China in the Emerging Global Knowledge Economy

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“The Best of Times”

- Stability
- Economic growth
- Reform
- International exposure

On a Sharply Rising Trajectory

- Increasing spending on S&T and R&D
- A large talent pool
- Rising share of Chinese S&T publications in the world
- FDI and foreign-invested enterprises in China's industrial technology upgrading
- Manufacturing center with increasing content of high-tech

China's Innovation Strategy

- From R&D to innovation
- Strengthening the nation with science, technology, and education（科教兴国）
- Strengthening the nation with talent（人才强国）
- Initiatives
  - Patents
  - Standards
  - Talent
- Medium to Long-Term Plan for the Development of Science and Technology (2006-2020): Indigenous innovation（自主创新）

LMP: Quantitative Targets

	2005	2020
GERD/GDP (%)	1.41	2.5
Contribution of technology to economic growth (%)	30	60
Dependence of foreign technology (%)	50	30
World rank in number of citation to Chinese-authored scientific papers	13	5
World rank in number of invention patents granted to its own citizen		5

Key areas of national needs (11)	Mega engineering programs (16; only 13 listed)
Energy	Core electronic components, high-end generic chips, and basic software
Water and mineral resources	Extra large scale integrated circuit manufacturing and technique
Environment	New generation broadband wireless mobile telecommunication
Agriculture	Advanced numeric controlled machinery and basic manufacturing technology
Manufacturing	Large-scale oil and gas resources exploration
Transportation	Large advanced nuclear reactors
IT industry and modern services	Water pollution control and treatment
Population and health	Genetically modified organism new variety breeding
Urbanization and urban development	Drug innovation and development
Public securities	AIDS, virus hepatitis, and other major diseases control and treatment
National defense	Large aircrafts
	High resolution earth observation system
	Manned space flight and moon exploration
Frontier technologies (8)	**Mega basic science programs (4)**
Biotechnology	Protein science
Information	Quantum research
New materials	**Nanotechnology**
Advanced manufacturing	Development and reproductive biology
Advanced energy	
Ocean	
Laser	
Aerospace and aeronautics	

“The Worst of Times”?

- An enterprise-centered national innovation system
- IPR issue
- Money well spent
- The planning economy legacy
- Quality issue
- Talent: bottleneck
- “Blooming and contending”

International Collaboration in Nanotech (1)

Partners of China	
U.S.	293
Japan	129
Germany	88
Singapore	72
Australia	47
U.K.	36
France	35
Canada	33
Korea	31
Chinese Taipei	27

Partners of the U.S	
China	293
Germany	269
Japan	202
Korea	195
France	139
U.K.	117
Russia	116
Canada	115
Italy	88
Israel	70

International Collaboration in Nanotech (2)

Country	1996			2005			Increase (Times)		
	SCI Papers	Intern-ationally co-authored papers	with the U.S.	SCI papers	Intern-ationally co-authored papers	with the U.S.	SCI papers	Intern-ationally co-authored papers	with the U.S.
Germany	869	346	86	2429	1268	269	2.8	3.7	3.1
Japan	1082	177	65	3044	761	202	2.8	4.3	3.1
U.K.	380	179	42	1102	594	117	2.9	3.3	2.8
France	494	184	39	1680	881	139	3.4	4.8	3.6
China	477	65	16	5401	819	293	11.3	12.6	18.3