Fostering Regional Innovation through STI Parks: The Case of Korea



Contents



Regional Development Policy in Korea



History of Korean Techno Parks



Korean TP Model

Regional development policy in Korea

- The Korean government played a key role in shaping the national development trajectory
- Its role has been far from static
- Over the past 4 decades, the state has reshaped priorities and actions, and consolidated virtuous policy practices and instruments

●The Korea experience called for an <u>intensive</u> <u>'learning process'.</u>



Regional Development Policy in Korea

The paradigm shift in regional development policy

Korea is one of few recent examples of a country that has managed to transform its domestic economy from <u>agriculture</u> into that of several <u>enowledge intensive fields</u>.

Traditional paradigm New policy paradigm (1962 - 1996)(1997 ~ Present) Role of regional policy Acceleration of development **Eradicating spatial problem** Pursuing economic efficiency Objectives Stimulating competitiveness (Economy of scale) Local government and private **Implementation** Central government initiatives sector initiatives Balanced economic growth Policy priority Innovation capability

Progressive development strategy



Regional Development Policy in Korea

The paradigm shift in regional development policy

The sustainability of growth patterns is linked to the capacity to shift the production structure toward sectors with higher increasing returns and higher dynamic capability

Sectoral contributions to growth from textiles to cars and electronics



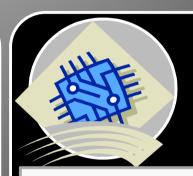
1960s~80s

First phase of industrialization

- Infant industry protection
- Restriction on imports/Supporting exports
- Relax regulation on construction of factories
- Support R&D activities & the development of skilled manpower
- Increase competitiveness
- Wage fixed by law
- Export growing: 8.6%



- Design stage to production
- National car brands
- Hyundai, Kia, Daewoo etc
- Govt. gradualist approaches
- 60s: Import restriction to create domestic demand and incentives
- 70s: Long term plan for promotion of automobile industry
- + Mass production system
- + Vertical & horizontal integration of large and SMEs
- 80s : Competition policies
- 90s : Industrial reconstruction
- + Private sector plays a leading role



1970s~90s

Engine for next generation

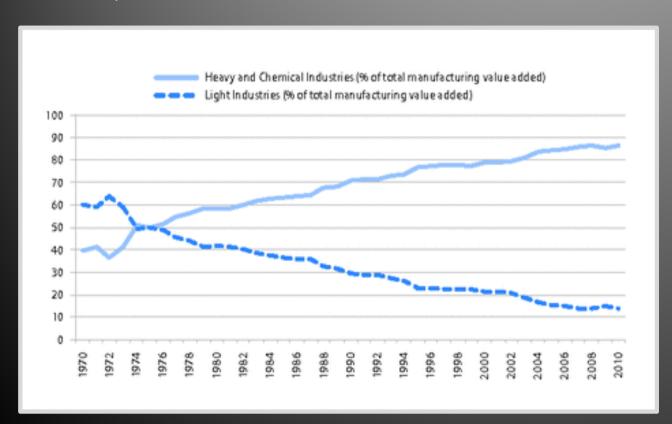
- Enacted the law of promotion of Electronic industry
- Formulated the plan of fostering the electronic fields
- Govt. played a pivotal role
- 60s: Assembly by low waged labor
- 70s: National champions selected
- + Samsung, LG and Hyundai
- + Government R&D program support
- -80s: leapfrogging stage at DRAM
- 905: Dynamic growing at DRAM
- + Generic technology for next generation
- + Highly skilled manpower to sustain competitiveness

Regional Development Policy in Korea

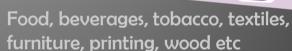
The paradigm shift in regional development policy

The shift from an agriculture-based economy to an industrialized one helped to sustain productivity growth

Structural change from light to heavy and chemical industries KOREA, 1970 ~ 2010



Light industry



Heavy industry

Petroleum, non-ferrous metals, machinery, electronics, precision etc



History of Korean Techno Parks: Background of Korean TP Projects

'98~ '73~ '60~'70 **Development** Promotion of Supply **Policy** of Advanced Regional **Industrial** Goal Science **Industries** Land for Key & Technology **Industries** Techno **Daedeok National Parks Science Town** Industrial **Complexes** Universities and **Industry-University-Target Industry Research Institute Research Institutes** Central Central **Central and Local Performing** Government Government **Governments Party** After launching the autonomous Large industrial In 1973, Daedeok Science local government system 1995, the complexes were created in Town was built to Main necessity for a strategic policy each region with the concentrate technological **Contents** regarding development of regional industrial land supplied to research capabilities. industries and activation of foster export industry in technical innovation was on the the 1970's.

rise.

6

History of Korean Techno Parks: Stages of TP Projects

- Creation of TPs began in 1997
- 18 TPs are operating as of 2015.

Stage 3 '13~: Fostering newly specialized industries Stage 2 '08~'12: Focusing on organization and technology Stage1 Stage 3 '13~: Fostering newly specialized industries Functioned as a regional innovation center and a comprehensive window to provide enterprise support services

'97~'07: Focusing on creation of space

Concentrated on construction of infrastructure for innovative activities

Established organization that supports innovation of technology-based companies, and supports connective cooperation between technology and

human resources

'98~'04 '03~'12 Since '13

Creation of Space

Constitution of Organization

Hub of Networks

Creation of Advanced Innovation Space

• Established space for promotion of regional industries and shared facilities and equipment.

Promotion of Regional Strategic Industry

• Organized think-tanks for promotion of regional industries and expanded basic organization to support companies in the region.

Establishment of Business Support System

 Linked company support groups by each industry to provide useroriented enterprise support programs.

- Stage 1 aimed at constructing TP complexes and supporting occupied companies.
- Stage 2 established the policy to promote strategic industries in the region and changed its role as the base for administration.

Primary Comparison of TP Projects in Stages 1 & 2

Stage 1 TP Project Equipment installation Facility expansion Conduct 6 major target businesses

Main Conte nts

*business incubator, provision of information, utilization of equipment, trial production, education and training, research & development



Outco me

- Strengthened capabilities for enterprise support services
- Concentrated technological resources by cooperation of industry-university-research institute.
- Comprehensive window to support SMEs
- Strengthened abilities for regional innovation

Supporting enterprises within complexes

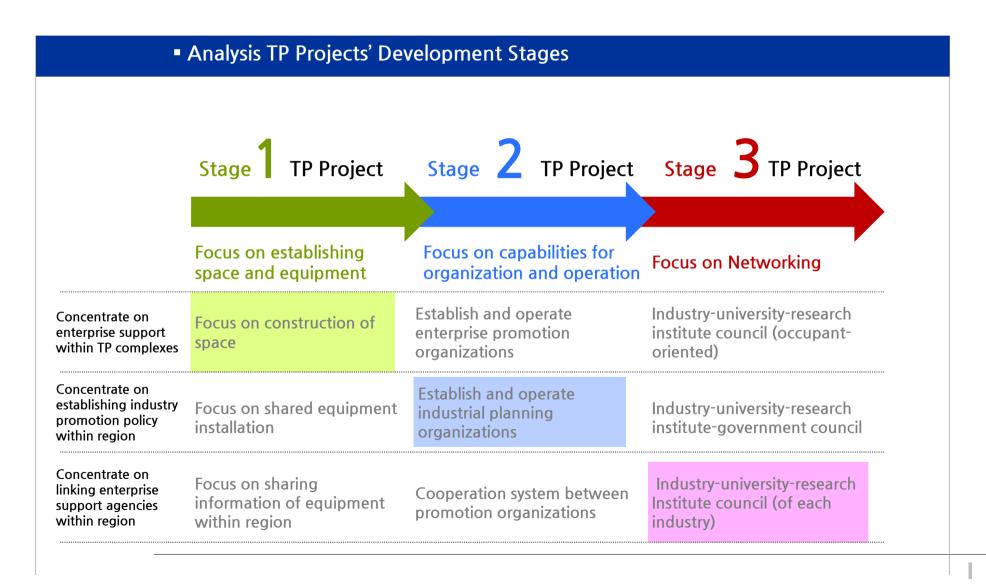
Stage 2 TP Project

- Function as a base for regional innovation
- * research and plan for regional innovation, facilitation of link between innovative resources
- Foster technology-based companies
- * technology expansion, enterprise support
- Infrastructure expansion



- Single window for enterprise support services
- Specialization of each TP
- Expansion of self-sustainability base

Supporting enterprises to promote regional business



■ Phased Development and Key Projects of TP

Stage 2

Establishment of regional industry's promotion policy

- Administration of monitoring company group
- DB of regional industry's promotion resources
- Industry-university-research institute counsel
- Growth strategy for each industry

Stage 1

Focus on occupant support project

- •R&D
- Trial production
- •Business incubator
- Training & education
- •Information Use of circulation equipment

Hub of networks for enterprise support

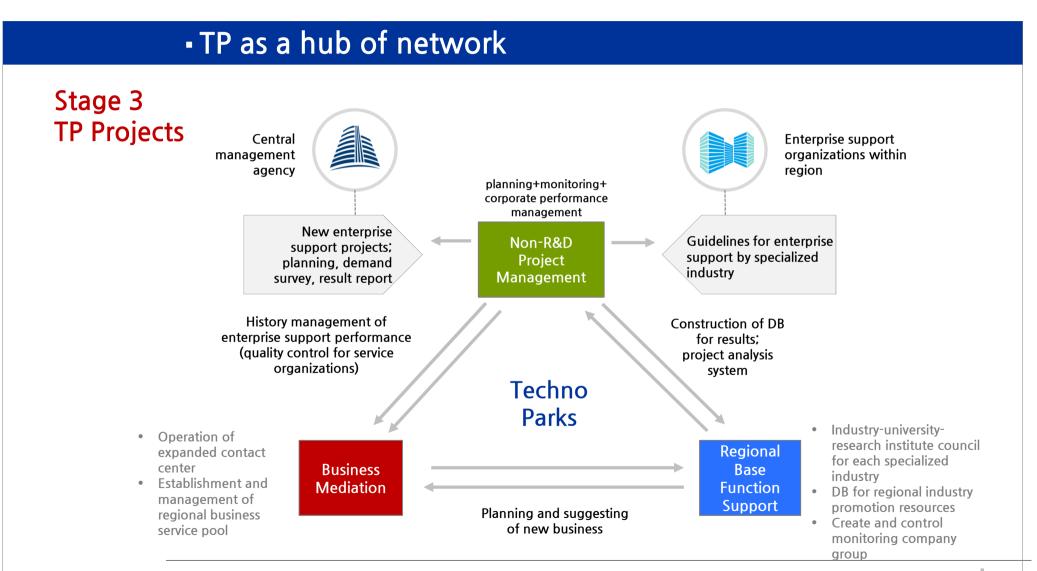
- •Survey corporate characteristics of each industry
- Support strategy for each industry
- Growth strategy for standard companies
- •Guidelines on standard enterprise support

Stage 3

Major Enterprise Support Projects by TPs in Korea Stage 1 Industry-university-Possession of highinstitute joint research **TP Projects** tech equipment Research resource Utilizing it for trial support production Trial **Production** R&D Support Support Link with industry-TP's **Fducati** Business ability university-**Business** Major on & institute Incubator improvement **Projects Training** in Korea Professional Managerial Support manpower training resource support Use of Information Equipment Circulation Support Vitalization of New technology information equipment High-tech exchange with industryequipment university-research institutegovernment

TP as a planning center for regional industrial policy Stage 2 **TP Projects** Government Inducement and adjustment of regional industry development Industrial Policy growth consultation Window for Activity technology **Techno Parks** University/Research Institute **Companies** support transfer Supply highly skilled technical Base for regional technological innovation Enhancement of commercialization professionals, system, abilities. creation and diffusion of new links industry-university, adoption and use of new technology Activity Window for technology regional industry innovation support technology transfer Technology transfer

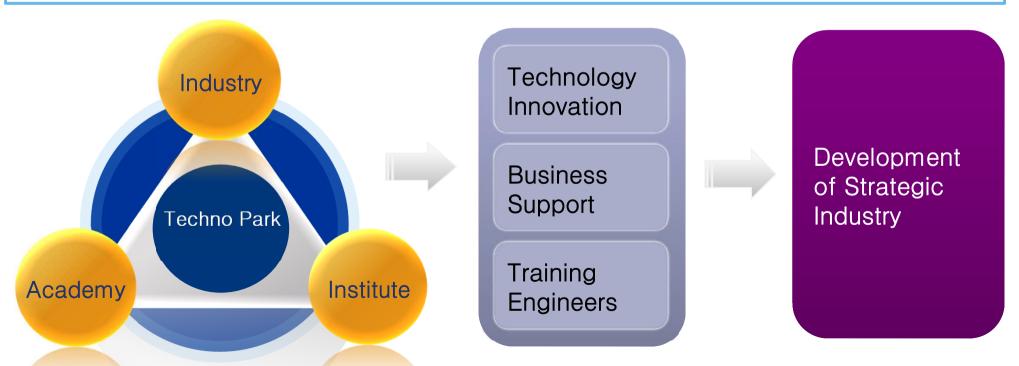
Joint research



Concept

Knowledge Concentrated Industrial Complex to

- Stimulate and manage the flow of knowledge and technology amongst universities, R&D institutions, companies and markets
- ② Facilitate the creation and growth of innovation-based companies through incubation and spin-off processes



Korean Techno Park vs. Industrial Park

Techno Park is more focused on business incubation and company support through collaboration and linkages of industry, academy, and institute, while Industrial Park is zoned and planned for production through factories.



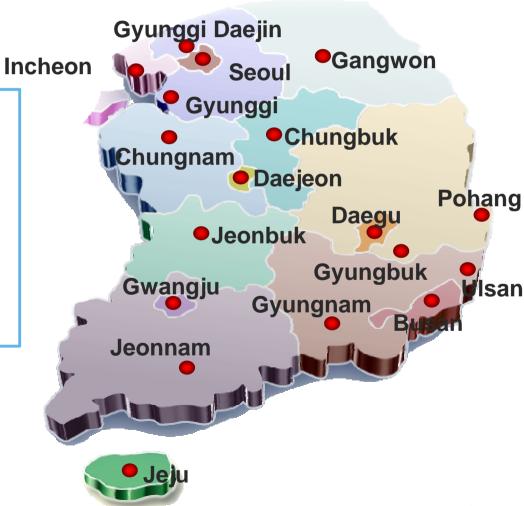


Techno Park

Industrial Park

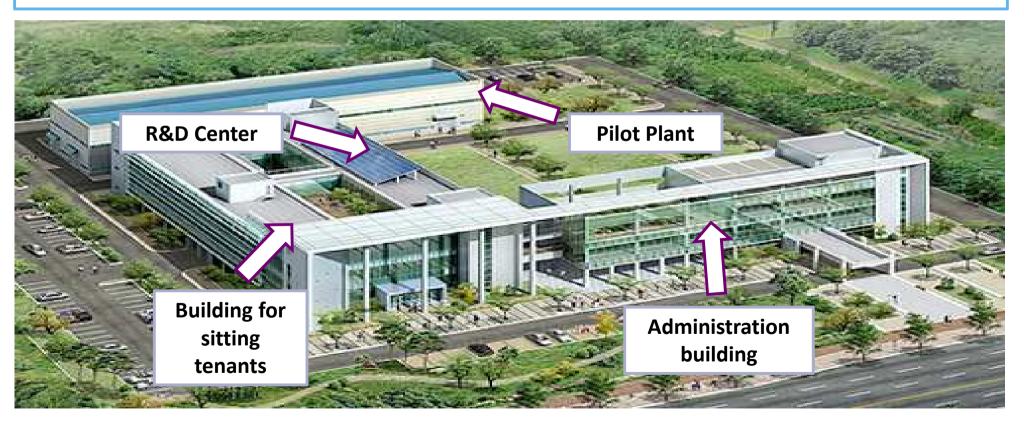
Current Status of Korean Techno Parks

- 1 18 Techno Parks are operating over the country for promoting Local Area Specific Industry
- ② R&D through Techno Parks in Local Area.

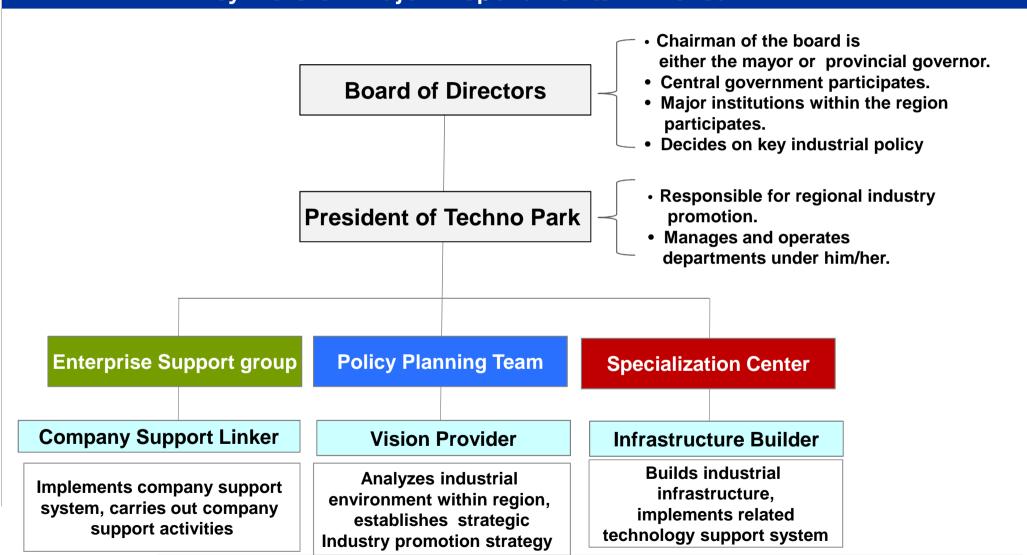


Major Facility of Techno Park

- Basic Techno Park consists of 3~4 buildings of different functions.
- Expansion of Techno Park: Universities and research institutes can be integrated with Techno Park



Key Role of Major Departments in Korean TP





• Korean Techno Park focus on Business Support for Company's Growth

(Through the growth period of 1970s~1990s, start-ups have been invigorated in Korea and Techno Park has strengthened business support service to make start-ups leap forward.)

R&D Support on Region Specific Industry

R&D Support

- Evaluate regional status and capacity
- Select Region Specific Industries (RSI)
- Promote RSI

Status Analysis

- 1. Regional Status
- 2. Biz. Attractiveness
- 3. Regional Capacity
 - Industrial Infra.
 - Related Biz

Select RSI

- 1. Current Status
- 2. Future Possibility
 - Industrial Infra.
 - Host Biz/BI
- 3. Select RSI

Promotion Program

- 1. Est. R&D Infra.
- 2. R&D Funding



R&D Support on Region Specific Industry

- Techno Park is equipped with research equipment of Region Specific Industries
- Techno Park provides companies in the region with the research equipment
- Techno Park supports joint R&D among industry academy research









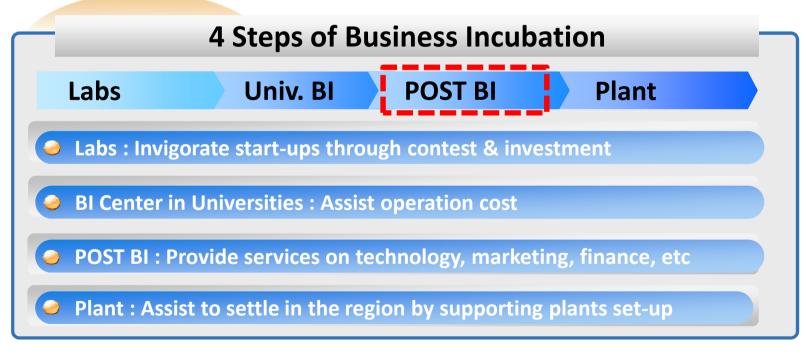
To overcome shortage of R&D personnel and equipment

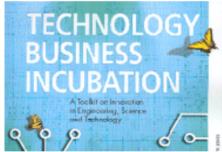
Techno Park plays a vital role as a core organization

Business Support for Company's growth

Business Support

- Provide space and pilot production facility for POST BI companies
- Supply other comprehensive service







Business Support for Company's growth



Contact Point for Consulting services

- Consult on management strategy & technology
- Support consulting on bottleneck technology
- Solve the problem in the production process



Commercialization of Technology

- Support for patent application
- Support for technology transfer
- Establish and run a technology holding company

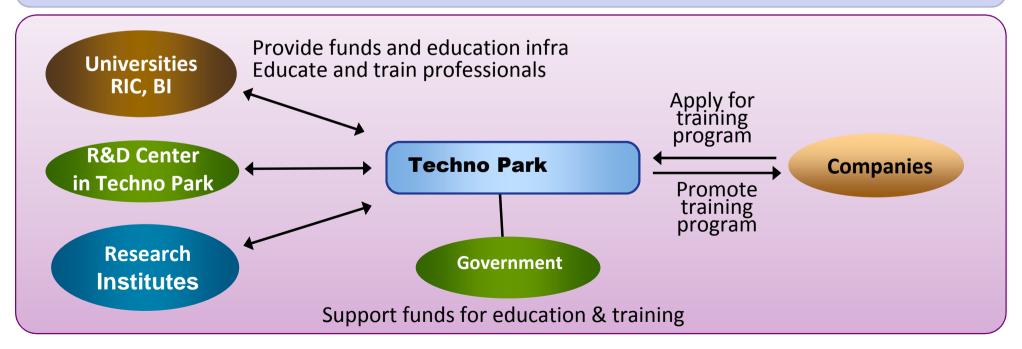


Domestic & Overseas Marketing Services

- Domestic Marketing
- Market Survey
- Products Exhibition
- Connecting Buyers
- Biz-matching
- Global Marketing
- Overseas Road show & Exhibition, etc.

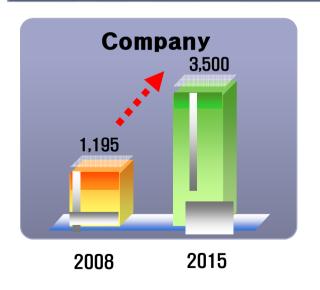
Technical Professionals Training

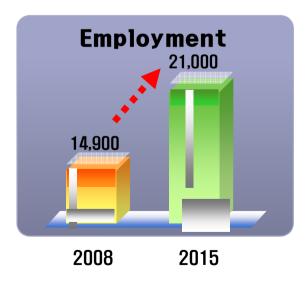
- Education and training program is designed and provided based on demand from companies.
- Education and training is provided through Universities, research Institutes and R&D center of Techno Park in the region
- Field engineers are the target group of this training program

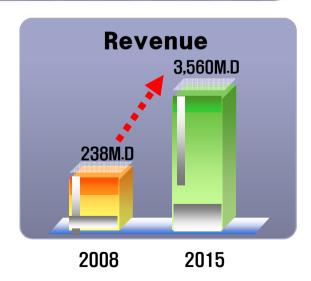


Expected Achievements

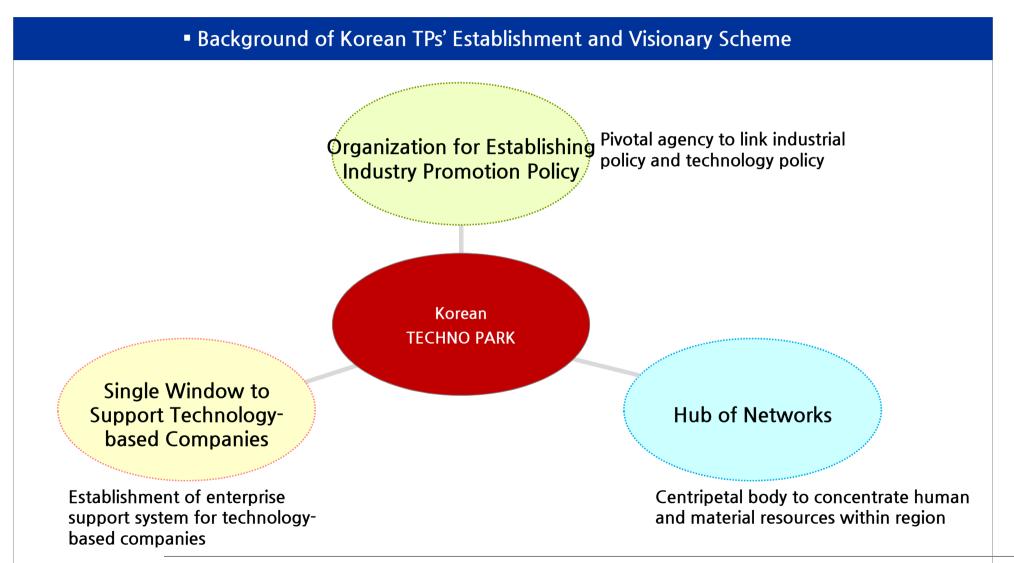
Year	Company	Employment	Revenue
2008	1,195	14,900	238 Million Dollars
2015	3,500	21,000	3,560 Million Dollars







• Korean TPs play a greater role in establishing, implementing, and managing industry development policy within region, unlike the STPs in advanced western countries.



• Key roles of Korean TPs for promoting strategic industries are vision provider, infrastructure builder, and company supporter.

