



Central Asia Regional Economic Cooperation Program

Corridors, cities and sector planning

Key Success Factors: Learnings from Northern Corridor Economic Region

Kuala Lumpur, April 2014

THE BOSTON CONSULTING GROUP

Background and overview of this session

The Boston Consulting Group has had the privilege of working on several of the Economic Corridors and industry clusters in Malaysia

- Northern Corridor, Iskandar Malaysia, MSC Malaysia to name a few

Based on our experience in Malaysia, we have extracted several key takeaways on what is required to successfully plan for an Economic Corridor

- We have identified 5 key success factors ...
- ... and will use our experience with the Northern Corridor to illustrate these learnings

Background of the Northern Corridor

- Coverage: 4 different states in the North (Penang, Kedah, Perlis and North Perak)
- Different starting positions:
 - Penang most industrialized and developed
 - Kedah & Perlis: mostly agriculture based with average household incomes in the bottom 3rd of states in Malaysia
 - Northern Perak: mix of agriculture with some pockets of industrial activity

Background of the Northern Corridor Economic Region (NCER)

Northern Corridor encompasses four different states



Overview of NCER



- Established in 2007 to focus and cluster development in the Northern States of Malaysia
- Overall corridor focus on Agriculture, Manufacturing, Services (Tourism & Logistics) and Human Capital Development
- Starting position for the 4 states were varied

Five key success factors in the early stages

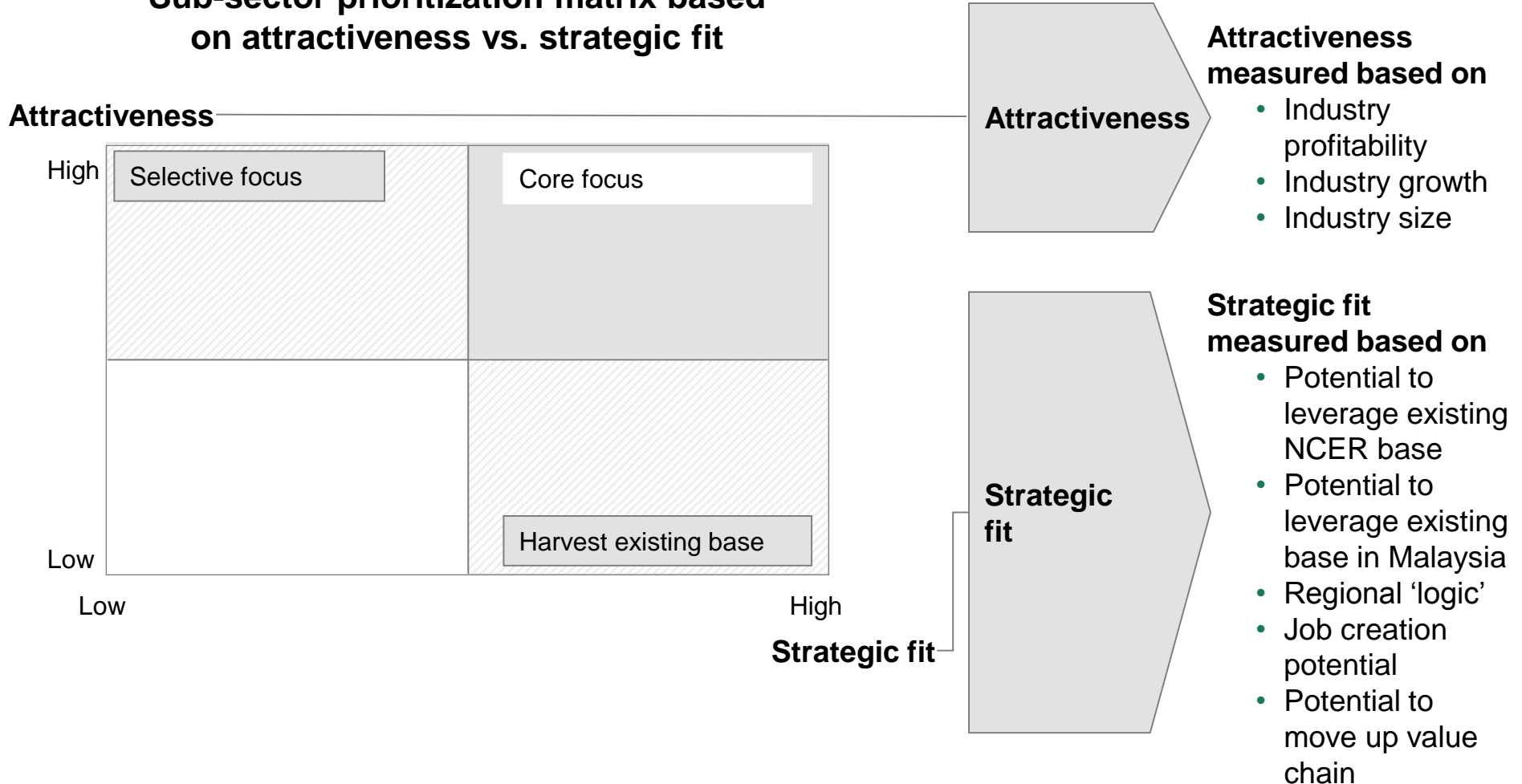
- 1 Focus early on to identify core areas of focus and key priorities for the Region**
- 2 Once focus areas are selected, develop high-level business case for each**
- 3 Drive executional certainty through detailed implementation plans**
- 4 Get private sector involvement early and at levels**
- 5 Do not underestimate the importance of governance**

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Overall prioritization framework

Sub-sector prioritization matrix based on attractiveness vs. strategic fit



Example of how "attractiveness" assessment

Growth			Profitability			Size		
Sub-sector	Growth	Quartile	Sub-sector	Profitability	Quartile	Sub-sector	Size (US\$Bn)	Quartile
Shipbuilding	14.5%	4	Biotech/Pharma	19.9%	4	Downstream agri.	2,987.09	4
Biotech/Pharma	8.6%	4	Healthcare Equipment	16.7%	4	E&E	1,716.10	4
Oil & Gas	7.4%	4	Steel	9.0%	4	Automotive	1,713.90	4
E&E	5.3%	4	Cement	8.5%	4	Oil & Gas	1,604.20	4
Cement	4.8%	3	Downstream agriculture	8.1%	3	Apparel & Textile	1,524.10	3
Healthcare Equipment	4.4%	3	Fertilizer/Agri chemicals	7.5%	3	Defense & Aerospace	1,268.40	3
Machinery	4.1%	3	Waste Management	6.7%	3	Steel	924.80	3
Automotive	4.1%	3	E&E	6.7%	3	Biotech/Pharma	746.90	3
Apparel & Textile	4.0%	2	Apparel & Textile	6.4%	2	Paper & Forest products	551.00	2
Downstream agriculture	3.9%	2	Oil & Gas	5.8%	2	Cement	485.10	2
Waste Management	3.0%	2	Defense & Aerospace	5.0%	2	Machinery	474.84	2
Paper & Forest products	2.8%	1	Paper & Forest products	4.5%	1	Healthcare Equipment	214.20	1
Fertilizer/Agri chemicals	2.8%	1	Machinery	4.3%	1	Waste Management	210.60	1
Defense & Aerospace	2.3%	1	Shipbuilding	2.8%	1	Fertilizer/Agri chemicals	111.40	1
Steel	0.2%	1	Automotive	1.8%	1	Shipbuilding	60.99	1

Quartile rank as basis for score

Weights

40%

40%

20%

Less emphasis of absolute size of sector

Weighted average scores of individuals sectors ranked to obtain overall attractiveness

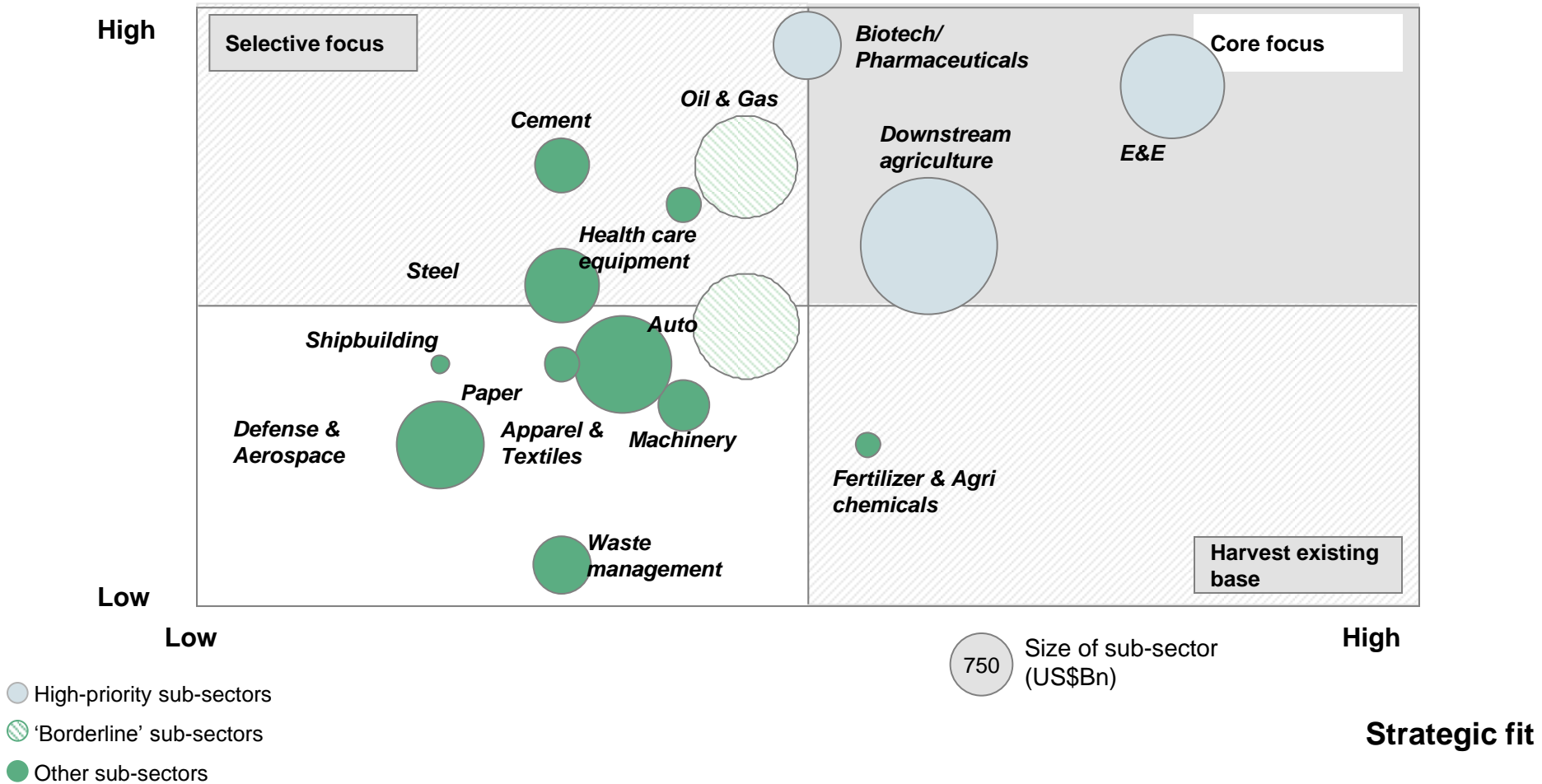
Example of how "Strategic fit" assessment

Sub-sector	Leverages existing base in NCER	Leverages existing base in Malaysia	Regional "logic" for sub-sector	Strong job creation potential	Allows for value chain "upgrade"	Overall
Apparel & Textile						2.40 Strong job-creation but limited competitive advantage for sub-sector to take-off
Automotive						2.80 Existing auto clusters in central Malaysia; some job creation potential
Biotech/Pharma						3.00 Nascent sector but significant push by govt.; allows for value chain upgrade; requires specialized skill-set
Cement						2.20 NCER states with cement infrastructure (i.e. Lafarge in Langkawi); But limited job creation potential and limited opportunities for value chain upgrade
Defense & Aerospace						1.80 Some existing footprint in defense & aerospace (i.e. ACM, CTRM)
Downstream agriculture						3.40 Potential to leverage existing agriculture base within region; strong job creation potential
E&E						4.20 One of core sectors within NCER states; good job creation potential especially for blue collar workers



Outcome: 3 high-priority manufacturing sub-sectors identified

Sub-sector prioritization matrix based on attractiveness vs. strategic fit



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High-level business case driven by top-down process

2a Identify "themes" for each sub-sector

2a Business case

NCER Manufacturing masterplan themes

Objective
"Increase overall GDP of the region from manufacturing activities by strengthen existing industries, promoting new industries and moving into more profitable and higher value-adding segments"

Sub-sector focus

- A. Downstream agriculture**
Leverage manufacturing to value-add existing agriculture resource base
- B. Biotech/Pharmaceuticals**
Develop biotech capabilities by attracting foreign alliances; Further expand existing pharmaceutical footprint
- C. Electrical & Electronics**
Defend existing franchise by moving up the E&E value chain

Theme developed within each sub-sector

- A. Downstream agriculture**
 - Value-added agriculture resource base through manufacturing
 - oleochemicals
 - rubber products (i.e. latex based)
 - Promote sustainable manufacturing industries
 - bio-materials (i.e. pulp & paper)
- B. Biotech/Pharmaceuticals**
 - Extend existing footprint in pharmaceuticals
 - natural products / herbs
 - pharmaceutical manufacturing
 - Enhance crop yields through development of biotech products
 - bio-fertilizers (green biotech)
 - Build up capabilities to develop healthcare biotech cluster
 - contract research services
 - vacines/diagnostics
- C. Electrical & Electronics**
 - Expand beyond back-end semiconductors
 - semiconductors
 - Build capabilities in high potential sub-sectors
 - healthcare equipment
 - Develop design and development capabilities
 - microelectronics

Source: Team analysis
ADB CAREC Presentation-Apr14-vfinal-KLP.pptx
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Further focus within sub-sector through key "themes"

2b Identify long list of opportunities + Biz Case

Paper using EFB

Assessment 3: Pulp & Paper using waste material

Summary:

- Strong logic for focus**
 - Malaysia currently a net import of pulp & paper
 - local companies with technology to produce pulp & paper using agriculture waste products
- Potential to apply for CER credits through Clean Development Mechanism**
 - given EFB currently is left naturally to decompose

Market potential and risks

Market potential

- Estimated production potential (using EFB) of 2 to 3 Mh tons ...
- ... translating to revenue potential of US\$1.5 to 2.2Bn
- On the demand side, Malaysia currently imports 40% of pulp & paper needs and wants to double local production to 3Bn tons by 2010

Risk

- Processing technology is proprietary
- Quality risks: pulp & paper produced might not be 100% substitutable with regular products

Graphical description

Pulp & Paper Packaged products

Other qualitative factors

- Supply-demand: High
- Local capabilities: High
- Job creation potential: High
- Value add potential: High

Locations

Current key clusters

- Nibong Tebal (regular pulp & paper)

Considerations for future locations

- Relatively close access to EFB supply base (i.e. Northern Perak, Southern Kedah)
- Close to palm processing centres

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Long list of opportunities identified based on key "themes"

For each opportunity, a short 5 pager business case developed to understand potential

2c Short-list opportunities based on business case

Recap: 11 sub-sector themes recommended

Downstream agriculture	Biotech/Pharmaceutical	E&E
M01 Oleochemicals	M04 Pharma: Herbs	M08 Semiconductors
M02 Rubber products: latex products	M05 Pharmaceutical Production	M10 Healthcare equipment
M03 Waste to Wealth	M06 Contract Research Services	M11 Microelectronics
	M07 Vaccines/ Diagnostics	
	M08 Bio-fertilizer	

Source: Team analysis
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Based on business case, 11 specific opportunities recommended

NCER Manufacturing masterplan themes

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A. Downstream agriculture

Leverage manufacturing to value-add existing agriculture resource base

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Develop biotech capabilities by attracting foreign alliances; Further expand existing pharmaceutical footprint

C. Electrical & Electronics

Defend existing franchise by moving up the E&E value chain

Theme developed within each sub-sector

- Value-added agriculture resource base through manufacturing
- Promote sustainable manufacturing industries

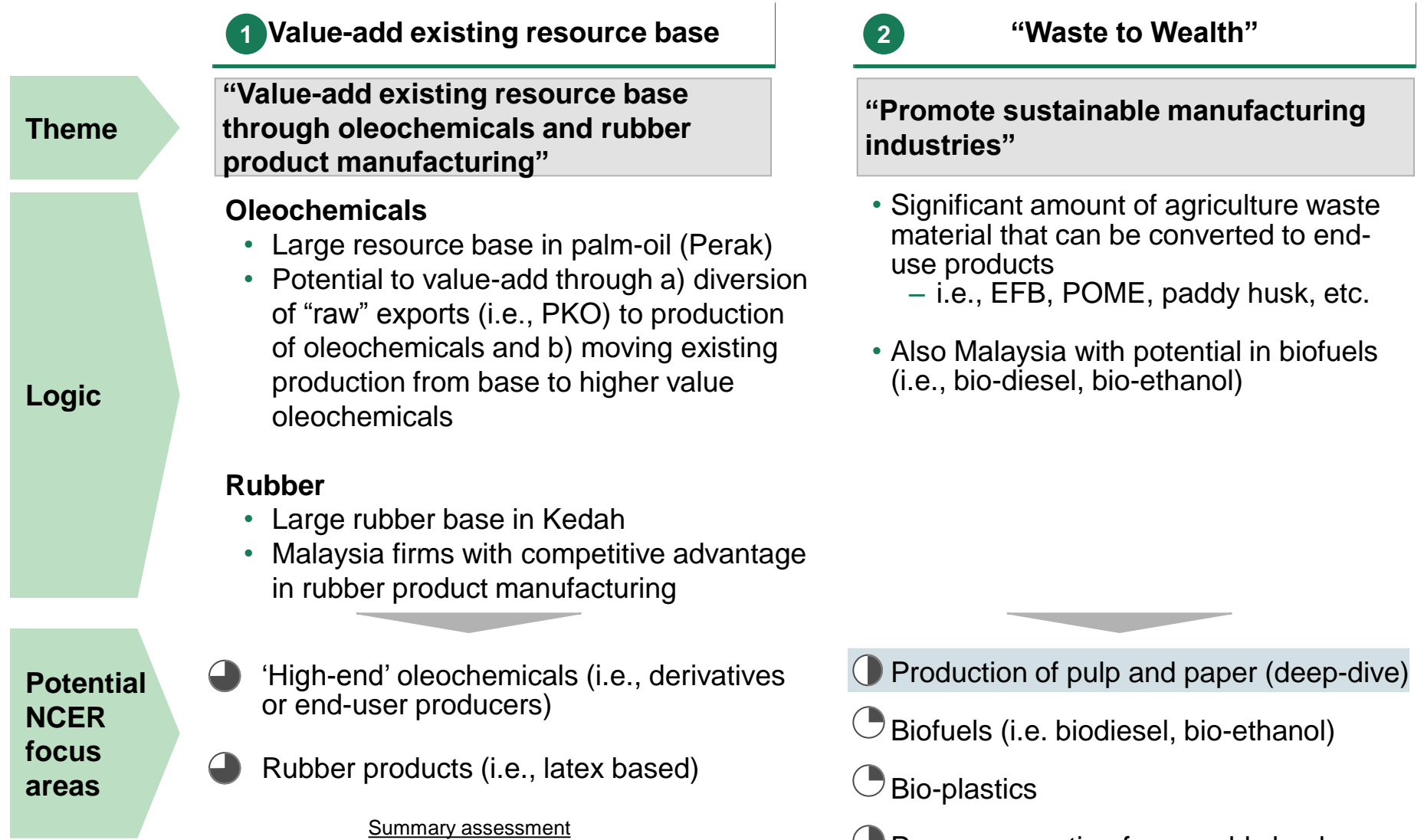
- Extend existing footprint in pharmaceuticals
- Enhance crop yields through development of biotech products
- Build up capabilities to develop healthcare biotech cluster

- Expand beyond back-end semiconductors
- Build capabilities in high potential sub-sectors such as medical equipment
- Develop design and development capabilities in microelectronics

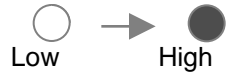
Deep-dive example on next page

Emerging themes and focus areas for Downstream Agriculture

Identified ideas



Summary assessment



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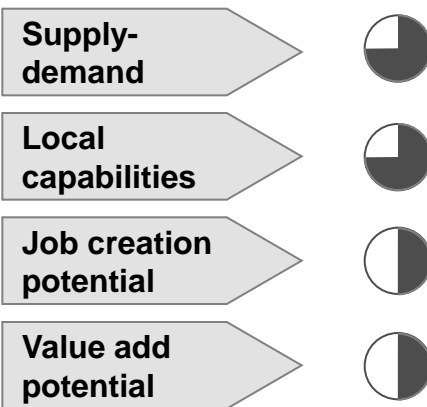


Pulp & Paper



Packaged products

Other qualitative factors



Locations

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11 sub-sector themes recommended

Downstream agriculture	Biotech/Pharmaceutical	E&E
<ul style="list-style-type: none"><li data-bbox="99 491 439 554">M01 Oleochemicals<li data-bbox="99 639 567 725">M02 Rubber products: latex products<li data-bbox="99 811 464 873">M03 Waste to Wealth	<ul style="list-style-type: none"><li data-bbox="752 491 1127 554">M04 Pharma: Herbals<li data-bbox="752 639 1292 696">M05 Pharmaceutical Production<li data-bbox="752 768 1309 816">M06 Contract Research Services<li data-bbox="752 896 1210 953">M07 Vaccines/ Diagnostics<li data-bbox="752 1033 1044 1082">M08 Bio-fertilizer	<ul style="list-style-type: none"><li data-bbox="1396 491 1757 554">M09 Semiconductors<li data-bbox="1396 639 1856 696">M10 Healthcare equipment<li data-bbox="1396 768 1757 816">M11 Microelectronics

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Each theme consists of four sections

Executional certainty framework

	3a Initiative background	3b Detailed Biz Case	3c Execution feasibility	3d Action plan
Section objectives	<ul style="list-style-type: none"> • Provide quick overview of theme (i.e. description, objective, potential impact, key stakeholders involved, etc.) • Highlight/show-case success stories globally 	<ul style="list-style-type: none"> • Highlight expected socio-economic impact from theme <ul style="list-style-type: none"> – poverty eradication – value-add – job creation • Provide details of investment requirements 	<ul style="list-style-type: none"> • Detail out implementation enablers, covering <ul style="list-style-type: none"> – hard infrastructure – soft infrastructure • Risks involved • Detail out R&R of key stakeholders 	<ul style="list-style-type: none"> • Provide details around key activities, milestones, KPIs and targets • Highlight key companies within sector that should be approached as potential investors
Sub-sections	<ul style="list-style-type: none"> • Initiative overview • Best practice case studies • Factors that make NCER attractive • Other <ul style="list-style-type: none"> – supporting industries 	<ul style="list-style-type: none"> • Socioeconomic impact • Investment requirements • Other implications <ul style="list-style-type: none"> – environmental – other implications 	<ul style="list-style-type: none"> • Key enablers (soft infrastructure) • Key enablers (hard infrastructure) • Risks and mitigation measures 	<ul style="list-style-type: none"> • Initiative timeline & milestones; Stakeholder roles & responsibilities • KPIs and targets • Potential investors to be approached

Example: Initiative background section

M10: Other information around supporting industries

Stage	Potential supporting industries	Example of opportunities for SME/BIC firms
Pre-production	<ul style="list-style-type: none"> • Equipment (manufacturing tools/equipment) and raw material suppliers (i.e. industrial gasses, plastic parts, components, etc.) 	<ul style="list-style-type: none"> • Equipment provider/agent or equipment/part fabricator • Raw material supplier
Production	<ul style="list-style-type: none"> • Outsourced or 3rd party services related to: testing services, installation/servicing of equipment, etc. • Sub-assembly manufacturing 	<ul style="list-style-type: none"> • 3rd party service provider for outsourced production/maintenance activities • Sub-assembly contract manufacturer
Post-Production	<ul style="list-style-type: none"> • Testing/QC check of finished goods • Outbound/inbound logistics • Waste disposal 	<ul style="list-style-type: none"> • 3rd party testing/QC provider • Secondary or tertiary 3rd party logistics/supply chain provider • Waste disposal services

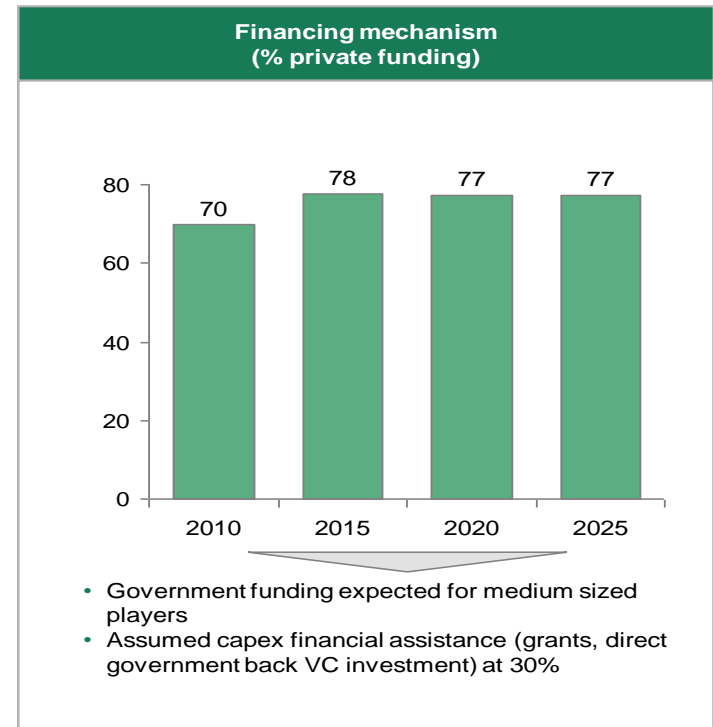
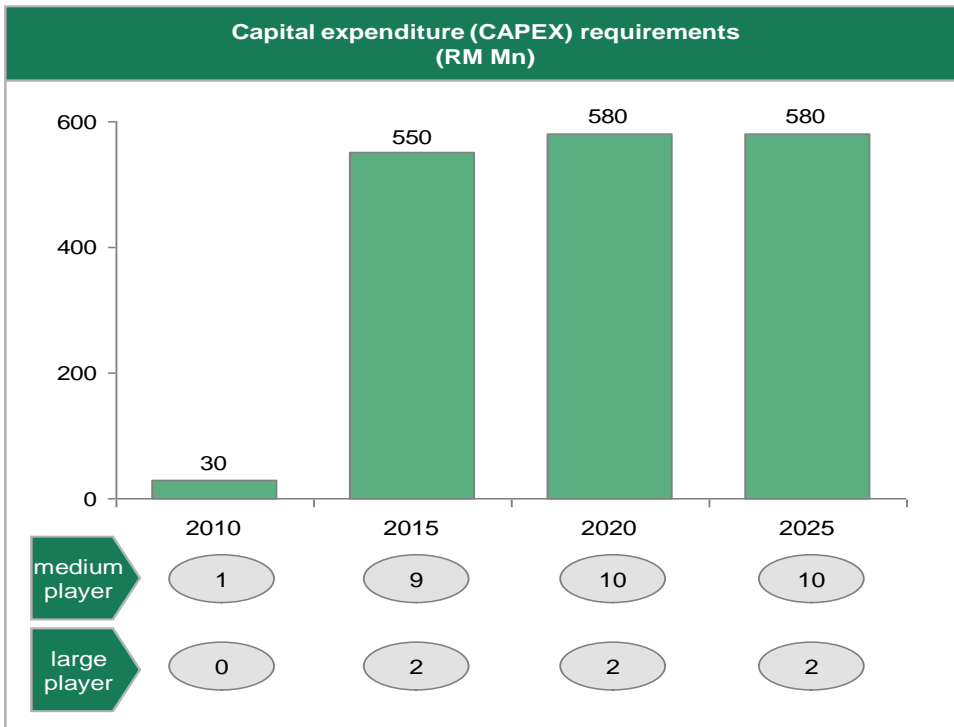
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Example: Detailed business case section

M10: Investment required to be financed by private sector

Investment requirements



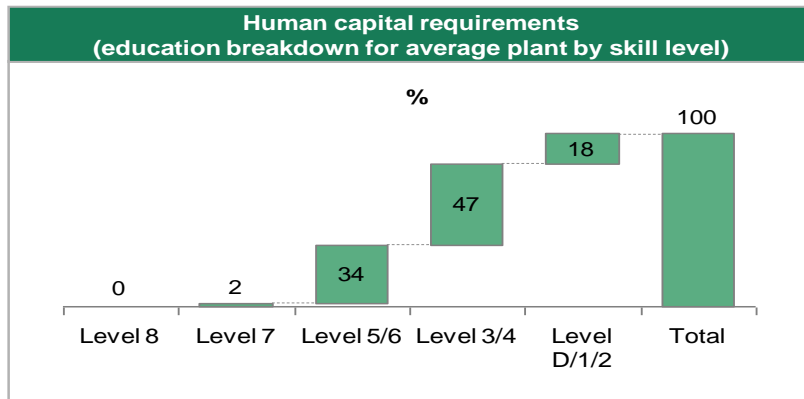
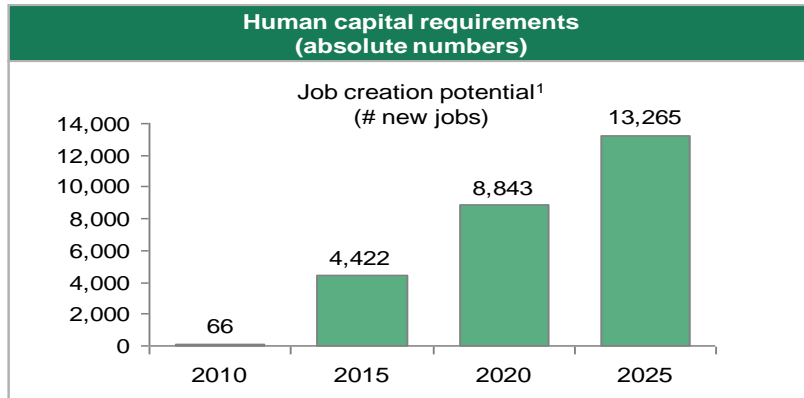
Note: Capex for small player estimated at RM30Mn per plant (based on China Medical Technologies depreciation figure, assumed straight line depreciation over 20 years); Capex for large player estimated from Siemens recent investment in China (~US\$40Mn) – Medical Park employing 800 people.
 Source: Analyst reports; Company financials; Team analysis

Example: Detailed execution feasibility section

3c Executorial certainty

M10: Significant skilled-labor will be required

Soft infrastructure requirements



Investment Incentives (selected highlights)

- Financial incentives**
 - (E) Pioneer status (10 years)
 - (E) Investment tax allowance (100% on capex for 10 years)
 - (E) Training incentives
 - (E) Duty free key import status for procurement items
 - (N) FIC waiver; Discounted land price; Preferential rates for electricity, gas, etc.
- Funding incentives**
 - (N) Government grants/VC funding for medium sized-investors within NCER
 - (N) Direct government equity involvement in selected investments
- Non-financial incentives**
 - (N) Pre-fabricated facilities within proposed industrial parks
 - (N) Build to lease arrangement for facilities
 - (N) Regulatory fast-tracking, and government purchase agreements for locally manufactured products

Incentives should be grouped into 'packages'

Source: Analyst reports; Company financials; Team analysis
ADB CAREC Presentation-Apr14-v1-KLP.pptx

(E) Existing
(N) New

Example: Action Plan section

M10: Potential investors identified

Potential investor targets

Overall approach	<p>Potential investors identified based leading players across the key medical equipment and medical supplies segment</p> <ul style="list-style-type: none"> • Medical equipment: IVD, diagnostic imaging, dialysis products, patient monitoring, respiratory/anesthesia, MIS, lasers • Medical devices: cardiovascular, orthopedics, hearing aids 	
Foreign investor targets (those not in Malaysia)		
Medical equipment	Roche Abbott J&J GE Healthcare Siemens Philips Baxter	VISX Olympus Hitachi
Medical devices	J&J Medtronic Boston Scientific Biomet Zimmer Stryker	
Local investor targets (and foreign investors currently in Malaysia)		
Local players	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <i>No local player identified</i> </div>	
Foreign players currently in Malaysia	<ul style="list-style-type: none"> • B.Braun • CR Bard • Rusch • Tyco Healthcare • Japan Medical 	

Source: Team analysis
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NCER plan had private sector involvement from the very onset

Private sector drove the development of the plan



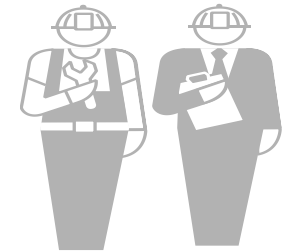
- Brought in to support development of plan
- Staff seconded to NCI (NCER governing agency) at the start
- Become initial investor for some of the initiatives (in agriculture)

Plan hinged on getting private sector investment



- Multiple discussions held with private sector companies
- Specific communication plan developed on targeting the private sector companies

NCIA as an agency staffed by private sector



- Pioneer staff came from the public sector
- Example: Dato' Chris Tan brought in from Intel Corp to head up the manufacturing sub-sector

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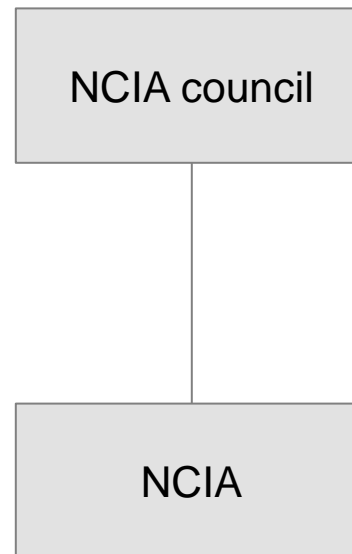
Proper set-up of governance critical for success

Key governance complexity



- 4 different states covering multiple districts
- Combination of government led states and opposition-led state (2-2 from 2008 then 3-1 post 2013)
- Land rights still under jurisdiction of state while other enablers under Federal jurisdiction

High-level governance model



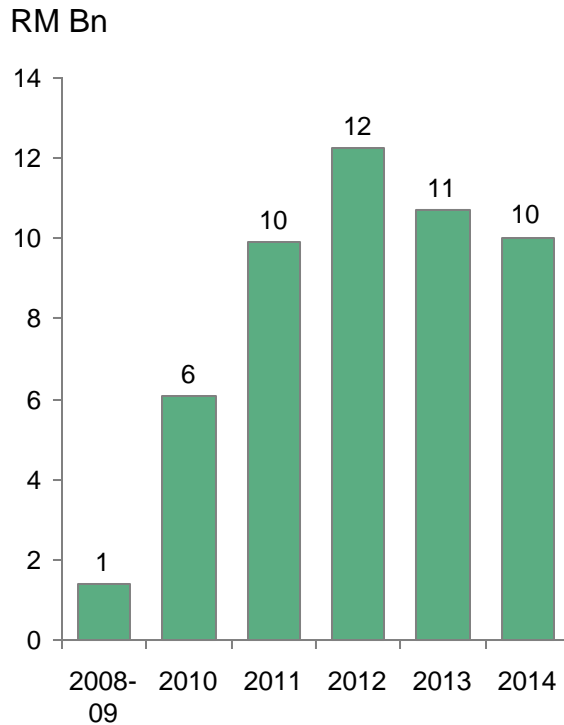
- Prime Minister
- Deputy Prime Minister
- Chief Ministers of all 4 states
- Chief Secretary to the Govt.
- Minister in charge of Econ. Planning
- CEO of Sime Darby

- Led by CEO of NCIA
- Private sector professionals

Separate act also provides the implementation authority with its own set of "powers"

What has been the achievements of NCER to date?

Steady flow of investments

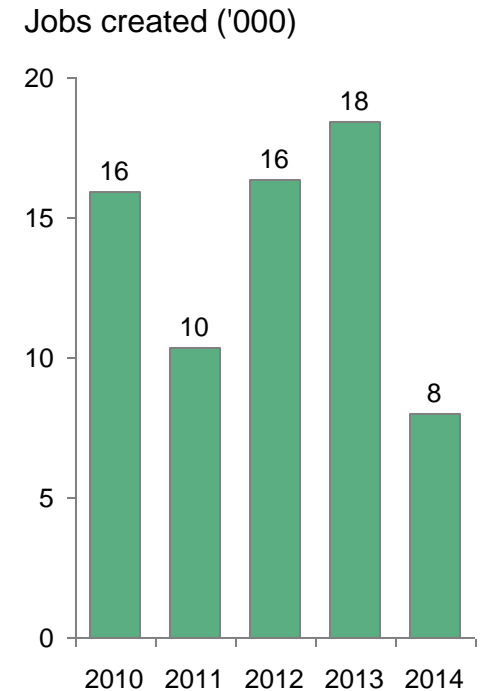


From major global investors

Global pool of investors

Renowned corporations

Significant job creation





Thank you

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