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Taiwan is the second-most innovative economy in Asia, next to Singapore, and ranked 13th among 131 countries globally, according to the 2009-2010 Innovation for Development Index Report released by the European Business School. Taiwan did best in the R&D category with the first position worldwide in “patents and trademarks” and No. 4 in R&D infrastructure. In terms of human capital, training & social inclusion, Taiwan was ranked 6th in “education”, 5th in usage of ICT such as “telephone communication” and 16th in “internet, computers and TV.” It ranked 29th in “social inclusion and equity policies” and did poorly in the Regulatory & legal framework, where “doing business” it came in at No. 39; while the scores of “country policy assessment (47th)”, and “good governance (31st)” under the category of Institutional environment were also low. It lagged behind in the “rule of law” factor and the “corruption perception” index. Other areas in which Taiwan needs to catch up include budget and finance management, public administration and the density of medical workers, according to the report. “In less than half a century Taiwan has transformed itself from a simple agricultural society in the earliest stage of development into a global technology powerhouse, a world leader in the production of ICT equipment with a supporting infrastructure of science parks and public-private research institutions and think tanks that have played a critical role in turning Taiwan into one of the most prolific innovators in the world, the report’s editor, Augusto Lopez-Claros, formerly a chief economist and director of the World Economic Forums’ Global Competitiveness Program, said in a statement. He attributed Taiwan’s success to two factors: doing many of the good thing that have also been critical to high growth elsewhere in the world – including taking full advantage of the benefits of international trade and investment and acquiring new technologies – and avoiding the errors that have been such a drag on development in many other countries. Taiwan’s challenges in the coming years will be to find creative ways to cooperate with China – an emerging technology power in her own right, with a much lower cost structure – and to move closer to the best performers in the innovative capacity index, Lopez-Claros said.

Highlights of major news from the scientific world in Taiwan in December 2009:

NTUT developed a “wire-free recharging desk” – IOT and NCTU jointly developed traffic surveillance devices – scientist uses rice husks for battery research – phase 1 clinical trial for HBV/HCV drug candidate – NARL developed a new 16-nanometer static random access memory device – Hsinchu Science Park focuses on green energy and biomedical tech development – ITRI introduces world’s first USB3.0 memory card – ITRI kicks off operation of cloud computing research center – Taiwan ranks 3rd in papers chosen for 2010 ISSCC.

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1. Academia Sinica scientists honored with TAF Awards

(Central News Agency 02 12 2009)

Two renowned scientists of Taiwan's leading academic institute Academia Sinica were awarded the 16th Taiwanese-American Foundation (TAF) Awards on 28 November in recognition of their outstanding accomplishments in the fields of nanotechnology and epidemiology research.

Wu Maw-kuen, who is a distinguished research fellow and director of the Institute of Physics at Academia Sinica, specializes in superconductivity and magnetism and is the director of the Taiwan National Science and Technology Program for Nanoscience and Nanotechnology. Chen Chien-jen, a distinguished research fellow of Academia Sinica's Genomics Research Center, specializes in epidemiology, human genetics, public health and preventive medicine.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200912020021&pType1=JD&pType0=xJDLNHH&pTypeSel=0>

2. Local bio-firm hopes to coax energy from algae

(Liberty Times 02 12 2009)

The International Cryptomonadales Biotechnology Company held a groundbreaking ceremony on 30 November for its science and technology park in Changhua. Acting as spokesman, international forensic expert Dr. Henry Chang-Yu Lee said that the tiny algae produced by the company being exported to twenty-odd countries is not only driving better health for the local populace, it is also driving an improvement in Taiwan's export economy. Lee praised company chairman Wang Shun-te, saying that Wang had made the impossible possible by not only converting tiny algae into a health food, but also producing alcohol out of it, moving towards the day when it will be used as a source of energy.

Full article:

<http://www.taiwanheadlines.gov.tw/ct.asp?xItem=173077&CtNode=9>

3. Taiwan develops wireless recharging desk

(Liberty Times 04 12 2009)

Researchers at National Taipei University of Technology have developed a "wire-free recharging desk" to solve the problem of tangled appliance cords and wires. One will not need to use wires, cords or outlets when recharging cell phones, cameras, PDAs and notebook computers in the future. Rather, whatever the brand of the product or its specifications, once users have attached a special chip to it, they can leave the "charging desk" to do all the rest.

Full article:

<http://www.taiwantoday.tw/ct.asp?xItem=83464&ctNode=445>

4. IOT researchers develop traffic surveillance device

(Taipei Times 09 12 2009)

The Institute of Transportation (IOT) and National Chiao Tung University have jointly developed traffic surveillance devices that will automatically translate the images they detect into relevant data and information. Chang Tsan-yu, an IOT researcher, said the technology is nothing new and is already available in other countries. However, the institute developed its own system because it is expensive to purchase the devices made in other countries. It not only displays images of traffic, but can also reconnoiter traffic volume or driving speed and automatically translate that into data and information

Each one costs between NT\$250,000 and NT\$300,000.

"In Taipei City, for example, the malfunction rate of these traffic surveillance systems is pretty high," Chang said. "It usually takes days to repair them. Sometimes, you have to send them overseas because the key technology is under the control of original manufacturers."

Full article:

<http://www.taipeitimes.com/News/taiwan/archives/2009/12/09/2003460503>



5. Hualien medico honored for liver cancer research

(Liberty Times 10 12 2009)

Director Hu Chi-tang of Tzuchi Hospital's Liver Diseases Research Center in Hualien was awarded this year's Special Research Prize for his work on the interactions between snail genes in liver cancer cells and other transcription factors by the 2009 Asian Digestive Medicine Week, sponsored by the Taiwan Digestive System Medical Association. His paper was chosen from entries from approximately 40 Asian nations and areas.

Full article:

<http://www.taiwantoday.tw/ct.asp?xItem=85317&ctNode=445>

6. Local scientist uses rice husks for battery research

(Liberty Times 10 12 2009)

National Central University Department of Chemistry Professor Fei Ding-guo has devoted considerable efforts to the development of technology associated with lithium batteries. Fei is one of the world's experts in the development of Li-ion battery high voltage cathode materials; he also maintains the record to date for developing cathode materials that have the highest electricity capacity of anywhere in the world. Believing that developing green, pollution-free methods of transportation has already become a trend, Fei says the key to success in the development of electric vehicles will be in their batteries. Fei has used a variety of farming refuse products, such as discarded rice husks, peanut shells and sugar cane dregs in his research.

Full article:

<http://www.taiwanheadlines.gov.tw/ct.asp?xItem=173744&CtNode=9>

7. PharmaEssentia announces commencement of Phase I clinical trial for its HBV/HCV drug candidate P1101

(Biotech East 11 2009)

Taiwan-based biopharmaceutical company PharmaEssentia Corp. announced the initiation of a Phase I clinical trial for its innovative PEG chemistry rationale-designed hepatitis B and C drug candidate P1101 (PEG-P-IFN-alpha). The Phase I trial is a randomized double-blind active control, single-dose escalation study in forty-eight healthy adult male volunteers being undertaken by Anapharm Inc. in Montreal, Canada under the guidance of Principle Investigator, Dr. Richard Larouche. The primary objective of the study is to determine the safety, tolerability, and pharmacokinetics of PEG-P-IFN-alpha in single ascending subcutaneous doses.

Full article:

<http://www.biotecheast.com/modules.php?op=modload&name=News&file=article&sid=2285&mode=thread&order=0&thold=0&topic=2>

8. Scientific study indicates southern migration route to Asia

(Central News Agency 14 12 2009)

A large-scale genetic mapping study conducted by a consortium of researchers, including four scientists from Taiwan's Academia Sinica, found that Asia was initially settled by a single wave of migration along the coast. This genetic mapping of Asia may have important implications, especially in the further understanding of migratory patterns in human history, and the study of genetics and diseases, Academia Sinica said. "This study is a milestone in collaboration among the geneticists from 10 Asian countries and paves the way for a better understanding of our origins," Chen Yuan-tsong, director of the Academia Sinica's Institute of Biomedical Sciences (IBMS) said. The study, published Dec. 10 in the prestigious academic journal Science, traced the genetic origins of Asian populations in 73 Southeast Asian and East Asian populations and concluded that genetic ancestry was highly correlated to ethnic and linguistic groups.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200912140013&pType1=ST&pType0=xEMST&pTypeSel=0>



9. 70 percent of clinics to use e-medical records in three years: ITRI

(Central News Agency 14 12 2009)

The Industrial Technology Research Institute (ITRI), Taiwan's leading technology research institute, plans to help 70 % of Taiwan's 18,000 clinics use electronic medical records within three years, Chiueh Tzi-cker, head of ITRI's cloud computing research center said.

Full article:

<http://www.cnanews.gov.tw/eng/cepread.php?id=200912140033&pt=0&LArr=200912140033,200912140031,200912140020,200912140013,200912140011,200912140004>

10. Taiwan leads in 16-nm SRAM revolution

(Liberty Times 16 12 2009)

Taiwan's electronics industry is set to enter a new era with the National Applied Research Laboratories' recent development of a new 16-nanometer static random access memory device. The National Nano Device Laboratories under NARL have led the world in developing a new process called nano injection lithography to make SRAM that anticipates 16-nm chip features and greatly simplifies the integrated circuit production process. With a capacity 10 times that of current 45-nm SRAM devices, the new technology will lead to even smaller and lighter portable electronics products after mass production begins by allowing for major reductions in motherboard size. In the future, the technology could lead to computers as light as 500 grams in weight. SRAM is faster and significantly less power hungry than dynamic random access memory, but the production costs are relatively higher. The semiconductor industry is set to switch from the 45-nm process to the 32-nm process on a trial basis in 2010. However, the new 16-nm technology developed by Taiwan researchers may represent the next advancement beyond this stage. According to sources, this key technology is expected to save Taiwan industry roughly NT\$30 billion per year in technology rights expenditures in the future. The Taiwan researchers have already presented their work at the International Electron Devices Meeting, the world's main forum for reporting breakthroughs in technology, design, manufacturing, physics and the modeling of semiconductors and other electronic devices.

Full article:

<http://www.taiwantoday.tw/ct.asp?xItem=87144&ctNode=445>

11. University develops biodegradable anti-bacterial paper containers

(Liberty Times 17 12 2009)

Dayeh University's Department of Environmental Engineering has teamed up with industry leaders to develop "Nanometer Silver Biodegradable" paper containers. The silver in the new product kills bacteria and preserves freshness, and best of all, the product is totally biodegradable, making it environmentally friendly. At a cost of just about a third more than comparable paper packaging products, the new entrants have been put into use by famous American fast-food chains, and papermaking companies within Taiwan are signing up to use the new technology as well.

Full article:

<http://www.taiwanheadlines.gov.tw/ct.asp?xItem=174301&CtNode=9>

12. University unveils green, efficient 'MEGA house'

(Taipei Times 20 12 2009)

The National Taiwan University of Science and Technology unveiled a working model of a house with computerized temperature controls and other automations that promises to cut electricity bills by as much as 40 %. The "MEGA House" is a model of the most environmentally friendly building techniques at the nation's disposal. They added that the house contains computers that open and close windows, shutters and skylights according to preset temperatures inside and outside the building. Cheng Min-yuan, professor at the university who was part of the design team said seven patents were filed by the research team during the design process. To popularize the design, researchers also embedded radio-frequency identification technology into the building materials to cut construction time to four months and save about 40 % in labor costs.

Full article:

<http://www.taipeitimes.com/News/taiwan/archives/2009/12/20/2003461402>



13. Science park focuses on green energy and biomedical tech development

(Central News Agency 20 12 2009)

The Hsinchu Science Park, known as Taiwan's "silicon valley," has targeted the green energy and biomedical sectors as key industries that will propel the park's development over the next 10 years and complement its strength in semiconductors and flat panels.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200912190009&pType1=ED&pTypeSel=0>

14. Taiwanese scholars elected fellows of the U.S. top scientific society

(Central News Agency 21 12 2009)

Taiwan's top academic institute Academia Sinica announced that four of its member scholars have been elected fellows of the American Association for the Advancement of Science (AAAS), a prestigious U.S.-based scientific association. Academicians Shen Yuen-ron and Jen Sheen and distinguished research fellows Chen Chung-hsuan and Yu Su-may will be conferred the honor at the AAAS Fellows Forum on Feb. 20 during the 2010 AAAS Annual Meeting in San Diego. Shen and Chen were elected in the physics and chemistry sections, respectively, while Sheen and Yu were both elected to the biological sciences section.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200912210045&pType1=ST&pTypeSel=0>

15. Research center forms R&D consortium for container computer

(Central News Agency 22 12 2009)

A newly established center under the Industrial Technology Research Institute (ITRI) plans to form an R&D consortium and to launch the first version of an advanced container computer system by the end of 2010. The Cloud Computing Research Center for Mobile Application (CCMA) will develop software talent and assist the government to implement a country-wide program for maintaining electronic medical records. CCMA plans to form the R&D consortium with four or five local partners to develop the "container computer 1.0" -- a 40-foot preconfigured shipping container that can hold up to 1,000 servers -- and to launch the product by the end of next year. This would make Taiwan the first country in Asia to develop the container computer. The product, at an average cost of about US\$5 million, will become a building block for any container-based data center.

Full article:

<http://www.cnanews.gov.tw/eng/cepread.php?id=200912220040&pt=1&LArr=200912220041,200912220040,200912220030,200912220017,200912220016,200912220010>

16. ITRI Debuts World's First USB3.0 Memory Card

(Taiwan Economic News 24 12 2009)

The government-funded Industrial Technology Research Institute (ITRI) debuts the world's first USB3.0 memory card, with a number of Taiwanese ICT (information and communication technology) giants, including Hon Hai Group, Transcend Information Inc. and Asustek Computer Inc., to start mass production for the card in 2010.

To help Taiwanese ICT companies to explore the emerging segment for storage devices based on USB3.0 specifications, ITRI has been engaged in developing the USB3.0 memory card, which is compatible with both USB2.0 and USB3.0 ports and will be vastly used in different ICT products, including e-book readers, netbook PCs and HD video devices. ITRI notes that the newest memory card's maximum data transmission speed is 10 times that of traditional storage devices based on USB1.0 specification. For instance, 25GB of data can be completely transmitted in 70 seconds via USB3.0, compared to 9.3 hours via USB1.0. Besides, the institute adds, the production cost of a USB3.0 memory card is only US\$1 higher than that of traditional USB cards, boosting the possibility for the new card to replace USB2.0 and SD memory cards as the mainstream in the market in the future.

Full article:

http://cens.com/cens/html/en/news/news_inner_30498.html



17. Taiwan 3rd in papers chosen for 2010 ISSCC

(China Times 28 12 2009)

A total of 18 research papers from Taiwan have been selected for presentation at the 2010 International Solid-State Circuits Conference, marking the third highest number of any country in the world, after the United States and Japan. At the same time, National Taiwan University has placed at the top of the list globally among higher education institutes for the sixth consecutive year, with 10 articles selected for next year's conference. The ISSCC, held every February in San Francisco, California, is a leading international forum for the presentation of advances in solid-state circuits and systems-on-a-chip. Taiwan's integrated circuit design industry has been growing at a rapid pace since 2000 and currently enjoys a 28 % share of the global market, the second in the world. The quick emergence of Taiwan's "iron triangle" of research centers, semiconductor firms and universities has drawn the attention of the international community.

Full article:

<http://www.taiwantoday.tw/ct.asp?xItem=90260&ctNode=445>

18. ITRI Kicks Off Operation of Cloud Computing Research Center

(Taiwan Economic News 29 12 2009)

With R&D engineers successfully recruited, the Cloud Computing Research Center of Taiwan's government-funded ITRI (Industrial Technology Research Institute) has become operational to tap, in cooperation with Taiwanese enterprises, the emerging business potential generated by applications of cloud computing technology. Johnsee Lee, president of ITRI, indicated that the rise of cloud computing technology will bring revolutions to ICT (information and communication technology) and related industries, further varying uses and applications of IT (information technology) and the Internet in the future. The center will be dedicated to development of software, hardware and application services based on cloud computing technology. ITRI will establish a containerized data center, which will be installed with a total of up to 2,000 servers and related necessary equipment.

Full article:

http://cens.com/cens/html/en/news/news_inner_30535.html

19. Feng Chia University's intelligent classroom takes roll and saves energy

(Liberty Times 31 12 2009)

Feng Chia University has teamed up with the Ministry of Economic Affairs' "Production Technology Development Promotion Plan" to establish an intelligent classroom, where a wireless intelligent recognition system is able to read labeled nameplates carried by students, letting their presence, including pictures and names, appear in real time on the computer used by the teacher during class. The system's rapid and accurate attendance-taking has actually saved time and effort for the teacher.

The school says that since it usually takes 10 minutes or more for its teachers to manage roll calls in teaching the school's many large classrooms, the new system was first tested in such rooms with an installation cost of about NT\$100,000. Whether or not to expand the scope of implementation depends on the outcome of the trial.

Full article:

<http://www.taiwanheadlines.gov.tw/ct.asp?xItem=175536&CtNode=9>