



## **Greece frames future in technology cluster**

Hellenic-SIA leads industry initiative

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ATHENS, Greece — Determined to secure a competitive regional position in an increasingly global European electronics market, Greece has launched a national technology initiative focused on semiconductors, microelectronics and embedded systems.

The [Hellenic Technology Cluster Initiative](#) (HTCI), the first of its kind for Greece, was initiated and inspired by the collective vision and bottom-up efforts of a core group of private companies comprising Greece's leading semiconductor industry entrepreneurs, fables design houses, research institutes and university microelectronics labs.

The initiative has just entered its pilot phase. It has received −9.5 million (about \$12 million), for two years, with −3.75million (about \$4.9 million) from the Ministry of Development's funds, −2.75 million (about \$3.5 million) from the European Union's 3rd Community Support Framework (regional development funds) and −3 million (\$3.75 million) in private matching funds from companies participating in the cluster.

Greece's electronics industry cluster has support from the nation's top engineering schools and the graduate EE departments at [National Technical University of Athens](#) and [Patras University](#). The vision and concept for HTCI was nurtured and enabled by top policy officials in the Ministry of Development and by one of Greece's most respected and influential electrical engineering professors.

HTCI's goal is to foster the growth of new and existing technology companies and support centers of excellence in world-class R&D and product development, and ultimately to help transform Greece into an attraction for foreign investors.

HTCI is currently setting up an incubator and cluster center for start-ups and ongoing semiconductor and microelectronic businesses in a renovated office complex in the municipality in Maroussi, on the outskirts of Athens near the new Athens International Airport [see [Silicon Valley blossoms in Athens](#)].

Significant reforms are also underway in the country's university and R&D systems that are intended to spur innovation and encourage academic/business partnerships, following

the Silicon Valley/Stanford University model. [See [Greece's Ministry of Development seeks to unlock potential of nation's 'human capital'](#)].

The semiconductor and microelectronics cluster initiative coincides with concerted government efforts to foster closer partnerships between the private and public sectors. [See [Greece updates legal framework for technology innovation, research.](#)]

While global companies like [Atmel](#), [Photronics](#), [Broadcom](#) , and others have a major presence in Greece, local entrepreneurs have established a robust technology network and a viable semiconductor and electronics industry "ecosystem" based on the fabless semiconductor/design house model.

Through this ecosystem and new public-private development and R&D partnerships HTCI hopes to fuel national growth and technology innovation through a more Silicon Valley-like approach that puts a greater reliance on home-grown development and venture capital-backed entrepreneurship.

In April 2005 Greece's Minister of Development, Dimitrios Sioufas, spurred by private concerns, started to push forward a framework to take advantage of what was termed "local competitive characteristics" and to establish a framework of targeted clusters focusing on "a few technology market areas in exports-oriented segments that can yield world-class marketable results."

The result, with help from Greece's growing semiconductor sector, is the Hellenic Technology Cluster Initiative. The industry cluster will support the pilot initiative primarily by providing infrastructure and services, including operations involved in innovative activities, for 2006 to 2008.

The goal is to "create an example and show that it can be done" while replicating "the good practices and avoiding bad ones into the other identified sectors in the future," said cluster champion and HTCI unit director Vassilios Makios.

While Athens is the base for the cluster, the initiative is "national in scope," said Makios, who is also vice president of [Research Center "Athena"](#) and a professor in the Department of Electrical and Computer Engineering at [Patras University](#) .

The initiative is hosted by the [Research Center "Athena"](#) and is the first such effort backed by an industry group and supported by an industry association—the [Hellenic Semiconductor Industry Association](#)—whose principal members range from small startups to subsidiaries of multinational public companies.

These include the likes of Atmel Hellas and Photronics Hellas; among them are privately funded ventures and corporate-backed companies with international presence like [Bytemobile Inc.](#), [Helic SA](#), [Theta Microelectronics SA](#) , [Theon Sensors SA](#) and [InAccess Networks SA](#).

HSIA president, and general manager of Athens-based Theta SA, Theodore Varelas called HTCI "the right tool at the right time."

"We anticipate that HTCI will play a catalytic role in the cooperation of the private sector along with the public sector in a targeted effort to expand the existing semiconductor ecosystem in the region."

We also anticipate that the HTCI framework will set an example for commitment and rapid deployment of actions to support the establishment of R&D center of large corporations in the region, support of small and medium size enterprises and encourage the creation of spin-offs out of local research institutes," Varelas said.

Cluster proponents see a highly promising export orientation for the semiconductor sector, with established commercial links and proven business endeavors in Europe, the United States, Japan, Taiwan, and Mediterranean countries.

[Industry clusters](#) and the clustering concept has been used to great effect by industries around the world to build and nurture networks of people and companies with technical, design, financial, legal and entrepreneurial expertise to pursue a wide range of high technology opportunities.

According to Makios, "recent successful investments in Hellenic business sectors indicate that leading investors are interested to venture into an emerging and highly-rewarding market.

"We believe we have a high caliber of 'human capital' in Greece, especially in the semiconductor sector, with established commercial links and proven business endeavors around the world.

The goal is to "develop regionally and compete globally," Makios said, enumerating a series of coordinated objectives focused on "the need to locate and bring together the current Greek players; the need to formalize partnerships and strengthen collaborations and to build business partnerships and collaborations that will contribute to HTCI growth, especially in areas of: technology and know-how transfer; investment; human capital development; joint ventures in promotion and dissemination, and R&D partnerships."

Israel is Greece's nearest high-tech neighbor, and according to Makios, both countries are interested in a cooperative, regional development approach.

"Bulgaria and Romania are a hot bed of activity" he noted, adding "Greece and Israel are going to develop the Balkans together."

Venture Capital firms active in the region include [First Elements](#), based in Nicosia, Cypress, and DFJ Faros, a Draper Fisher Jurvetson Affiliate, and [Attica Ventures](#), both based in Athens. Recently private equity management firm Global Finance raised about

\$360 million to back management teams seeking to expand in S.E. Europe (See [VC firm aims \\$360 million at southeast Europe](#))

Jorge A. Sanchez Papaspiliou, HTCI director for strategic planning and business development, acknowledged "the key role that Vassilios Makios--a highly influential engineer, educator, mentor to several generations of Greek electrical engineers, innovators and entrepreneurs in Athens, Patras, Thessaloniki and throughout the global Greek diaspora—played in getting HTCI off the ground."

"We had to bring a lot of new ideas to the government and we suggested a lot of changes in the research, innovation and regulatory framework. It was a very bottom-up approach," he noted.

"But when we met with Sioufas, and [Ioannis] Tsoukalas [the secretary general for research and technology] and [Spyridon] Efsthopoulos [the MOD's special secretary for competitiveness] "they got it right away," Makios said.

The new innovation-nurturing HTCI cluster model for Greece is based on "what happened at Stanford and in Ottawa," Makios said, adding "I was there," a reference to his years spent away from Greece in his early career. Makios was a professor in the department of electronics at Carleton University and the University of Ottawa in Canada's capital where he was also involved in research in microwave and optical communications, radar technology, remote sensing and CO2 laser development. He later became director of the electromagnetics laboratory in the electrical engineering department of the University of Patras in Greece.

In interviews with Makios and the Ministry's Ioannis Tsoukalas, also a distinguished professor in numerous fields in solid-state physics and high-technology materials, both men made historical and contemporary references to the founding of Stanford University and its role in the founding of Silicon Valley. Indeed, Makios calls to mind the image of Stanford's legendary electrical engineering professor [Fred Terman](#) , historically acknowledged to be "the founder of Silicon Valley."

Greece's newest clustering initiative is bucking a trend of technological stagnation and decline, owing, some say, to a lack of vision on the part of Greece's political leaders and a development policy that has tended to support the tourism and energy industries, at the expense of other promising sectors, like IT.

"Greece has not been outward looking, and when it's tried these things (promoting technology innovation) in the past they have been run by the public, government sector, not the private sector," Makis Magdalinos, investment manager at ELKE, the [Hellenic Center for Investment](#) in Athens, noted, expressing a somewhat skeptical outlook common to many observers within Greece.

Magdalinos asserted that despite strong assets in 'human capital' Greece has not reached its business and technology potential in the EU , although he is optimistic that it will.

In the case of HTCI, "it's a matter of private industry creating public policy and they've had to convince the public to invest." Magdalinos observed.

Having said that, Magdalinos said "it's a new game," and he believes HTCI may be one of the "noticeable exceptions" to past experiences, but "to succeed they (HTCI) will have to reach critical mass quickly," Magdalinos suggested.

Semiconductor industry leaders outside of Greece share the local industry's optimism.

One of these is George Scalise, president of the U.S. [Semiconductor Industry Association](#).

"Great universities with outstanding engineering programs are the common denominator of successful microelectronics industries throughout the world. With its rich history of excellence in higher education, Greece has in place the foundation for a viable, competitive semiconductor industry.

"With talented engineers and a fabless business model utilizing the wafer fabrication capacity available in Asia, I expect the Hellenic semiconductor industry will make rapid progress," Scalise predicted, adding "in the microelectronics industry, a healthy supporting infrastructure is essential for success. The technology cluster initiative is an important first step toward creating that infrastructure."

Carlo Bozotti, President of the [European Semiconductor Industry Association](#) and President and CEO STMicroelectronics noted "semiconductors are enablers of a broad range of consumer and industrial products and technologies. From the days of Plato and Socrates, Greece has a long tradition of contributing its intellect to civilization.

Today, as Greece begins its move toward semiconductor industry competitiveness by focusing its brightest minds on the further development of semiconductor technology, the global industry and consumers will certainly benefit.

"Greece's nascent Hellenic Semiconductor Industry Association has been welcomed into the European Semiconductor Industry Association and the ESIA is looking forward to helping them develop and watching them grow," Bozotti added.

The HTCI program is taking a phased approach. Phase 0, the preparatory study, ran from October 2005 to April 2006; Phase 1, (the current) pilot/test case, started in May 2006 and is to end in 2008; and Phase 2, full-scale/sustainable deployment, will run from 2008 to 2023. The Phase 0 study also identified culture technologies, renewable energy sources, and biotechnology and pharmaceuticals as potential cluster opportunities.