



工業技術研究院

電子工業研究所

Industrial Technology Research Institute

Electronics Research & Service Organization

Innovation and Growth in Hsinchu Science-based Industrial Park, Chinese Taipei

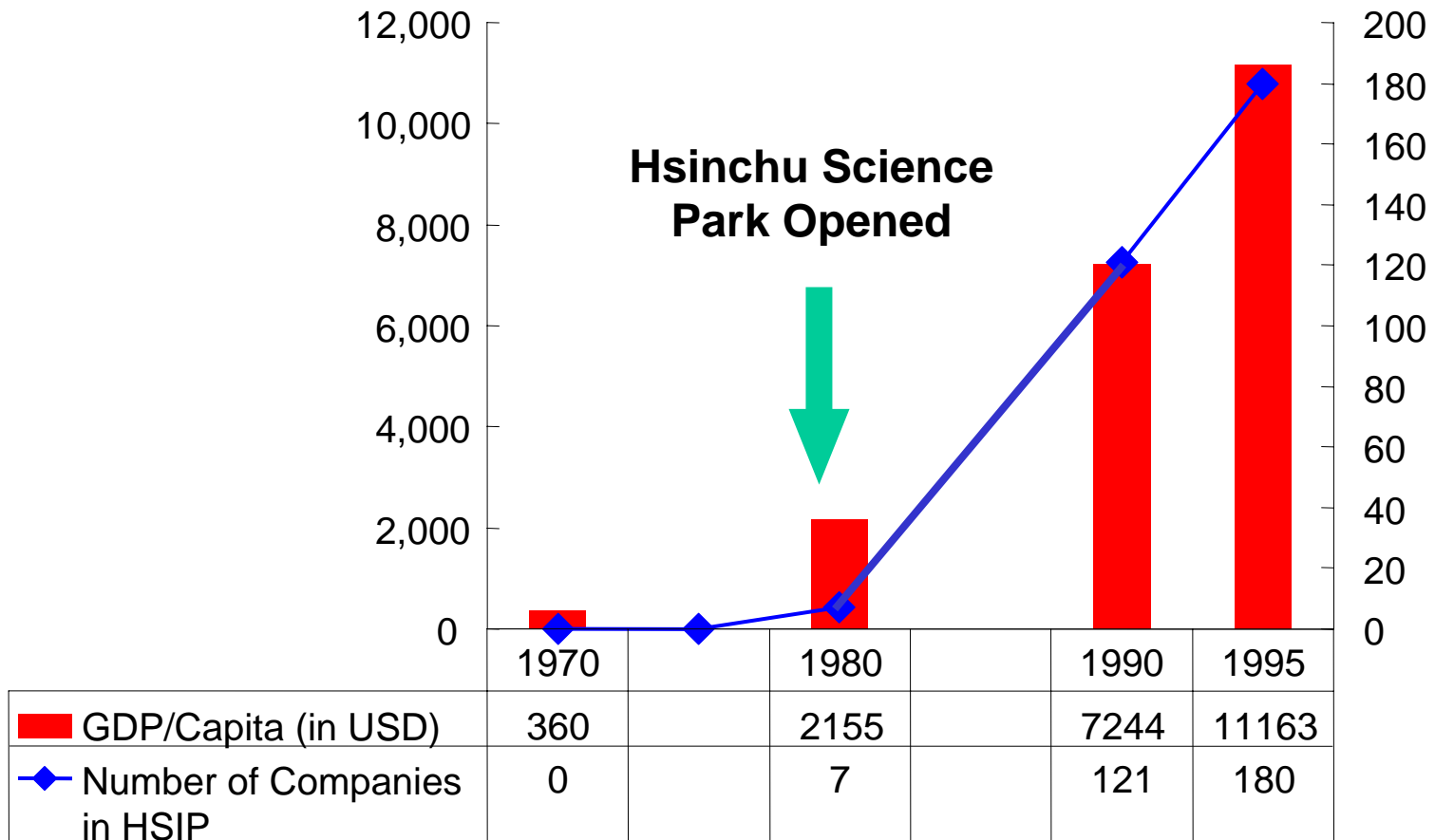
Genda J. Hu

ERSO/ITRI

November 20, 1998

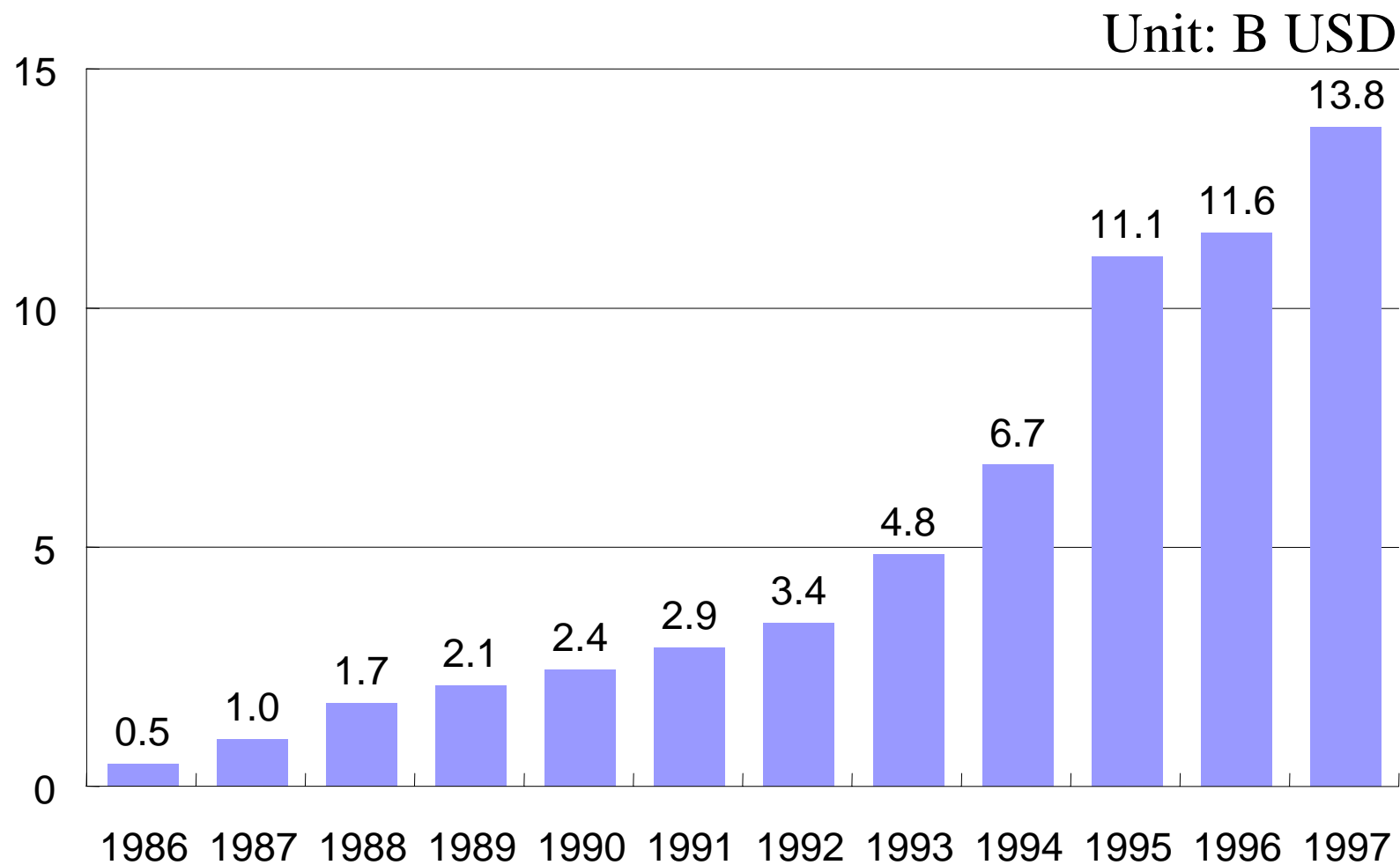


Science Park -- Parallel with Taiwan Economic Growth





Revenue Growth in HSIP





HSIP Fosters High Tech Innovation

- **Significantly higher labor productivity in HSIP**
 - 1997 HSIP enterprises : Total manufacturers in Taiwan
= 201 K USD : 68 K USD
- **Higher R&D/Sales in the HSIP**
 - 1997 HSIP enterprises : Total manufacturers in Taiwan
= 4.2%~6.2 % : 0.9%~1.0 %
- **Park companies contribute 31% of total invention patents granted in Taiwan in 1997**
- **IC industry is the leading industry in HSIP**
 - **Contributes 50% to HSIP's total revenue**



Leading Industries in HSIP

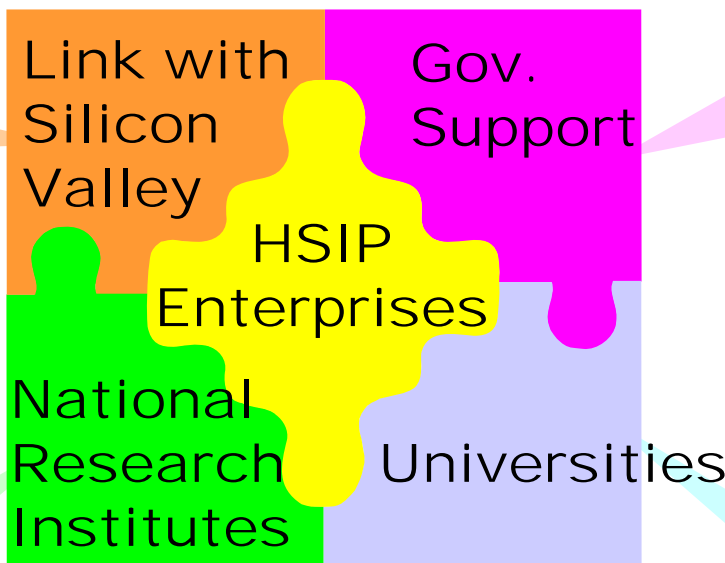
Unit: M USD

Industry	Firms	Employees	1997 Revenue
Integrated Circuits	96	37.681	6.893
Computer and Peripherals	44	17.263	4.861
Telecommunications	37	4.877	936
Optoelectronics	35	6.994	960
Precision Machinery	18	1.295	118
Biotechnology	15	300	14
Total	245	68.410	13.781



Critical Factors for the Success of HSIP

- Design centers in Silicon Valley
- Partnership in talents & investment.
- Customers(Fabless Companies)



- Tax exemptions
- R&D grants
- Infrastructure
- Low interest loans
- Capitalization of technical know-how

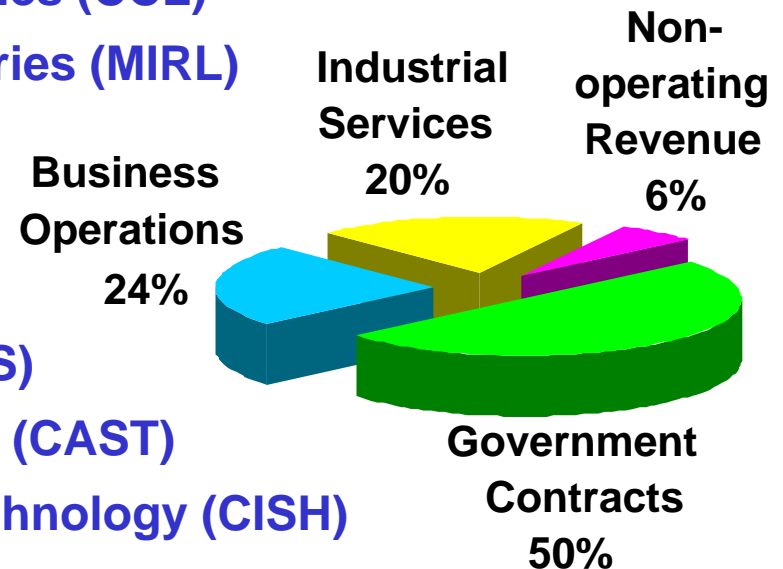
- Technology diffusion
- Spin-off companies
- Engineering & management talents
- Joint R&D projects

- Pools of engineers & other resources
- Research projects with academia
- Training programs



The ITRI Organization

- Electronics Research & Service Organization (ERSO)
- Opto-electronics & Systems Laboratories (OESL)
- Computer & Communications Laboratories (CCL)
- Mechanical Industry Research Laboratories (MIRL)
- Union Chemical Laboratories (UCL)
- Material Research Laboratories (MRL)
- Energy & Resources Laboratories (ERL)
- Center for Measurement Standards (CMS)
- Center for Aviation & Space Technology (CAST)
- Center for Industrial Safety & Health Technology (CISH)



1997 Operating Budget: 485M USD



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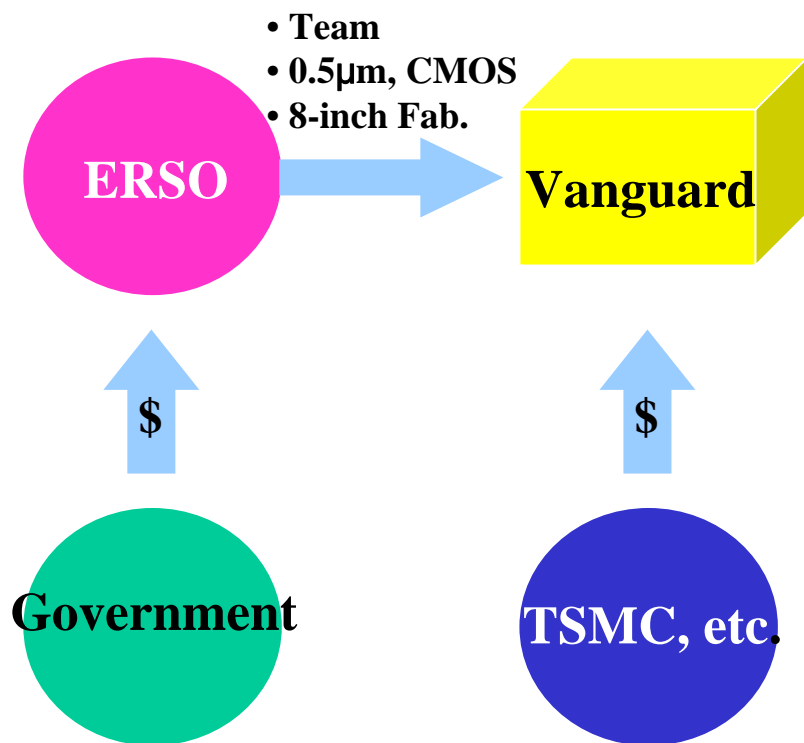
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ITRI Landscape





Example on the Innovation and Growth of HSIP



• Government Support:

- 5-9 year of tax exemption
- < 20% income tax (Compare with 25% off the Park)
- 0% duty on imported material and equipment
- 2% lower interest loan than off the Park
- R&D grants for key technologies



Outlook of the Science-based Industrial Parks

- More Science Parks (Tainan, and others run by private sectors)
- More Incentives to the Innovation-oriented Industries
- Tighter Collaborations with the Academia
- Globalization of Park Enterprises

