed as an ETH patent. In a market study, about a quarter of the suitable Swiss greenhouse establishments have been visited by Climeworks and about half of them were seriously interested in installing Climeworks' CO<sub>2</sub> capture technology at their premises (potential sales volume of around CHF1 million annually).

**Summary:** Climeworks is in the process of commercialising a patent-pending, highly efficient technology for CO<sub>2</sub> capture from ambient air that has been developed at ETH Zurich. In its first phase, Climeworks' technology will be used to serve niche markets for technical CO<sub>2</sub>, like greenhouse fertilisation and waste water treatment. In the medium to long term the technology will help to exploit the supply of atmospheric CO<sub>2</sub> as a feedstock for liquid fuel synthesis to increase energy security and enable a carbon-neutral fuel supply for the transportation sector, most notably for long-haul transportation.

"Climeworks has an interesting technology that removes CO<sub>2</sub> emissions from air and uses it to produce synthetic fuel for transportation," said one selection committee member. "It has a system to capture pure CO<sub>2</sub> – and uses it in wastewater treatment."

In principle, capturing CO<sub>2</sub> from ambient air has been technically possible for many

decades – through existing systems at least 2 million cubic metres of air have to be streamed through any filtering system in order to capture one tonne of CO<sub>2</sub> from air. Climeworks' technology is characterised by its significantly lower energy consumption compared to conventional technologies and the fact that it uses very cheap low-grade heat as energy input, as opposed to expensive electricity or high-temperature heat.

## CATEGORY: THE BRIDGE AWARD

The Bridge Award is for an individual who has done the most to promote policies for entrepreneurship in university or public research institutions. The judges' decisions will take into account the creativity shown in encouraging collaboration and entrepreneurship, and the success of those policies in economic, social and scientific terms. (See judging notes at the end of this booklet for more information.)

The Selection Committee said the three shortlisted individuals have all been extremely successful in bridging the gap between academia and industry. They have been inspirational in putting plans together, making them relevant to industry and getting technology transfer working.

**Nominee:** Teri Willey,

**Organisation:** Cambridge Enterprise, UK

**Summary:** Teri joined Cambridge Enterprise, the University of Cambridge's commercialisation group, as Chief Executive in 2006. Prior to joining CE, Teri was a Managing Partner of ARCH Development Partners (ADP), a seed and early-stage venture fund focused on university and corporate spin-outs. Teri, a founder of ADP, was part of the Boards of Directors and Advisory Boards.

She is Notre Dame Business School Adjunct Professor and continues as an Advisor to ADP. Teri's experience includes technology transfer roles at Northwestern University, Purdue University and in industry.

Cambridge Enterprise, under Teri's leadership, has had income from knowledge and technology transfer exceeding £27 million, of which £22 million represents distributions to academics, departments and the University. Teri was instrumental

in the establishment of the University of Cambridge Discovery Fund, one of three evergreen seed funds managed by Cambridge Enterprise. The Discovery Fund provides pre-licence, pre-seed and seed funding to new Cambridge University ventures. The fund also bridges the funding chasm that lies between research and commercial development, launching a company that can attract smart management and follow-on investment.

Teri sits on key Cambridge University committees related to enterprise and research policy, has been an advisor to policy makers, universities and companies and is a past President of the Association of University Technology Managers (AUTM).

**Nominee:** Kristo Ovaska

**Organisation:** Aalto University, Venture Garage, Finland

**Summary:** Kristo Ovaska co-founded the Aalto Entrepreneurship Society (AES) in 2008, and became its first chairman.

This student society attracted over 5,000 members in a very short time and has created a dynamic entrepreneurial hub for Helsinki and Finland which did not exist prior to Kristo's initiative. The society organises events, pitching evenings, exhibitions, networking workshops and opportunities for students to meet experienced serial entrepreneurs.

In 2009, Kristo led a group of students who launched a second entrepreneurship initiative in 2009 by seeking the funding for and co-founding Aalto Venture Garage (AVG). The Venture Garage is a 1,000 square metre operational environment, partly supported by Aalto University, for entrepreneurial student or researcher teams to develop their business ideas and prototypes. In 2008, the AVG launched a Boot Camp programme that has now been completed several times. Thanks to Kristo's ideas and efforts, the Venture Garage has also managed to build strong international relations, and ties to some of the world's leading innovation hotspots, including Silicon Valley and Boston.

50 start-ups have been launched from AVG and there are several very promising companies which have been created and nurtured at the Venture Garage, and received seed or venture financing, including Powerkiss, Audiodraft, Jalo Helsinki, Hookie Technologies, and Dentaube.

"Kristo is a totally different type of candidate who started a fantastic new activity promoting entrepreneurship among students on campus," said one selection committee member. "I was driven to find someone doing something unusual

and recognise a different component of this space. My choice was Kristo Ovaska, because student-driven entrepreneurial activity is really important to bring to the fore. "

**Nominee:** Allyson Reed

**Organisation:** Technology Strategy Board, UK

**Summary:** Since 1997, Allyson has helped grow entrepreneurial businesses from public sector research and promoted networking and collaboration between research and business. Allyson has made contributions as the first Commercial Director at the UK national labs (currently STFC), commercialising research and promoting business collaboration. She is still currently a member of STFC's industrial economic impact advisory board and an innovation director at QinetiQ. Allyson is also founding Director of Strategy at the Technology Strategy Board, the UK's innovation agency, which she was invited to join at its inception in 2007 as a public body with a role to accelerate business innovation. "Allyson has provided strong focus on research and industry – very wide range of influence," said one selection committee member.

In 2002, Allyson helped found the Rainbow Seed Fund, the first early-stage public fund for public sector research, now giving access to more than £1 billion for annual research. £5 million was invested in 22 spin-out companies which have attracted £77 million in co-investment. The Technology Strategy Board has more than £1 billion in programmes with over 4,000 businesses, large and small. An

innovation at a successful flagship event, [www.Innovate10.co.uk](http://www.Innovate10.co.uk), with more than 2000 delegates registered, was the launch pad competition for entrepreneurs with disruptive solutions, enabling 12 SME finalists to pitch live for £600,000.

Allyson plays an active role in innovation, mentoring at university entrepreneur “boot camps”, on university boards, advising spin outs, investment groups and government bodies such as health innovation boards and championing entrepreneurial networks, nationally and internationally.

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- Ederyn Williams, Director of Warwick Ventures, University of Warwick
- Peter Zaboji, Head of the European Entrepreneurship Foundation

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## HOW THE JUDGING WORKS

### What are the judging criteria?

The awards will be made to the winners who, in the opinion of the judges, have created the most successful spin-out company. The judges when reaching their decisions will take into account the novelty of the research, the risks involved, clear evidence of commercial success (including, but not limited to, revenues, asset or company sales and IP generated), and potential impact on society.

Nominations are for individuals, rather than their companies or organisations; self-nomination is permitted. For the four sectoral awards, the spin-out company must have commenced operations on or after 1 November 2004.

The criteria are slightly different for the final two categories, The Fast Start and The Bridge Award.

**The Fast Start** is for individuals who have created a promising but as-yet unproven spin-out based on ideas developed at universities and public research institutes in Europe. The company must have commenced operations no earlier than 1 June 2009. The sole advertised criterion for judgment:

The awards will be made to the winner or winners who, in the opinion of the judges, have created the spin-out company with the greatest potential for commercial success and impact on society.

**The Bridge Award** is for an individual who has done the most to promote policies for entrepreneurship in the university or public research institutions. It must be related, at least in part, to activity undertaken during the five years ending 31 July 2010. Here are the published standards:

#### *Judging criteria*

The judges' decisions will take into account the creativity shown in encouraging collaboration and entrepreneurship, and the success of those policies in economic, social and scientific terms.

#### *Eligibility and nomination*

Nominated individuals must have encouraged entrepreneurship in one or more university or public research institution (i.e., not a company laboratory) within one or more of the countries part of or associated with the European Union's Framework Programmes.

Nominations may be made for only one individual – no teams.

Nominated individuals must be based in a country associated with the European Union's Framework Programmes, but may work in any setting, for example, but not limited to, university technology transfer office, regional development agency, public elected body such as national or European parliaments, government agency and commercial company.

### **What do the winners get?**

Publicity, recognition of peers, a free trip to Zurich, an opportunity to do an "elevator pitch" at the ACES conference on 3 February, and inclusion in the Science | Business Innovation Connection, an online database of nominees and other investment opportunities which (with their consent) may be viewed by sponsors and invited investors.



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