

ISPlasma 2011

Policy transfer

Towards hub formation

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Policy transfer

From the point of diffusion-oriented policy

What is policy transfer ?

Dolowitz
what
literature, Political Studies, 545-557

learns
y transfer

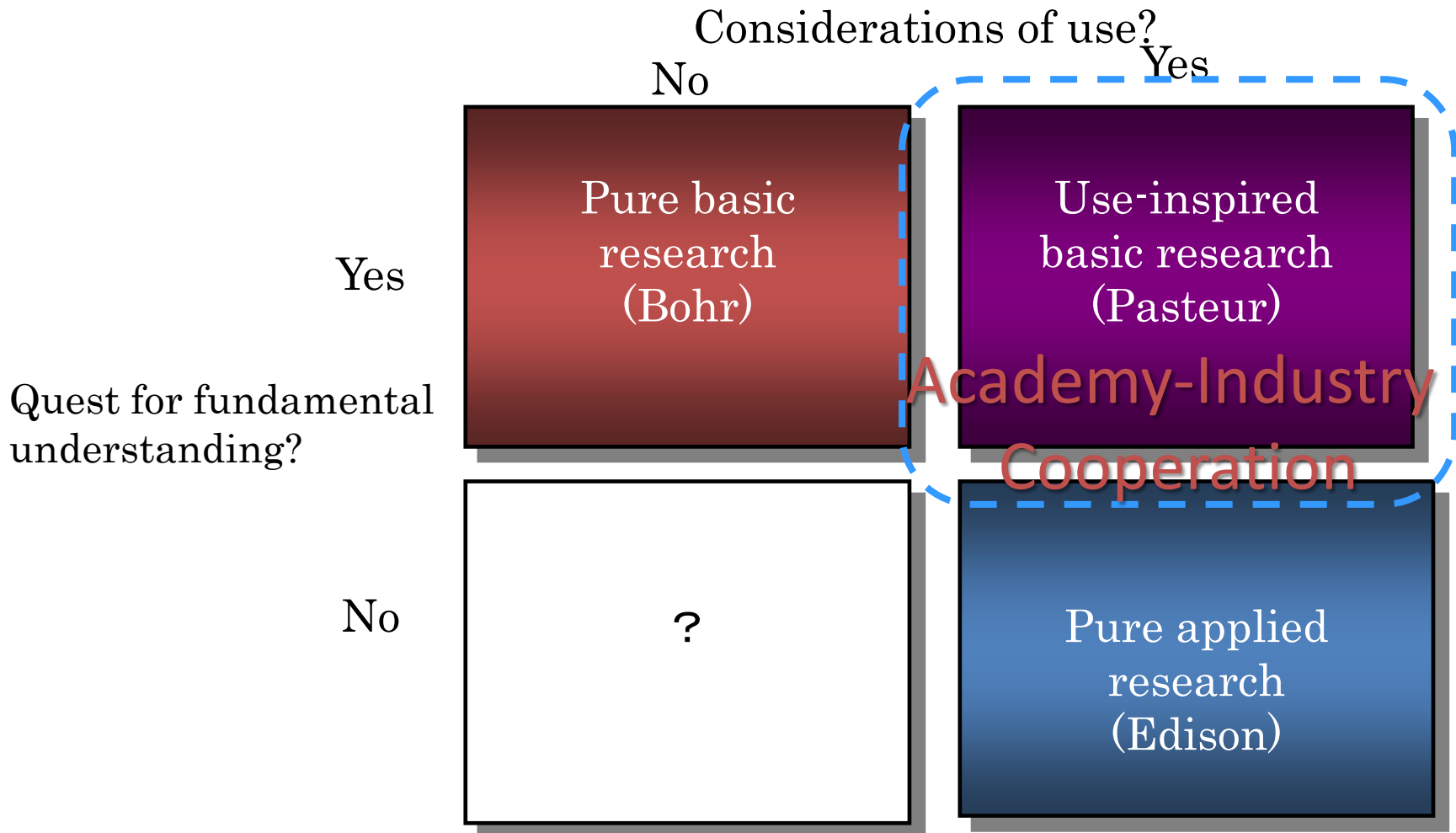
➤ Benchmarking role models
➤ Translate creatively

- Pasteur quadrant
- Innovation support organization
- Business service, intermediary organization
- Hub formation

What is magnet for hub?

Pasteur Quadrant

'Pasteur's Quadrant' is a label given to a class of scientific research methods that both seek fundamental understanding of scientific problems, and, at the same time, seek to be eventually beneficial to society. Louis Pasteur's research is thought to exemplify this type of method, which bridges the gap between "basic" and "applied" research.



source: Stokes (1994, 1997)

Innovation support organization

contract research institutes

- TNO (Netherland)
- IMEC (Belgium)
- VTT (Finland)
- Fraunhofer society (FhG) (Germany)
- ITRI(Taiwan), ETRI(Korea)

ex. The National Institute of Advanced Industrial Science and Technology (AIST)

- World chip service

TNO (Netherlands Organization for Applied Scientific Research)

- Establishment: 1932
- Turnover 600M€ (Government funding 195M€)
- Number of employees: 4,572 As of 2008
- Six core areas
 - Quality of life
 - Defense, Security and Safety
 - Science and Industry
 - Built Environment and Geosciences
 - Information and Communication Technology
 - Automotive Engineering

IMEC

◆ 1984

- Established by the government of Flanders
- initial investment: 62M€, initial staff: 70

◆ 2009

- Largest independent R&D organization in its field, world-wide
- Revenue: 275 M€, staff: 1,750 (industrial residents 550)

VTT (Technical Research Centre of Finland)

- Established: 1942
- Turnover 276 M€ (budget for 2010) :
 - External revenue 184 M€ (69% of turnover)
 - Basic governmental funding 85 M€ (31% of turnover)
 - Revenue from abroad 37 M€ (14% of turnover)
 - Personnel 2,935 (Jan.1, 2010)

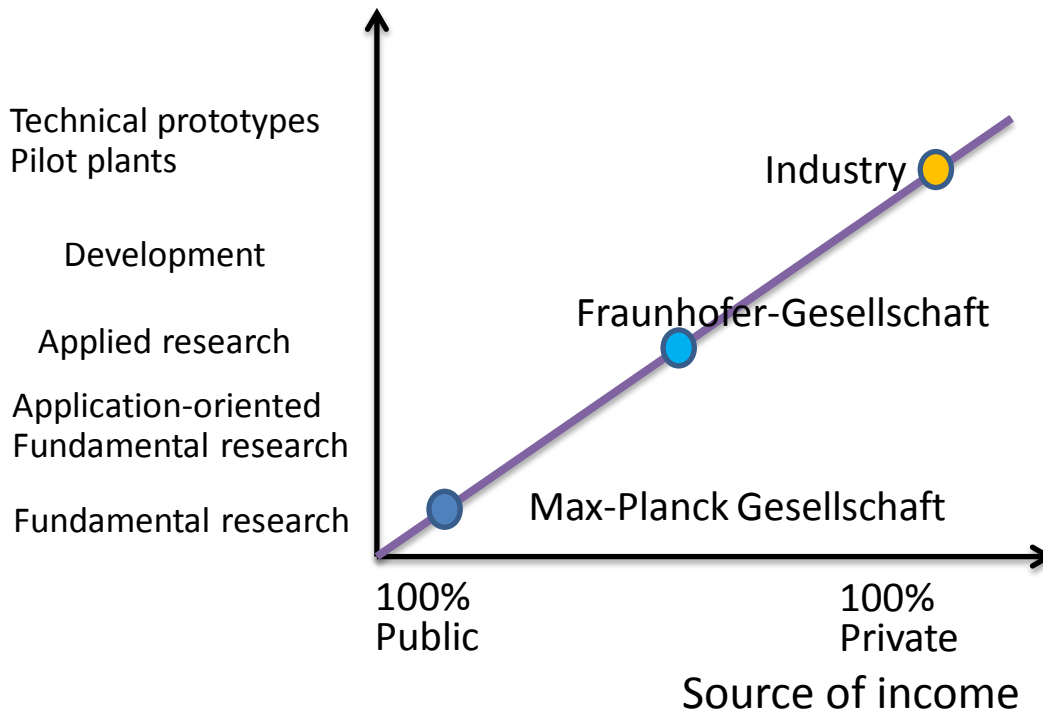
Fraunhofer (FhG)

- Established in 1949, stuff: 200

2010

- 60 institutes, 18,000 stuff, 1.65 B€
- Contract research: 1.40 B€

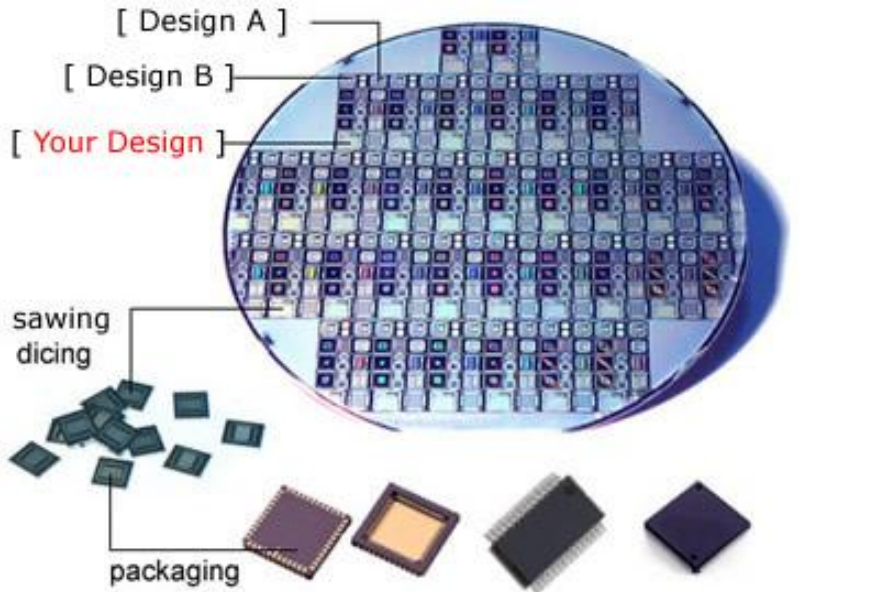
Research orientation



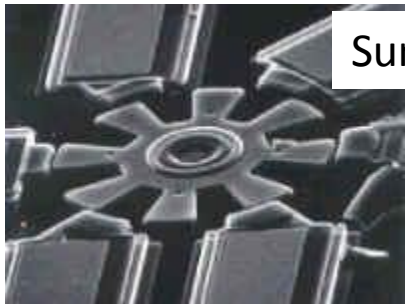
Four institutions comparison

	TNO	IMEC	VTT	FhG
Organizational form	TNO-Act 1986	Non-profit institution	Independent administrative institution	Non-profit institution
Establishment	1932	1984	1942	1949
Employees	4,572	1,750	2,935	18,000
Turnover(M€)	600	275	276	1,650
Market turnover(M€)	405	169	184	1,400

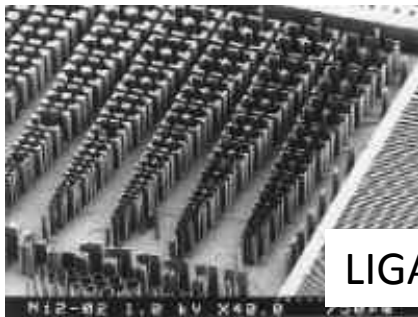
Chip service



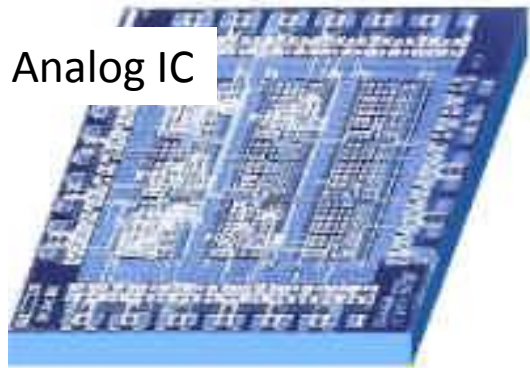
source : CMP(France) HP



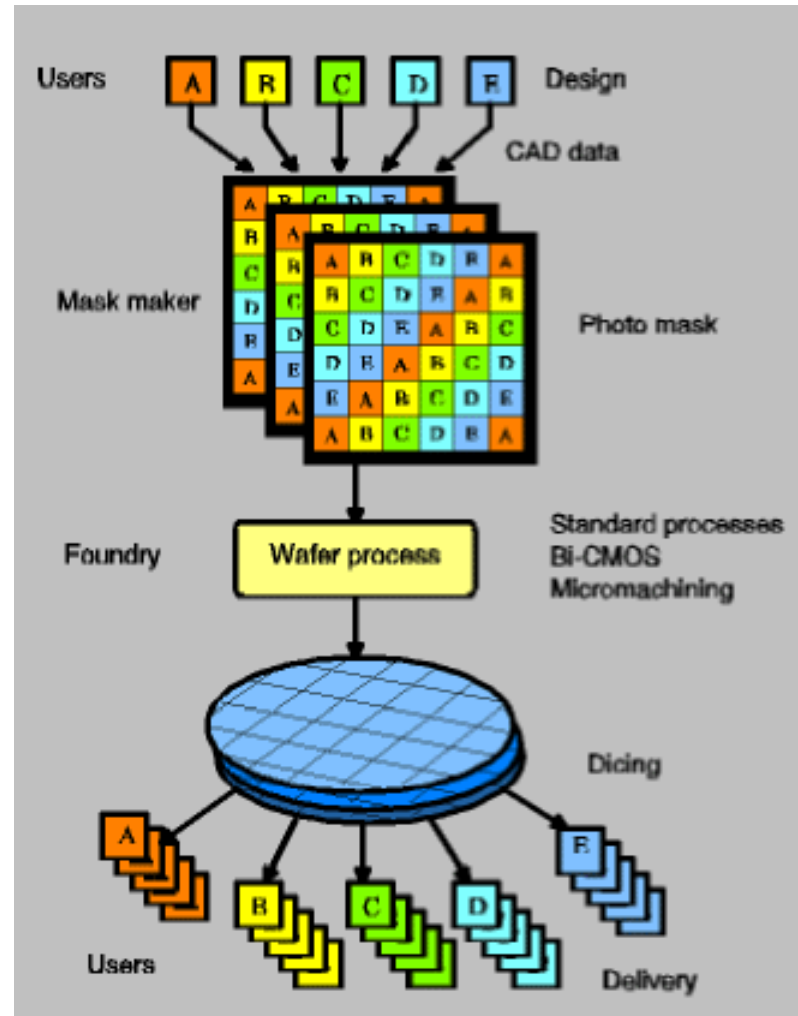
Surface micromachining



LIGA process



Analog IC



source : Sugiyama Lab.(Ritsumeikan Univ.) HP

World chip service

- **MOSIS (USA)** : USC Information Sciences Institute
<http://www.mosis.com>
- **CMC(Canada)** : a university, industry and Natural Sciences and Engineering Research Council of Canada (NSERC) initiative,
<http://www.cmc.ca/>
- **IDEC(Korea)** : KAIST (Korea Advanced Institute of Science and Technology) <http://idec.kaist.ac.kr/English/index.htm>
- **CIC(Taiwan)** : National Chip Implementation Center
<http://www.cic.org.tw>
- **CMP(France)** : Circuit Multi-Projects
<http://cmp.imag.fr/>
- **EUROPRACTICE**: IMEC (Belgium), STFC (UK), FhG(Germany)
<http://www.europpractice-ic.com/>

Major hubs in Japan

【science city type】

- Tsukuba Science City
- Kansai Science City
- the Kitakyushu Science and Research Park: FAIS

【research park type】

- Kyoto research park (KRP): Kyoto Research Park Corp.
- the Kanagawa Science Park (KSP) : KSP Inc.
- Yokosuka Research Park (YRP): YRP R&D Promotion Committee, Yokosuka Telecom Research Park, Inc.
- KOBE Biomedical Innovation Cluster: The Foundation for Biomedical Research and Innovation (FBRI)

【regional development etc.】

- Saito Life Science Park(Osaka)
- Harima Science Garden City, Spring-8
- Fuji Pharma Valley Initiatives: Pharma Valley Center
- Aichi Prefecture "Knowledge Hub"

Major oversea hubs

- Science Center(UCSC)(Philadelphia, USA)
- Technopolis(Oulu, Helsinki-Vantaa, etc. Finland) : Technopolis Plc.
- Singapore Science Park→Ascendas
- Aston Science park(Birmingham, UK)
- Research Triangle Park(North Carolina, USA)
- South Texas Medical Center(San Antonio, Texas, USA)
- Zhongguancun Science Park(Z-Park) (Haidian, Beijing, China)
- Suzhou Industrial Park, Suzhou National New & Hi-tech Industrial Development Zone (SND) (Suzhou, Jiangsu, China)
- Dalian Software Park→Yida Group, Ascendas
- MINATEC (Grenoble, France)

The case of Technopolis Plc.

◆ History

1958 Established Oulu University

1970 Established VTT electronics in the immediate vicinity

1980 The director of VTT electronics articulated a vision

1982 Established Oulu Technopolis

◆ Technology parks developer and their operating company, as it is called, a third sector: City of Oulu funded the share, 50%, private sector 50%

◆ As of Oct. 2010, the share of Technopolis, City of Oulu 4.83%, City of Tampere 3.09% and so on.

Technopolis centers location



Oulu



Jyväskylä



Tampere



Espoo Otaniemi



Kuopio



Lappeenranta



Helsinki-Vantaa



Helsinki Ruoholahti



Summary

- Application-oriented fundamental research: pre-competitive or competitive research
- Contract research institutes development: market orientation(external revenue) and open collaboration system: linkage with business development activities
- Business service industry development: agent system (intermediary organization)
- Management of science park: operating system, utilizing real estate value