

Why Mobility of Talents matters?

Taiwan case

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資料來源：

Mobility of talents

- International mobility
 - across borders
 - Brain drain vs. brain circulation
- HR development
 - International assignment
 - Lateral movement (job enrichment)
- Taiwan in 1970's - 2000's
- Future challenges

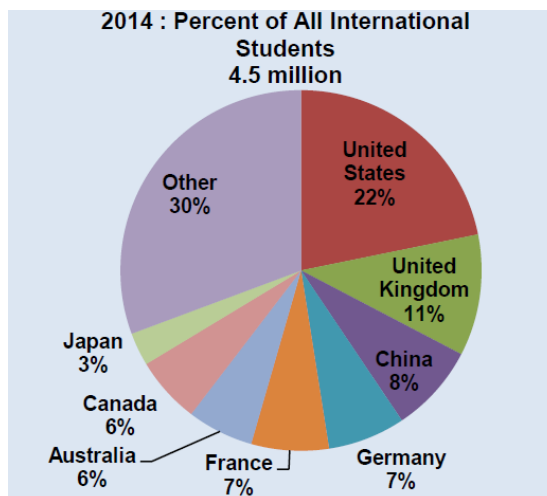
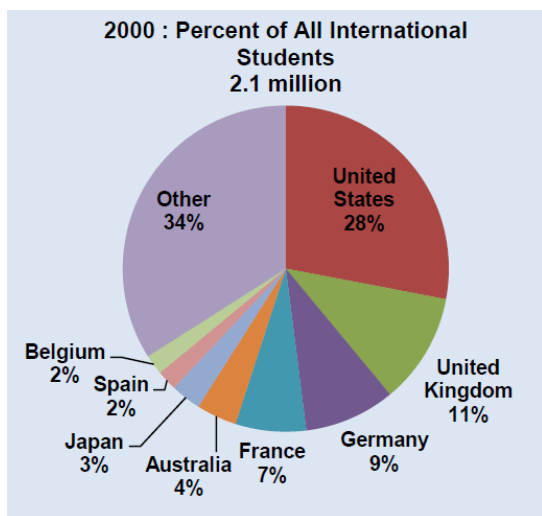
Source :

OECD report

- The scale and complexity of the migration of human resources in science and technology are increasing, alongside growth in foreign direct investment (FDI) 2008
- “Brain circulation” can stimulate knowledge transfer to sending countries.
 - return of skilled migrants to their home country after a period abroad, and circular migration between home and abroad.
 - Professionals diffuse the knowledge they acquire to their home country and maintain networks, thereby facilitating continuing knowledge exchange. .

Source :

Share of Internationally Mobile Students (2000 vs 2014)



- Although U.S. host the largest percentage of internationally mobile students, the U.S. share is eroding due to the fact that global competition for international

Source : Institute of International Education (IIE)/Project Atlas (2016)

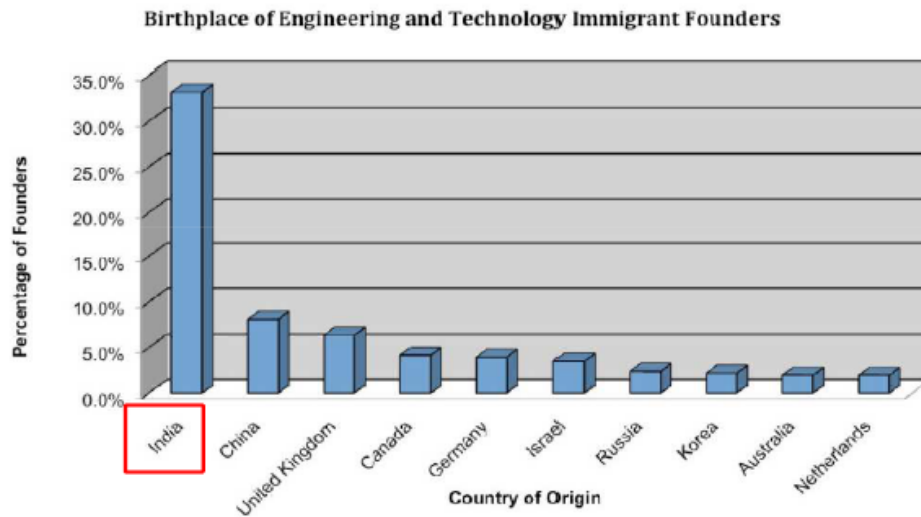
Top 10 Places of Origin of Students Sending to US

Place of Origin	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
WORLD TOTAL	564,766	582,984	623,805	671,616	690,923	723,277	764,495	819,644	886,052	974,926
China	62,582	67,723	81,127	98,235	127,628	157,558	194,029	235,597	274,439	304,040
India	76,503	83,833	94,563	103,260	104,897	103,895	100,270	96,754	102,673	132,888
South Korea	59,022	62,392	69,124	75,065	72,153	73,351	72,295	70,627	68,047	63,710
Saudi Arabia	3,448	7,886	9,873	12,661	15,810	22,704	34,139	44,566	53,919	59,945
Canada	28,202	28,280	29,051	29,697	28,145	27,546	26,821	27,357	28,304	27,240
Brazil	7,009	7,126	7,578	8,767	8,786	8,777	9,029	10,868	13,286	23,675
Taiwan	27,876	29,094	29,001	28,065	26,685	24,818	23,250	21,867	21,266	20,993
Japan	38,712	35,282	33,974	29,264	24,842	21,290	19,966	19,568	19,334	19,064
Vietnam	4,597	6,036	8,769	12,823	13,112	14,888	15,572	16,098	16,579	18,722
Mexico	13,931	13,826	14,837	14,850	13,450	13,713	13,893	14,199	14,779	17,052

- Rapid growth of students mobility internationally in Asian emerging countries
- Taiwan's students study abroad decrease gradually

Source :

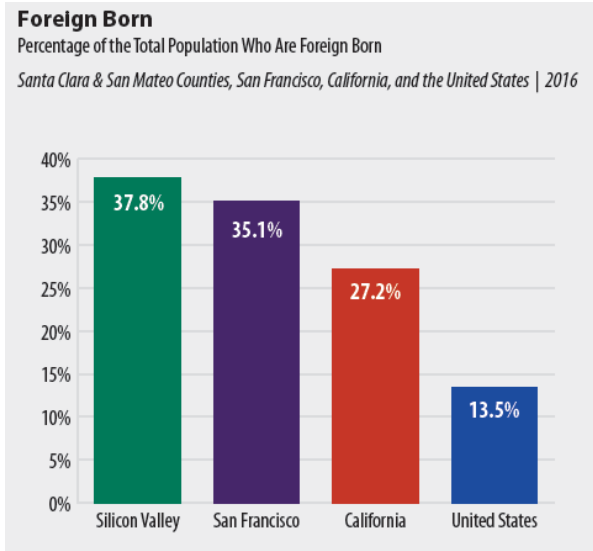
52% of startups founded by Immigrants in Silicon Valley



Venture Beats graph

Source: <https://venturebeat.com/2012/10/15/how-indians-defied-gravity-and-achieved-success-in-silicon-valley/>

Foreign Born Talents : High-tech Engine in Silicon Valley



Foreign Born Share of Employed Residents Over Age 16, by Occupational Category
Santa Clara & San Mateo Counties, 2016

	All	Ages 25-44		
		Women	Men	Both
Computer & Mathematical	66.0%	78.7%	70.3%	72.1%
Architectural & Engineering	60.7%	61.8%	65.4%	64.7%
Natural Sciences	44.8%	46.3%	51.0%	49.0%
Medical & Health Services	45.2%	45.0%	42.7%	44.4%
Financial Services	41.8%	50.0%	40.8%	45.8%
Other Occupations	42.1%	43.1%	45.9%	44.7%
Total	45.8%	46.9%	52.1%	49.9%

Source: 2018 Silicon Valley Index

HR issue

- International assignment
 - An explosion of activity in emerging markets has contributed to a significant increase in the need for companies to move people and source talent from all around the world
- Lateral movement (job enrichment)

Source :

Taiwan case

historical background

- In early 70's, Taiwan GDP growth drop sharply due to oil crisis
- Need to transform labor intensive industry into technology intensive industry
- Shortage of many things, most critical and strategic one is human resource

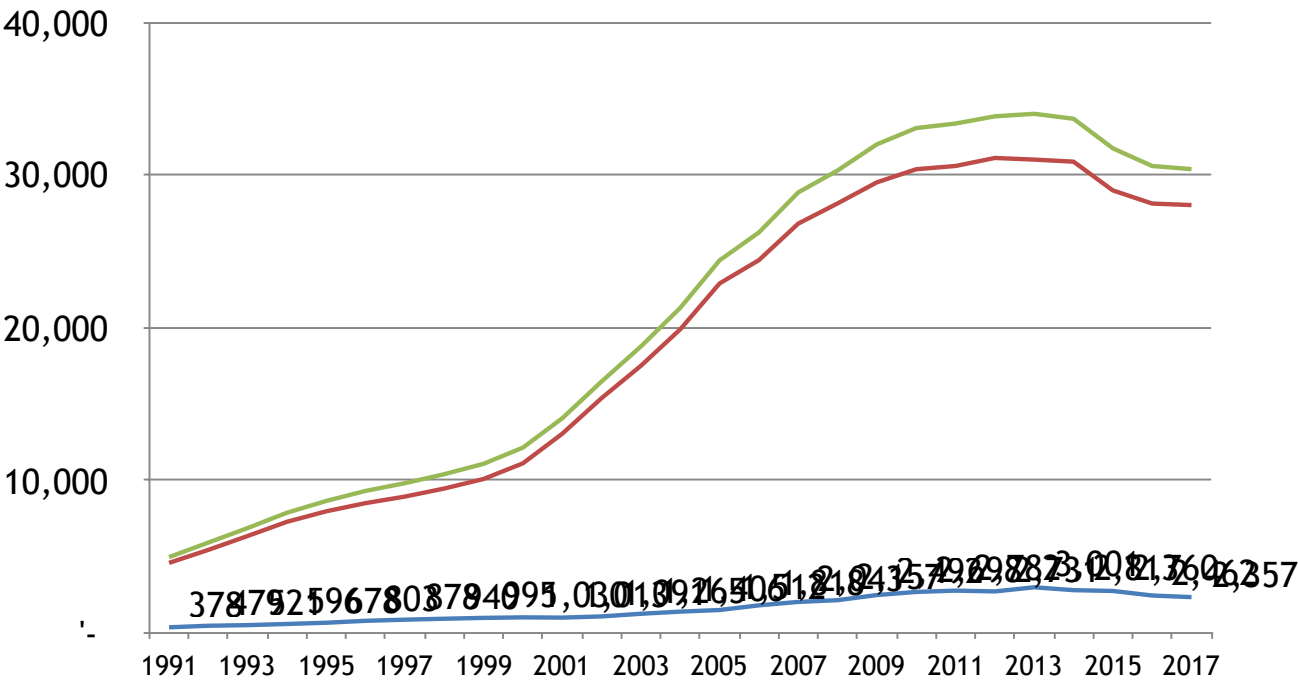
Source :

Talent pool

- Internal capacity
 - University focusing STEM
 - 1960 (15 universities & colleges, 12 junior colleges)
 - 1970 (22, 70)
 - 1980 (46, 75)
 - 1990 (46, 75)
 - 2010(148, 15)
 - Master and PHD program
 - In the 60's and 70's, mainly go abroad
 - High growth in 2000-2010
 - Now PhD students drop gradually

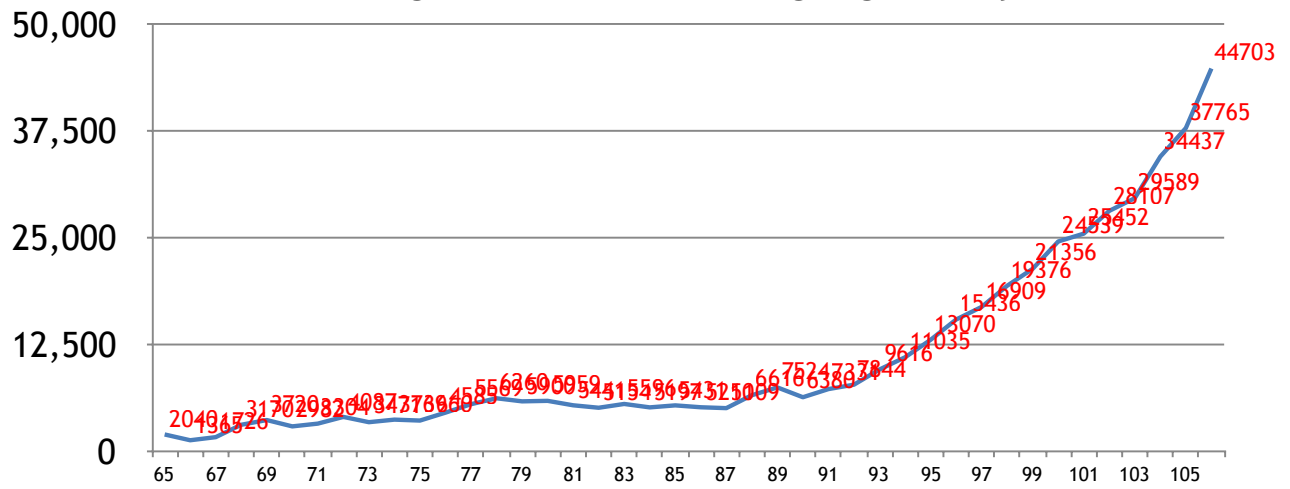
Source :

Number of S&T Graduates in Taiwan



Foreign students in Taiwan

Degree students & language study



- Two factors: increase number of Universities , decrease birth rate
- 1976/ 2000+ , 1986/ 3,660人 , 1996 /5,431人 , after 2000 significant growth , 2006/ 1.3萬人 , 2016/ 3.8萬人

Attractions for talent inflow

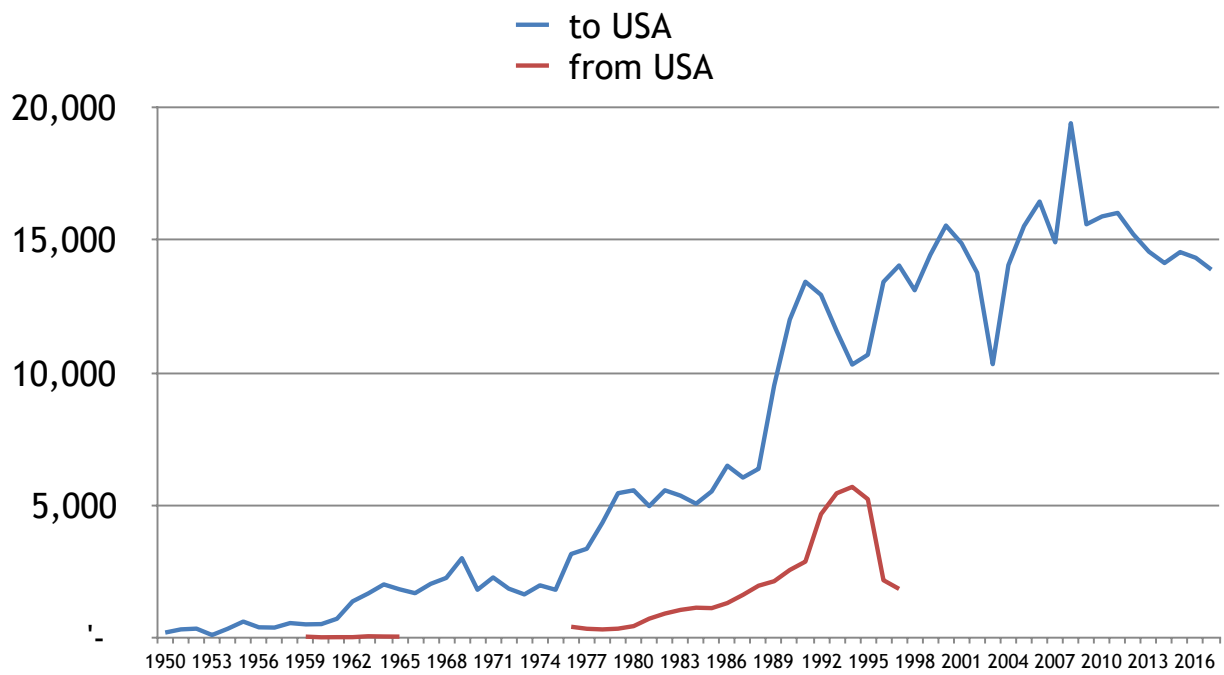
- 1960s: Processing export industry
 - Statute For Investment By Foreign Nationals to attract Multinational Companies (MNCs)
- 1970s: industrial transformation
 - Ten Major Construction Projects in 1974
 - ITRI established in 1973
- 1980s: high-tech industry
 - Hsinchu Science Park established in 1980
 - Promotion of venture capital and startups
- 1990s: globalization and open economy
 - More FDI and foreign talents
 - More foreign students in high education

Talents inflow

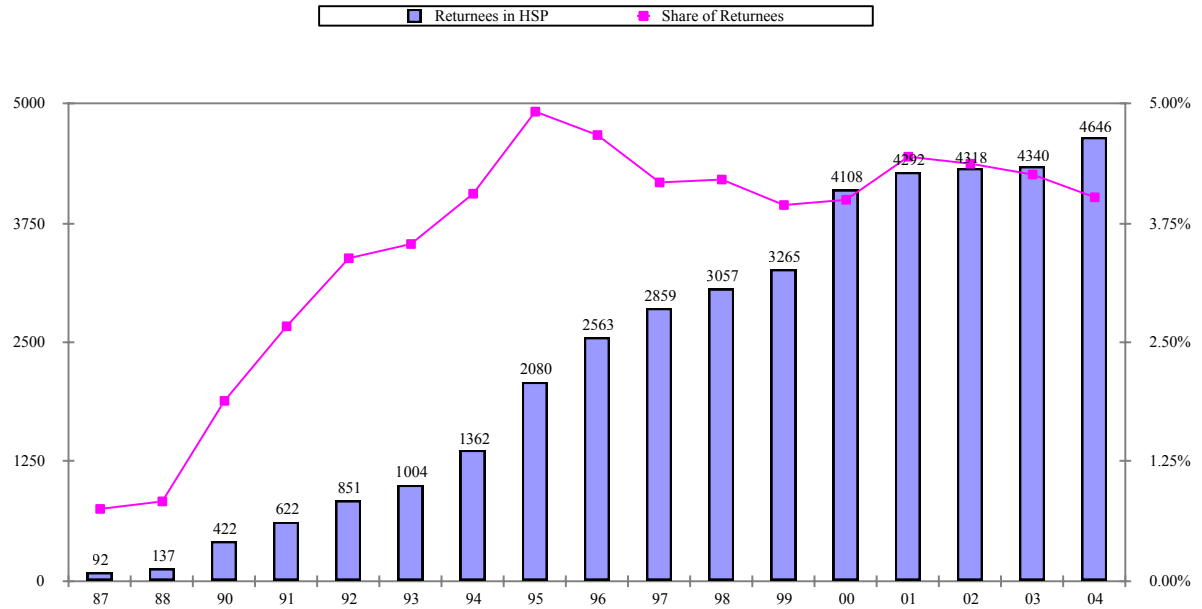
- Growth of Hsinchu science park in the 90's
- Most talents return home attracted by
 - Improves infrastructures
 - Start up opportunities and incentives

Source :

Students to USA for Studying & back from USA



Returns in HSIP



Sources:HSIPA

Brain circulation (networking HSIP+Silicon valley)

- Promotion of HSIP for investment and recruitment
- Technology acquisition

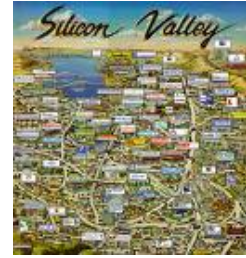


Hsinchu

- Cooperation opportunities and networking with SV
- Knowledge and talents

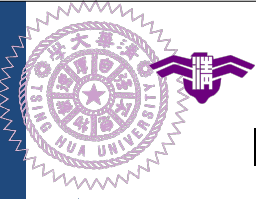


- Local events and social networking
- Bridging between HSIP and SV



Silicon Valley

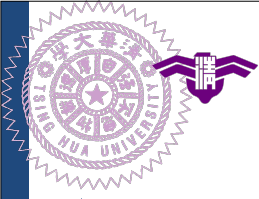
- Dynamics and practices of innovative high-tech clusters



Industrial Technology Research Inst.

- ***Statute For Establishing Industrial Technology Research Institute*** was promulgated in 1973 to consolidate 3 government-endowed institutes into ITRI
- As a **non-profit research institution**, ITRI aims to strengthen domestic technology capability and to upgrade industrial structure

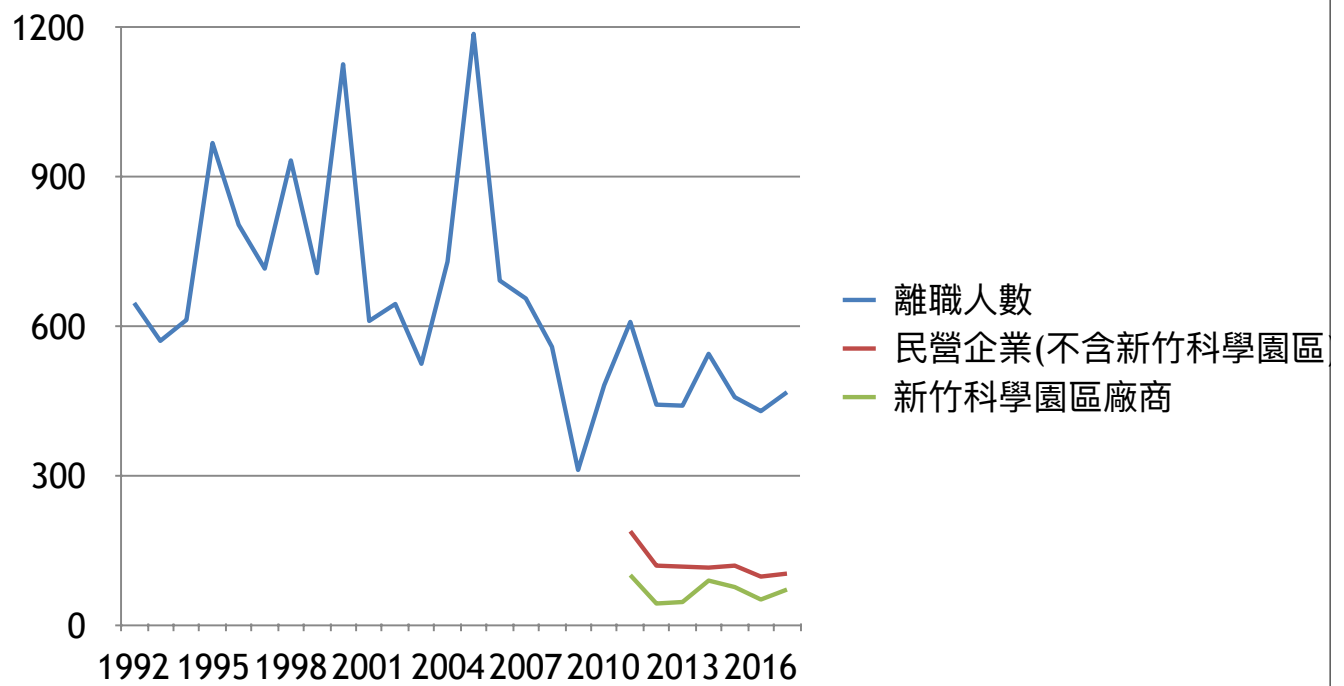




Role of ITRI

- As **“bridge”** and **“partner”** for Taiwanese companies
 - Lead in National R&D projects
 - Facilitate technological diffusion & spin-off
 - Talent cultivation & circulation
 - Promoting entrepreneurship
- Technology disseminating & Sharing
 - Transfer in foreign technology
 - Spin-off company
 - Incubator
 - Open Lab for technology R&D collaboration

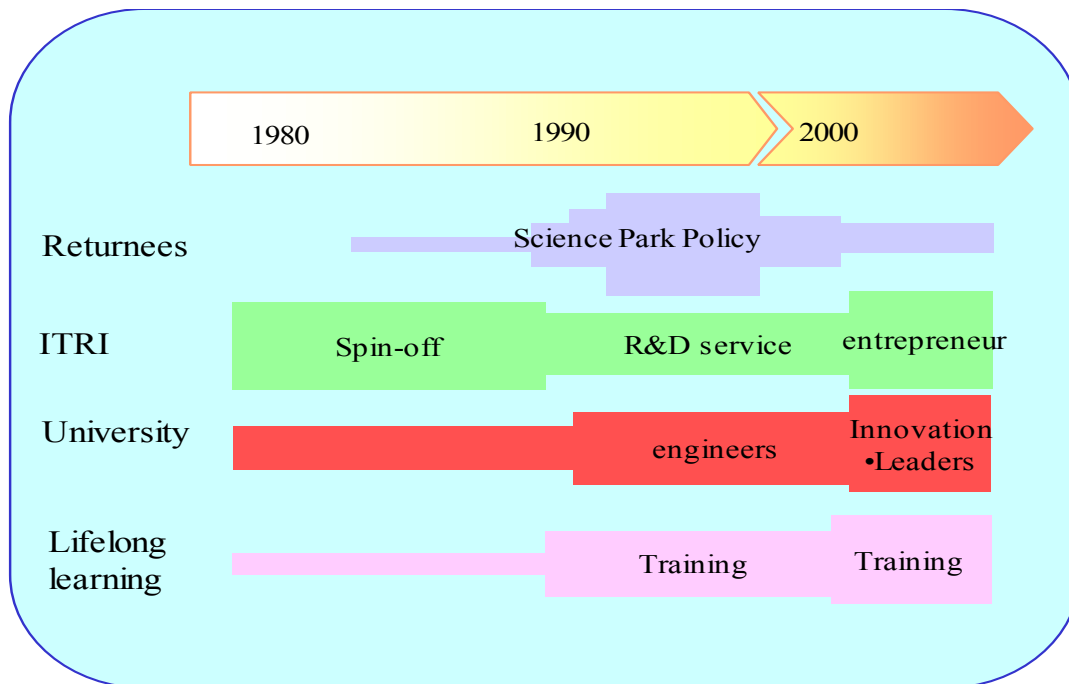
ITRI Researchers mobility



資料來源：

Changes of talents flow profile

Hsinchu Science Park



source: ITRI

Recent Talents outflow from Taiwan

- Asia economy growing
 - Professional out flow south & west bound
 - China 、 Hong Kong 、 Singapore.....
 - Vietnam 、 Thailand 、

Source :

Top 10 Patent Grants in USPTO

Rank	Origins	Pre-2002	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	All Years
1	JAPAN	485,962	34,858	35,515	35,346	30,340	36,807	33,354	33,682	35,501	44,813	46,139	50,677	51,919	53,848	52,409	1,061,170
2	GERMANY	242,593	11,280	11,444	10,779	9,011	10,005	9,051	8,914	9,000	12,363	11,919	13,835	15,498	16,550	16,549	408,791
3	UK	105,600	3,829	3,618	3,441	3,141	3,579	3,291	3,085	3,173	4,298	4,292	5,211	5,806	6,488	6,417	165,269
4	FRANCE	93,260	4,035	3,868	3,380	2,866	3,431	3,130	3,163	3,140	4,450	4,532	5,386	6,083	6,691	6,565	153,980
5	KOREA, SOUTH	21,706	3,786	3,944	4,428	4,351	5,908	6,295	7,548	8,762	11,671	12,262	13,233	14,548	16,469	17,924	152,835
6	TAIWAN	30,059	5,431	5,298	5,940	5,120	6,361	6,128	6,341	6,642	8,239	8,781	10,646	11,071	11,333	11,690	139,080
7	CANADA	60,912	3,431	3,427	3,374	2,894	3,572	3,318	3,393	3,655	4,852	5,014	5,775	6,547	7,042	6,802	124,008
8	SWITZERLAND	46,057	1,364	1,308	1,277	995	1,201	1,035	1,112	1,208	1,608	1,663	1,831	2,270	2,398	2,553	67,880
9	ITALY	35,854	1,751	1,722	1,584	1,296	1,480	1,302	1,357	1,346	1,798	1,885	2,120	2,499	2,628	2,645	61,267
10	SWEDEN	31,604	1,675	1,521	1,290	1,123	1,243	1,061	1,060	1,014	1,434	1,710	2,081	2,271	2,767	2,633	54,487

Intellectual Property Right (IPR) System in Taiwan

- Taiwan Intellectual Property Office (TIPO) 1999
 - patent, trademark, copyright, IC layout, trade secret - one agency
- The IPR Action Plan for 2015-2017
 - comprehensive IPR legal system
 - strengthen enforcement
 - education
 - international and cross-Strait cooperation
 - online copyright
 - border control measures

Summary & conclusions

- Skilled talents play the vital role for industrial transformation
 - Processing export industry [?] high-tech industry
 - Industrial policy drives S&T education and training
- Attractions for talents inflow
 - Friendly environment for MNCs investment
 - Immigrant policies for foreign talents
 - Education institutes
- Opening for knowledge exchange and interaction
 - Learning from multi-cultural people
 - Cooperation for exploring new opportunities

Future Challenge

competition for global Talents

- Universities attracts best students
- Open & friendly society attracts entrepreneurs
- Wherever absorbs the inflow talents will be more economically competitive

Source :

The End