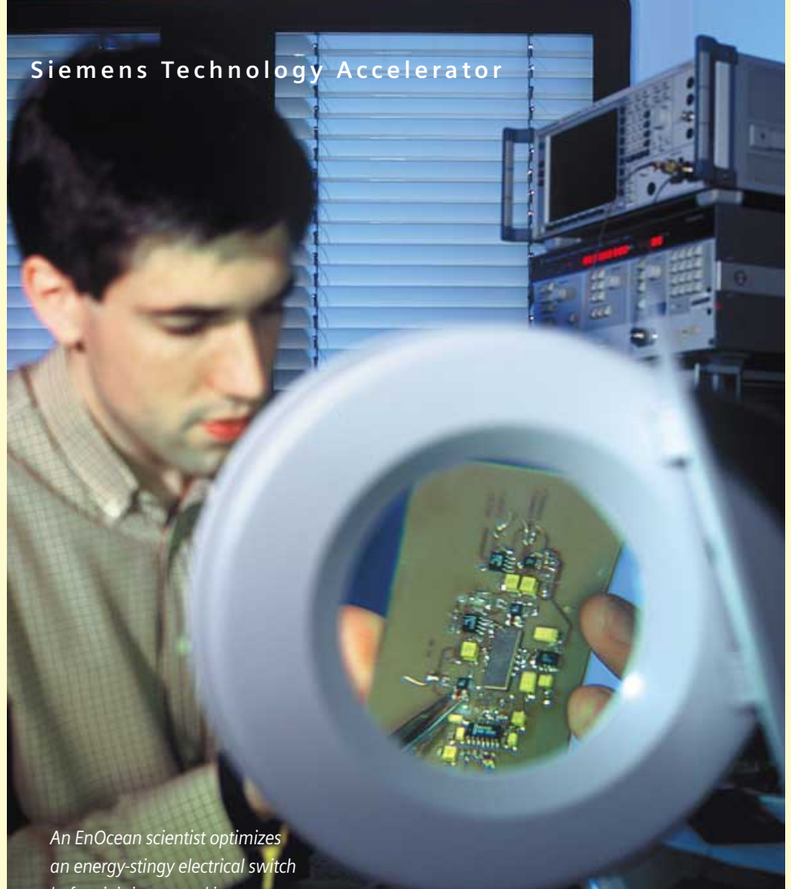
An Ocean Full of Energy

The aim of Siemens Technology Accelerator (STA) is to bring good ideas to market-readiness. One of the first companies to be funded by STA is EnOcean GmbH, which was set up by former Siemens employees who came up with a remarkable idea: a radio sensor that does not need any power supply.



An EnOcean scientist optimizes an energy-stingy electrical switch before it is integrated into a surface-mounted wall switch (below). The switches are so flat that they can even be pasted to a glass surface.

"Our goal is to rapidly convert innovative business ideas from Siemens Corporate Technology, the Siemens Groups and the world outside into business successes," says Dr. Thomas Lackner, Chief Executive Officer of STA, a technology-to-business accelerator established in Munich, Germany, in February 2001. "We go through a seed phase lasting six to 12 months to bring technologies to a point where they become interesting to investors, who are then willing to provide venture capital."

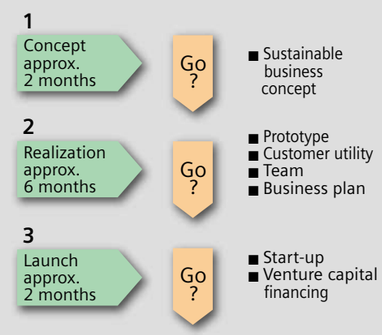
STA is able to fund about eight ideas or new businesses annually to the tune of about 200,000 euros each. However, the "accelerator" provides much more than financial support. Its expert team, currently consisting of six people, helps new companies create sustainable business concepts, develop prototypes, locate customers and obtain venture capital. The start-ups are also given access to Siemens' internal and external networks, which enables them to establish a range of business contacts. In exchange, STA receives shares in the new companies. "The basic idea is to subsequently sell these shares at a profit when the time is right," explains Lackner. "Ideally, these start-ups will be launched on the stock market, allowing us to sell our shares as stock packages. Alternatively, another company might decide to purchase the start-up, including our shares." So far, over 250 ideas have been submitted to STA, of which five have been accepted into the portfolio — four from internal sources and one external project. One of the first of these ideas led to the establishment of EnOcean GmbH in October 2001. The company develops and sells radio sensors that require no batteries. STA was able to locate external investors for the company in only a few weeks. "During the first financing round, Munich venture capital company Wellington Partners and Düsseldorf-based Enjoy Venture invested in EnOcean GmbH, together providing a total of 5 million euros," Lackner reports.

The founders of EnOcean developed their battery-less radio technology over the last five years at Siemens. The technology, which was transferred to the company upon maturity, is protected by 15 patents worldwide. "We benefitted from Siemens Automation and Drives, which made its expertise in building management technology available," says Markus Brehler, managing partner of EnOcean. "This was a major contribution to the success of the company, and illustrates the strength of the Siemens network."

The company's name is related to the invention of its battery-less radio technology. "EnOcean is an acronym for 'energy' and 'ocean'," Brehler explains. "What we mean by this is that we are virtually swimming in an ocean full of energy and we should be learning how to use it intelligently." EnOcean's idea is to use energy that is already present. It is slightly reminiscent of Münchhausen's trick of extricating himself from quicksand by grabbing his own hair. "Our miniature radio module can transmit data over a distance of up to 300 meters without the need for any type of power supply," says Brehler. "That's because the power for the operation of the sensor and the transmission of the message is generated by the action itself. With a wireless light switch, for example, enough energy for the radio transmission is generated by the force of pressing the switch." The mechanical energy inherent in pressing a switch is converted into electrical voltages by means of piezo-electric energy converters. This in turn activates extremely energy-saving circuitry, which sends a coded radio message to a receiver. The latter, which can be located in the base of a lamp or embedded in a wall, then turns the light on or off.

The wireless light switch is scheduled for market launch at the end of 2002. EnOcean anticipates sales of 100,000 transmitters and receivers each in 2003. Since the usual cabling is not necessary and the switch can thus be situated anywhere, Brehler sees "a huge market potential wherever there's an application requiring a great many switches and sensors. In addition to building management and automotive applications, we're also interested in industrial automation and medical technology," he says. EnOcean plans to introduce a range of products to the market in the next few years. In 2003, for example, the company plans to launch battery-less radio sensor modules for thermal and position sensors in industrial automation, as well as a battery-less radio key for automobiles in 2004 and, in 2005, battery-less tire sensors that will continually monitor air pressure and temperature while a vehicle is moving.

From Idea to Business Success



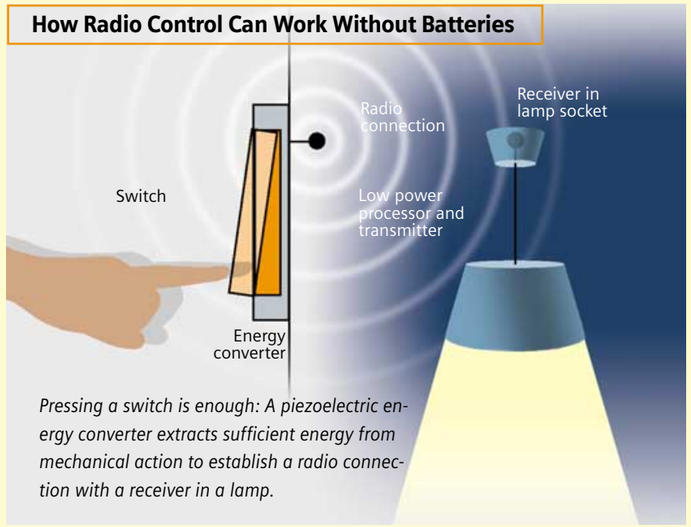
STA offers professional support in all three of the major steps required to get new companies off the ground.

"Dr. Lackner and his team at STA provided optimal support to EnOcean during the start-up phase," says Brehler. "We can now build upon a solid business foundation and thus ensure the long-term success of our company."

Ulrike Zechbauer

For further information: www.sta.siemens.com and www.enocean.de

How Radio Control Can Work Without Batteries



Pressing a switch is enough: A piezoelectric energy converter extracts sufficient energy from mechanical action to establish a radio connection with a receiver in a lamp.