

Från Japan *INC* till Japan *THINK* - *let's innovation!*

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Styrkan hos det japanska innovationssystemet



- En stark industri & institutsektor
- Ett starkt humankapital
- Långsiktigt tänkande
- Strategiska satsningar
- En gedigen utvärderingskultur
 - S&T basic plan
 - Foresightstudier
 - Strategic roadmaps
 - S&T white papers



日本の会社 (Nihon no kaisha) = Japanska bolag

- 1945-1980: "Catch-up phase"
- *import och förfining av utländsk teknologi*
- 1980-1990 Bubblekonomi Japan Inc.
- *japansk teknologi dominar*
- 1990-2000: "De tio förlorade åren"
- *finanskris och innovationsmodellen ifrågasatt*
- 2000-2008 : Ett nytt hopp!
- *innovationssystemet reformeras*
- 2008- : Global finanskris igen!



Industripionjärer & “the catch-up phase”

- Resursfattigt & begränsat kapital
=> *Toyotas "lean production system" en naturlig konsekvens!*
- Vinnande integrerad produktarkitektur (tex. bilar)



Sakichi Toyota
1867-1930



Konosuke
Matsushita
(Panasonic)
1894-1989



Soichiro Honda
1906-1991



Akio Morita
(Sony's co-founder)
1921-1999



Från inhämtare till ledare: Är Japan okreativt?

"Japan achieved its miraculous development in the post war era by importing technologies and exporting the goods produced by such technologies... Now we are at the front and must carve our own path; this requires creativity and originality"

Föredrag 2007 av
Koiji Omi, en av "arkitekterna" bakom
Japans FoU- och innovationspolitik





Science and Technology Basic Plan

S&T Basic Law (1995)

1st Basic Plan (FY 1996-2000)

2nd Basic Plan (FY 2001-2005)

3rd Basic Plan (FY 2006-2010)

● Strategic priority

- Promotion of basic research
- Selection of “Strategic Prioritized S&T”
(Key Technology of National Importance etc.)

● S&T system reforms

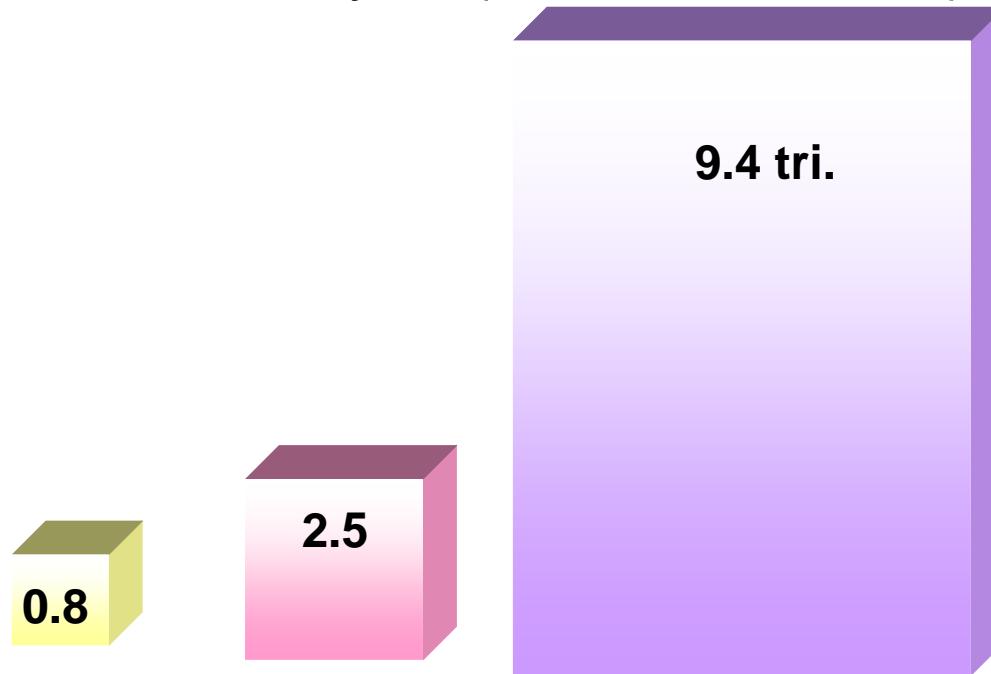
- Developing, securing and activating **human resources**
- **Creating scientific development and persistent innovation**

Innovation 25



Japan: FoU i Siffror

Industri: 12.7 trillion yen (11 Yen = 1 SEK)



Grundforskning Tillämpad Utveckling



Offentlig: 3.7 trillion yen

(METI FY 2005)



Administrative Structure of S&T & Innovation Policy



Prime Minister
Taro ASO



Cabinet Office

Council for Science and Technology Policy (CSTP)

Strategic council on intellectual property

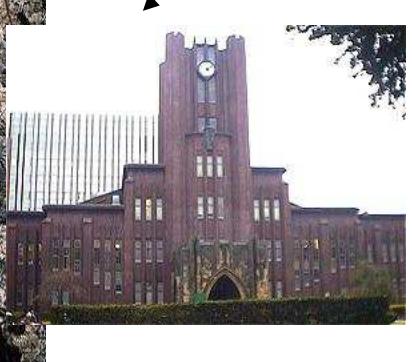
Innovation strategy council (Innovation 25)

Ministry of Education, Culture, Sports,
Science and Technology (MEXT)

Ministry of Economics,
Trade and Industry (METI)

Other Ministries,
Finance, Health

Universities



Research Institutes
Research Agencies

Cooperation





“Five Key Technologies of National Importance”

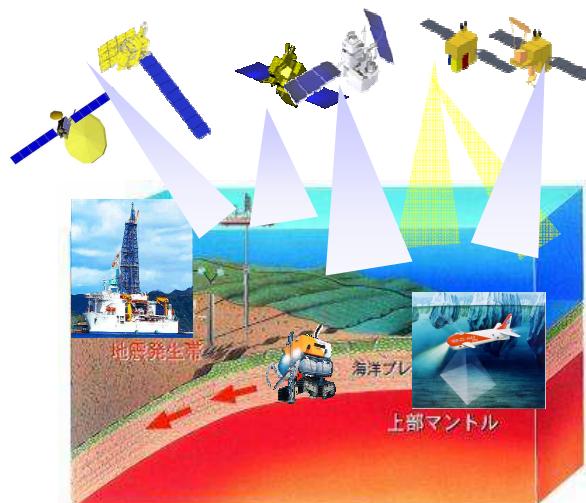
Space Transportation System



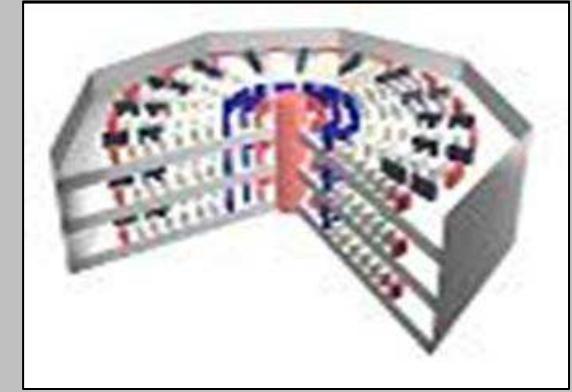
Fast-Breeder Reactor Cycle Technology



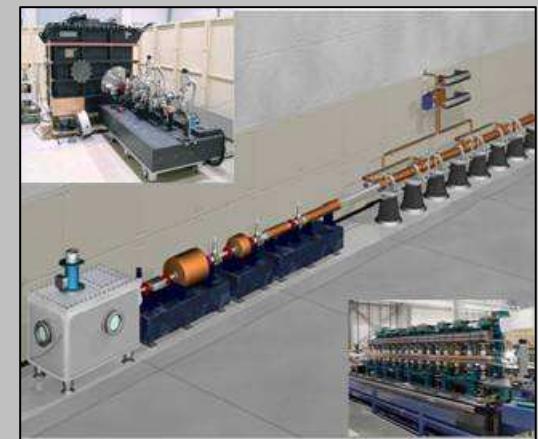
Earth Observation and Ocean Exploration Systems



Next Generation Super Computer



X-Ray Free Electron Laser





Strategic Technology Roadmap (exempel från METI)

Scenario for Dissemination

Includes **relevant policies** to be dealt with in order to provide the public with findings of R&D as products and services

Technology Overview

Describes **technological challenges**, **elemental technologies**, and **desired functions** in order to satisfy market and social needs
Prioritizes critical technologies

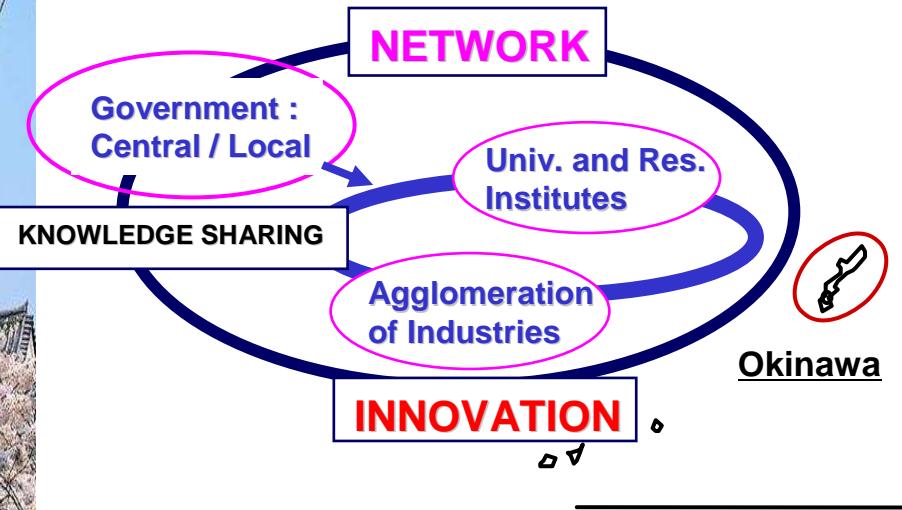
Roadmap

Displays progress of elemental technologies from R&D, and **on a time axis as milestones**

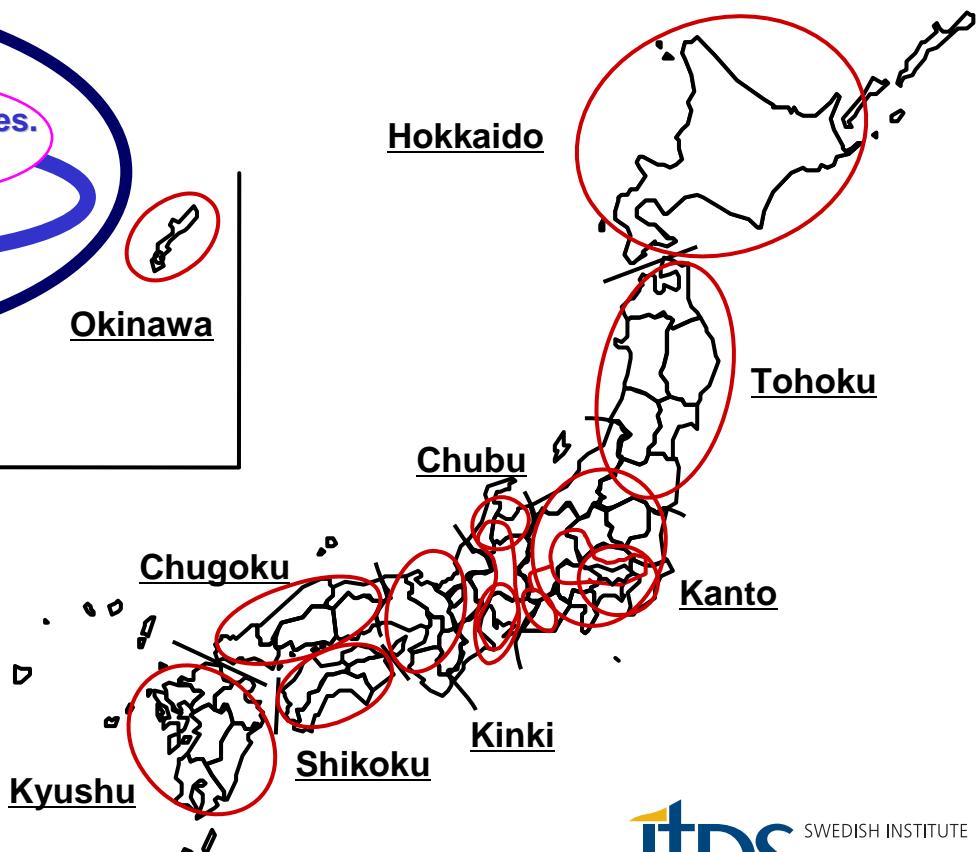


Regionala kluster

Cluster: The multilayered network of regional industries, universities, and research institutes that can create dynamic innovations under cooperative and competitive relationships

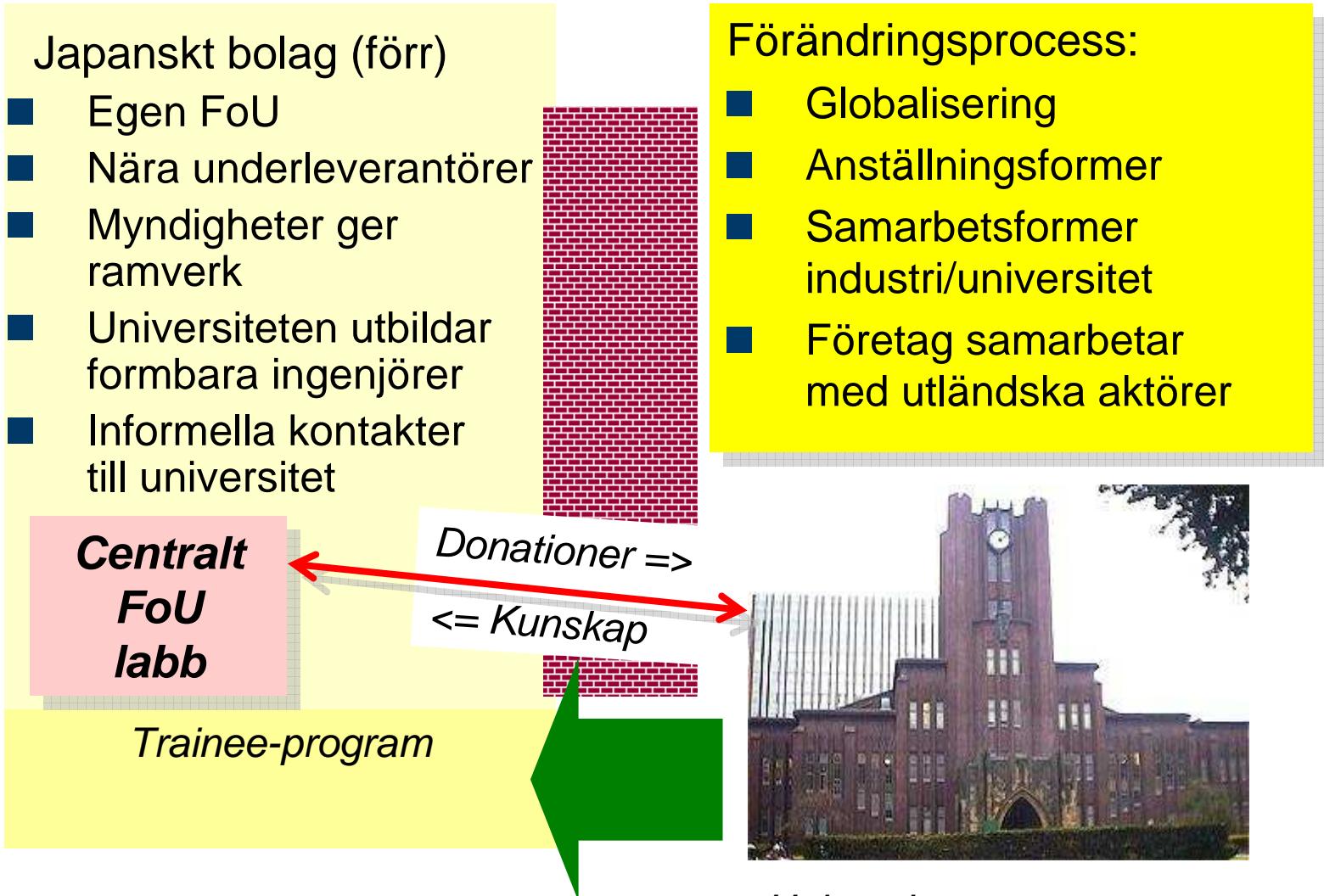


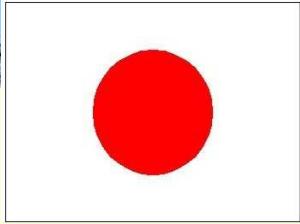
- 17 regional industrial clusters by METI's regional bureaus
- 290 local universities
- 9 800 private companies



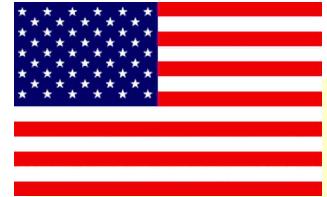


Industriell innovation i förändring





En ny japansk industrimodell?



Sluten innovation
(japanska storföretag)

- vi uppfinner,
utvecklar och säljer
- först på marknaden
vinner

Storföretag
i kontakt med omvälden

Reformerad
japansk
modell

Nätverks
modell
- Startups
- SMEs

Öppen innovation
(Silicon Valley)

- arbeta med smart
folk utanför oss bäst
affärsmodeell vinner





Universitet - Industrisamarbete

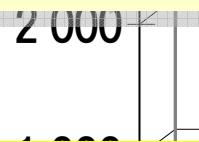


1998 "The Law on Promotion of Technology Transfers from Universities to Industry"
=> **Technology Licencing Offices (TLO)**

1999 "Law on Special Measures for Industrial Revitalization"
↔ **Japanese Bayh/Dole Act**

2000 "Law to Strengthen Industrial Technology"
=> **Enklare för forskare att starta företag**

2004 National University Reform
=> **Universiteten görs oberoende, IP kontor**



Resultat tills 2009 (källa: Prof. Kneller, Univ. Tokyo)

- **Life science dominar nystartade företag**
- **I övrigt samarbetar forskarna (som förut) mest med storföretag**



Källa: MEXT- Ministry of Education, Culture, Sports, Science and Technology

Lär och lära av Japan?

Citat ur "National Innovation Strategy":

- Creating persistent innovation
 - *Improve basic research*
- Highly selective investment
 - *Implement promotion strategies and promote strategic prioritized S&T*
- Science and technology to benefit society
 - *Pioneering projects for Accelerating Social Return*



Litteraturreferenser

- "Recovering from success – innovation and technology management in Japan", Oxford University Press, 2006
- "Bridging Islands: Venture Companies and the Future of Japanese and American Industry" Kneller, RW. 2007. Oxford U. Press.
- "Kaisha – the Japanese Corporation", James C. Abegglen & George Stalk Jr. , 1985, Basic Books
- "Inside the Kaisha – Demystifying Japanese Business Behaviour", Yoshimura N.B. Anderson P., Harvard University Press, 1997
- Rapporter från ITPS: www.itps.se
- Rapporter från japanska regeringens CSTP, MEXT, METI, ett antal källor, se www.sciencelinks.jp