



Petrochemical Investor Conclave

Global and Indian Petrochemicals Clusters: Success Factors and Agenda

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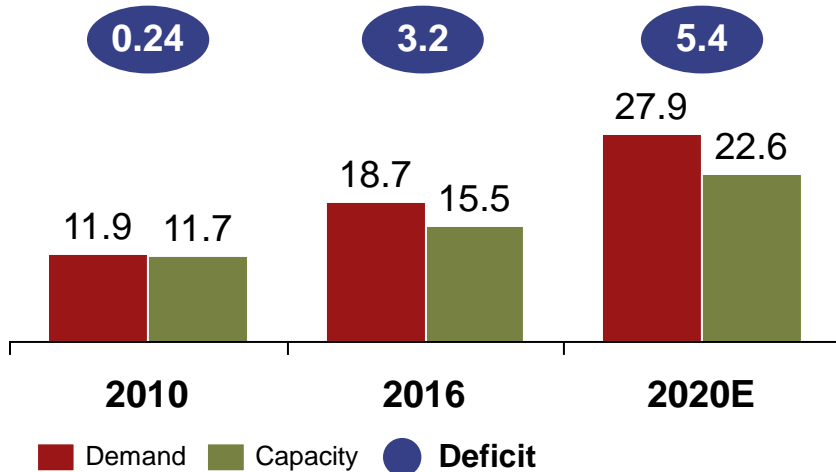
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The petrochemical industry in India provides significant opportunities, although challenges persist

The growing deficit provides a tremendous opportunity for the domestic petrochemical sector

Supply and demand for petrochemicals¹ in India (MM MT)



However, several challenges are impeding rapid growth

- 1 High feedstock prices compared to global peers
- 2 Logistics and infrastructure challenges
- 3 Underdeveloped downstream sector (intermediates, specialties)
- 4 Regulatory and policy issues (e.g., inverted duty structures)




The Indian petrochemical industry has seen asymmetric growth in regions with feedstock and/or infrastructure capabilities

1. "Petrochemicals" includes major derivatives of ethylene, propylene, aromatics, and butadiene. Source: A.T. Kearney, Nexant

To spur manufacturing in India, PCPIRs were conceptualized, but several factors have impeded their implementation

Concept and implementation of PCPIR policy

Salient features of PCPIRs

<p>Feedstock accessibility</p> <ul style="list-style-type: none"> Refinery or feedstock company as anchor investor 	<p>Best-in-class infrastructure</p> <ul style="list-style-type: none"> Rail, road, and airport connectivity Utilities and other services 	<p>Chemical cluster</p> <ul style="list-style-type: none"> Value chain coverage Ancillary and support sectors 
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Several challenges are impeding rapid growth

- 1 Lack of investment**
(investors' concern about financial risk)
- 2 Infrastructure bottlenecks**
(e.g., power and water in Vizag)
- 3 Land acquisition and related regulatory issues**
(e.g., land in Dahej; single window)
- 4 Limited planning and focus** (e.g., limited pre-feasibility studies)

Multiple examples of large chemical or petrochemical hubs exist globally

Select examples of successful chemical hubs

1

Rotterdam,
Europe

- **120+ integrated companies**, including five refineries and 45 chemical companies; **35% of European cracker capacity**
- **Efficient inland and international transport** via pipelines, rail, barges, road, and sea

2

Jurong
Island,
Singapore

- **95+ leading petroleum, chemical** and supporting companies with **investments exceeding \$20 billion**
- Significant **scale despite no natural source of oil and gas**; yearly **output of more than \$85 billion**

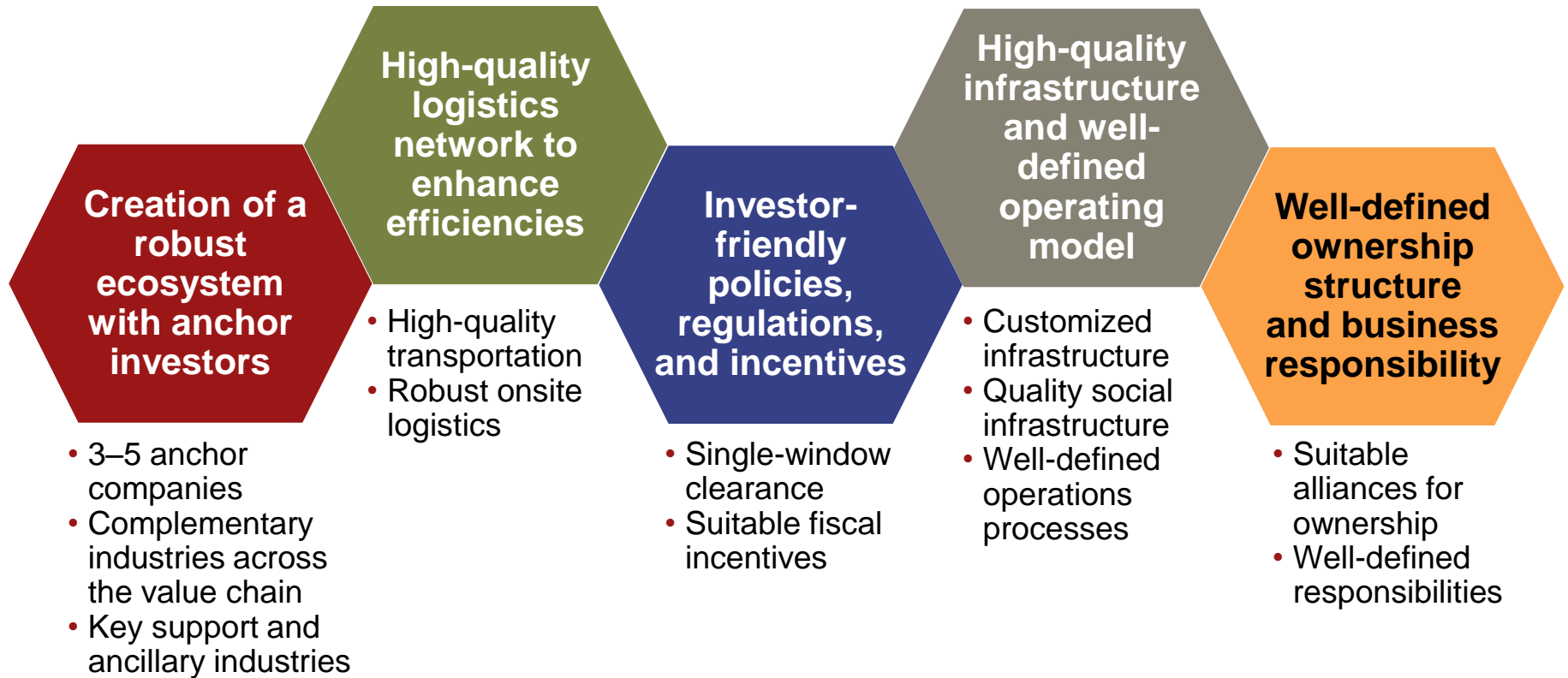
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Fujian,
China

- More than **\$30 billion in yearly production output**
- **Excellent port network**, and advanced interprovincial rail system and highway network

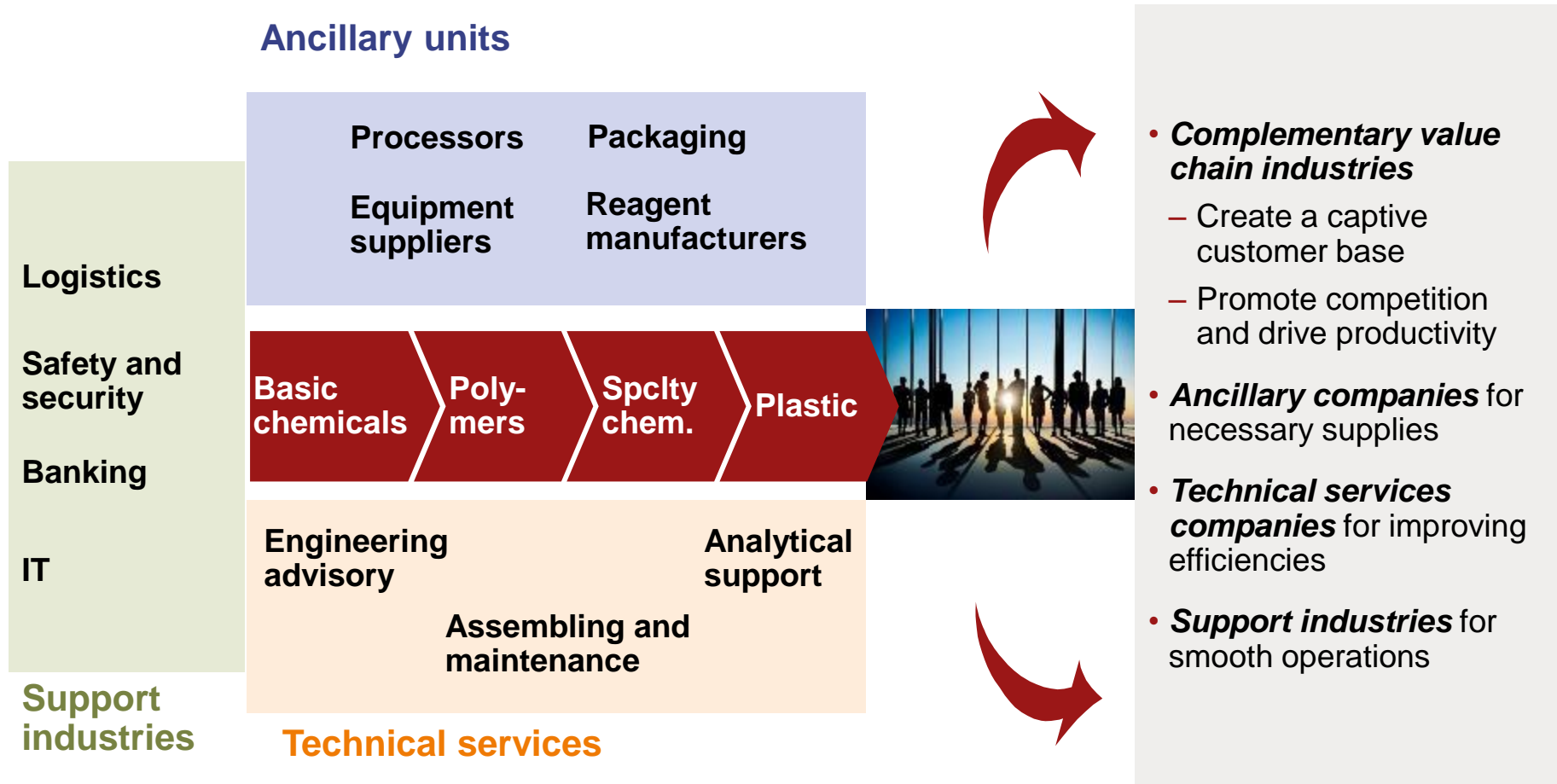
Five key factors are essential to the success of a petrochemical hub

Key success factors



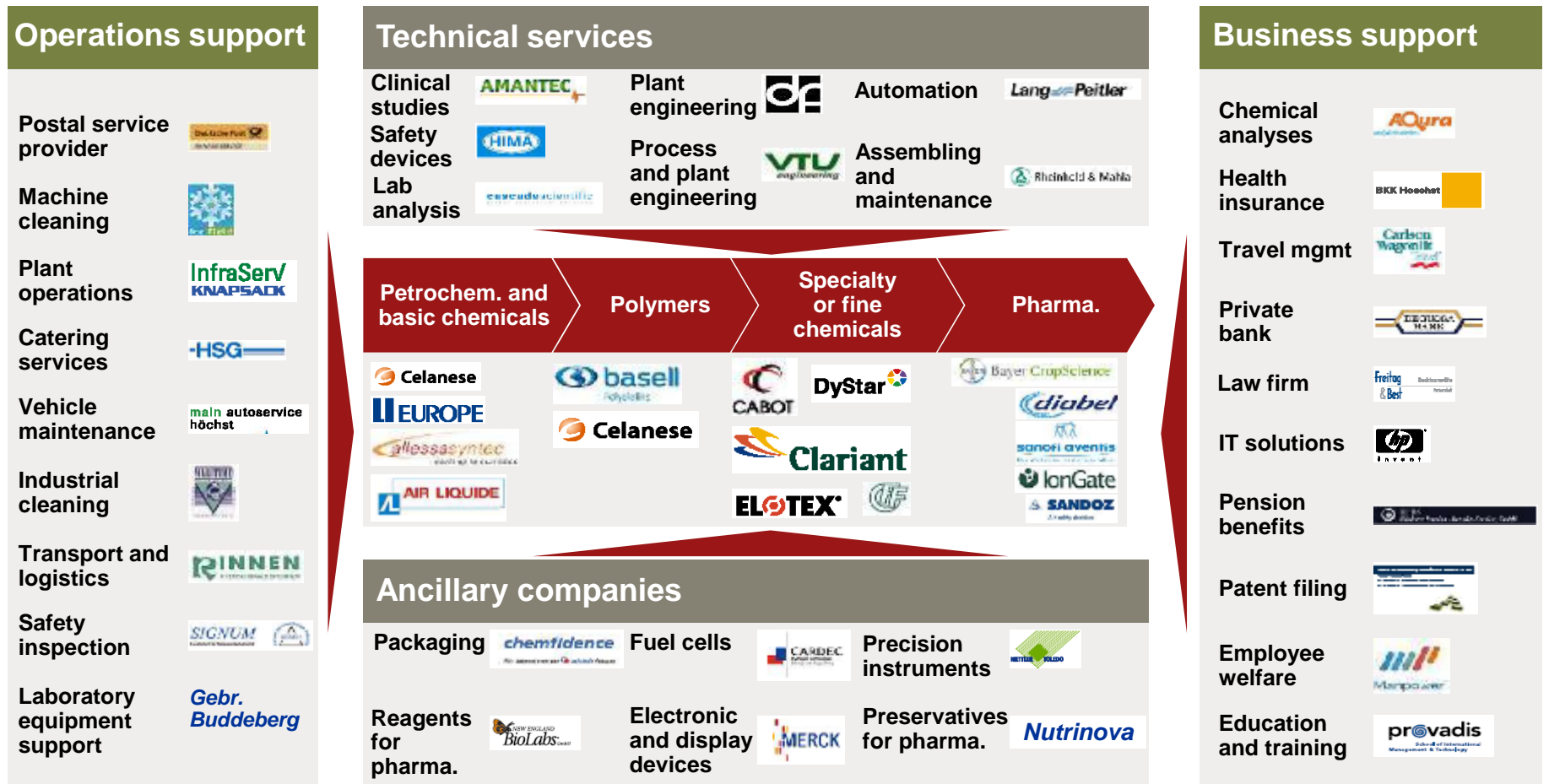
1 A robust ecosystem with anchor investors and complementary industries is key for an efficient petrochemical hub

Schematic representation of an ecosystem



1 Frankfurt-Hochst provides a robust ecosystem—integrated chemical chain, ancillary, and support industries

Case example: Frankfurt-Hoechst chemical hub ecosystem



1 Most successful hubs have been “anchored” by a few large investors that are typically leaders in their respective fields

Case example: Shanghai Chemical Industrial Park (SCIP)

Wave 1

Anchor investments

Investor	Project
SECCO (JV with BP, SPC, and Sinopec)	Ethylene cracker
Bayer	Integrated chemicals
BASF (JV with Huntsman, GPCC, and SHYG)	MDI/TDI
BASF	PTHF
Lucite	MMA

Wave 2

Follow-up investments

Investor	Project
GPCC	Phenol and acetone
Shanghai-based companies	Caustic soda and PVC
Degussa	Organic peroxide
Lamberti	Fine chemicals
Mitsubishi Gas	Hydrogen
Bayer	Polyurethane
Shanghai Mitsui	Bisphenol

- **Anchor investors BP, Bayer, and BASF** invested over \$7 billion in Wave 1
- Approximately \$1.5 billion invested in **support industries and infrastructure**
- Anchor investors attracted **subsequent investments in wave 2**
 - Degussa
 - Additional 5–6 domestic and international players

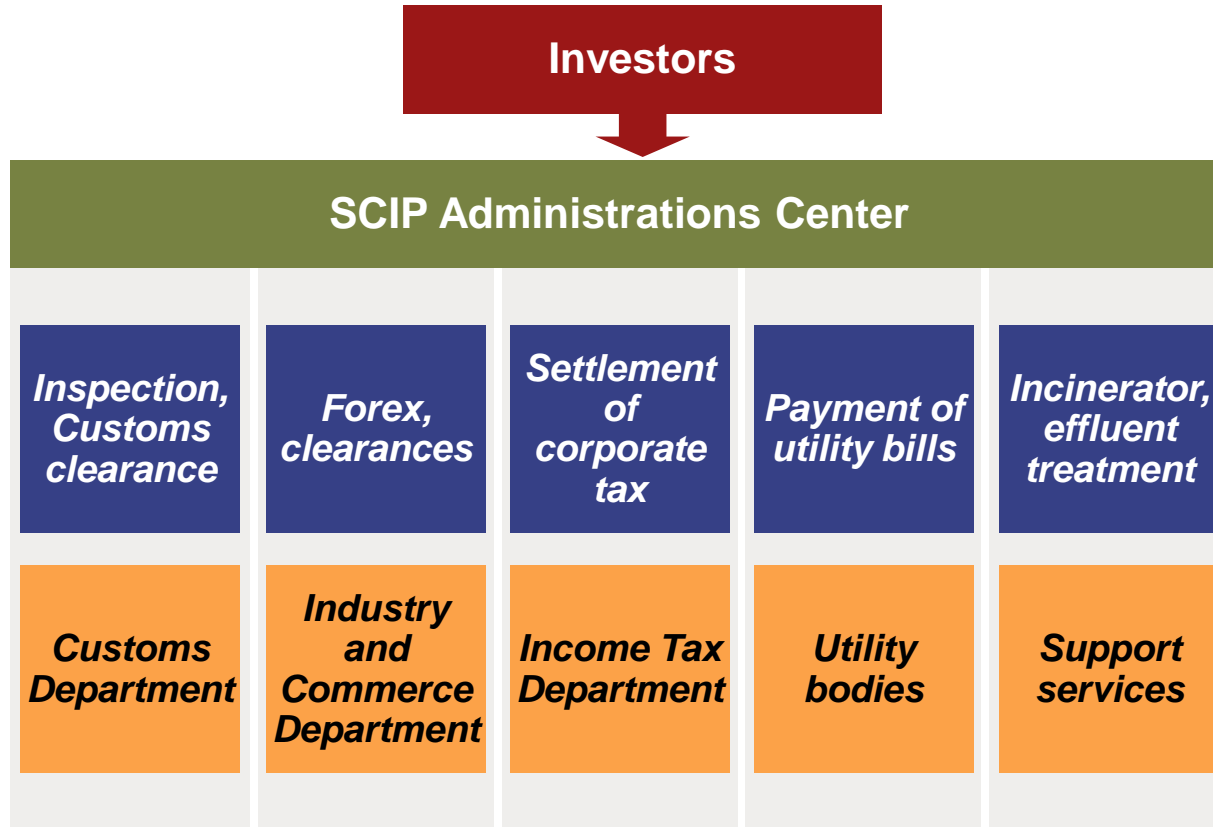
2 A high-quality logistics network is critical for smooth inward and outward movement

Case example: land-locked Frankfurt-Hoechst hub

Frankfurt-Hoechst hub	Tri Modal gateway		<ul style="list-style-type: none">• Optimally combines rail, road, and inland water transport
	Excellent cargo handling		<ul style="list-style-type: none">• Capable of handling 40,000 TEUs per year• Houses three 40 MT gantry cranes
	Loading facilities for trucks and trains		<ul style="list-style-type: none">• Loading facilities for trucks, and a total of six tracks and siding capacity of 230 TEUs
	Storage and warehousing		<ul style="list-style-type: none">• Provides approximately 280 locations for hazmat and empty containers

3 Investor-friendly processes are critical—for example, single-window access for all procedural requirements

Case example: Shanghai Chemical Industrial Park (SCIP)



- **Administration center within park for single-window clearances**
 - Authorized by Shanghai Municipal Committee
 - Liaises with government and public bodies to obtain clearances
 - Collects income taxes on behalf of the government
 - Acts as a one-stop shop for all utility and support service payments

3 Most successful hubs provide strong fiscal and other incentives to attract investments

Case examples

	Shanghai Chemical Industrial Park	Kabinburi Industrial Zone	Bayport Industrial Complex
Corporate tax exemptions	<ul style="list-style-type: none"> • Two-year tax holiday beginning on the first profit-making year • Low corporate tax rates for overseas companies (14%) 	<ul style="list-style-type: none"> • Corporate tax exemption for the first eight years, followed by a 50% reduction in corporate tax for the next five years 	<ul style="list-style-type: none"> • Not applicable
Duty allowances and other deductions	<ul style="list-style-type: none"> • Import duty exemption on technologies and equipment for foreign-invested companies 	<ul style="list-style-type: none"> • 75% reduction of import duty and tax on RM • Higher tax deductions • No export obligation 	<ul style="list-style-type: none"> • Lower ad valorem taxes • Up to 100% abatements on property tax
Other incentives	<ul style="list-style-type: none"> • Dividends exempted from withholding taxes • Discounted interest rates on debt 	<ul style="list-style-type: none"> • 100% foreign ownership allowed • Remittance of foreign currency allowed 	<ul style="list-style-type: none"> • Financial grants for emission reduction projects

4 Infrastructure facilities provided through alliances and partnerships can be a strong incentive

Case example: Shanghai Chemical Industrial Park (SCIP)

Key highlights

- More than \$1 billion invested in **basic and chemical industry-specific infrastructure**
- **JVs and SPVs used to develop infrastructure** in collaboration with foreign partners
- Two separate companies for **developing road corridors and pipe racks**

SCIP Development Company (SCIPDC)

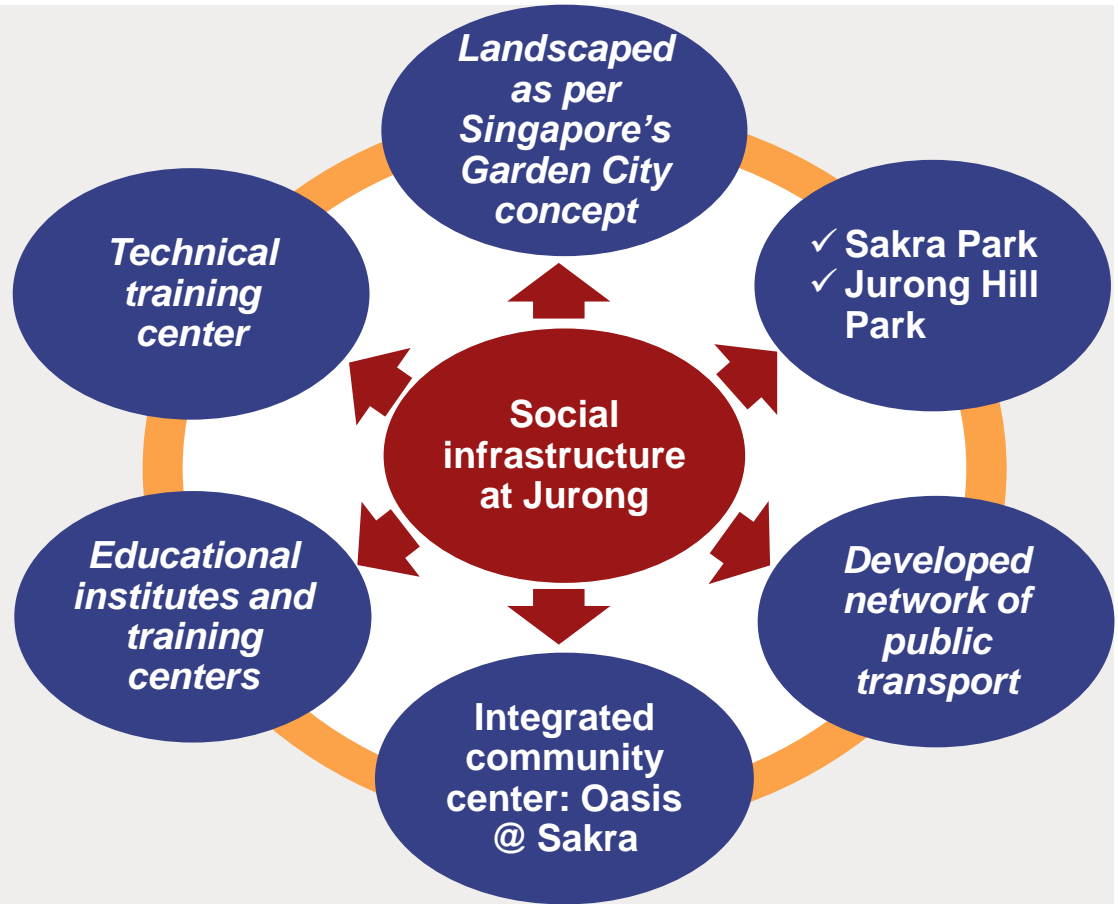
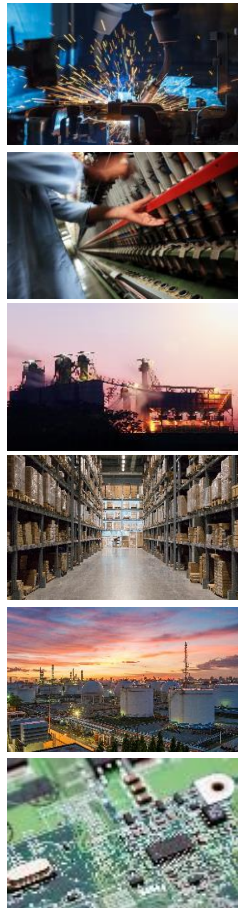
Basic infrastructure	Chemical industry-specific infrastructure
<p>SPV for power generation \$300m</p>	<p>SPV for effluent treatment \$45m</p>
<p>SPV for water \$45m</p>	<p>SPV for incinerator \$65m</p>
<p>SPV for jetty and tank farm \$210m</p>	<p>SPV for construction jetty \$4.5m</p>

Comprehensive infrastructure facilities are operated by individual SPVs that are structured as JVs between SCIPDC and foreign collaborators

4 Well-nurtured social infrastructure at Jurong Island enables easy access and helps retain skilled employees

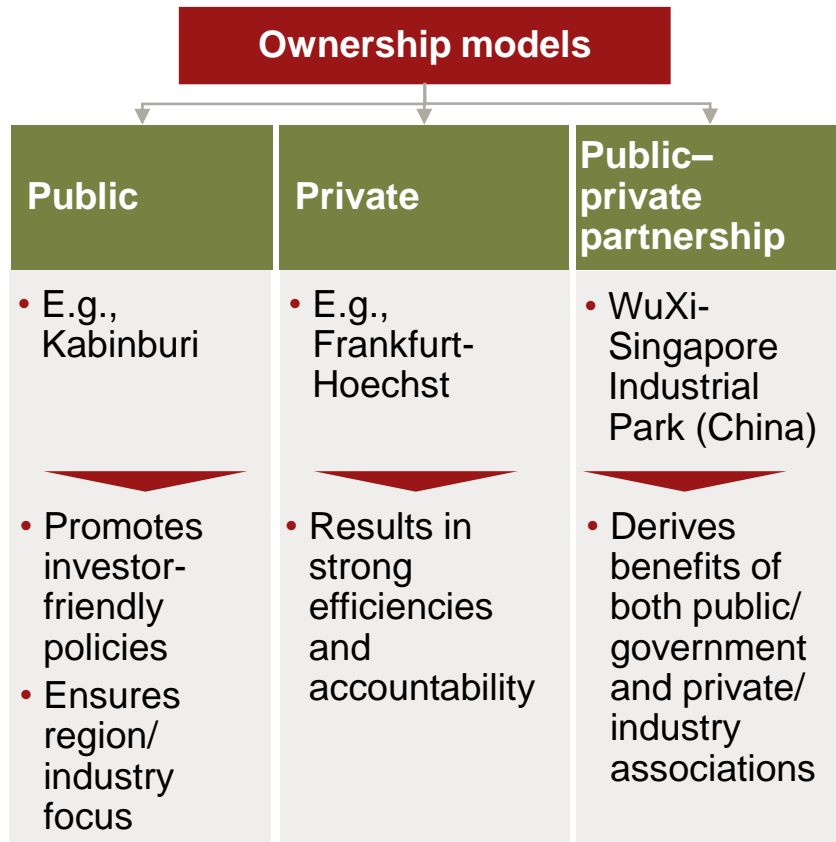
Key highlights

- **High-rise housing blocks** and leisure spaces
- **Open spaces and green facilities**
- **Educational institutes and medical facilities**



5 A suitable ownership model can become a key facilitator

Ownership model options



Different types of promoters and owners

- Petrochemical/chemical companies**
 - Drivers**
 - Assured product offtake
 - Opportunity to develop downstream capabilities via JVs
- Govt industrial promotion bodies**
 - Drivers**
 - Promote industrial, economic, and social developments
- Infrastructure development companies**
 - Drivers**
 - Financial gains as hub developer and captive activities
- Financial institutions**
 - Drivers**
 - Pure financial gains through equity participation

A five-pronged action agenda is required to bring petrochemical hubs to fruition

1

Develop a comprehensive road map for a “showcase hub”, in line with global benchmarks

2

Provide fiscal incentives to ensure there is a competitive business case for investment

3

Build core infrastructure such as multimodal logistics links, utilities, and other services via suitable SPVs to improve attractiveness for investors

4

Establish investor-friendly processes such as single-window access for all procedural requirements and policy support for land acquisition

5

Establish a dedicated steering team with central and state government, and industry representation to bring implementation focus

Critically, the agenda above needs to be executed in a time-bound manner

Thank you

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