OECD Innovation Strategy: Developing an Innovation Policy for the 21st Century

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Overview

1. The OECD Innovation Strategy
2. The innovation imperative
3. The changing nature of innovation
4. The Key Policy Messages from the OECD Innovation Strategy
5. Concluding remarks
1. OECD’s Innovation Strategy
The OECD Innovation Strategy: Cutting across many policy areas

The OECD work involves a wide range of policy Committees

- Education & skills
- Science and technology
- Environment
- Industry and entrepreneurship
- Development
- Information and communications
- Tax
- Statistics
- Competition
- Public governance
- Investment
- Territorial development
- Trade
- Consumer policy
2. The Innovation Imperative
Innovation accounts for a large share of GDP growth
Percentage contributions, 1995-2006, in %

*Investment in intangibles and MFP account for between 2/3s and 3/4s of GDP growth.*
...and is needed to restore lagging productivity growth...

Labour productivity growth in the OECD area, 1981-2007

Annual growth rate, percentage
...and can help address global challenges like climate change.

Potential technological contributions to CO₂ emission reductions

Note: WEO refers to the IEA’s 2007 World Energy Outlook.
3. The Changing Nature of Innovation: the what, how, where & who have changed
What innovation encompasses has changed...

- **Broader than just R&D** to include non-R&D innovation like design, marketing, organisational innovation;

- Involves **more than just “high-tech”** firms;

- Encompasses **services**, including non-market services like public sector services;
Innovation is not only about R&D...

New to market product innovators with and without R&D, 2004-06 (or latest)

As a percentage of innovators

- Innovation (no R&D)
- In-house R&D

Countries: Austria, Czech Republic, Iceland, Luxembourg, Ireland, Netherlands, Estonia, Norway, Chile, Belgium, Denmark, Japan, South Africa, Spain, Australia, Portugal, UK, Korea (manuf)
...and R&D is not only for high-tech firms...

Share of business R&D by technological intensity (manufacturing, 2006)
...and innovation is not only about manufacturing.

Share of all trademarks registered by services

- Singapore
- Spain
- Luxembourg
- Norway
- Finland
- Austria
- Ireland
- United Kingdom
- Poland
- Brazil
- Germany
- Sweden
- Belgium
- Portugal
- Denmark
- France
- Greece
- Canada
- India
- Hungary
- Australia
- Italy
- United States
- Russia
- Israel
- Switzerland
- South Africa
- Mexico
- New Zealand
- Hong Kong
- Turkey
- China
- Iceland
- Chinese Taipei
- Japan
- Korea
Policy Implications from the broadening of innovation

- Growing **importance of education and training: hard and soft skills**, including entrepreneurship

- Need to motivate and **provide space for innovation to flourish**:
  - Competition & empowering consumers
  - Solid, predictable institutional framework that supports entrepreneurs:

- Recognition that **a bundle** of investments are needed for innovation: tech & non-tech.
How innovation is conducted has changed...

- Increasingly at the intersection / interaction of separate borders: disciplines; geography and institutions.

- Cost pressures, competition and desire to reduce risk have led to more open / collaborative strategies;

- Premium and competitive advantage attached to tacit knowledge: know-how, organisational capital, access to networks.
There is more collaboration among scientists...

**Trends in co-authorship in scientific publications**

- Domestic co-authors
- Domestic single authors
- International co-authors
- International single author
Companies collaborating on innovation, as a percentage of all firms, 2004-2006

Source: OECD, based on CIS and national sources.
...who are employing “open innovation” strategies for competitive advantage...

Q3 ‘09

- Items shipped on behalf of sellers who utilized Fulfillment by Amazon (FBA): **3x from 2008**
- Amazon Web Services (AWS): **300k users**

Q3 ‘09

- **100k approved apps**, up from 65k in August
- estimated **2.5b$US iPhone “apps economy”**

* www.gigaom.com 27/08/09 “How Big is the iPhone App Economy?”
...aided by ICT (especially the Internet).

Over 140,000 people have participated in Innovation Jam activities – with a record 4.2 million page views of Jam related materials. A record 37,000 ideas – from more than 75 countries and 67 companies – were posted during the first phase of the Jam.

WorldJam2001
- a new collaborative medium to capture best practices on 10 urgent IBM issues.

ValuesJam
- an in-depth exploration of IBM’s values and beliefs by employees.

WorldJam2004
- focused on pragmatic solutions around growth, innovation and bringing the company’s values to life.

InnovationJam2006
- IBMers, family, clients and partners discuss how to combine new technologies and real world insights to create market opportunities.
Policy Implications for a more open mode of innovation

• *Erect bridges* between the different parts, forming or joining a network – not necessarily more or new hard infrastructure.

• *Soft skills are needed* that can traverse disciplines, cultures and organisations.

• Building networks through *labour mobility*.

• Use of *ICT* to build networks; *informatics* as a multidisciplinary field and *public depositories of information* as a platform for innovation;

• Developing *knowledge networks and markets*;
Where innovation occurs has changed...

- **MNEs** still play a huge role; but increasingly more than just “D” abroad;
- **Young firms** a key as change agents;
- Increase in **cross-border links**;
- Rise of **China and India**.
...with MNEs playing a large role...

R&D and turnover of affiliates under foreign control, 2006
As a percentage of total
...but so do young firms.

Patent applications filed by young firms, 2005
As a percentage of patents filed by firms at the European Patent Office (EPO)

Source: OECD, HAN database, October 2009 and Bureau Van Dijk Electronic Publishing, August 2008
Global innovation networks are emerging...

Share of patents with foreign co-inventors (%)

[Bar chart showing the share of patents with foreign co-inventors for various countries, with Japan highlighted.]

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...that alter relative comparative advantages...

The Apple iPod = 299$ of Chinese exports to US

Distribution of the value added

- 299 US$
  - 75$ profit to US (Apple)
  - 73$ whls/retail US (Apple)
  - 75$ to Japan (Toshiba)
  - 60$ 400 parts from Asia
  - 15$ 16 parts from the US
  - 2$ assembly by China

  - 70% digital market share
  - Big 5 recording companies

http://blogs.computerworld.com/node/5724
…driven by new players…

Contributions to growth in global R&D
(in billion constant US PPP and %)

Note: (1) Australia, Canada, Iceland, Korea, Mexico, New Zealand, Norway and Turkey
(2) Argentina, Brazil, India, Israel, Russian Federation, Singapore, South Africa, Chinese Taipei
Source: OECD.
...that alter the topography of innovation.
Policy Implications of global networks of innovation

• **Build absorptive capacity**: skills, institutions, access to networks;

• Importance of **services** as a means of capturing value locally & gaining access to lead-users;

• **Universities** are an essential node in innovation systems that can be the glue between actors, a local anchor into global networks and a magnet for global talent.

• **Building on existing strengths** for dynamic comparative advantage through innovation.
Who the actors are in the innovation system has changed...
...to include a wide range of actors...
Finland’s Governance of Innovation Policy

...a range of Ministries...

- Science and Technology Policy Council
- Ministry of Education
- Academy of Finland
- Higher Education Universities (20), Polytechnics (31) (Non-university sector)
- Research Institutes e.g. Languages of Finland National Board of Antiquities
- Research Institutes e.g. Technical Research Centre (VTT) Geological Survey
- Parliament
- Government
- Ministry of Employment and the Economy
- Ministry of Agriculture and Forestry
- Other Ministries
- Finnish National Fund for Research and Development (SITRA)
- Research Institutes e.g. National Public Health Institute Research and Development Centre for Welfare and Health (STAKES) Environment Institute Meteorological Institute
- TEKES
- Research Institutes e.g. Agrifood Research Finland Forest Research Institute
...and many levels of government.
...which raises issues of how to govern policies for innovation.

- Need for strong **political leadership**;
- Need to clearly **delineate local, regional & national roles** to avoid duplication, and build coherence.
- Need for measurement and evaluation **frameworks** to support policy.
4. Key Policy Messages
A) Adapting to a post crisis environment

- **Diffusing, applying, adapting** vs. developing – the need for cooperation is growing.

- **Leverage** public resources – partnerships with firms, avoid duplication.

- **Create room** for new firms and allow creative destruction to occur.
B) Harness innovation to address global challenges

• combination of “getting prices right” and stimulating innovation;
  ➢ stable and long-term policy horizon;
  ➢ improved international S&T co-operation;
  ➢ New mechanisms and platforms for collaboration based on new partnerships
  ➢ Enabling new actors: social entrepreneurship, foundations, etc.

• Demand and supply side policies
C) Developing a more systemic set of policies for innovations

- Most public policy is aimed at the creation of knowledge: R&D, HRST, IPR.
- Need to better join up “push” and “pull” policies:
  - Empowering people to create knowledge and apply knowledge
  - Protecting IPR and creating value from IPR
  - Getting prices right to create markets for environmental innovation and policies that can create radical innovations and breakthroughs
Challenges for Japan

• **People:**
  – Little labour mobility within the economy and internationally
  – A dual labour market
  – Limited foreign interaction

• **Innovation in firms:**
  – Very low degree of internationalisation – low FDI, and low degree of international cooperation in innovation
  – Relatively poor productivity growth in the services sector – some sectors remain too heavily regulated
  – Starting a business in Japan remains too complicated
Building on Japanese Strengths

• **Exploiting high Public & Private R&D**
  • Improve the linkages between public & private
  • Enhance competition for R&D awards
  • Use strong base to tap into global networks

• **Global challenges:**
  • Leverage strength in “green” innovation thru push and pull (getting prices right)
  • Assert leadership in multilateral STI co-operation for Grand Challenges

• **Apply ICT**
  • For services productivity, especially services for the aged.
  • Seize on the shift to mobile computing.
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