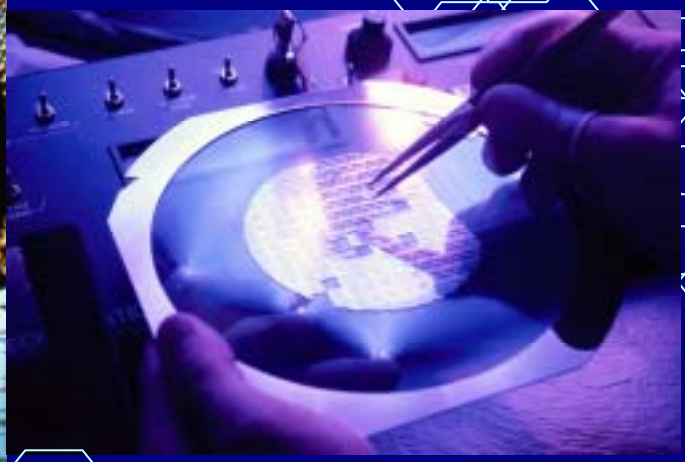
KOREAN NANO INDUSTRY

INVEST KOREA



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1. Nano Industry in Korea Today

1) Overview of the Nano Industry in Korea

Korea's nano industry came into being in the early 1990s when research on a nano scale was initiated. It began to rapidly develop in 2001 with strong government support to promote the industry. Most R&D in the early days of the industry was conducted under the aegis of government policy, but the number of private-sector companies entering the industry is now rapidly increasing.

《Korean Nano Industry Facts》

	2001	2005
Policy	- National Nanotechnology Initiative established (2001) - Nanotechnology Technical Committee organized (2001)	- Nanotechnology Development Promotion Act legislated (2002) - Enforcement Decree of the Nanotechnology Development Promotion Act (2003) - 2nd term National Nanotechnology Initiative established (2005)
Government Investment	KRW 105.2 billion (approx. US$ **)	KRW 277.2 billion (US$ **; 2.7-fold increase)
R&D Personnel	1,015 persons	3,900 persons (2004) (3.8-fold increase)
Companies Specialized in NT	78 companies (33 venture businesses)	214 companies (126 venture businesses)
Departments Related with NT	Three departments	33 departments (11-fold increase)
SCI Papers	408 papers (World's 8th)	1,128 papers (in 2004) (2.8-fold increase; world's 5th)
International Patent	-	979 patent applications (1990-2003, World's 5th)
Technological Level Versus Advanced Countries	25%	66%

Source: National Science and Technology Council, Dec. 2005

The number of companies exclusively devoted to nanotechnology has increased 174%, from 78 in 2001 to 214 in 2005. Not to be outdone in quality, the technological level has risen dramatically from 25% of the level of developed countries in 2001 to 66% in 2005.

Nanotechnology companies have proliferated throughout a number of growth industries, including next generation semiconductors, automobiles, secondary batteries, and displays. Manufacturers of nano materials for heavy industry, such as thin film coating agents and photocatalysts, and nano powder used for secondary batteries accounted for the highest share of the industry products: 36%.

This was followed by manufacturers of equipment for producing nano products and manufacturing equipment using nanotechnology at 21% and nano semiconductor companies at 15%. Producers of silver nano plastic products and cosmetics and food additives accounted for 12%, while environmental nanotechnology companies accounted for 5%.

《Korea's Nanotechnology Level: Survey on Nano Experts by the Korea Institute of Science and Technology Information, 2004》

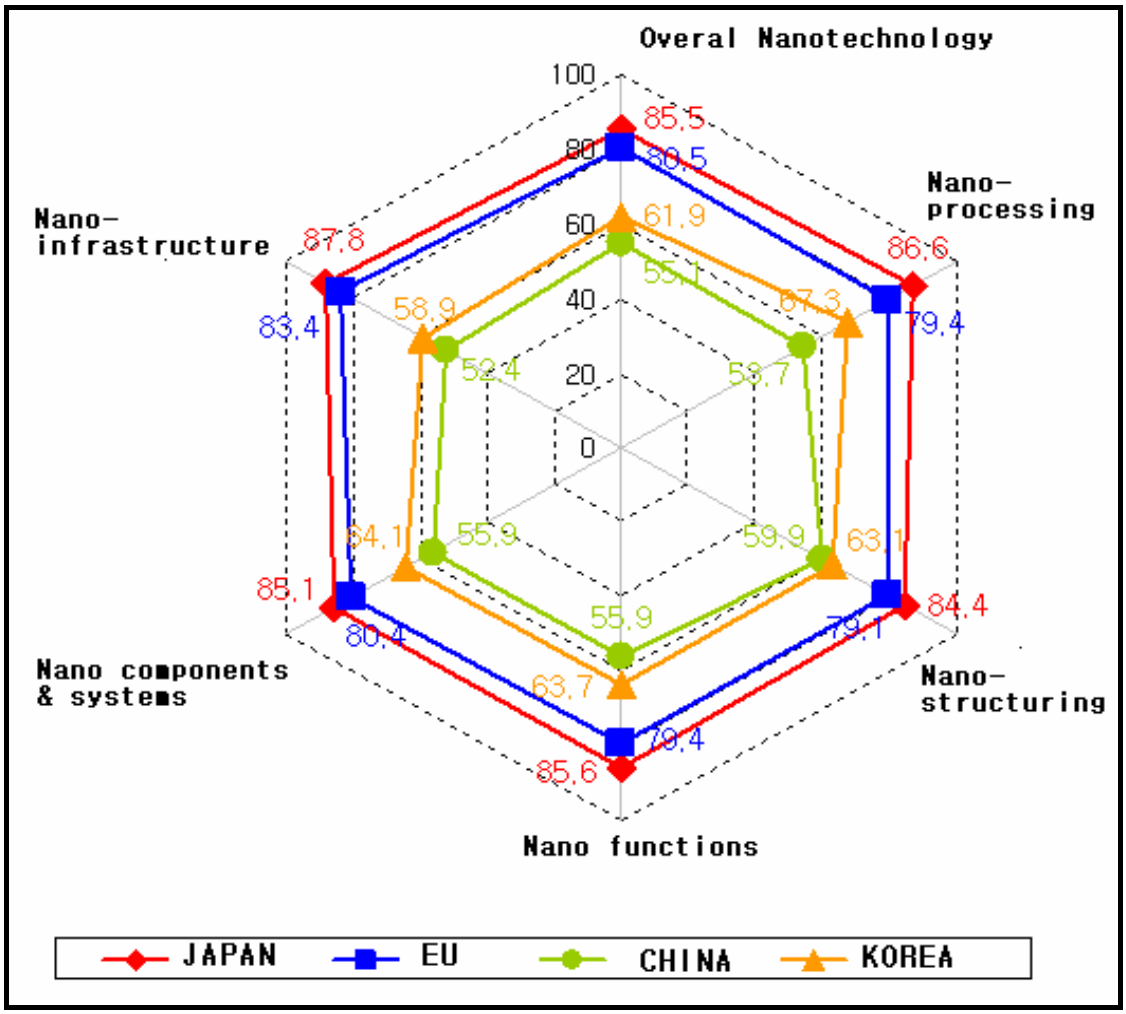
Korea	USA	Japan	EU	China
61.9*	100.0	85.5	80.5	55.1

* Level rose to 66% in 2005.

Korea's nanotechnology level was estimated at about 25% of that of the U.S. in 2001. A survey of nano experts conducted by the Korea Institute of Science and Technology information in 2004 estimated it at 61.9% against the U.S. This figure is lower than those of Japan and the EU but above that of China.

According to the National Science and Technology Council (2005), Korea's nanotechnology level against the U.S. is 77% in nano devices, 66% in nano materials, 56% in nano biotechnology, and 65% in nano processing/equipment. The figures represent slight improvements from the findings of the survey of nano specialists.

《Nanotechnology Level by Country and Field》



Source: Korea Institute of Science and Technology Information, 2004

---- KOREA IN WORLD NEWS ----

Nano World: National ranking in nanotechnology 2005

By CHARLES Q. CHOI
NEW YORK, Nov. 7 (UPI) -- The United States, Japan, Germany and South Korea dominate nanotechnology today, but in 2012 Taiwan should also leap into a leading role, with China making dramatic gains and France sliding into the minor leagues, experts told UPI's Nano World.

Nanotechnology analyst firm Lux Research in New York investigated 14 nations spanning four continents that play significant roles in nanotechnology. They measured each country based on its nanotechnology activity, including national funding in nanotechnology, number and quality of government and university nanotech centers, and corporate research-and-development spending. **...(omitted) ...**South Korea likewise has a good mix of high government and corporate nanotech spending levels and strong technology development, with 16 percent of GDP from high-tech manufacturing and 3 percent of GDP invested in R&D.

Nikkei Nano Business, Dec. 2004 Issue

... the Korean government designated nanotechnology as one of the nation's strategic fields of technology and established the National Nanotechnology Initiative in 2001 to ensure steady investment in R&D and infrastructure. As a result, Korea's nanotechnology level, which was about 25% of the U.S. level in 2001, rose to 62% in 2004. As of 2004, Korea was ranked the fifth in the world in terms of the number of nanotechnology SCI papers published and the world's first in the technology improvement rate (Korea Nanotechnology Annual 2004). The number of patent applications was the world's fifth following the EU.

2) Market Trends and Prospects of the Nano Industry

A. Market Trends and Prospects of Nano Materials

The worldwide market for nano materials was 127.1 trillion won (approx. US$**) in 2000. It is expected to reach 184.8 trillion won (US$**) in 2005, 430.95 trillion won (US$**) by 2010, and 532.16 trillion won (US$ **) by 2020. According to a survey conducted jointly by Mitsubishi Research Institute and Nihon Keizai Shimbun, the nano materials market is expected to account for more than 50% of the entire nanotechnology market. Without technological development in nano materials, a platform technology in nanotechnology, entry into the Nano-World would be a great challenge.

High-density magnetic memory materials accounted for 53.7% of the entire nano materials market, and the optical memory materials accounted for 18.8%, showing a combined market share of over 70%. These types of materials could continue to lead the nano materials market in the future. The market trends and outlook for nano materials are presented below, especially for those materials for which there is already some demand in Korea:

① New Carbon Materials: Carbon Nanotubes, Fullerene, DLC

Graphite and diamonds have long been well-known carbon isotopes. Recently, materials with new structures have been discovered, including carbon nanotubes, Fullerene, and DLC (Diamond-like Carbon). These carbon-based materials are called new carbon materials, and they are at the heart of intensive research, including research on use of diamonds as semiconductor devices. The new carbon materials market worldwide remained at 140 billion won (US$ **) in 2000, but it is expected to multiply 2.5 times to 350 billion won (US$**) by 2005, 1.2 trillion won (US$**) by 2010, and 4.5 trillion won (US$**) by 2020.

The domestic market cannot easily be estimated because it is still at the initial stage of development. Based on 2002 sales figures, the Ministry of Commerce, Industry and Energy and the Korea Electronics Technology Institute forecast through a joint survey on venture nanotechnology businesses in Korea that the market will amount to some 94 billion won (US$ **) by 2010.

《Market Trends & Prospects of New Carbon Materials》

(Unit: KRW billion; %)

Classification	2005	2010	2020
Global Market	350 (20.1)	1,200 (27.9)	4,500 (14.1)
Korean Market	48 (-)	96 (14.9)	560 (19.3)

Source: Nano Industry Market/Technology Forecast Report, Strategic Technology Management Institute, 2004

② Nanopolymers

High molecular compounds (polymers) are nano-size molecules themselves, and dealing with the molecules themselves is a nanotechnology activity. They can be easily changed into various forms and used under many different conditions and environments. They are seen as promising materials for nano devices that have high market potential.

Nanopolymers also have a wide range of applications in the development and manufacture of many polymeric materials. Among others, the molecular control technology has great market potential as it can be widely applied to not only to polymeric materials but also to other materials.

《Market Prospects for Organic Polymeric Materials》

(Unit: KRW trillion)

Classification		2005	2010	2020
Organic Polymers	Global Market	6.5	8.45	13
	Korean Market	0.33	1	-

Source: Nano Industry Market/Technology Forecast Report, Strategic Technology Management Institute, 2004

Nanopolymers include biocompatible polymers, organic polymers, glass fiber reinforced plastic (GFRP), engineering plastics (EP), and biodegradable plastics. Among these, there is a domestic market for organic polymeric materials. The domestic market was valued at 130 billion won (US$

) in 2000 and accounted for 2.5% of the global market. It is expected to expand sharply to 1 trillion won (US$) by 2010, accounting for 11.8% of the global market.

③ Nanoceramics

Nanoceramics are organic materials, such as metal oxides, nitrides, and carbides, whose structures are engineered and controlled at the nano level to give them new and extremely useful properties or enhance their natural properties.

As heat resisting materials, nanoceramics will find a wide range of applications, such as refractory material for steelmaking, engine parts, aerospace components, cutting tools requiring high hardness and high durability, mechanical seal materials, precision jigs and fixtures, biomaterials, and semiconductor heat treatment jigs and fixtures.

The fine ceramics market in Korea is forecast to reach 700 billion won (US$**) by 2010 and 840 billion won (US$**) by 2020. The global market for engineering ceramics is forecast to grow to 14.2 trillion won (US$**) by 2020.

《Market Trends and Prospects of Ceramics》

(Unit: KRW billion)

Classification		2005	2010	2020
Engineering Ceramics	**Global Market**	3,600	13,600	14,200
Fine Ceramics	**Korean Market**	330	700	840

Source: Nano Industry Market/Technology Forecast Report, Strategic Technology Management Institute, 2004

④ Nanometals

Nanometals are one of the new types of materials. They are largely classified as metallic, inorganic, organic, or composite. The new metal materials are alloic metal materials produced by controlling the crystal structure, microstructure, and atomic arrangement of metals, alloys, and intermetallic compounds in such a way as to derive and maximize particular properties, functions,

and capabilities. Nanometals have recently received the greatest attention of all new metal materials.

Nanometals are new metal materials made by controlling the combination of nano particles of the base metal. Controlling the structure and organization of a metal material at the level of particles of 100 nanometers or less produces a material with remarkably improved properties than alloys of the same type with ordinary structures and organization. These materials are generically termed nanometals.

As new materials, nanometals are expected to have a significant impact on industry, such as the material and machinery industries. However, they will not find wide application at the present prices. They will not be competitive until they can be efficiently produced at low cost. The new metals market in Korea totaled 180 billion won (US$ **) in 2000 and is forecast to reach 340 billion won (US$**) in 2005 and 560 billion won (US$**) by 2010.

《Market Trends and Prospects of Nanometals》

(Unit: KRW billion)

Classification	2000	2005	2010
Korean Market	180	340	560

Source: Korea Development Bank

⑤ Nanocatalysts

A catalyst is anything but the reactant in a chemical reaction. It is a substance that causes or changes a chemical reaction without itself being affected in any way. Its chemical action is called catalysis.

Nanocatalysits are largely divided into photocatalysts and highly selective, high performance catalysts. Photocatalysts are ultraviolet ray-activated materials that can decompose organic substances. They were first discovered by Dr. Kenichi Honda and Dr. Akira Fujishima, professors at Tokyo University, Japan, and photocatalyst technology is most advanced in Japan.

The global photocatalyst market totaled only 710 billion won (US$**) in 2000, but it is expected to

expand rapidly to 10.26 trillion won (US$**) by 2010 and 19.8 trillion won (US$**) by 2020.

Currently, the photocatalyst market engenders exterior materials, interior materials, road materials, filters for purifiers, and everyday appliances. The total market is not yet very big, but many companies recognize photocatalyst technology as a means of adding higher value to their products and are extremely interested in advancing in the technology development race and opening the market in their own fields. Although the share of photocatalyst appliances in the market is low, the applications for photocatalysts should proliferate greatly in the future. The photocatalyst market is forecast to grow faster than commonly expected. The domestic photocatalyst market totaled 250 billion won (US$**) in 2000 and was estimated to be 500 billion won (US$**) in 2005.

B. Market Trends and Prospects of the Nano Devices and Machines

① Nano Lithography Tools

Lithography tools are used to photo-print a prepared original copy on a semiconductor wafer to produce a desired circuit pattern. Tools capable of sub 100nm lithography are called nano lithography tools.

The global nano lithography tools market is forecast to grow to 18.5 trillion won (US$**) in 2005, 26 trillion won (US$**) by 2010, and 39 trillion won (US$**) by 2020. The Korean nano lithography tools market is about 5-7% of the global market and is predicted to reach 1 trillion won (US$**) in 2005, 1.56 trillion won (US$**) by 2010, and 2.4 trillion won (US$**) by 2020.

《Market Trends and Prospects of the Nano Lithography Tools》

(Unit: KRW trillion; %)

Classification	2005	2010	2020
Global Market	18.5	26	39
Korean Market	1 (5.4)	1.56 (6.0)	2.4 (6.2)

Source: Nano Industry Market/Technology Forecast Report, Strategic Technology Management Institute, 2004

② Flat Panel Displays

Korea's flat panel display market is relatively larger than that of Japan as Korea built a mass production system earlier than Japan. The market was about 18.51 trillion won (US$**) in 2000 and is expected to grow to 37.802 trillion won (US$**) in 2005 and as large as 78.91 trillion won (US$**) by 2020.

《Prospects for the Demand Market for the Next Generation Display Devices》

(Unit: KRW trillion)

Classification	2005	2010	2020
Global market	930,300	1,268,700	2,538,400
Japanese Market	329,200	421,100	749,500
Korean Market	378,020	477,800	789,100

Source: Nano Industry Market/Technology Forecast Report, Strategic Technology Management Institute, 2004

3) Human Resources in Nano R&D

Backed by government support to promote human resources development in science and technology, coupled with the Korean people's high interest in education, the number of highly-qualified science personnel has continued to increase, meeting the demands of corporations and research institutes.

There are now over 200,000 researchers in science and technology in Korea, with the share of Ph.Ds. among them reaching nearly 27%. The number of researchers per 10,000 economically active persons is 6.7, a 55% increase from 4.3 in 1998.

As of February 2006, there were 40,871 researchers registered with the National Human Resources Science & Technology Information System. The percentage with doctoral degrees was 41% or 16,775 persons, while the percentage of those with master's degrees was 8% or 3,640 persons. Given the fact that the human resources database on those with master's degrees is not yet complete and masters' degree holders generally far outnumber doctors, the actual number of masters is believed to be more than ten times the reported figure.

《Proportion of Researchers in Science & Technology》

Classification	1998	2002	2003	2004
No. of researchers	129,767	189,888	198,171	209,979
Researchers with doctoral degrees (%)	31.3	26.2	26.5	26.9
Researchers with doctoral degrees working at universities (%)	76.8	72.3	72.1	71.3
Researchers with doctoral degrees working at companies (%)	9.8	14.7	14.9	15.0
FTE* (persons)	92,541	141,917	151,254	156,220
No. of researchers per 1,000 economically active persons	4.3	6.2	6.6	6.7

*FTE (Full Time Equivalent): The figure converted into the full time equivalent researchers in consideration of the research participation ratios.
Source: Ministry of Science and Technology

The number of nano professionals has continued to increase in Korea. The demand for them is forecast at 9,400 by 2012, which is more than three times the 2,600 researchers (masters and doctors) in 2004. The number of nanotechnology departments in colleges and universities increased from 17 in 2002 to 31 in 2004 and will increase to 32 in 2005.

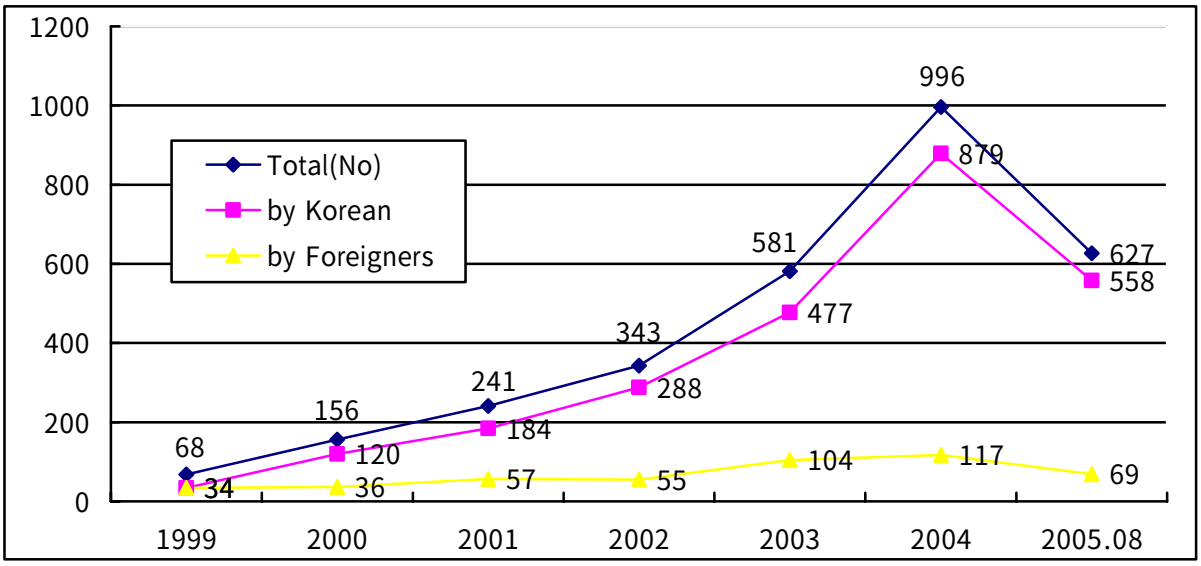
《R&D Workforce by Discipline》

Classification	Doctor	Master	Bachelor	Others	Total
Natural Science	5,070	728	518	4,291	10,607
Engineering Science	7,830	2,290	2,220	6,584	18,924
Medical & Pharmaceutical Science	3,333	539	309	5,922	10,103
Interdisciplinary Science	542	83	48	564	1,237
Total	16,775	3,640	3,095	17,361	40,871

Source: National Human Resources Science & Technology Information System

4) Domestic Patent Applications

According to a report released by the Korean Industrial Property Office, a total of 3,012 patent applications were submitted from 1999 to August 2005. Koreans submitted 2,540 applications or 84.3%, while foreigners submitted 472 applications or 15.7%. Regarding the number of patent applications after 2001, when Korea made public the National Nanotechnology Initiative, a total of 2,547 applications were submitted from 2002 to August 2005 (for 56 months), with Koreans accounting for 2,202 (86.5%) and foreigners 345 (13.5%).



Source: Nano Weekly, No. 163

The patent applications by technological area as captured in the International Patent Classification (IPC) shows that, among the 2,547 patent applications submitted from 2002 to August 2005, medicines and cosmetics (A61K in IPC) accounted for 653 applications or 25.6%, and nano materials-related areas (C07, C08, C01, and others) accounted for 521 applications or 20.5%. They were followed by the semiconductor-related fields (H01 and others) with 480 applications or 18.8%. Patent applications were also submitted in all other technological areas, including textiles, washing machines, and refrigerators.

Among the 22,052 nanotechnology-related patents registered in the United States since 1991, Korea accounted for 217 patents and was ranked seventh in the world. Of particular note is the fact that Korea registered 192 patents (6th in the ranking) during the last five years (1999 to 2003) as compared to only 22 patents (12th) during the previous five years from 1994 to 1998, showing

an increase of over eight times compared with the corresponding period of time. Further, the number of patents for nanoelectronic devices increased 14 times, and patents for electronic application materials increased ten times.

《Nanotechnology-related Patent Applications by IPC (2002-Aug. 2005)》

Patent Classification	2002	2003	2004	2005. 8	Total
A (Human Necessities)	26	37	310	280	653
B (Performing Operations; Transporting)	114	163	172	99	548
C (Chemistry; Metallurgy)	83	133	220	85	521
D (Textiles; Paper)	5	15	50	9	79
E (Fixed Construction)	0	0	12	11	23
F (Mechanical Engineering; Lighting; etc.)	5	13	20	19	57
G (Physics)	23	60	70	33	186
H (Electricity)	87	160	142	91	480
Total	**343**	**581**	**996**	**627**	**2,547**

Source: Nano Weekly, No. 163

《Nanotechnology Patent Applications by Country》

Rank	Country	No. of Patents	Share (%)	Rank	Country	No. of Patents	Share (%)
1	US	15,221	69.0	**6**	UK	235	1.1
2	Japan	3,141	14.2	**7**	Korea	217	1.0
3	France	840	3.8	**8**	Taiwan	204	0.9
4	Germany	726	3.3	**9**	Netherlands	160	0.7
5	Canada	347	1.6	**10**	Switzerland	155	0.7

Source: Nano Weekly, No. 163

5) Korean Government's Nanotechnology Support Policy

The Korean government started to establish and implement mid- to long-term nano industry policies in 2000. After formulating the National Nanotechnology Initiative in 2001, it devised the Nanotechnology Development Promotion Act in 2002 and the Enforcement Decree of the Nanotechnology Development Promotion Act in 2003 to establish a legal and institutional foundation to promote nanotechnology.

Beginning in 2006, five years after it first shaped and put into practice the nano industry policy, the Korean government formulated and implemented the 2nd-term National Nanotechnology Initiative in response to changes in industry and the environment. Government support to the industry has been focused mainly in three areas: R&D, research infrastructure construction, and human resources and institutional development.

《Major Government Support Measures》

Area	Support Measures
R&D	◦ Discovering and concentrating on technologies with potential comparative advantage ◦ Supporting the five technological areas to enhance competitiveness ("Frontier" level support), ten technological areas with secured competitiveness (2 billion won level), and 20 technological areas to strengthen the infrastructure (1 billion won level) ◦ Conducting basic research and providing funds to expand technological base and enhance assistance for development of specialized technologies
Human Resources Development	◦ Training and supplying professional workforce to meet short- to long-term demand ◦ Supporting interdisciplinary major courses, industry-academia-institute cooperative courses, and overseas programs for strong-performing researchers (Aiming to produce 12,600-strong R&D workforce by 2010)
Building Facilities and Support Systems	◦ Building core equipment for common use and the support networks ◦ Building and operating common fabs where expensive equipment can be jointly used ◦ Building networks to connect R&D entities and share information

In R&D, the government has provided support for the industry to commercialize technologies to the highest possible level in more than 30 technological areas in which Korea has a comparative advantage. The government's R&D budget accounts for a considerable share of overall nanotechnology R&D expenditures, and it increased from 83.2 billion won (US$**) in 2001 to 277.2 billion won (US$**) in 2005, recording an annual average growth rate of 35.1%.

《Government Nano-related R&D Spending》

(Unit: KRW billion)

Classification	2001	2002	2003	2004	2005
Investment	83.2	178.1	237.05	248.1	277.2

For the construction of the research infrastructure, the government has continued to establish and expand research facilities according to the forecast for supply and demand, helping research institutes and private corporations significantly curtail their initial investment requirements. For human resources and institutional improvement, the government has been developing educational programs to facilitate the growth of the nanotechnology workforce, which is in an increasing demand. It has also streamlined the standardization and certification systems, including the designation and operation of the nanotechnology standards certificate center. In addition, the government has selected outstanding nanotechnology venture businesses and provided them financial and administrative support.

《Estimated Total Nanotechnology R&D Spending (including Private Spending)》

(Unit: KRW billion)

Classification	R&D	Research Infrastructure Building	Human Resources & Institutional Improvement	Total
Stage 1 (2006-2010)	1,433	537	66	2,036
Stage 2 (2011-2015)	1,962	758	99	2,819
Total	3,395	1,295	165	4,855

The government support is mainly provided through the Ministry of Science and Technology and Ministry of Commerce, Industry and Energy. The Ministry of Science and Technology has been pursuing the construction of the Korea Advanced Nano Fab Center, which procures and operates equipment and facilities to support R&D and early industrialization of original nano device technologies. The Ministry of Commerce, Industry and Energy has focused on the industrialization of nano materials and nano tools and processing, and it established the National Center for Nanomaterials Technology.

《Comparison between the National NanoFab Center, Korea Advanced Nano Fab Center, and National Center for Nanomaterials Technology》

Classification	National NanoFab Center	Korea Advanced Nano Fab Center	National Center for Nanomaterials Technology
Pertinent Government Office	Ministry of Science & Technology	Ministry of Science & Technology	Ministry of Commerce, Industry & Energy
Purpose	Attraction of technology researchers	Attraction of technology researchers	Attraction of regional industry-based researchers
Facilities Building	2002-2010	2003-2007	2004-2008
Nanotechnology Commercialization	After 5-10 years	After 5-10 years	Within 5 years
Main Areas	Silicon-based nano devices, fab services	Non-silicon-based nano devices, fab services	Nano materials/tools development, R&D support to companies
Organized with	Universities/institutes	Universities/institutes	Companies/universities/techno park
Core Facilities	Silicon wafer-centered nano device manufacturing facilities	Compound semiconductor wafer nano device manufacturing facilities	Facilities for nano material parts/measurement/tools development; facilities for nano measurement tools
Government Funding	118 billion won	50 billion won	90 billion won

* See Major Fabs in Korea in Appendix 1, Korea's Nano Infrastructure.

2. Industry Demand for Nanotechnology

1) Semiconductor Industry

As semiconductors have become a core, common component in many different systems and are essential to IT, NT, and BT, the semiconductor industry has continued to develop technology for higher integration and higher performance. The increase in new demand, stemming from the rebound in the PC and communications industries, expansion of the digital home appliances market, and increased demand in automobile-related electronic devices point to rapid growth of the semiconductor market in the future. By 2015, the global market is expected to reach US$ 480 billion.

《Four Largest Semiconductor Companies by Area in Terms of Market Share》

Area	1st Place	2nd Place	3rd Place	4th Place
Overall Memory[1]	Samsung (28.1%)	Hynix (9.7%)	Micron (9.1%)	Infineon (7.5%)
DRAM[2]	Samsung (32.6%)	Hynix (16.5%)	Micron (15.2%)	Infineon (13.3%)
NAND Flash Memory[3]	Samsung (55%)	Toshiba (23.3%)	Hynix (10%)	Renesas (5.7%)

*The total sales of the Korean semiconductor manufacturers, including Samsung Electronics and Hynix, were US$ 25.6 billion, which translates into 10% of the global semiconductor market. In the memory area, especially, sales in 2004 totaled US$ 20.74 billion, accounting for 42% of the global memory chip market.

Korea's semiconductor industry has emerged as the country's backbone industry and leader of the national economy, accounting for 10% of Korea's overall exports and 4% of its GDP at the end of 2004. The industry also accounted for 2.6 billion won (US$**) in output, US$ 25.6 billion in

[1] By Gartner, 2004
[2] By Gartner, 2nd quarter 2005
[3] By iSuppli, 2nd quarter 2005.

exports, and 90,000 employees. More than anything else, Korea's semiconductor industry boasts the world's best processing technology and has carved out a 40% share of global market.

Samsung Electronics recently announced a plan to establish the world's largest semiconductor cluster with a large investment of US$ 33 billion over the next seven years. Hynix also announced a plan for new facilities investment of 3.5 trillion won (US$**) in 2006. It is expected that Korea's leading semiconductor manufacturers will step up their efforts to capture more of the global market through aggressive facilities investment.

The Korean semiconductor industry aims to become one of the two major players in the world's semiconductor market with a 20% market share of US$ 76 billion in exports by 2015.

2) Display Industry

In 2005, the world's flat panel display industry grew some 20%, and the market expanded to US$ 74 billion. The TFT-LCD accounted about 80% of all display sales with the sales of some US$ 60 billion. TN/STN LCD and PDP followed behind.

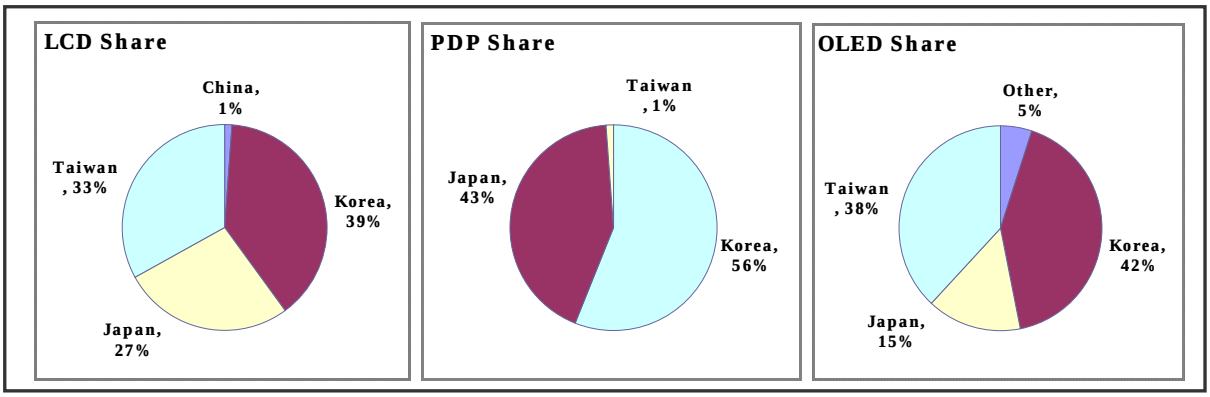
With LG.Philips LCD and Samsung Electronics accounting for a combined market share of 42.5% of the global large LCD panel market, Korea has established itself as the leader of the global display industry.

In the large LCD market in 2005, LG.Philips LCD produced 44 million units, accounting for 21.5% of the global market. Samsung Electronics accounted for 21% market with 43 million units. They were followed by Taiwan's AUO (14.3%), CMO (10.4%), and CPT (7.1%).

In 2006, Korea is forecast to record display exports of US$ 23.4 billion and display imports of US$ 2.3 billion. LCD exports are forecast at US$ 18.5 billion, accounting for the bulk of display exports, and PDP exports will reach US$ 3.4 billion.

Korea's market share in the overall global display market is forecast at 36.2%, maintaining Korea's stature as the world's leading display manufacturer.

《Display Market Share by Area (2005)》



Source: Ministry of Commerce, Industry and Energy

When it released the Industrial Innovation Strategies for 2015 in November 2005, the Korean government presented mid- and long-term development strategies for the digital electronics industry, including the display industry. According to the report, Korea aims to become the world's third digital electronics power with a global market share of 14% in the digital electronics market, represented by semiconductors, mobile phones, and displays. To this end, Korea plans to expand production and exports by an annual average rate of over 10% through 2015.

《Prospects of the Display Industry in the Korean Market》

Classification	2004	2005	2006 (prospects)
Production (KRW billion)	28,339	29,664	32,020
Domestic Consumption (KRW billion)	12,664	12,075	10,970
Exports (US$ million)	16,170	19,605	23,390
Imports (US$ million)	2,470	2,402	2,340
Market Share (%)	32.5 (1st place)	35.0 (1st place)	36.2 (1st place)

Source: IK Journal, 2006

3) Automobile Industry

The automobile industry is the essential industry that will lead the growth of the world economy in the future, and Northeast Asia is expected to become the mecca of automobile production. The Northeast Asian region, which includes Korea, Japan, and China, already produces more automobiles than any other in the world, and is the third largest market for automobiles.

Since the manufacturing of its first automobile in 1955, the Korean automobile industry has grown mightily over the last 50 years. It entered the rapid-growth period with the production of the Pony in 1975, its first independently developed model. In 2004 alone, Korea produced 3.47 million automobiles and exported 2.38 million. It accounted for 5.5% of the global automobile market and emerged as the world's 6th largest automobile maker.

Again in 2005, benefiting from booming exports, the Korean automobile industry achieved another production record despite relatively sluggish domestic consumption. In 2006, domestic sales of automobiles are forecast at 1.25 million units, a 9.5% increase from the previous year. The automakers should benefit from the economic recovery and the continued introduction of numerous new models. Exports are forecast to set another record of about 2.75 million units, a 6.4% increase, due to continued improvement in the quality and brand image of Korean models in spite of many negative factors, including the appreciation of the Korean won, higher oil prices, and increasing overseas production.

《Prospects for the Korean Automobile Industry》

Classification	2002	2007	2012
Production (KRW trillion)	62	76	87
Value added (KRW trillion)	29	39	55
Exports (US$100mil)	194	224	410
Global market share (%)	5.5	8.1	9.8
Employment (10,000 people)	20	23	27

Source: Korea's Auto Industry—Today and Tomorrow, IK, 2005

The year 2006 is expected to witness another great advancement for the Korean automobile industry as Korea strives to become the world's 5th largest automobile manufacturer with production of more than four million units.

The Korean government envisages becoming the world's 4th largest carmaker by 2012 by intensively promoting futuristic automobiles and a next-generation new growth engine. This will require the development of 21st century core technologies. In the automobile parts industry, it plans to depart from the existing 3D industry areas of casting, forging, and injecting and enter high value-added areas through advanced, new materials, and eco-friendly technologies. The government plans to upgrade existing automobile parts and components clusters into sophisticated, high value-added industrial clusters.

《Goals of the Future Car Development Project》

Sector	Final target technologies
Energy	Technology Securing CO_2 exhaust 70g/km -High efficiency engine, Light-weight, Fuel battery
Environment	Core technologies of extremely low pollution-generated mid&small-sized car(Euro-V requirements) - Catalyst, recycle, alternative fuel engine technologies
Advanced Technology	ASV(Advanced Safety Vehicle)/Telematics-related system technology -Sophisticated electronics parts, Simulation design system technology
Joint Tasks	Development of 100km/21-level pilot car -Development of basic technology integrating the energy, environment and advanced system

Source: Korea's Auto Industry—Today and Tomorrow, IK, 2005

3. Korean Nanotechnology's Networks at Home and Abroad

The Korea Nano Technology Research Society is the most representative networking organization supported by the Korean government, and was established and financed by the Ministry of Science and Technology in 2003. The society is comprised of R&D experts networked together in the industry, academia, and research institutes, and has performed many functions including nanotechnology-related program planning, workforce training, and international cooperation network building. Overseas networking events supported by the Ministry of Science and Technology include the Korea-US NanoForum and the International Nanotechnology Symposium. The Nanofab Users Council, composed of researchers both at home and abroad, is organized for building human resource and information networks by using nanofabs.

The Ministry of Commerce, Industry and Energy has selected and operated network centers for the promotion of small and medium-size industries as well as regional ones. The National Nano Devices Center for Industry and the Technology Innovation Center (TIC) are the most representative of these centers. The National Nano Devices Center for Industry possesses essential equipment required for research in devices, materials, and processing, and supports nanotechnology-related production of small and medium-size companies. Four of the TICs are intended to promote increased added value by connecting nanotechnology to regional industries. In addition, the Ministry organizes symposiums and technology exhibitions, such as Nano Korea.

One public sector networking organization active in exchanging information on nanotechnology is the Nanotechnology Information Analysis Lab which has been run by the Korea Institute of Science and Technology Information since 2002. The lab operates the website, Nanonet (www.nanonet.info), and has built an Internet-based comprehensive government support system. The Nanonet conducts the following functions: First, it collects nanotechnology-related information from home and abroad and processes the information to meet the demands of users; second, it provides information on intellectual property rights, such as patents and market information for corporations; and third, it builds nanotechnology information cooperation networks at home and abroad by signing MOUs and organizing nanotechnology information advisory councils with domestic and overseas nanotechnology information institutes.

The Nano Technology Research Association is an organization for building information networks among nanotechnology companies. It was established by the Industrial Technology and

Research Association Promotion Act in December 2001. The association's earliest membership began with 24 electricity and electronics companies, which were closest to the industrialization of nanotechnology. Presently, many materials and biotechnology companies are participating in the association, which has continued to play a pivotal role in exchanging and sharing nanotechnology information.

《Major Domestic Nanotechnology-related Networks and Institutions》

	Major Business & Activities	Website/Contact Point
Korea Nano Technology Research Society	- Building NT research hub networks - Comprehensive planning; policy planning; building international cooperation systems - Building joint research systems of Korean and overseas nano experts	http://main.kontrs.or.kr T) 82-2-2057-8506 F) 82-2-2057-8509
Nanofab Users Council	- National NanoFab Center (KAIST); Korea Advanced NanoFab Center (Suwon) - Building human resource & information networks by sharing equipment	http://www.nnfc.com T) 82-42-879-9500 F) 82-42-879-9609
National Nano Devices Center for Industry	- Instituted at the three organizations, KIST, POSTECH, and KETI : Building, operating, and sharing basic equipment ; Networking for technology exchange and information sharing; Pursuing commercialization of technology	http://www.nanostar.or.kr/english
Technology Innovation Center (those involved in nanotechnology)	- TICs in each region as hubs of industry-academia-institute technological innovation; NT-related TICs located at Kyungwon Univ. and Hoseo Univ.	http://www.hoseotic.re.kr http://ticnp.kyungwon.ac.kr
Nanotechnology Information Analysis Team	- Operating the Nanonet - Building a comprehensive NT information support system - Running the NT information Advisory Council - Attached to the Korea Institute of Science and Technology Information	http://www.nanonet.info/engweb http://www.kisti.re.kr/english T) 82-2-3299-6012
Nano Technology Research Association	- Building infrastructure for industrialization of NT - Company-centered networking - Pursuing international cooperation for technological exchange and information sharing with advanced countries in nanotechnology	http://nanokorea.net/eng T) 82-2-2057-8507 F) 82-2-577-1574

* **POSTECH**: Pohang University of Science and Technology; **KIST**: Korea Institute of Science and Technology; **KETI**: Korea Electronics Technology Institute

※ Nano-related Research Institutes

▨ **Korea Institute of Science and Technology**	http://www.kist.re.kr
• Center for Nanostructured Materials Technology http://cnmt.kist.re.kr	☎ 82-2-958-6992
• Nano Device Research Team Future Technology Research Division	☎ 82-2-958-5798
• Nano Materials & Nano Materials Technology Teams Materials Science & Technology Division	☎ 82-2-958-5492

▨ **Korea Institute of Machinery & Materials**	http://www.kimm.re.kr
• Center for Nanoscale Mechatronics & Manufacturing http://www.nanomecca.re.kr	☎ 82-42-868-7755
• Nano Power Materials Group http://powder.kimm.re.kr	☎ 82-55-280-3235, 3532

▨ **Korea Basic Science Institute**	http://www.kbsi.re.kr
• Nano Materials Development Team SEM Research Division	☎ 82-42-865-3457
• Nano-Bio System Research Team (Seoul Center)	☎ 82-2-920-0708

▨ **Korea Institute of Science and Technology Information**	http://www.kisti.re.kr
• Nano Information Analysis Team	☎ 82-2-3299-6010

▨ **Korea Research Institute of Standards and Science**	http://www.kriss.re.kr
• Nano Bio Fusion Research Center	☎ 82-42-868-5331, 5716

▨ **Tera-level Nano Devices**	http://nanotech.re.kr
Area: Tera-level Nanoelectronics; Resistive-RAM; Nano element technology	☎ 82-2-3295-4305

▨ **Nano Practical Application Center**	http://www.npac.or.kr
Area: Nano materials; components; fiber development	☎ 82-53-602-1831~1838

▨ **Samsung Advanced Institute of Technology**	http://www.sait.samsung.co.kr
Area: Nano Electronics - Next Generation Memory;Next Generation Storage; MEMS	☎ 82-31-280-9114

▨ **Iljin NanoTechnology R&D Center**	http://www.iljinnanotech.co.kr
Area: Carbon nanotubes	☎ 82-2-3665-7114

▨ **Korea Research Institute of Bioscience&Biotechnology**	http://www.kribb.re.kr
• Bio-Nanotechnology Research Center	☎ 82-42-860-4441

▨ **Korea Atomic Energy Research Institute**	http://www.kaeri.re.kr
• Korea Atomic Energy Research Institute and Company Consortium	☎ 82-42-868-8945

▨ **Korea Institute of Energy Research**	http://www.kier.re.kr
• Korea Institute of Energy Research Area: Nano materials coating technology; Nanoporous materials manufacturing technology	☎ 82-42-860-3114

▨ **Electronics and Telecommunications Research Institute**	http://www.etri.re.kr
• IT Convergence & Components Laboratory, IT-NT Group Area: Nano devices with new functions; circuit technology	☎ 82-42-860-6028

▨ **Korea Institute of Geoscience and Mineral Resources**	http://www.kigam.re.kr
• Minerals and Materials Processing Division, Nano-materials Group	☎ 82-42-868-3612,3603

▨ **Korea Institute of Ceramic Eng & Tech**	http://www.kicet.re.kr
• Nanomaterials Application Division	☎ 82-2-3282-2451,2452

▨ **Research Institute of Chemical Technology**	http://www.krict.re.kr
• Polymer Nano Materials Research Team; Nano Properties Research Team Advanced Materials Division	☎ 82-42-860-7114, 7001

▨ **University-affiliated Nano-related Institute**	
• Nano System Institute (Seoul National Univ.) Area: Ultimate information process devices; Ultimate nano material	http://nsi.snu.ac.kr ☎ 82-2-882-8285
• System on Chip (SOC) Chemical Process Research Center (POSTECH) Area: NEMS	http://postech.ac.kr/soc ☎ 82-54-279-8613
• Institute of Nano-technology & Advanced Materials (Chungnam National Univ.)	http://intam.cnu.ac.kr ☎ 82-42-821-5609,6609
• Kyungwon University TIC for Nano Particles (Kyungwon Univ.)	http://ticnp.kyungwon.ac.kr ☎ 82-31-750-5738

• Nano Technology Research Center (Chonnam National Univ.)	http://altair.chonnam.ac.kr/~ntrc ☎ 82-62-530-0456
• Korea Nano-Biotechnology Center (Pusan National Univ.)	☎ 82-51-510-3798

※ Nanotechnology-related Organizations

- Nano Technology Research Association: http://www.ntra.re.kr
- Korea Nano-Bio System Research Association: http://www.nano-bio.org
- Information Center for Materials: http://www.icm.re.kr/main/index.jsp
- National Nano Devices center for Industry: http://www.nanostar.or.kr
- National Center for Nanomaterials Technology: http://www.nano.or.kr

※ Relevant Government Authorities

- Ministry of Science and Technology: http://www.most.go.kr
- Ministry of Commerce, Industry and Energy: http://www.mocie.go.kr

4. Foreign Investment Support Systems

Korea provides a variety of investment incentives that can contribute to the development of its national economy including tax breaks, reduction/exemption of rent, and cash grants for foreign investments. Among the many programs of support to high-tech businesses and foreign investment to establish R&D centers are the following:

1) Tax Benefits to High-tech Businesses

1. Domestic regulations: Article 121-6 of the Foreign Investment Promotion Act:

> With regard to a contract which introduces any high-level technology vital to the strengthening of international competitiveness of domestic industries, where a contract has been concluded to introduce the technologies falling under the following, the corporate or personal income tax on the royalties for technological license received by the licenser pursuant to the contents of such contract shall be exempted for 5 years from the date on which such royalties are to be paid for the first time under the relevant contract.

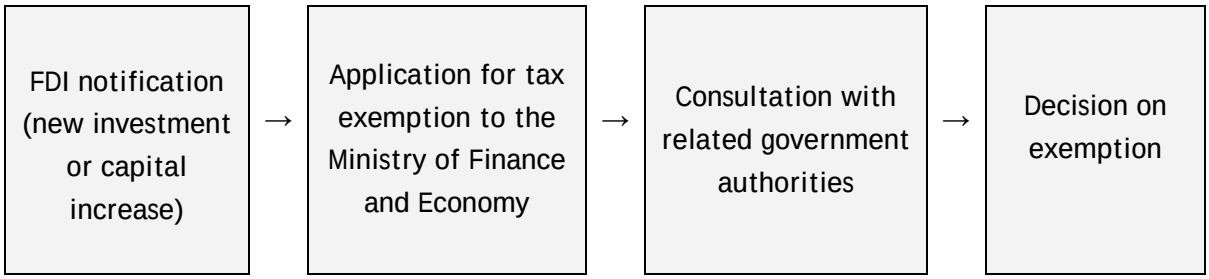
2. The technology entitled to tax reduction/exemption should meet all the following conditions:

❍ Any technology which has great spreading economic or technological effects on the national economy and is vital to the advancement of industrial structures and the strengthening of industrial competitiveness
❍ Any technology for which 3 years elapse or do not elapse from the date of its introduction into Korea and of which economic effects or technological capacities are far more superior than the already-introduced technology
(Any technology necessary for the relevant manufacturing process which is mainly achieved in Korea)

3. How to apply for benefits:

The licenser who provides technology under a contract introducing the technology shall apply for such exemption to the MOFE(Ministry of Finance and Economics) not later than the date on which one year not elapsed as yet(in case where the date of first payment of royalties arrives ahead, before the first payment date).

4. Judging process of tax exemption on high technology industry



2) Tax Benefits to Foreign-invested & Firm-affiliated Research Institutes

When a foreign firm advances into Korea, it is better to establish a firm-affiliated research institute if it wants to receive support from the Korean government. Currently, 134 research institutes in Korea have been acknowledged as firm-affiliated institutes. The research and development (R&D) activities of Korean corporations are mainly conducted by corporation-affiliated institutes, and Korean government's support system is focused on these.

The firm-affiliated research institute system is unique to Korea. If those institutes are acknowledged by the government, a variety of support (tax, finance, human resources, etc) can be provided.

To be acknowledged as a firm-affiliated research institute, large corporations need to recruit 10 or more employees who hold a bachelor degree in a science field. When it comes to Small and Medium sized Business-affiliated research institutes, 2 or more personnel holding junior college diplomas or any equivalent qualification are sufficient, provided they report to the Korea Industrial Technology Association. Meanwhile, venture-business research institutes can be acknowledged if they have 2 or more junior college graduates.

《Acknowledgement Requirements of Firm-Affiliated Research Institute》

<table>
<tr><th></th><th>Details</th><th>Remarks</th></tr>
<tr><td>Human Requirements</td><td>◑ A certain number of research personnel should be present at all times as follows:

<table>
<tr><th colspan="2">Description</th><th>No. of Research Personnel</th></tr>
<tr><td rowspan="3">Research Institute</td><td>SMB* Overseas research institute</td><td>5 or more</td></tr>
<tr><td>Researcher-established SMB** and venture business</td><td>2 or more</td></tr>
<tr><td>Large corporation</td><td>10 or more</td></tr>
<tr><td colspan="2">Research department</td><td>1 or more</td></tr>
</table>

*SMB: Small and Medium Business
**"Researcher-established SMB" means a small and medium business established by a researcher who worked in a research institute to which Government Supported Specific Research Institutes Law and Act on the Establishment, Operation and Fosterage of Government-invested Research Institutions applied, or in a national/public research institute and non-profit research corporation in science and technology sector for more than 3 years, and within 3 years after retiring from one of the said institute.</td><td rowspan="2">◑ Research personnel's qualification:

- A person holding bachelor of Science/Engineering or 1st class engineer's license or higher license and who does not hold another post other than R&D duties and carries out R&D project him/herself.

- However, in the case of information processing or industrial design field, any field of degree is OK.

- In the case of SMB, a person who has 2 or more years of research experience in the concerned field, and is at least a junior college graduate in a science/engineering field (A person holding 2nd class engineer's license is equivalent to junior college graduate).

◑ Difference between research institute and research department: A research department is a smaller sized research organization than a research institute. Its human requirements are just one or more researchers. However, the physical requirement is the same. The support range is relatively smaller than that of a research institute, and also the research department cannot use the name of research institute</td></tr>
<tr><td>Physical Requirements</td><td>◑ The department should have independent research space distinguished from other departments in a building and also have research equipment and devices used for R&D activities</td></tr>
</table>

《Supporting Policies for Firm-affiliated Research Institutes》

	System	Overview of System	Remarks
Tax Supporting System	Reserve Accumulation System for Technology and Manpower Development	The amount of planned technology innovation-related investments (such as technology development expenses, technology information and training expenses and research facilities investments) is presented as loss in advance, and invested in a technology development-related sector within three years	Preferential for small and medium businesses
	Tax Deduction System for Technology and Manpower Development Expenses	Ex post deduction of a certain rate of technology and manpower development expenses of each taxation year is deducted from corporate tax or personal income tax	
	Tax Deduction for Facilities Investments in Research Tests	A certain rate of investment amount with regard to research test facility investments is deducted for tax purposes	
	Special Excise Tax Exemption for Samples for Test Research	Special excise tax is exempted for test and research samples for the development of new products or new technologies	
	Local Tax Exemption System for Real Estate for Research Institutes	Exemption of local taxes (acquisition tax, aggregate tax, registration tax, and property tax) for real estate of firm-affiliated research institutes	Limited to research institutes
Tariff Supporting System	Tariff Reduction System for R&D Equipments	For certain items separately selected among cutting-edge equipment imported for R&D use, the tariffs are reduced by 80%	
	Tariff Reduction Supporting System for R&D Materials	The tariffs for materials (test, reagent, sample and part) imported for R&D purpose are reduced by 80%)	
Financial Supporting System	Supporting System for National R&D Project Participation	Assistance is given for a certain rate of R&D expenses as research subsidy when firms participate in specific R&D projects, industrial infrastructure technology development projects and IT technology development projects	

	Special Measure when Judged as a Small and Medium Business (SMB)	When calculating the number of employees, exceptionally preferential treatment is given by excluding the number of researchers from the number of employees	Limited to research institutes
	Special Exception System for SMB Technology Credit Guarantee	When deliberating the preferential technology guarantee, it can be an exceptionally supported institution that may be granted a full score of 25 without technology development capability evaluation (recommended by the Small and Medium Business Administration)	Limited to research institutes
Military Service Special Exception System	Specialized Researcher System	Military duty is exempted for an allocated number of newly employed researchers at a firm-affiliated research institute equipped with certain criteria.	Limited to research institutes
In addition, the central government departments, local governments and public institutions (including government-run corporations) take actions to grant application qualifications to research institutes and research departments when providing various technology development funds and placing orders of general projects and also when deliberating and selecting appropriate candidates			

APPENDIX

Appendix 1. Nano Infrastructure in Korea

I. National NanoFab Center

Location	National NanoFab Center, KAIST, 53-3 Eoeun-dong, Yuseong-gu, Daejeon, 305-806
Specialization	Silicon-based nano device processing
Establishment	Completion of construction ceremony held and fab service started on March 16, 2005

Establishment Background	Based on Article 11 of the Nanotechnology Development Promotion Act; provides nano research equipment/process services; trains professional human resources; launched as a comprehensive research support center to promote commercialization of research results	
Function /Role	- Furnishing nano equipment and establishing nano processes required for nanotechnology development and providing comprehensive R&D support to the industry-academia-research institute - Providing one-stop service from idea to commercialization - Producing highly qualified nano R&D human resources - Promoting technology-intensive venture businesses and venture start-ups through commercialization of nanotechnology	
Building Size	13,517㎡ in total	Cleanroom: 5,068㎡ (Class 1-10K) Research area: 3,762㎡ (4 floors); Auxiliary facilities: 4,688㎡
Owned Equipment	164 items in total	E-beam Lithography, etch, diffusion, thin film, lab on a chip, NEMS, metrology, fundamental physics, etc.
Employees	60 persons (47 researchers/engineers, 13 administrative workers; As of the end of Feb. 2006)	
Process Built	Completed production of state-of-the-art equipment and property evaluation equipment and process technologies for CMOS integration process, MEMS process, and manufacturing bio chips/sensors	
	Able to process specimen into 8-inch wafers; completed the process from support to R&D of original technologies through prototype product manufacturing to production in a small number	
	Supports fusion of technologies among CMOS, MEMS, BT, and NT	
Domestic and International Cooperation	Domestic: Signed MOUs with 17 institutions in seven regions nationwide to share equipment and facilities and built an equipment backup system	
	International: Signed MOUs with four prominent overseas nanotechnology institutions: Stanford Nanofab Facility (SNF), US; Leibniz Institute, Germany; Advanced Institute of Nanoengineering , Kyoto Univ., Japan; and National Center for Nano Science & Technology (NCNST) [/], US; Korea-China Nanotechnology Joint Research Center opened; Korea-US jointly opened an international workshop on nanotechnology research support infrastructure.	

Website	www.nnfc.com	**E-mail**	ekchoi@nnfc.com
Telephone	042-879-9500	**Fax**	042-879-9609

II. Korea Advanced Nano Fab Center

Location	906-5 Iui-dong, Yeongtong-gu, Suwon, Gyeonggi Province (within the R&D complex)
Specialization	Compound-based nano devices process
Total Project Cost	KRW 195.729 billion in total (project period: 2003-2008)
Establishment	Fab services began in April 2006
Participating Organizations	Ministry of Science & Technology, Gyeonggi Province, KIST, KETI, Hanyang Univ., SungKyunKwan Univ., Seoul National Univ., Ajou Univ., 22 companies

Establishment Background	As part of the Ministry of Science & Technology's program to build infrastructure for the nation's essential researches, the center was established to provide: 1. A batch process service for compound semiconductor-based nano electronic devices/nano optical devices 2. R&D support process service for all non-silicon-based nano devices	
Function /Role	- Open facility that can be used by the industry, academia, and research institutes for R&D in nano devices - Providing a batch process service - Producing nanotechnology experts through field training/education - Building domestic and international nanotechnology R&D networks and implementing a hub fab of advanced nano device technology in Northeast Asia	
Building Size	50,149㎡ in total	Cleanroom: 3,306㎡; Research Venture Area: 38,876㎡; Fab & CUB Area: 11,273㎡
Owned Equipment	Some 90 items	E-beam lithography, KrF Stepper, FIB, Mask Aligner, AFM, Litho Wet Station, ICP etcher, etc.
Support Process	- Batch process service: GaAs-, GaN-, & InP-based devices - R&D support process service: New devices, including magnetic devices, molecular devices, and carbon nanotube devices, in addition to compound semiconductor devices	
Eligibility	- Nanotechnology development companies/organizations in non-silicon-based compound semiconductor areas or related areas - Research institutes/researchers involved in nanotechnology R&D project by a public/private organization - Venture businesses which can materially spin off the achievements of nanotechnology development - Companies and organizations which can bring about technological fusion effect by systematically utilizing the equipment/facilities in the **Gwanggyo Techno Valley** - Foreign companies and organizations which are involved in nanotechnology and relevant areas and can contribute to the Center's international utility and cooperation	
Support to Tenant Companies	- Batch process service; support to basic and original researches; support of R&D service to property evaluations - Providing comprehensive corporate support solutions in linkage with the Gyeonggi Small and Medium Business Center (GSBC)	

Website	www.kanc.re.kr	**E-mail**	info@kanc.re.kr
Telephone	031-259-6777	**Fax**	031-259-6776

III. National Center for Nanomaterials Technology

Location	San 31 Hyoja-dong, Nam-gu, Pohang, 790-784, North Gyeongsang Province
Specialization Area	Nano materials development using an accelerator
Project Period	Aug. 1, 2004-July 31, 2009 (5 years)
Total Project Cost	KRW 110.358 billion
Organized by	POSTECH

Objective of Establishment	Building infrastructure that can be supported from R&D to commercialization for nano materials in the semiconductor and display areas and raising competitiveness of the nation's semiconductor and display industries as well as creating new industries		
Participating Organizations	Five local governments, five techno parks, 96 companies (POSCO, LG.Philips LCD, Samsung SDI, Samsung Electronics, etc.) 18 universities/research institutes [consortium of a total of 124 organizations]		
Notable Feature	Supported by the Ministry of Commerce, Industry and Energy		
Function / Role	Nano Devices in Electronics & Photonics Lab	EUVL, electronic devices, photonic materials	
	Next-generation Nano Materials Lab	Nano metals, nano particles, nano coating	
	Nano Materials Measurement & Analysis Lab	Property-based technology, measurement technology, analysis technology	
	Nano Semiconductor Materials Lab	Nano processing technology, precision control technology	
	Display Materials & Parts Lab	LCD, PDP, OLED	
Building Size	11,660㎡	Cleanroom: 2,314㎡ Site: 21,289㎡ (Site expandable in the future: 24,992㎡) Construction period: July 1, 2005-July 31, 2006	
Support Facilities	Accommodations	30 housing units for the POSTECH NT Center; 15 housing units for Pohang TP NT	
	Network	Using the broadband communication network at the Tae-Joon Park Digital Library	
	Venture Support Area	Utilizing the Pohang Techno Park	
Nearby Infrastructure	POSTECH, Pohang Accelerator Laboratory, Pohang Techno Park, Tae-Joon Park Digital Library, POSTECH Biotech Center, Research Institute of Industrial Science & Technology, Metallic Material TIC, National Nano Devices Center for Industry, Bio-Nanotech Research Center, Nanotechnology Research Center, and others		
Possessed Equipment	1st year	Cryogenic RF Measurement System, Flicker Noise Measurement System, HR-SEM, FIBm MPMS, E-beam Evaporator, DRIE, Logic Analyzer, Compress System, Hot Aerosol Spray M/C, etc.	

Website	http://www.nano.or.kr	**E-mail**	kbs1012@postech.ac.kr
Telephone	054-279-3838	**Fax**	054-279-3820

IV. Seoul Technopolis

Location	172 Gongneung-dong, Nowon-gu, Seoul
Project period	2005-2014 (10 years)
Participating Companies & Univ.	Samsung Electronics, Samsung SDS, LG.Philips, ABC Corporation, DMS, Jusung Engineering, and others
	Kyung Hee Univ., Korea Univ., Ewha Univ., Samyook Univ., Univ. of Seoul, Seoul Women's Univ., Yonsei Univ., Seoul National Univ. of Technology etc. (Total of 14 universities)
Participating Organizations	Seoul Metropolitan Government, Korea Electric Power Corporation, Korea Institute of Radiological & Medical Sciences, Seoul National University of Technology Managed by Seoul Technopark Foundation

Objective of Establishment	- Creating the Seoul Technopolis (Gongneung NIT Cluster) by positioning the research headquarters area housing an advanced cleanroom at the Seoul National University of Technology and connecting Seoul Technopark branches at the Korea Electric Power Corporation and the Korea Institute of Radiological & Medical Sciences - Developing growth engine industries of the future, which are Seoul's strategic industries, to facilitate balanced regional development and stimulate Seoul economy	
Research Org.	KIST, Korea Institute of Machinery & Materials, Defense Quality Assurance Agency	
International Cooperation	Overseas university institute: Georgia Tech PRC (Packaging Research Center), US	
	Overseas institutions: IVAM, Germany; KISTA, Sweden; Oulu Technopolis, Finland (establishment of an international cooperation and exchange system underway)	
Major Projects	Developing microsystem packaging process technology and manufacturing equipment	
	Developing Nano/IT manufacturing equipment: Using electrons/ion beams; semiconductor process equipment; display devices and equipment	
	Researching and developing manufacturing equipment in electrical power and biotechnology	
Notable feature	Foreign companies can take tenancy beginning in Aug. 2007	
Building Size	11,800 ㎡ in total	- Research headquarter area (smart house): 4,460㎡ - Size: 12 stories with one basement level - Corporate research area: 7,340㎡
Major Facilities	- NIT FAB (Clean room) - Smart House (R&D center) * Research-related: Education lab, measurement lab, experiment evaluation lab, Nano-FEIB Lab, Microsystems Packaging Lab, Nano processing lab * Corporate research facilities (some 100 companies are planned to take tenancy); lecture rooms and amenities	
Telephone	02-6321-4008	**Fax**

Appendix 2. Nano Exhibitions in Korea: NANO KOREA 2006

NANO KOREA is the biggest nanotechnology event in Korea. Held the fourth time this year, NANO KOREA began in 2003 with the aim of becoming an internationally recognized NT exhibition and technology conference. It is jointed held by the Ministry of Science and Technology and the Ministry of Commerce, Industry and Energy, and jointly organized by the Korea Nano Technology Research Society, Nano Technology Research Association, and Korea Institute of Science and Technology Information.

The event includes an exhibition, symposium, and R&DB technology transfer/investment roadshow, in addition to many auxiliary events, including visits by overseas buyers and investors to domestic nanotechnology companies and an award ceremony for the developers of outstanding products/technologies. The R&DB technology transfer/investment roadshow is held at an open venue in the exhibition hall during the exhibition. It is a venue where visitors can learn about the latest in research and technologies and investors can meet one another. It affords numerous opportunities to forge new business ties in nanotechnology.

In NANO KOREA 2005, a total of 92 organizations (59 companies and 33 schools and research institutes) from seven countries, including Korea, the UK, Japan, Germany, the US, Taiwan, and Switzerland, participated in the event to present nanotechnology and products and achievements of research. At the symposium, 56 speakers from eight countries made 52 presentations on ten subjects, including nano devices, nano materials, nano processing and equipment, nano applications and commercialization, and nanotechnology policy.

□ Overview of the Exhibition

Name	NANO KOREA 2006 The 4th International Nanotech Symposium & Exhibition in Korea
Theme	Ultimate Technology, Nano Imagineering!
Venue	Korea International Exhibition Center (KINTEX) 1 Hall(4,779m^2)
Period	2006.Aug.30(Wed)-Sept.1(Fri)
Host	MOST(Ministry of Science and Technology)/MOCIE(Ministry of Commerce, Industry & Energy)
Organizer	NTRA, KoNTRS, KISTI
Scale	100 Firms, 200 Booths -Domestic: 70 Firms, 160 Booths - Foreign: 8 Countries, 30 Firms, 40 Booths

* NTRA: Nano Technology Research Association
* KoNTRS: Korea Nano Technology Research Society)
* KISTI: Korea Institute of Science Technology Information)

A. On-line Registration for Exhibition: www.nanokorea.or.kr, Due Date: Jun. 30, 2006.

B. Booth (1booth: 3m W X 3m D = 9 m^2 / 2.7m H)

- Raw booth (Space only)
- Shell Scheme booth : Space(9 m^2), Wall(1mX2.4m panels), Fascia Board Name with lighting Box, Electric Supply(1kW, 220v), Information Desk 1, Chair 1, Spot Light 4
- Booth rate (US$/booth)

Profile	Shell	Raw	Target customer
Business Firm, Company	2,500	2,000	First Shows
	2,250	1,800	Second and More
Non-profit organization/ University Lab	2,000	1,600	* All tax included

□ Major Auxiliary Events

(1) NANO KOREA Symposium

◎ Scale
- Two Keynote speakers and two plenary speakers; 38 invited speakers (10 from overseas) + four others - Poster exhibition and release: Over 100 posters - Over 1,500 people targeted for the registration with the symposium (some 25% increase from 2005)
◎ Session composition (seven sessions)
Nano-electronics, nano materials, nano equipment & processing, nano-bio fusion technology, nano physics, nano chemistry, presentation of the achievement of government-sponsored nano R&D projects, open lectures
◎ Cooperative program
The 4th Symposium on Nanostructured Materials Technology: Medical Applications (organized by the Center for Nanostructured Materials Technology)

※ Call for papers:

- Areas: Nano electronics, nano materials, nano equipment & processing, nano-bio, nano physics, and other nanotechnology-related areas
- Important Dates
  1. Abstract Submission: June 10, 2006
  2. Notification of Acceptance: June 20, 2006
  3. Full Paper Submission: 15 July, 2006

(2) R&DB Technology Transactions & Investment Roadshow

Classification	Progress	Expected Effects
Companies	Introducing products and technologies	Finding cooperative companies and publicizing products
Institutes/Universities	Presenting research results	Finding items eligible for early industrialization; attracting investment; inducing technology transfer
Joint/Overseas Participants	Presenting success stories in R&D	Providing an opportunity for technological investment; technological transfer; investment cooperation
How to process: 20-minute presentation and 5-minute Q&A session → Separate tables are provided after briefing		

◑ Application for the roadshow:

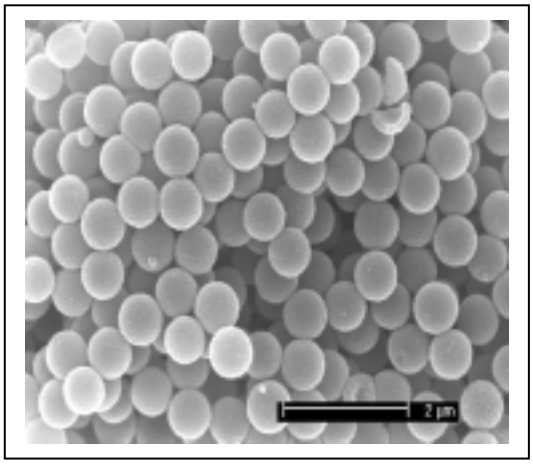
- Submit a separate application form (Inquire to the Secretariat)
- Participation fee: 500,000 won/session; companies and organizations participating in the exhibition are admitted free of charge

※ For more information on the exhibition:

Secretariat of NANO KOREA Organizing Committee
Room 305, Seshin Bldg, 66-2, Wumyeon-dong, Seocho-gu, Seoul
137-140, Korea
Tel: +82-2-577-1574
Fax: +82-2-2057-8509
E-mail: Daesoo Kim (Mr.) - ntrakim@nanokorea.net
NANOKOREA 2006 Website: www.nanokorea.or.kr

Appendix 3. Nano Companies Seeking Partnership

ECOPRO CO., LTD.



Ecopro has been working on chemical and environment-friendly materials since 1998 under three different management philosophies; Technical overriding management, Customer oriented management, Human respect management. In 2003, for the first time in the world, Ecopro developed and commercialized NCB (Nano Carbon Ball) cooperated with LG Household and Health Care and Korea Research Institute of Chemical Technology, in 2004 PFCs (Per-Fluoro Compounds) scrubber, in 2005 CO catalyst and chemical adsorbent, in 2006, Ecopro is leading in the field of environmental materials and system such as Large Chemical Free Chamber until now.

Nano Carbon Ball (NCB) is a carbon structure of a ball shape which the blowhole of a number nm is advanced well at the surface. It is a new material which a surface absorption site is advanced so that it can adsorb the odor well. Particle itself is about 200~500nm. Absorption ability is superior (Nano technique). It is 1.5~2 times better than high-grade activated carbon. (such as Kuraray from Japan). NCB's particles can be used to deodorant or filters for electrical appliances, automobile air-conditioner and water purifier, carbon structure for fuel cell, and so on.

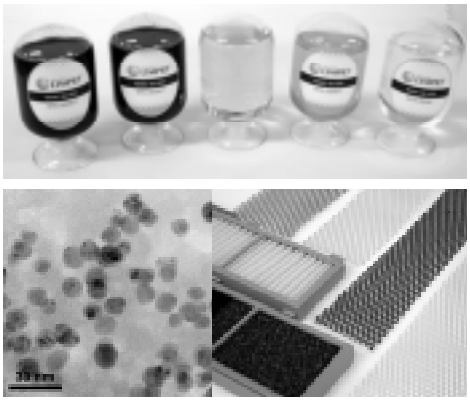
The NCB (Nano Carbon Ball) is fabricated with seven steps of synthesis processes. First, inorganic synthesis step, the white nano silica ball with a 500nm in diameter was synthesized on the nano core consisted of the meso-shell of 3nm channels from the process of the arrangement, inorganic reaction, removal of the surfactants. And then, after the polymerization within the channels filled with the polymer monomers, the NCB as a replica of the nano silica ball was fabricated in the etching process of inorganic materials followed after the carbonization of the polymerized complex. Finally, the NCB as a deodorizer was presented with impregnation of the catalyst. The NCB can be applied as a deodorizing filter or deodorizer of the electric home appliances, of an air conditioner, of a water purifier, the supports of catalyst to food control, and various carbons construct to a fuel cell etc. And also, because the unit nano-sized pores on the surface of the NCB can fix the drug and enzyme, it can be useful materials to the DDS (Drug Delivery System) and the fixative materials of anenzyme, extensively.

Nano Carbon Ball is developed and created only in advanced system of Ecopro, and the application width is becoming to widen even more to other field such as drug delivery system.

※ For Further Information

Name : Ho Nyun Kim	
Website :	**E-mail : hnkim@ecopro.co.kr**
Tel : 82-16-367-5860, 82-43-218-7774	**Fax : 82-43-218-7771**

NANUX INC.



▲ LIMPID, TEM, Filter products

Nanux is an employee prop venture company where most of employees work as shareholders since 1996 and also it is an associated company to Woo Yun (world no. 1 cycling shoes manufacturing company). In 1999, getting into a new market with high-technology, they started out with putting 12 billion won in diversified nano business field. Since 2001, they have been fast growing along with 3 to 10 times sales profit every year. Until the end of 2006, they have a goal achieving twice as much as they did in 2005.

Core technologies of Nanux are to form, synthesize a nano particle in various solvents and manufacture nano coating materials or nano composite materials by combining nano particles with organic and inorganic materials such as general synthetic resin, plastic, ceramic, etc. Now they have 12 different patents and trademarks certified out of 15 together, recently they have brought out anti-virus vaccine for bird-flu and have been providing air filters, masks, and living supplies to companies like LG electronics.

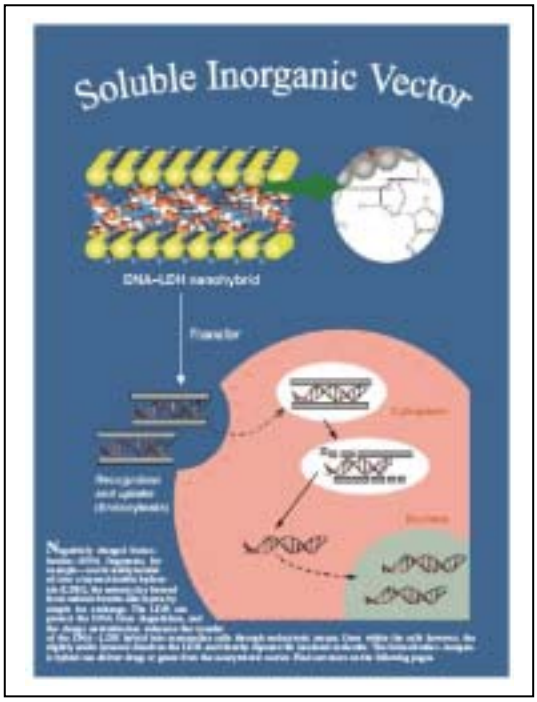
Receiving distinguished evaluation from Korea Technology Transfer Center (KTTC) in 2003 and being considered as an excellent project of environment-friendly anti-rust coating material from KIBO technology fund are demonstrating the superiority of Nanux.

The Nanotech Report 2006 released by LUX RESEARCH INC. picked Nanux and Samsung Electronics among Korean nano companies. Nanux is trying to do our best to maximize the competitiveness, based on this new technology and hoping to have partnerships and strategic cooperation with oversea companies.

※ For Further Information

Name : Seung-Chan Park	
Website : www.nanux.co.kr	**E-mail : nano@nanux.net**
Tel : 82-55-346-4690	**Fax : 82-55-346-4694**

NANOHYBRID



Nanohybrid is a venture company established in 2001 by Professor Choy, Jin-ho of Ewha University, the world's leading authority in nanotechnology, for the new development and commercialization of new materials based on nano and bio technology.

Nano-Hybrid technology is their core technology, consisting of the hybridization of substances in the nano level, maintaining the substance's identities while transforming external characteristics in a way to maximize each substance's advantage. In other words, the hybridization process brought by this technology is the fusion of the host mineral of nano-size with the guest of organic, biological or other mineral on the atomic level, resulting in a core-shell structure.

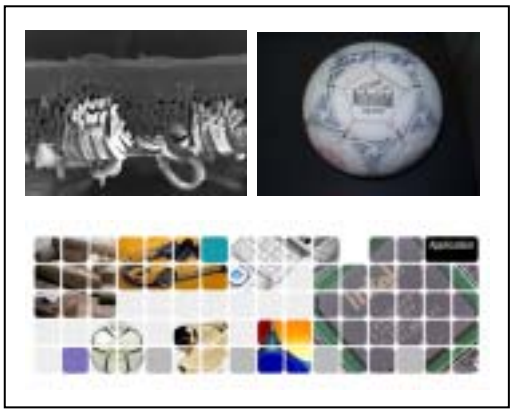
The external characteristics of this hybrid is determined by the host mineral, and the characteristic of the core part organic or biological material appears when it is released from the shell, offering a revolutionary way to maximize guest materials' advantage in such areas as pharmaceuticals, cosmetics and food. Thus hybrid materials produced by nano-hybrid technology provides a delivery system which releases the guest substance of specific biological or chemical functions in such a ideal way as releasing the needed quantity at a appropriate time and a specific location. In 2004, for the first time in the world, they developed a Nano DNA Barcode System (NDBS) that codifies genetic material into inorganic matrix, and used this technology for successful development of "Vitabrid-C", a stabilized pure vitamin C base. Utilizing 'DDS (Drug Delivery System)' as a source technology, we have concentrated our efforts on developing functional cosmetics, pharmaceuticals and food additives and operating an organic verification system with nitrogen isotopes ratio determination method as part of our environment-friendly initiative.

Through continuous research and development, they will augment nanotechnology industry with 'gene delivery nano-systems' applied to pharmaceutics along with 'Vitabrid-C' and 'IAA-brid' which optimizes indole-acetic-acid, plant growth hormone, for its high anti-wrinkle effect.
Nanohybrid's researchers with Professor Choy, Jin-ho, are working around the clock to fulfill our vision of pioneering advances in Korea's nanotechnology in the 21st century.

※ For Further Information

Name : Taeun Park	
Website : www.nanohybrid.com	**E-mail : tp@nanohybrid.com**
Tel : 82-2-3277-433	**Fax : 82-2-3277-4340**

GENTROL CO., LTD.



Gentrol seeks to apply nanosphere dispersions for various coating systems. Gentrol is a technically strong company with special strengths in acrylic dispersions as well as polyurethane dispersions. Gentrol works very closely with customers and develop specific products for their unique requirements.

Gentrol's dispersion and related coatings technology is based on innovative research and development as well as a profound understanding of manufacturing, engineering, and formulating of this technology to insure customer satisfaction. Gentrol has been working on the production of environmentally friendly synthetic leather with polyurethane dispersions. Recently, Gentrol has been working with Akzo Nobel IAR to launch acrylic emulsion polymers for ink applications in Asia.

Gentrol has modern manufacturing facilities for acrylic and PU dispersions to meet the requirements and to insure quality control from laboratory to production. Being manufactured under the severe quality control process, Gentrol products are highly estimated in many industrial fields such as waterborne ink, painting, paper coating for wrapping semiconductors, electronics, etc.,

Gentrol is always seeking new requirement and demand in each field eagerly, and will precede the technical development further. Furthermore, Gentrol is looking for foreign investors to expand capability of R&D and production in a shorter time.

※ For Further Information

Name : Hyoung Soon Kim, Ph. D	
Website : www.gentrol.com	**E-mail : hskim@gentrol.com**
Tel : 82-32-821-0217	**Fax : 82-32-821-0207**

Appendix 4. Major Nano Companies in Korea

Company Name	Business Area	Website
Nanonix	Nano powder, nano materials	www.nanonix.com
Mirero	System development for electron microscopes	www.mirero.co.kr
Nanopac	Photocatalysts and applications	www.nano-pac.com
EnPion	Photocatalysts, coating agents	www.enpion.com
Nanotech Ceramics	Inorganic flame retardants, inorganic light filler	www.tajima.co.kr
Nano LCD	Printless pattern program development	www.nanolcd.com
Posdata	R&D for new technologies	www.posdata.co.kr
Iljin Nanotech	Carbon nanotubes	www.iljincnt.com
NanotechKorea	Nano compound materials, ULD, PTCR	www.nanotechkorea.co.kr
PSIA	Development, manufacturing, and selling of atomic force microscopes	www.psia.co.kr
ANP (Advanced Nano Products)	Ceramic nano powder, nanocolloids (sol)	www.anapro.com
Abcnanotech	Nano-sized colloidal silica and new inorganic materials	www.nanotech.co.kr
Nano	TiO2 photocatalysts, WS2 solid lubricants	www.nanoin.com
Sukgyung A-T	High purity, ultrafine ceramic raw material powder, precision inorganic chemistry, electronic materials	www.sukgyung.com
Nanomirae	Carbon-based nano materials	www.nanomirae.com
NANOcomposites	Nano silver, nano coating	www.nanocomposite.net
TIOChem	Nanopolymer particles, composite organic/inorganic materials	www.tiochem.com
Samsung Corning	Semiconductor wafers, nano powder	www.samsungcorning.co.kr
Nanux	Development of functional additives and nano coating agents	http://kor.nanocomposite.net/
Polychrom	Nano particle-coated micro capsules	www.polychrom.co.kr/main.htm
Samsung SDI	Displays	www.samsungsdi.co.kr/
Nano Tronix	TDC technology	www.nano-tronix.com
Eotechnics	Laser-applied devices	www.eotechnics.com
Nanometrics Korea	Semiconductor measurement equipment	www.nanometrics.co.kr
Mat Science Tech	Manufacturing of products made of new materials and new materials equipment	www.matst.com/k_main.htm
Kolmar Korea	R&D in cosmetics	www.kolmar.co.kr

Company Name	Business Area	Website
Samsung Advanced Institute of Technology	Nano storage, MEMS, nano analysis	www.sait.samsung.co.kr
Human Elecs	Magnetic device production	www.humanelecs.com
Biocera	Nano semiconductive photocatalysts	www.biocera.co.kr
Biometrix Technology	Biochip manufacturing	www.biometrixtech.com
Nano Pore Materials	Manufacturing of membranes for purifying waste lubricating oil	www.nanopoma.com
NANO LCD	LGP for laptop computers	www.nanolcd.com
Nanolab	Zirconia nano powder	www.inanolab.com
Lancome	Cosmetics manufacturing	www.lancome.co.kr
Nano Meditech	Detergents and cosmetics	www.nano80.co.kr
Woosin Cryovac	Vacuum, plasma, cryogenics	www.woosinent.co.kr
POSCO	Cold-rolled steel sheet, hot-rolled steel sheet, thick sheet, wire rod, electrical steel sheet, stainless steel sheet	www.posco.co.kr
Daesung Ceramics	Anti-bacterial ceramics, photocatalyst ceramics, germicidal & deodorizing catalysts, ceramic substrates for water purification	www.dscera.co.kr
Nano Hitec	Backlights for semiconductors and LCDs	www.nanohitec.co.kr
SolarTech	Photocatalysts	www.solarteche.com
A-Tech System	Cargon nanotube-composite equipment	www.atechsystem.co.kr
ENB Korea	Photocatalysts	www.enbkorea.com
Core Chem	Food additives, eco-friendly plastic additives	www.corechem.koreasme.com
Digital Bio Technology	Bio infrastructure	www.digital-bio.com
New Materials Institute, LG Chem	Display, semiconductor, & recording materials	www.rnd.lgchem.co.kr
Gentrol	Nanopolymer particles	www.gentrol.com
Cenotec	Fine ceramic powder	www.ceramicbead.com
Amaranth Cosmetics	Cosmetics	www.amaranth-cosmetics.com
Samyang	Foodstuffs, chemicals, medicine, animal feed, polyester, trading, environmental business	www.samyang.co.kr
Biospectrum	Skin technology, genes, development of cosmetics raw materials and treatments	www.biospectrum.com
Hyosung Chemical	Development of PET vessels	www.hyosungchemical.com
Nadri	Cosmetics	www.nadri.com
Kolon	Polymers, textile industry, plastics	www.ikolon.com
Ace Lab	Air purifiers, catalyst recovery units	www.acelab.co.kr
Q-sys	Photonic materials, new engineering plastic materials	www.q-sys.co.kr

Company Name	Business Area	Website
DS Precision	Si, glass, ceramic materials	www.dssemicon.com
InkTec	Printer toner, ink	www.inktec.com
Acehitech	Semiconductor equipment (colloidal silica)	www.acehitec.com
Dong Sin	Zeolite, bentonite, diatomite	www.dong-sin.co.kr
Sunghobiotech	Multi-functioning fiber coating agents	www.sunghobio.co.kr
Nano Electronics	Electric insecticidal devices, air curtains, warm air circulators	www.nanoi.co.kr
Youl Chon Chemical	Packaging materials processing technology	www.youlchon.com
Sungjitech	Washers, presses	www.sungjitech.co.kr
ATTO	Semiconductors	www.atto.co.kr
SEMES	Semiconductors	www.kdns.co.kr
FST	Semiconductors	www.fstc.co.kr
JS Tech	Granular materials processing	www.jeilseishin.co.kr
CEBT	Electronic beams	www.cebt.co.kr
Nano Hi-Tech	Industrial measurements, instrumentation systems	www.nanoht.co.kr
Hanmi	Nano indenters	www.gohanmi.com
DaeHa ManTech	Chemicals	www.daeha.com
Nano Nico	Engine oil additives	www.nanonico.co.kr
Kwailnara	Cosmetics	www.kwailnara.co.kr
Puritek	Photocatalysts, anti-bacterial deodorants, inorganic nano coating agents	www.puritek.co.kr
Dasungtech	Fibers, air purifiers, photocatalyst agents for indoor and outdoor uses	www.dasungtech.com
ParayleneKorea	Parylene coating	www.parylenekorea.com
NANOTEK	Laser optics	www.nanotek.co.kr
EugeneScience	Bioengineering	www.eugene21.com
Rigong Int'l	Electron microscopes	www.rigong.co.kr
Korea Technology Supply & Promotion	Technological transfers	www.ktsnp.com
Water Air Health	Water purifiers, air purifiers, ionic water system	www.water-air.com
ANS	Semiconductors	www.ansinc.co.kr
Autodata	Semiconductor cooling system, logistics automation system, marking system, information & communication	www.autodata.co.kr
Kornic Systems	Semiconductors equipment, LCD equipment, equipment controllers & software	www.kornic.co.kr
Nanomedical	Medical equipment	www.nanomedical.co.kr
Sunjin Chemical	Surfactants, ceramic powder	www.sunjinchem.co.kr
G&P Technology	Precision surface processing technology	www.gnptech.com
Unitech	High-functional photocatalysts, special chemicals for cleaning	www.uni-tech.co.kr

Company Name	Business Area	Website
Korea Semiconductor Material	Semiconductor materials	www.kosem.co.kr
Donghae Gas	Gas and gas meter business	www.dhgi.co.kr
Alpha-Plus	Vacuum equipment	www.alpha-plus.co.kr
CM Medical Equipment	Medical supplies	www.cmmedical.com
ATEC System	Development and manufacturing of information & communication devices using the LCD panels; system integration business	
Solitonics	Life information, R&D in bioactive substances	www.solitonics.com
Caregen	Bioengineering	www.caregen.co.kr
Trybrands	Underwear	www.sbw.co.kr
Nano System	Electrical & electronic measurement devices	www.nanosysco.com
UNICOS	Cosmetics	www.unicos.co.kr
Solco Biomedical	Medical supplies, medical equipment	www.solco.co.kr
KOVACO	Nano-based technologies; nano materials, process, measurement, equipment, and logics	www.kovaco.com
Nanoenics	Nano materials	www.nanoenics.com
Dongwoo Fine-Chem	Materials	www.dwchem.co.kr
Memsware	Nano-based technologies, nano materials	www.memsware.com
Mobile Electron	Nano devices	www.mobilelectron.com
VMT	Nano-based technologies	www.vmt.co.kr
COSMAX	Cosmetics	www.cosmax.com
SeouLin Bioscience	Nano biotechnology/medicine	www.seoulin.co.kr
ITM	Nano materials	www.itmbiz.com
A Tech	Nano materials	www.aa-tech.co.kr
Power MnC	Nano materials	www.powermnc.com
M2N	Nano devices	www.micro2nano.com
Waytotech	Process, measurement, equipment, & logics	www.waytotec.com
Aralion	Nano materials	www.aralion.com
iNtRON Biotechnology	Nano biotechnology/medicine	www.intron.co.kr
K.C.Tech	Nano materials	www.kctech.co.kr
Inostek	Nano materials, nano devices	www.inostek.com
TIOZ	Nano materials, environment/energy	www.tioz.co.kr
Yonsei Nanotech	Nano-based technologies, nano materials	www.nanotech.or.kr
Silicon & Systems	Process, measurement, equipment, & logics	www.siliconandsystems.com
Narae Nanotech	Process, measurement, equipment, & logics; electrical/electronic engineering, equipment, electronics/communication, materials/manufacturing	www.naraenano.com

Company Name	Business Area	Website
ViroMed	Nano biotechnology/medicine	www.viromed.co.kr
Lotte Aluminium	Advanced industrial materials, aluminum, packaging materials for cigarettes, packaging materials for foodstuffs and medicines, steel cans for drinks, pet supplies, daily necessities	www.lotteal.co.kr/korean.htm
Saehan	"Nano Power," yarns, raw cotton, fibers, filters, water treatment, sheet	www.saehan.co.kr
Sam's Bio	"Nano Essential Oil"	www.avecena.co.kr
ECOPRO	NCB functional products and materials, chemical filters, molecular sieves, catalysts, chemical adsorbents, oxygen generators	www.ecopro.co.kr/index.asp
Cheil Industries	Advanced chemical technologies, fashion	www.cii.samsung.com/about/about_set.htm
PHOENIX PDE	Display equipment	www.pde.co.kr/company/work_pdp.htm
Siltron	Silicon wafers	www.lgsiltron.co.kr
Jusung Engineering	CVD process equipment	www.jseng.com
Finedays	Cosmetics, including silver ionized face lotion, mask packs, ampoules, and skin care makeup sets	www.finedays.co.kr
Nanopoly	Nano silver	www.nanopoly.net
Nanomag	Infrared blocking coating films	www.nanomag.co.kr
Gaematech	Functional coating materials	www.gaematech.co.kr
Hanil Medical	Medical supplies	www.hanilmedical.net/korean.asp
A-Tech System	Semiconductors and flat panel displays manufacturing equipment	www.atechsystem.co.kr
Nanotech Resource	Nano particle, nano surface, and nano structure technologies; analysis and super clean technologies	www.nanotechkorea.co.kr/company/company_01.htm
NANOMT	Precision machinery	www.nanomt.co.kr/main.html
Daeyoung TNC	Teflon, PTFE, coating, nanotechnology, expansion joints	www.dytnc.co.kr/index.htm
Tovis	Biotechnology- & nanotechnology-based new drugs, functional health supplement, medical supplies, R&D in multimedia	www.eyetovis.com
WB Tech	Waterborne coating agents, new nano composite materials, waterborne flame retardants, waterborne binders, inorganic thickeners, ultraviolet blocking materials	www.wbtech.co.kr

Company Name	Business Area	Website
Clebio	Anti-SARS drugs; developer of Ecotru, a nano disinfectant; PCMX disinfectant, surface sterilization, washing agents	www.clebio.com
Nanomagic	Photocatalysts	www.nanomagic.co.kr/default.asp
Parkor Korea Indus	Tunnel environment measurement system, automatic fire detectors, air environment products, environment measuring devices, traffic sensors	www.parkor.co.kr/index.php
Purezen	Cosmetics	www.purezen.co.kr
Dongjin Semichem	Various nano products, including nano materials	www.dongjin.com
Nexen Nano Technology	Nano materials	www.nexennano.com
Nanokor	Highly functional nano materials	www.nanokor.com
Nano Technics	Carbon fibers	www.nano21c.com
Nanotech	Carbon nanotubes	www.nanotechworld.co.kr
Nanopol	New environmental technologies in a worldwide network	www.nanopol.com
Nanohybrid	New materials for fine chemistry; electronics, information, and communication; biotechnology	www.nanohybrid.com

The INVEST KOREA Global Network

HEAD OFFICE
==========
Seoul, KOREA
300-9, Yomgok-dong, Seocho-gu,
Seoul, Korea
TEL: (82-2)3460-7618
FAX: (82-2)3460-7943
www.investkorea.org
E-mail: myoojee@kotra.or.kr

NORTH AMERICA
==========
New York, U.S.A
TEL: (1-212)826-0900
FAX: (1-212)888-4930
E-mail: kotrany@ix.netcom.com

Los Angeles, U.S.A
TEL: (1-323)954-9500
FAX: (1-323)954-1707
E-mail: laktc@yahoo.com

Chicago, U.S.A
TEL: (1-312)644-4323
FAX: (1-312)644-4879
E-mail: info@kotrachicago.com

Dallas, U.S.A
TEL: (1-972)243-9300
FAX: (1-972)243-9301
E-mail: ktcdfw@swbell.net

Washington, D.C., U.S.A
TEL: (1-202)857-7919
FAX: (1-202)857-7923
E-mail: main@kotradc.com

San Francisco, U.S.A
TEL: (1-650)571-8483
FAX: (1-650)571-8065
E-mail: info@kotrasf.org

Detroit, U.S.A
TEL: (1-248)355-4911
FAX: (1-248)355-9002
E-mail: detroit@kotradtt.org

Toronto, CANADA
TEL: (1-416)368-3399
FAX: (1-416)368-2893
E-mail: info@kotra.ca

Vancouver, CANADA
TEL: (1-604)683-1820
FAX: (1-604)687-6249
E-mail: ktc@kotrayvr.com

EUROPE
==========
Frankfurt, GERMANY
TEL: (49-69)242-9920
FAX: (49-69)25-3589
E-mail: frankfurt@kotra.or.kr

Hamburg, GERMANY
TEL: (49-40)23-2235/2638
FAX: (49-40)23-3998
E-mail: kotraham@t-online.de

Berlin, GERMANY
TEL: (49-30)2096-2636/8
FAX: (49-30)2096-2635
E-mail: kotra-berlin@t -online.de

Munich, GERMANY
TEL: (49-89)2424-2630
FAX: (49-89)2424-2639
E-mail: munich@kotra.or.kr

Paris, FRANCE
TEL: (33-1)42-25-09-57
FAX: (33-1)42-25-09-50
E-mail: info@kotraparis.com

London, U.K
TEL: (44-20)7491-8057
FAX: (44-20)7491-7913
E-mail: kotra@kotra.co.uk

Brussels, BELGIUM
TEL: (32-2)203-2142
FAX: (32-2)203-0751
E-mail: kotrabru@skynet.be

Milano, ITALY
TEL: (39-02)795147, 795813, 796384
FAX: (39-02)798235
E-mail: kotramil@kotra.it

Zurich, SWITZERLAND
TEL: (41-1)202-1232
FAX: (41-1)202-4318
E-mail: ktc@kot ra.ch

Oslo, NORWAY
TEL: (47)23 32 76 50/3
FAX: (47)22 11 02 70
E-mail: kt coslo@kotra.no

Stockholm, SWEDEN
TEL: (46-8)30-80-90
FAX: (46-8)30-61-90
E-mail: kotra.sto@kotra.nu

Copenhagen, DENMARK
TEL: (45)3312-6658
FAX: (45)3332-6654
E-mail: info@kotra.dk

Amsterdam, NETHERLANDS
TEL: (31-20)673-0555
FAX: (31-20)673-6918
E-mail: info@koreatradecenter.nl

Vienna, AUSTRIA
TEL: (43-1)586-3876
FAX: (43-1)586-3979
E-mail: kotravie@kotra.at

Helsinki, FINLAND
TEL: (358-9)638122
FAX: (358-9)638611
E-mail: kotrahel@kolumbus.fi

Madrid, SPAIN
TEL: (34-91)556-6241
FAX: (34-91) 556-6868
E-mail: madridktc@kotra.or.kr

Helsinki, FINLAND
TEL: (358-9)638122
FAX: (358-9)638611
E-mail: kotrahel@kolumbus.fi

ASIA & OCEANIA
==========
Singapore
TEL: (65)6221-3055
FAX: (65)6223-5850
E-mail: kort rade@singnet.com.sg

Sydney, AUSTRALIA
TEL: (61-2)9299-1790
FAX: (61-2)9299-1792
E-mail: kotra@ozemail.com.au

Melbourne, AUSTRALIA
TEL: (61-3)9699-3833
FAX: (61-3)9699-3811
E-mail: ktcmel@bi gpond.net.au

JAPAN
==========
Tokyo
TEL: (81-3)3214-6951
FAX: (81-3)3214-6950
E-mail: kotratky@kotra.or.jp

Osaka
TEL: (81-6)6262-3831
FAX: (81-6)6262-4607
E-mail: osaktc@kotra.or.jp

Nagoya
TEL: (81-52)561-3936
FAX: (81-52)561-3945
E-mail: nagoya@kot ra.or.jp

Fukuoka
TEL: (81-92)473-2005
FAX: (81-92)473-2007
E-mail: kotrafuk@lime.ocn.ne.jp

CHINA
==========
Shanghai
TEL: (86-21)6219-7592
FAX: (86-21)6219-6015
E-mail: shaktc@81890.net

Beijing
TEL: (86-10) 6410-6162
FAX: (86-10) 6505-2310
E-mail: pekktc@kotra.or.kr

Hong Kong
TEL: (85-2)2545-9500
FAX: (85-2)2815-0487
E-mail: kotrahk@netvigator.com

Taipei, TAIWAN
TEL: (886-2)2725-2324
FAX: (886-2)2757-7240
E-mail: kotra.tpe@msa.hinet .net

For more information

Please contact:

Major Industry Investment Promotion Team, Invest KOREA, KOTRA

300-9, Yomgok-dong, Seocho-gu, Seoul, Korea

Tel: 82-2-3460-7618,7616

Fax: 82-2-3460-7943

http://www.investkorea.org

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