

China's National Innovation System: A Foreign Business Perspective

Alan Wm Wolff
Dewey Ballantine LLP

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China's Innovation Objectives: Phase I: Economic Development



China's Innovation Objectives: Phase I: Economic Development

China's remarkable success story of the last thirty years by every measure continues today --

- Rapid growth of economy – 1st half 2007 -- 11.5%
- Export growth – 1st half 2007 -- 27.6%
- Electronic Information Products – 1st half 2007 – 24.9%%
- High inward foreign direct investment
- High growth in IT sectors
- High growth in PC ownership

China's Innovation Objectives: Phase I: Economic Development

In today's world, the core of each country's competitive strength is intellectual innovation, technological innovation and high-tech industrialization.

- **Jiang Zemin,**

General Secretary of the Communist Party of China Central Committee,
keynote speech National Technological Innovation Conference,
August 23, 1999

China's Innovation Objectives: Phase I: Economic Development

[We] must strengthen the coordination of economic policies and S&T policies, create a policy environment beneficial to technological innovation, high-tech development and industrialization.

- **Hu Jintao**,
General-Secretary of the CPC Central Committee,
(November 27, 2005)

China's Innovation Objectives:
Phase II: Indigenous Innovation

自主创新

Zi Zhu Chuang Xin

Achieving Indigenous Innovation

The Challenge:

Fostering a system supporting indigenous innovation – finding the appropriate role for government.

The Response: Achieving Indigenous Innovation

Elaborate Policy Planning and Instruments:

- Medium and Long Term Program on Science and Technology Development (2006-2020)
- 11th Five-year Plans (2006-2010)
- National, Regional and City IPR plans

The Response: Achieving Indigenous Innovation

Long Term S&T Program:

- Make intensive investment in crucial high technology products
- Use policy tools to promote, favor, and reward indigenous innovative technologies;
- Increase R&D spending to 2.5% of GDP by 2010.
- Engage in key state projects to generate important strategic products and create the environment for innovation through "Guiding Opinions"

- *State Council of the People's Republic of China,*
Outline of the National Medium-and Long-Term Program on
Scientific and Technological Development 2006-2020

Human capital

S&T Workforce:

Excellent people with overseas educational background are encouraged to come back to China and serve the home country for short terms so that [some of them] will finally come back to work in China for long-term purposes ...

- *Ministry of Education,*
Opinions of the Ministry of Education on Further Strengthening the Absorption of Excellent People with Overseas Educational Background,
(March, 2007)

Foreign Direct Investment and Innovation

A key tenet of China's policy has been to welcome foreign investment:

China's absorption of foreign investment is an important part of China's fundamental principle of opening up to the outside world, and an important component of Deng Xiaoping Theory. [It] is one of the great practices of building up socialist economy with Chinese characteristics.

- Ministry of Commerce
(June 14, 2004)

The Role of Foreign Direct Investment

[We shall] encourage foreign enterprises especially large-scale multinationals to transfer the processing and manufacturing processes with higher technology levels and higher added value and research and development organizations to China, ... to develop the technology spillover effect, and strengthen the independent innovation ability of Chinese enterprises.

- National Development and Reform Commission,
11th Five Year Plan for Use of Foreign Investment, (November 2006)

Attracting FDI: Positives and Negatives

IPR and Innovation – OECD Report

Government tasks include setting framework conditions that are conducive to innovation. ...

[T]he legal protection of intellectual property rights may have a ... direct effect on innovation.

- OECD China Innovation Review Synopsis

IPR and Indigenous Innovation

Without IPR protection, there can be no innovation.

– Tao Wenzhao,
researcher with the Chinese Academy of Social Sciences,
China Daily 03/14/2006

Policies on IPR need to be improved. They are not in line with IP legislation; ...

Enterprises do not have enough IPR of core technology. They own little IPR and those are of poor quality;

Some government leaders need to further realize the importance of the work of IP;

- Tian Lipu,
Commissioner of the State Intellectual Property Office,
February 15, 2006 online interview

IPR and Innovation – OECD Report

The lack of effective IPR protection affects innovative activity in China:

- ***Foreign firms hesitate to transfer technology***
- ***Chinese inventors are reluctant to commercialize the results of their R&D***
- ***IPR infringements ... may affect the national and international reputation of Chinese firms***

In contrast, sound IPR policies can facilitate the transfer of research results from public research organizations to business enterprises and from foreign firms to the Chinese economy.

- OECD China Innovation Review Synopsis

IPR and Innovation – OECD Report

“Forced” technology transfer --

[F]orcing the diffusion of proprietary knowledge can only discourage its production and interrupt the development of a spillover process, that, over time, will spread knowledge and know-how that are likely to be much richer than a single technological formula or object.

- OECD China Innovation Review Synopsis

Standards and Indigenous Innovation

Chinese firms have joined with the Chinese government to develop technical standards, not simply as a way to promote harmonization, facilitate efficiency, or ensure health and safety, but also as a strategic tool to benefit the particular interests of Chinese industry and the Chinese state.

- Scott Kennedy,
*The Political Economy of Standards Coalitions:
Explaining China's Involvement in High-Tech Standards Wars,*
Asia Policy, (No. 2) July 2006

Standards and Innovation – OECD Report

The challenge for China is to develop a standards regime that is in line with WTO regulations and does not eventually lead to distortions of national and international competition and thus stifle innovation.

- OECD China Innovation Review Synopsis

Government Procurement and Indigenous Innovation

The government shall establish a priority procurement policy for important high-tech equipment and products developed by domestic enterprises with independent intellectual property.

[We shall] provide policy support to enterprises purchasing domestic high-tech equipment.

- *State Council of the People's Republic of China,*
Outline of the National Medium-and Long-Term Program on
Scientific and Technological Development (2006-2020)

Standards: Accreditation Measures

- products submitted for accreditation shall:
 - ... have indigenous intellectual property rights
 - ... possess state-of-the art innovation;
 - ... [contain] advanced technology [comparable] to the international advanced level among similar products;
 - ... have potential economic benefits and wide market prospect or can substitute for imported merchandise.

- Accredited ... products shall be given priority in procurement for government and national key projects ... and related industrialization policies [in order to] support the development of indigenous innovation products.

- Articles 4 and 2,
Administrative Measures for Accreditation of National Indigenous Innovation Products,
Interim draft, (undated)

Government Procurement and Indigenous Innovation

Innovation through public procurement cannot be “ordered”; rather, it has to be the result of a sophisticated articulation of demand for innovative products or services and of a transparent competitive process.

Since China has not yet signed the WTO government procurement agreement (GPA), foreign companies are concerned about the procurement policy’s potential for discrimination.

- OECD Reviews of Innovation Policy: China Synthesis Report

Government Procurement and Indigenous Innovation

Integration into the WTO GPA would not just open up China's public procurement markets to foreign companies, it would . . . also provide new opportunities for Chinese companies to enter public procurement markets abroad.

- OECD Reviews of Innovation Policy: China Synthesis Report

Antimonopoly Policy and Indigenous Innovation

The transition to more innovation-driven growth based on stronger intellectual property rights also requires a modern, properly enforced anti-trust law.

- OECD Reviews of Innovation Policy: China Synthesis Report

Antimonopoly Policy and Indigenous Innovation

[We shall] prevent the abuse of intellectual property that unfairly restricts the market mechanism for fair competition ...

- *State Council of the People's Republic of China,*
Outline of the National Medium-and Long-Term Program on
Scientific and Technological Development (2006-2020)

Antimonopoly Policy and Indigenous Innovation

[I]t is much easier for [multinational companies] to obtain a dominant and even monopoly position in the Chinese market. Their current or potential anticompetitive practices will certainly disturb fair competition in the market and infringe upon the legal rights and interests of consumers as well as other businesses.

- *Office of Antimonopoly, Fair Trade Bureau,
State Administration of Industry and Commerce,*
“Anticompetitive Practices of Multinational Companies in China and Countermeasures”
(May 2004)

Antimonopoly Policy and Indigenous Innovation

The AML will help restrict multinationals, curb their competition restricting-behavior such as product price and quality-manipulation and abuse of market dominant position.

- Cong Bin and He Yicheng,
NPC Standing Committee members

Antimonopoly Policy and Indigenous Innovation

[We shall] prevent the abuse of intellectual property that unfairly restricts the market mechanism for fair competition ...

- *State Council of the People's Republic of China,*
Outline of the National Medium-and Long-Term Program on
Scientific and Technological Development (2006-2020)

Antimonopoly Policy and Indigenous Innovation

Business has some concerns with the June 2007 draft AML, which include:

- definition of dominant market position, some M&A provisions
- enforcement structure and mechanism
- relationship between enforcement authorities and sectoral authorities' jurisdiction
- "abuse" of IP provisions, lack of a clear definition raises concerns that refusing to license proprietary technology to Chinese competitors, or any similar action, may be considered "abusive" and subject to the law.
- compliance with TRIPS, related multilateral obligations and convergence with international competition principles.

Antimonopoly Policy and Indigenous Innovation

Business concerns – “ dominant position”

When one firm -- even one with a large market share -- decides to compete very aggressively, the result is often pro-competitive and pro-consumer, notwithstanding the fact that the firms' rivals may lose market share and profits.

U.S. antitrust authorities' concern is to protect the operation of the market mechanism itself, not individual enterprises.

They will challenge certain practices by a firm with monopoly power, but only if a thorough economic analysis demonstrates that the conduct in question is certain to be anticompetitive.

There are many industrial sectors in which individual firms hold large market shares, yet remain fiercely competitive, with progressively better products reaching consumers at progressively lower prices.

Thomas R. Howell,
Testimony, ITC

Antimonopoly Policy and Indigenous Innovation

Business concerns – “anti-recession cartels”

China’s draft AML’s prohibition on monopoly agreements does not apply to agreements “for the purpose of mitigating severe decrease of sales volume or excessive overstocks in economic recession”

Use of this provision would run counter to China’s desire to modernize its economy.

Agreements on price and joint curtailment of output reduce the competitiveness of Chinese industry and impair innovation by insulating industry from market force. This is inconsistent with the AML’s other objectives of promoting competition and economic efficiency.

Antimonopoly Policy and Indigenous Innovation

Business concerns: resistance to competitive change

- *The draft AML contains a provision authorizing special treatment of “industries controlled by State-owned economy”. This appears to contemplate the government rather than market forces setting prices.*
- *The draft AML appears to permit trade associations to create Fair Competition Codes which can act as collusive and anticompetitive restrictions on competition.*

Implementation of the AML: Lessons from US Experience

- Contending schools of thought in the early 20th century
 - “Big is Bad” (Brandeis)
 - “Big is inevitable” government must plan and control
 - Industry should regulate itself (Big business leaders)

- New Deal tried out all three, sometime simultaneously
 - NRA authorized industry regulation (cartels)
 - Government planning, administration (energy, agriculture, transportation)
 - Antitrust assault on economic concentrations

- Result: Economic Confusion
 - A series of programs and obligations in direct conflict with each other
 - Did not contribute to economic recovery

Parallels with China's draft AML

- “Big is Bad” - - Abuse of dominant position provisions
- “Big is inevitable” - - Special provisions for SOEs
- “Industry Self Regulation” - - Article 11 provisions for “self-disciplinary” practices by trade associations

Current US Antitrust Policy

Economic Principles became the base for US Antitrust Policy in the 1970's:

- Ending the notion that US Antitrust Policy should protect any class of producers (including small business)
- Abandoning the "big is bad" concept, unless there is a clear, scientific economic showing of actual or unrealized exercise of anticompetitive monopoly power.
- Not providing exemptions for "industry self regulation."
- The sole purpose of US Antitrust Policy is now seen as the promotion of economic efficiency to maximize benefits to consumers.

Since this approach was adopted, the US has enjoyed high rates of innovation and economic growth while leaving the "stagflation" of the 1970's well behind.

Antimonopoly Policy and Innovation – IPR

“Abuse of IPR” versus Innovation

In order to provide an incentive for innovators to bear the substantial risks and cost associated with R&D, it is necessary to give them the legally-enforceable right to exclude others from appropriating their inventions.

IP holders may refuse to license proprietary technologies to anyone, or to license to some enterprises but not others, without running afoul of antitrust law, while IP holders are free to charge royalties which are as high as the market will bear without fear of antitrust challenge.

These principles are fully consistent with the basic pro-competitive thrust of the antitrust laws, since they foster innovation, one of the most important elements underlying dynamic and competitive markets.

Antimonopoly Policy and Indigenous Innovation

AML as a vehicle of national competition policy should have a sole goal, which is to increase economic efficiency and consumer welfare through protecting effective competition.

AML shall not be assigned with too many tasks nor is it able to address all problems.

National economic security issues stemming from FDI inflow should be address by specific FDI administrative laws.

- Professor HUANG Yong,
University of International Business and Economics,
(a consultant to the AML drafting panel)
(July 5, 2007)

Antimonopoly Policy and Indigenous Innovation

Other countries through having their own protective industrial policies, do not codify them into antitrust law, otherwise the antitrust law will be regarded as targeting FDI only.

- Sheng Jiemin
Peking University Professor
(a consultant to the drafting panel of AML)

Sectoral Policies

Trade and Investment Policy and Indigenous Innovation

Equipment Sector:

- Imports of key equipment using foreign capital will be subject to “strict examination and study”.
- There will be special review of mergers and acquisitions in the sector
- Foreign control of key domestic equipment manufacturers will be prohibited.

Goal: Establish by 2010 competitive Chinese companies with their own IPR to meet China’s needs in energy, transportation, raw material and defense sectors and revitalize China’s equipment manufacturing industry.

*- State Council on the Acceleration of the Revitalization of the Equipment Manufacturing Industry,
Several Opinions of the State Council on the Acceleration of Revitalization
of the Equipment Manufacturing Industry, (February 13, 2006)*

Semiconductor Manufacturing

11th Five-Year Plan on Development of High-tech Industries:

- Special projects in the integrated circuit and software industry:

... establish the complete integrated circuit industry chain with the design industry as the leading industry, the manufacturing industry as the core, and the equipment manufacturing and affiliated industry as the basis.

- National Development Reform Commission,
Notice of the National Development and Reform Commission
on Distributing the 11th Five Year Plan on Development of High-tech Industries,
(April 28, 2007)

Semiconductor Manufacturing

11th Five-Year Plan on Development of High-tech Industries:

- Development objectives for the information industry:
... [We will] significantly increase the self-sufficiency ratio to over 70 percent for integrated circuits used for information and national defense security, and to over 30 percent for integrated circuits used in communications and digital household appliances.

- Ministry of Information Industry,
Outline of the 11th Five-Year Plan and Medium-and-Long-Term Plan for 2020
for Science and Technology Development in the Information Industry,
(August 29, 2006)

Automotive Industry

Auto Industry Development Policy:

- The promotion of domestic research and development, technical innovation, and brand style [for the development of an independent auto industry]
- Chinese control of at least 50% of any sino-foreign joint venture
- Minimum capital investment requirements in production and research and development facilities required to receive approval

- *National Development and Reform Commission,*
National Development and Reform Commission Issues the Auto Industry Development Policy,
(June 2004)

An Innovation Policy Balance Sheet

Innovation Drivers

- Rate of growth in GDP
- State planning
- Education (volume of engineering graduates)
- FDI --careful study and adaptation from foreign systems
- Large domestic market
- IPR – increased protection
- Incentives for indigenous patenting
- High penetration of cell phones, internet

Innovation Inhibitors

- State planning
- Political intervention
- Share of SOEs
- S&T&E workforce issues
- IPR issues
- Forced technology transfer
- Underdeveloped Capital Market
- Distorting standards requirements
- Potential for AML misuse
- Administrative guidance re: IPR
- Discriminatory government procurement
- Conditions on inward FDI
- Misallocation of capital

Innovation Inhibitors

FDI response:

- Because of deficiencies in IPR protection, foreign investors:
 - Withhold core technologies
 - Limit technology transfer to the routine
 - Hold back key IPR components
- FDI tech transfer is also constrained also by:
 - Limited local partner company synergies

- Leonard Lynn, Case Western Reserve University,
Hal Salzman, Urban Institute,
(July 2006)

Innovation Inhibitors

Human capital and S & T Workforce Issues:

US and China - Engineering Graduates:

	Total	Under -graduate	Masters	Doctorate
US (2004)	119,405	78,227	35,197	5,981
China (2005)	590,166	517,225	63,514	9,427

But studies by Duke, McKinsey, Cao and Simon, indicate China's educational system:

- is outdated, has a Marxist focused curriculum,
 - emphasizes depth over breadth emphasis,
 - has a quantitative over qualitative focus,
 - does not nurture creativity
- leads to "transactional vs. dynamic engineers"
- produces a shortage of "innovative" engineers.

Innovation inhibitor

[There is] no official guidance or limitation in terms of the types of policy tools a sub-national government can use.

- OECD Reviews of Innovation Policy: China Synthesis Report

OECD Conclusions

A failure to manage the process of integrating China smoothly into the global innovation system carries the risk of costly tensions.

To integrate China into the global innovation system successfully, both China and OECD countries need to maintain a spirit of dialogue and co-operation and an open attitude so as to avoid reverting to protectionist measures that impede trade and capital and knowledge flows.

- OECD Reviews of Innovation Policy: China Synthesis Report

OECD Conclusions

[The improvement of] a modern system of corporate governance and finance, anti-trust law and effective intellectual property rights protection, and a modern, pro-competitive regulatory regime ... can help create the necessary conditions for an open innovation model in which indigenous innovation capabilities and R&D-intensive foreign direct investment can reinforce each other.

- OECD Reviews of Innovation Policy: China Synthesis Report

OECD Recommendations:

- *Improve the enforcement of intellectual property rights protection*
- *Foster competition – introduce modern and effective anti-trust legislation*
- *Implement innovation-oriented public procurement policy carefully -- avoid creating an obstacle to China's joining the WTO Government Procurement Agreement*
- *Use technology standards in a pragmatic way*
- *Continue improving corporate governance*
- *Foster open and efficient capital markets*

- OECD Review of Innovation Policy, China Synthesis

Additional Recommendation:

***Outward Foreign Direct Investment
can offer many major opportunities
fostering indigenous innovation***

Conclusion

创新也是硬道理

INNOVATION IS ALSO AN IMMUTABLE TRUTH

谢谢

Xie Xie

Thank You