Research and Innovation Policies in France and Japan: similarities and differences

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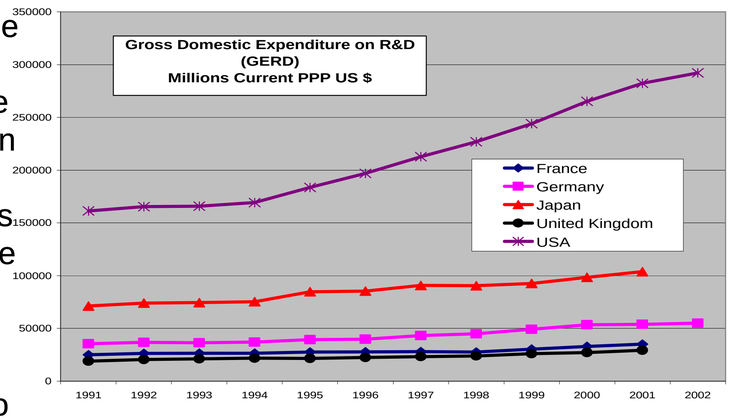
1- Introduction

Innovation is a central element of economic performance and every country playing a role in the global market economy tries to use its knowledge and special competences to position itself as a leader in the various new "high tech fields". Each country tries to make value out of the results that have been obtained by its researchers but of course each country has to find its own route to improve performance, learning from the experience of others, but being aware that the "model" has to be adjusted to suit the national culture, conditions and objectives.

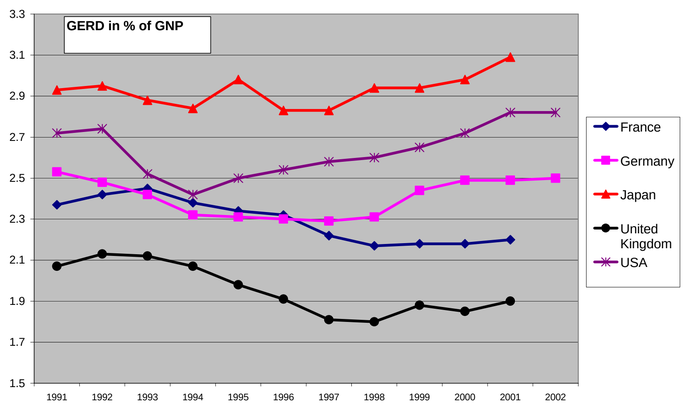
2- General Figures concerning R&D Policy and Innovation

2-1 Quantifying the "input" side of R&D Policy

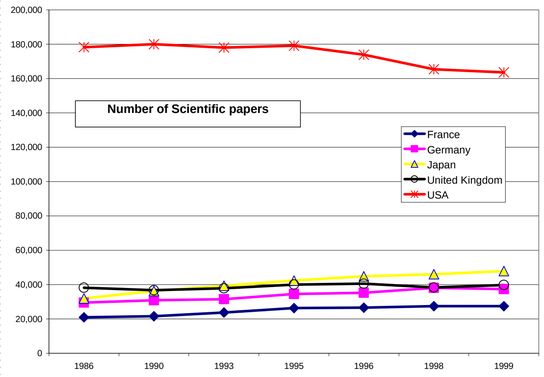
In 2001 the USA spent 2.7 more than Japan which spent 1.92 more than Germany, 2.96 more than France and 3.53 more than the United Kingdom. In fact Japan spent almost the same as G+F+UK. During that period the funding by Government has increased in recent years from 18.2 % to 19.6%, the funding by industry represented 72% to 74 %

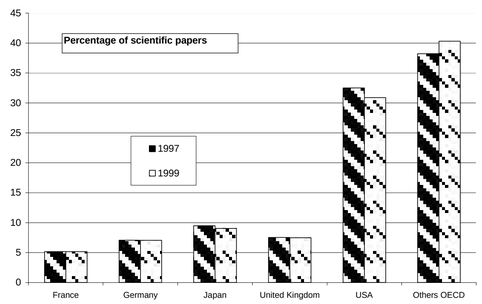


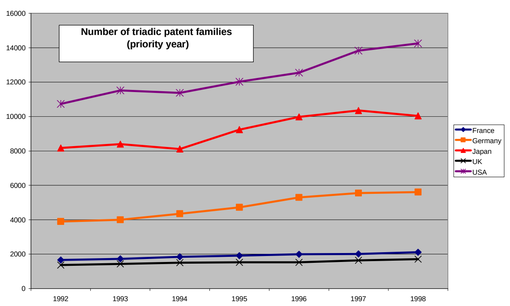
In term of S&T budget in % of GNP Japan is number one since many years and the most recent figures showed that it is still increasing. As far as researchers are concerned in 2001 Japan had 675,000 Full Time Equivalent employment, Germany 259,00, UK around 157,800 and France 172,000. In Japan around 65 % of the researchers are working in industrial Labs.

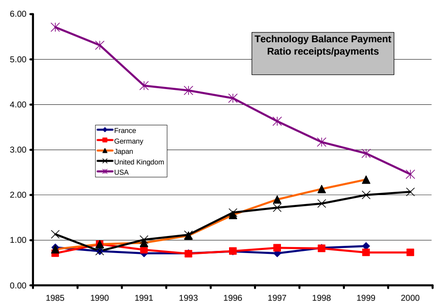


2-2 Quantifying the "output" side of R&D policy









"triadic" patent families: a patent family is defined as a set of patents taken in various countries to protect a single invention

3 – Innovative Firms and Incubators

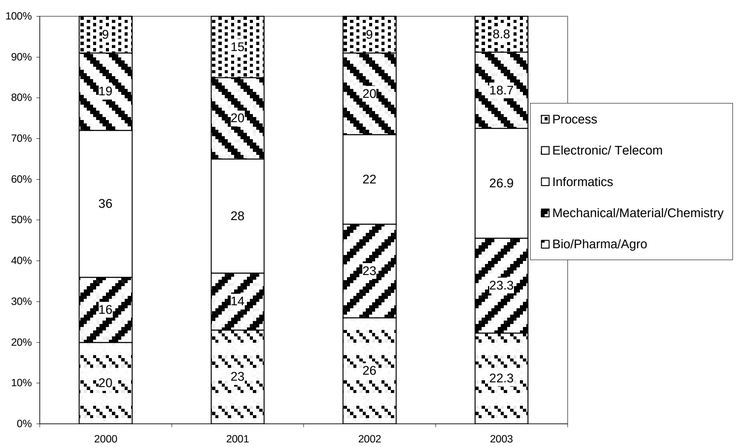
Table 1 Contextual Factors Affecting the Pace and Type of Evolution in Incubator Landscapes

Contextual Factors	USA	UK	GERMANY	FRANCE	JAPAN
Degree of decentralization	High	Low	High	Low	Low
Legal framework and economic philosophy	Laissez Faire	Laissez Faire	Bureaucratic	Bureaucratic	Bureaucratic
Role of state laboratories and universities	Strong	Weak	Strong	Strong	Weak
Dynamism of financial markets and level of informal investment in start ups	Strong	Strong	Average to weak	Average to weak	Weak
Rate of change in the industrial profile with regard to level of state support for industry	Rapid	Rapid	Slow	Slow	Slow
Existence and roles of representative agencies for promoting incubation	Strong	Average	Quite strong	Average	Weak
Entrepreneurship and innovation	Strong	Average	Weak	Weak	Weak

4 – Case Study for France

July 1999 Law for Innovation and Research was enacted “to transform Science and Technology into economic growth and job creation”. Gave facility and flexibility for personnel, for Institutions, for innovative Companies

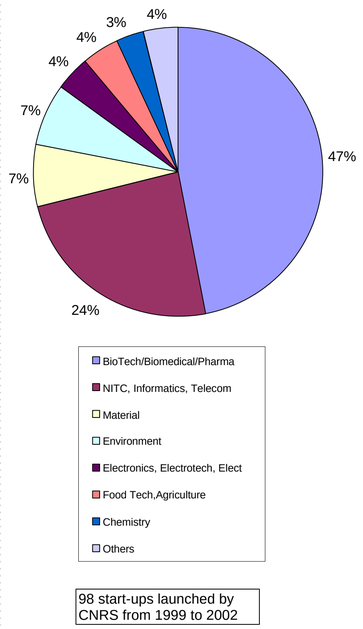
4-1 Annual National Competition on creation of firms based on innovative tech.



Selected projects by domains

Each year 30 millions € for 2 categories of projects: "emerging project, i.e. "an *idea* which needs further development before reaching the stage to be launched; "launching projects" which corresponds to the creation of a start-up.

4-2 Incubator Policy, “seed funds” Policy and others initiatives



98 start-ups launched by CNRS from 1999 to 2002

- National Institutions can establish Department for Industrial and Commercial Activities (SIAC) and set up “incubators” which will receive 50 % of their expenses .
- “seed money” to endow seed capital funds by State subsidies for funding of Start-ups.
- **April 2003** a new **“Innovation Plan”** launched aimed at increasing the private sector share of investment in R&D and to improve the use of public research results: new status for “business Angels”, for “Young innovative Companies, R&D tax credit, Law to encourage sponsorship and creation of foundation (July 2003), etc.

4 – Case Study for France (continued)

4-3 Conclusion

The target for France, as for all European countries of the European Union is to have 3 % of GNP spent in R&D activities by 2010. To succeed for France the only way is to increase the share of the private sector therefore it is compulsory to increase the relationships between university and industry and to develop the use of the results of public research by private sector: all the recent measures are aiming at that results.

5 – Case Study for Japan

In the 1990s the government adopted a **new approach** to R&D policy **starting with the 1995 S&T Basic Law,** followed in **1996 by the first S&T Basic Plan (1996-2001 with 17 trillions JPY).** From this time there has been an "acceleration" in the political decisions with different laws enacted such as **May 1998 (creation of TLO), April 2000 (**Law to Strengthen Industrial Technical Ability – **Japanese Bayh-Dole Act).** After acceleration of the process, **creation of "Intellectual Clusters", "City area program", "Industrial Clusters",** etc. **During 2001, Administrative reform** with the **creation** of the new ministry of Education, Culture, Sports, Science and Technology (Monbukagakusho-**MEXT**), the **creation** of the Council for Science and Technology Policy **(CSTP), the second S&T Basic Plan (2001-2006 with 24 trillions JPY), and the C**enter **o**f **E**xcellence Program for the 21st century**. In December 2002** the **I**ntellectual **P**roperty Law was enacted and finally in **July 2003 the "National University reform Bills"** to transform in April 2004 all "national universities" into independent administrative organizations.

5-1 Role of the CSTP

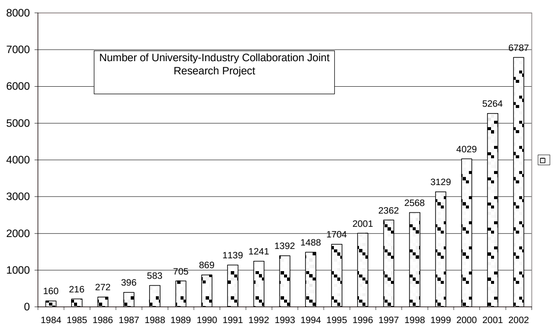
The National Council for Science and Technology Policy (CSTP), established in 2001, **"a control tower to promote science and technology"** in Japan. CSTP responsible for preparing the government's final S&T budget based on submissions by the separate ministries after evaluations and the formulation of the government's science and technology policy.

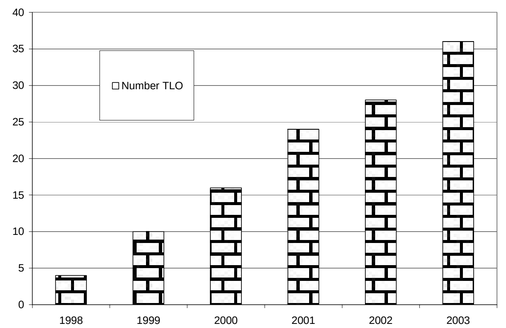
5-2 The Center of Excellence Program (CEO) for the 21st century

- **June 11, 2001. ".** Three keys points
Scrap and built
Quick shift to independent Administrative organizations (to Private management)
introduce a competitive principle to universities by means of external evaluation (Top 30 universities)
- **FY 2002** five fields were selected: Life Science, Chemistry/Materials Science, Information/Electrics/ Electronics, Human Literature, Interdisciplinary/New Areas. Each of the selected universities will receive between Yen 100 to 500 million per year for five years, with an interim review after the first two years.
- **FY2003** five different fields were selected: Medical Science, Mathematics/Physics/ Earth Science, Mechanical/ Civil and Construction Engineering, Social Science, Interdisciplinary, New Areas.
- **August 2003** Due to the success and efficiency of the CEO, MEXT decided to have another round in JFY 2004.

5-3 Activities of Technology Licensing Organization (TLO)

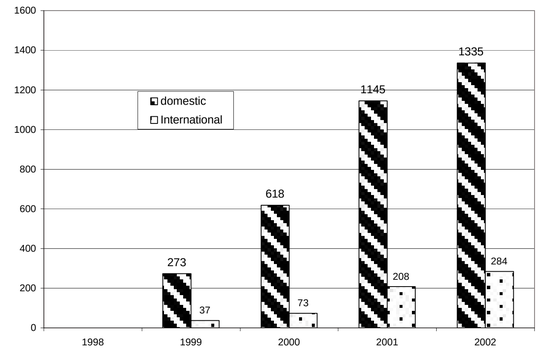
- **MEXT and METI supported TLO** : METI is funding them, 30 MJPY/year for 5 years , MEXT is providing material support for IP, personnel, etc.
- **36 TLO** have been approved, as October 2003, 27 from National Universities and 7 from Private Universities. Some are associated to a single university, some others are "regional TLO" associated with multiples universities The legal status varies "Foundations", "Corporations", "University". In the Kanto area there are 13 TLO, 6 are "Corporations" like the most famous and oldest "Center for Advanced Science and Technology Incubation Ltd -CASTI- from Tokyo University, 5 are "University", 2 are "Foundations".





5 – Case Study for Japan (continued)

- METI made a survey concerning the 26 TLO supported in FY 2001. Its funding was 350 million JPY. The **income of TLO** were analyzed, the average was **58.504 MJPY**, 11.079 MJPY from royalty. **Expenses** average **were 49.388 MJPY**, main expenses for filing fees 28.211 MJPY.
- **patent applications**, domestic 1,145, international 208, the number of working licenses at that period was 231.
- In **2001** the **royalties to TLO** were **300 MJPY** of which 100 MJPY were returned to universities, in **2002** TLO received **546 MJPY**.



5-4 Incubators

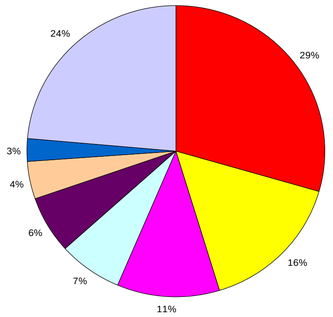
- **MEXT** started its “incubator program” in 2001. In the frame of the “ first supplementary budget” its dedicated 979 MJPY to build incubator facilities on the campus of 3 national universities. There are **23 “incubators facilities”** on the campuses of national universities. Moreover there are also “incubators” in private universities. - MEXT developed also in some “Graduate Schools” what is called **“Venture Business Laboratories” (VLB)**.MEXT has supported VLB in **39 universities**. - **METI** December 2002 *started* a special program for opening incubators close to universities which will support university-oriented venture compani6s.
- Whereas the TLO and incubators established in the universities deal with technology transfer from universities to industries, METI's incubators will support transfer from the early stage of idea development through industrialization, and even through venture business.

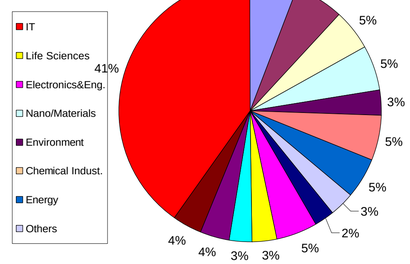
5-5 Start-up Policy

- **MEXT** proposed “**University-based Structural Reform Plan for Revitalizing the Japanese Economy**”: patents attained by universities1500/year within ten years, licensing of 700 such patents within five years and creating 10 Japanese versions of ‘Silicon Valley” within ten years.

- **FY 2003 METI** invested more than 14 Billion JPY to support start-ups including 5.2 BJPY to create university-based businesses, almost 2.5 BJPY for developing incubation facilities, 3 BJPY for “entrepreneur” program.
- February 2003 on METI’s proposal it was accepted that to create a SME only one yen is necessary as initial capital and the normal 3 millions yens have to be brought in capital before 5 years.
- Sharp increase of the number of Start-ups 104 in 1998 around 600 in August 2003 and 800 at the end of 2003. Start-ups issued from national universities is increasing , 41 % in 2000, 66 % in 2002. May 2003 Waseda 42 Start-ups, Tokyo University 32, Keio University 24, Kyoto University and Osaka University 23, etc.

Start-ups domains in % (total 424 1/1/2003)





Start-ups from National Universities in % (Total 219 1/1/2003

6 - Conclusion

France and Japan are moving the same direction to improve their innovation policy and technology transfer quite often they are **using the “same recipes”** hoping to obtain similar results: take advantage of all the potential that exists in “public institutions”, “alleviating” the administrative burden and changing the culture in the different components involved in the process.
you **cannot simply copy “best practice” and “success stories” and expect them to work !** Each country has to find its own route to improve performance, learning from the experience of others, but being aware that the “model” has to be adjusted to suit the national culture, conditions and objectives. As Carlos Ghosn, Nissan CEO, said “solutions are not transposable as they fit the proper existing situation of the company, its history, its men and women belonging to it”. Said in plain words: **same problems have to be faced with adaptation of the solutions to the national context**.