ITRI
Industrial Technology
Research Institute

Building a Global Semiconductor Ecosystem : The ITRI Playbook

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ITRI Introduction

Industrial Technology Research Institute

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ITRI

Founded in 1973

An independent non-profit innovation institution to create economic and societal values

Develop advanced technologies for commercialization (TRL 3~6)

Cultivate open innovation with academia, industry, and global partners

Incubates startups in emerging industries



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Current Status







Total Staff: 6,817 (~06/2026)

Ph.D.: 1,262

Master: 4,521

Bachelor: 1,034

Alumni: 29,195

Total Patents (~06/2026)

34,273

Startups & New Business Units (~Q2/2026)

174

Industry Services (2025)

Provided Services: 22,324

Transferred Technologies: 695

Incubatees (~Q2/2026)

221

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Research Areas and Services of ITRI

Industry Analysis and Global Collaboration (ISTI) *Think Tank*

Services and Startups

Biomedical Technology and Devices Labs (BDL) *R&D*

Information and Communications Labs (ICL) *R&D*

Mechanical and Mechatronics Systems Labs (MMSL) *R&D*

Electronic and Optoelectronic System Labs (EOSL) *R&D*

Green Energy and Environment Labs (GEL) *R&D*

Materials and Chemical Labs (MCL) *R&D*

Unmanned Technology Innovation Research Labs (UTIL) *R&D*

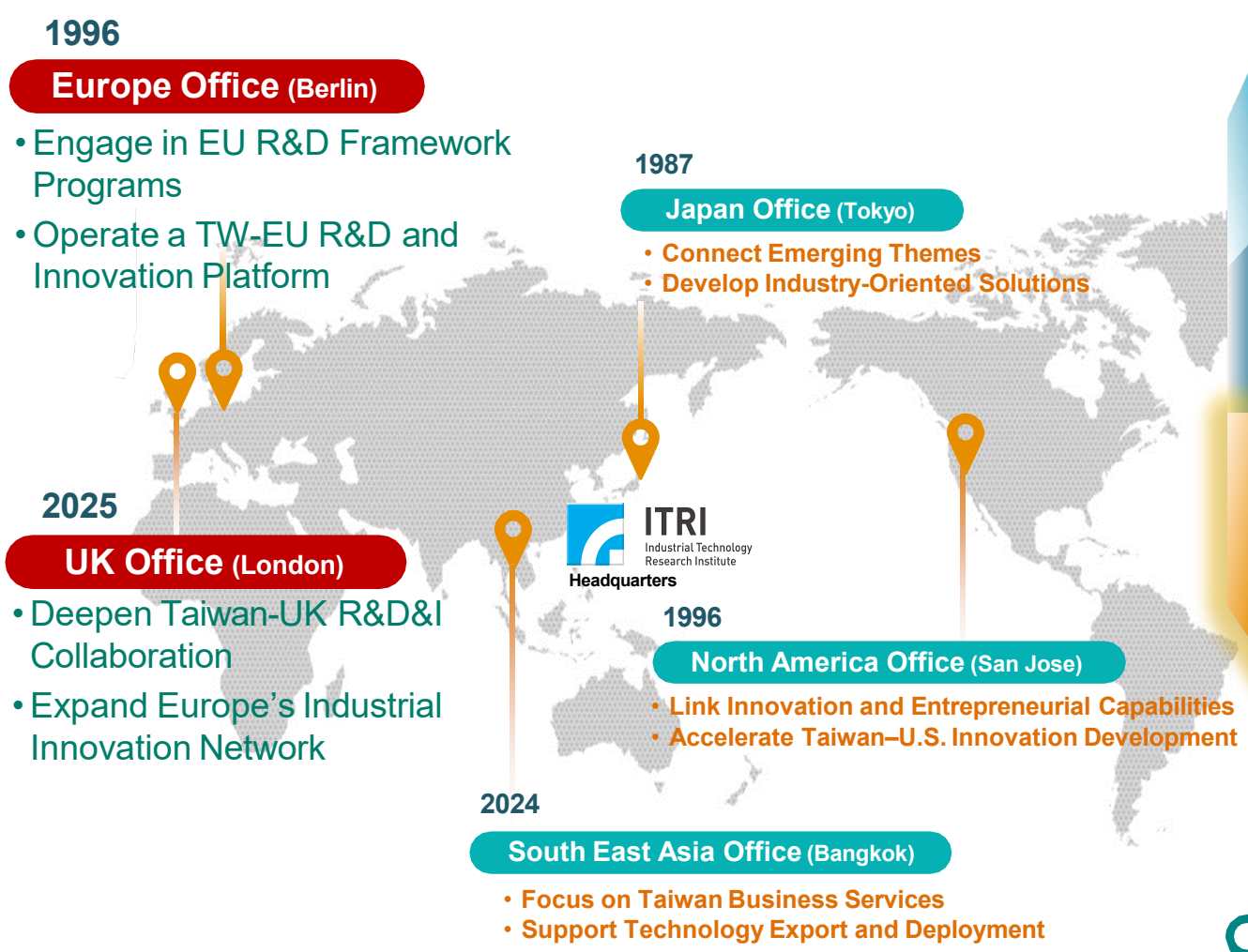


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ITRI's Global Network and Key Missions



Consolidating Expertise

- Enable cross-disciplinary collaboration
- Business management, system integration, and digital capabilities
- Align industry needs with global trends

Deepening Roots in Taiwan

- Support government in shaping industrial development strategies
- Strengthen the competitive edge of high-tech industries
- Enable SMEs and traditional industries to upgrade and transform

Expanding Global Presence

- Promote intergovernmental economic and trade cooperation
- Support industries in expanding into global markets

Leverage of Cutting-edge Technology

Collaboration on Key Technology

Innovation & Industrialization

Market Exploration and Development

Taiwan / ITRI Branding

Talent Recruitment & Cultivation

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Taiwan - Europe Multilateral and Bilateral R&D&I Collaboration Platforms

Multilateral

EU Framework Programme

- Horizon 2020
- Horizon Europe

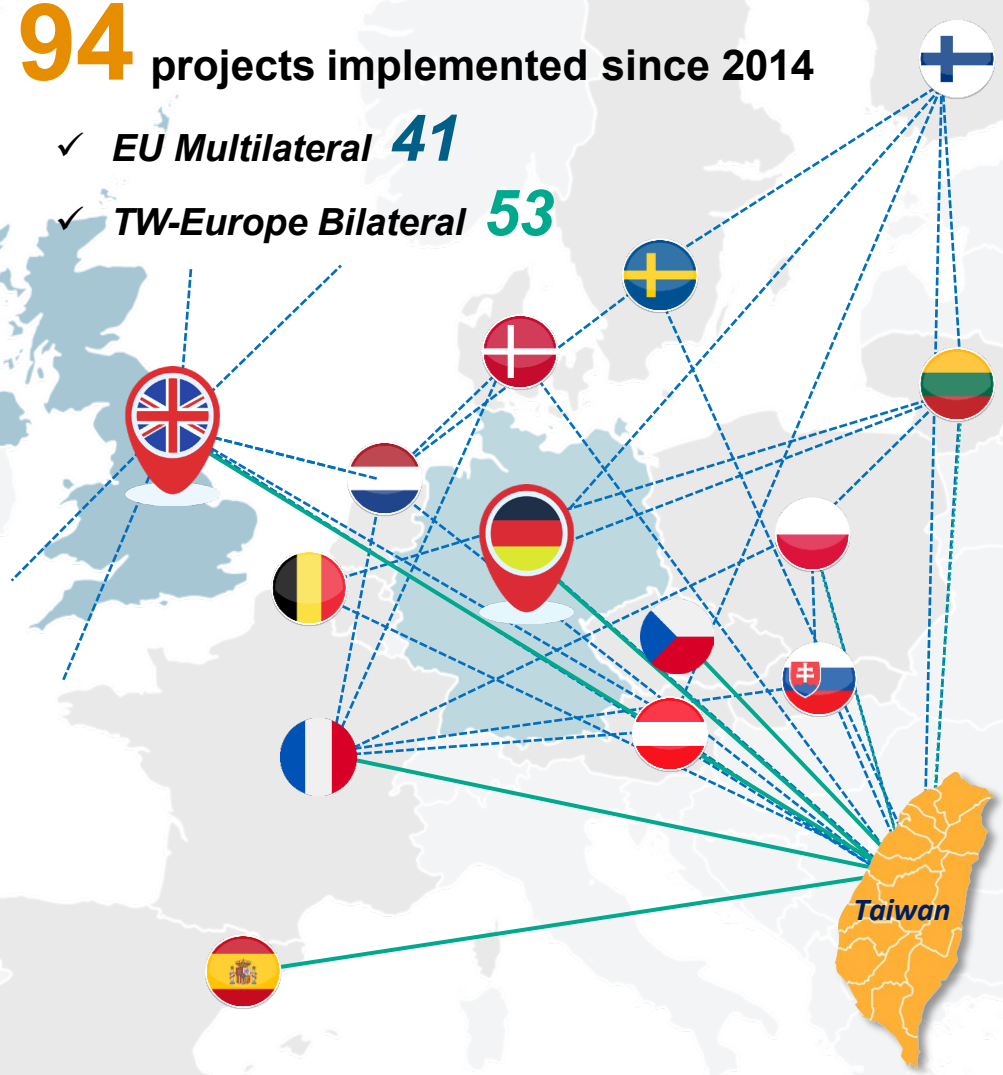
Eureka

- Globalstars

2018	
2021	
2022-23	
2023-24	
2025	
2026	

94 projects implemented since 2014

- ✓ *EU Multilateral* **41**
- ✓ *TW-Europe Bilateral* **53**



Bilateral

TW-DE	**BMWK** (2017) Industrial Transformation (Robotics × Semiconductors)
TW-ES	**CDTI** (2017) Smart Manufacturing (Automation × Green Energy)
TW-CZ	**TACR** (2019) Eastern Europe Presence (Drones x Laser)
TW-UK	**Innovate UK** (2022) World-class R&D (Digital × Biopharmaceutical)
TW-FR	**Bpifrance** (2025) Systems Innovation (Aerospace × Communications)
TW-PL (2027)	**NCBR**
TW-LT (In Progress)	IA Lithuania

14
Official Partners
EU Member States & UK
27 + UK

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Overview of Taiwan Semiconductor Ecosystem

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50 Years to Build Taiwan's Semiconductor Ecosystem

Triple helix synergy drives Taiwan's semiconductor development

Government — Investment, Infrastructures

RTOs — Technology, Talent

Industry — Scale-up, Globalization

The ITRI Playbook

1973 ITRI Industrial Technology Research Institute

1974
- Setup Lab

1976
- Technology transfer CMOS: RCA (US)

1980 UMC 聯華電子
- Spun-off 4'' Technology
- Hsinchu Science Parks

1983
- Syntek:1st IC design

1987 tsmc
- Spun-off 6'' Technology

1988 TAIWAN MASK CORP.
- Mask Fab

1994 VISTA
- Spun-off 8'' Technology

2003
- 1st Silicon IP Mall

LSI/LVSI Technology Development Project (1979-1988)

Sub-micron/ Deep Sub-micron Process Technology Development Project (1990-2000)

Chip Systems National Technology Project (1990-2000)

Smart Devices National Technology Project (2003~2019)

Chip Design and Semiconductor Applications Project (2018-2021)

Next-Gene Semiconductor Application and Technology (2021-2025)

Taiwan Chip-based Industrial Innovation Program (2024-2033)

1970 1980 1990 2000 2010 2020 2030

A Half-Century Investment in Taiwan's Semiconductor Ecosystem

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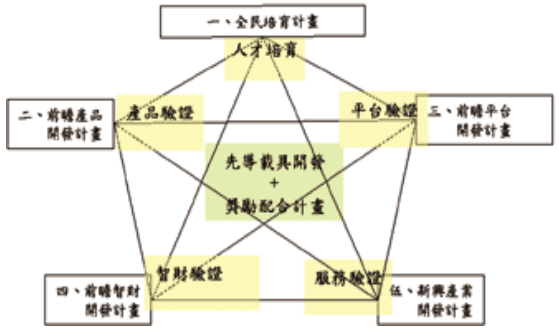
Continuous Policy Support : Taiwan Chip-based Industrial Innovation Program

Taiwan: No.1 in foundry & OSAT

Chip Design to Fab: Powering TW's next industry wave

2002 → 2016 → 2024 → 2033

(2002) Si-Soft Program



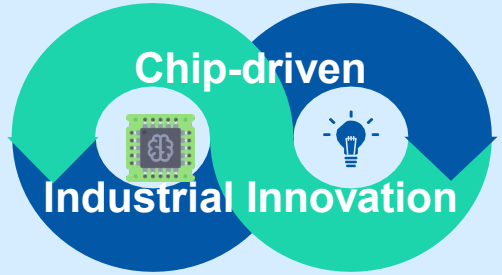
Drive IC design industry growth
Lay the foundation for TW's chip talent

5+2 Industry Innovation Plan、DIGI+、Six Core Strategic Industries



Optimize digital environment
Boost industrial innovation and strategic sectors

Taiwan Chip-based Industrial Innovation Program



Leverage chip technology and generative AI to accelerate key industries

Cultivate and attract chip talent and startups to build future tech strength

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ITRI's Advanced Semiconductor R&D Center

Funded by **Taiwan Chip-based Industrial Innovation Program**

FACILITY

Taiwan's first **12-inch** Back-end Process Pilot Line

INVESTMENT

EUR 104 million
(NT$3.77 billion)

TIMELINE

Groundbreaking: **Feb. 2026**
Operations: from **Q3 2028**



From Chip Design to Pilot Production & Validation

IC Design → Process R&D → 12-inch Pilot Production → Packaging & Testing → Validation

A shared platform for startups, SMEs, academia & industry

Core Services

1. IC design innovation, prototyping & verification
2. 28~90 nm Backend of Line process R&D and pilot production
3. On-site validation of semiconductor equipment & materials

Target Technologies

- AI Chips
- Silicon Photonics
- ASIC
- 3D Integration
- Next-gen Memory
- Quantum

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Where the Industry is Heading Next

Growth is overwhelmingly driven by **AI** and **HPC** demand

AI Computing & Data Center

- AI Accelerator, HPC
- CPO, Silicon Photonics

Vehicle Chips & Power Device

- SiC, Advanced power device, Functional safety standards

Advanced Design and Packaging

Chiplets, CoWoS, 3D IC, Heterogeneous integration

Physical AI

Interactive, executable smart edge devices deployed into physical environments

Automotive & Power

Making the electric vehicle able to run longer and grid safer

Next-gen Communication

Integrate the ground and satellite Communication to provide seamless connection

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