

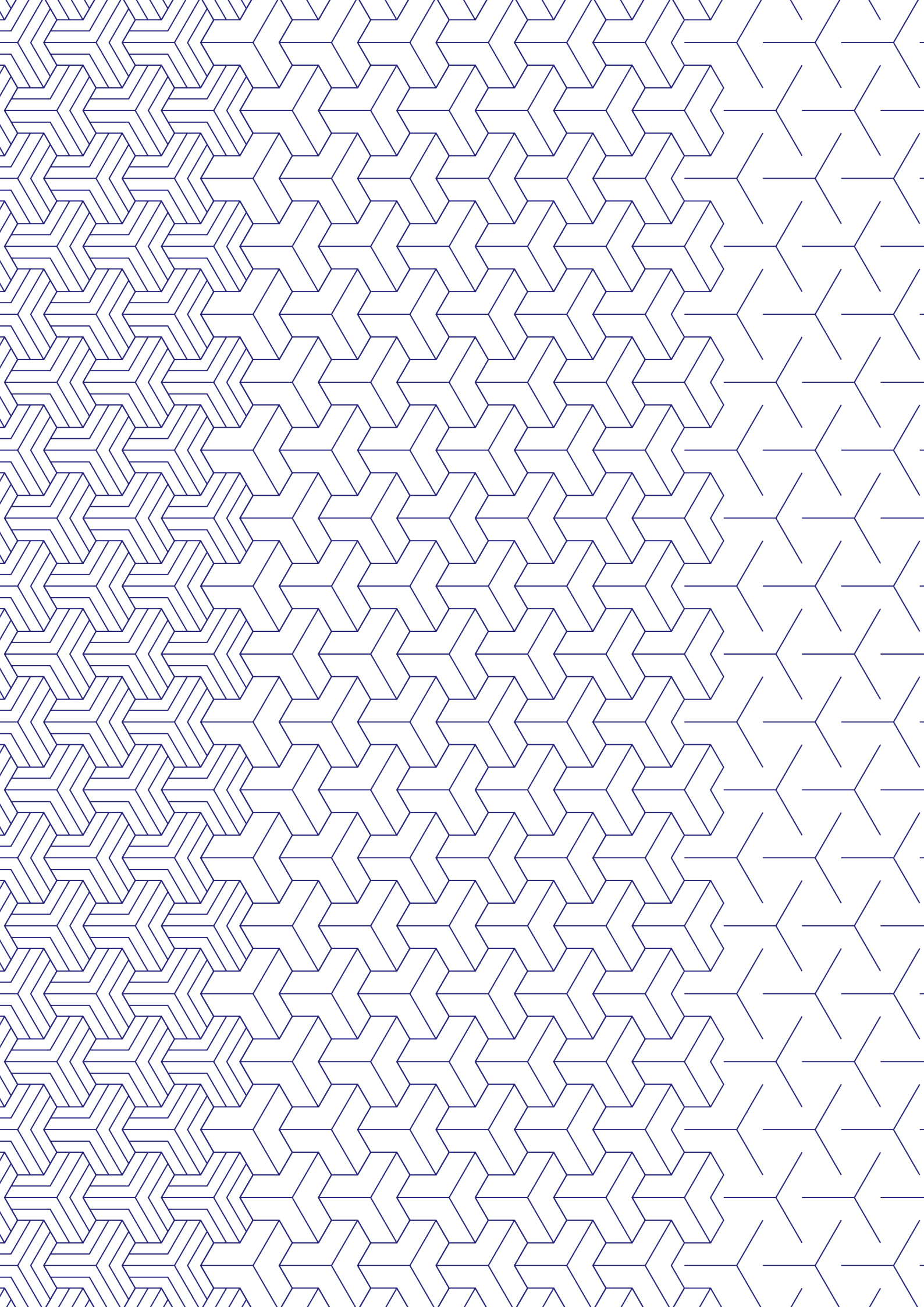


MINISTRY OF INVESTMENT,  
TRADE AND INDUSTRY

NEW INDUSTRIAL  
MASTER PLAN 2030

# METAL INDUSTRY







e ISBN No. : 978-967-0020-29-7

**PUBLISHED BY:**



MINISTRY OF INVESTMENT,  
TRADE AND INDUSTRY

Menara MITI, No. 7, Jalan Sultan Haji Ahmad Shah,  
50480 Kuala Lumpur, Malaysia.

Tel : 603-8000 8000

Fax : 03-6206 4693

Email : [webmiti@miti.gov.my](mailto:webmiti@miti.gov.my)

© **MINISTRY OF INVESTMENT, TRADE AND INDUSTRY**

MITI, 2023

**All rights reserved**

No part of this document may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior permission from Ministry of Investment, Trade and Industry (MITI). The information in this document has been updated as accurately as possible until the date of publication.

# TABLE OF CONTENTS

	<b>Preface</b>	i
	<b>Introduction</b>	1
	<b>Overview of the Document</b>	4
<b>Section</b>	<b>1</b> <b>Background</b>	5
	Areas Covered	5
	Value Chain	5
	Market Players	6
	Policies, Laws and Regulations	7
<b>Section</b>	<b>2</b> <b>Performance</b>	8
	IMP3 Focus and Performance	8
	Investments	8
	Exports	9
	Imports	10
	Value-added	11
	Employment	12
	Labour Productivity	12
	Production	13
	Consumption	14
	Research and Development	15
<b>Section</b>	<b>3</b> <b>Trends and Opportunities</b>	16
	Decarbonisation	16
	Higher Value-added Products	16
<b>Section</b>	<b>4</b> <b>Challenges</b>	18
	Talent	18
	Funding	18
<b>Section</b>	<b>5</b> <b>Strategies and Action Plans</b>	19
	NIMP 2030 Focus	19
	Action Plans	19
	<b>Appendix 1: Incentives</b>	20

## PREFACE

---

Malaysia's strength in the manufacturing sector has been significantly driven by the implementation of robust and forward-thinking Industrial Master Plans, first launched in 1986.

The success of the IMP3 (2006-2020) was anchored on innovation, research and development (R&D) and human capital development to drive high value-added industries to transform Malaysia into a knowledge-based economy.

The journey towards formulating the NIMP 2030 is underscored by the need to build a robust industrial sector as an important prerequisite to achieve socioeconomic prosperity. Three previous iterations of the Industrial Master Plans have driven industrial development in Malaysia, with the Government adopting industrial development strategies relevant to the period to transform the economy. Malaysia flourished from a low-productivity agrarian-based economy and is heading towards achieving developed nation status, underpinned by robust manufacturing and services sectors. The strategy has successfully raised the living standards of the Rakyat and propelled remarkable growth in Gross National Income (GNI) per capita, increasing 34 times between 1967 to 2019, making Malaysia one of the fastest growing economies in modern history.

Industrial policies have since become more diverse and complex, incorporating new imperatives including the integration into the global value chain (GVC), development of indigenous capabilities in a knowledge economy, evolution of environmental, social and governance (ESG) criteria and disruptions from the new industrial revolution. The question is not about the necessity of such policies, but rather what new policies are required and how to proceed.

Given the current challenging environment, benchmarking and learning from other country's experiences are no longer sufficient. Malaysia needs to embark on its own path into uncharted territory, to steer the nation into the challenging future. The combined impact of the new imperatives and the recent pandemic has compelled the Government to rethink Malaysia's industrial strategy.

With the NIMP 2030, Malaysia intends to transform the industry into greater heights, capitalising on emerging global trends, supply chain disruptions, current geopolitical landscape, digitalisation and ESG considerations. These trends are moving at an unprecedented pace and Malaysia has to act fast.

Therefore, the NIMP 2030 is designed to achieve the aspirations in a span of seven years and takes on a Mission-based approach for industrial development. This approach unites Malaysia by encouraging collaboration between the Government and the private sector to rally the industries.

## Purpose of the NIMP 2030

The NIMP 2030 sets forth Malaysia's future direction in industrial transformation. It provides a national integrated plan for resilient industrial development until 2030 – setting the fundamentals for future policy development and enabling the industry at all levels. It articulates Malaysia's position and participation in the global economic environment.

The NIMP 2030 serves to:

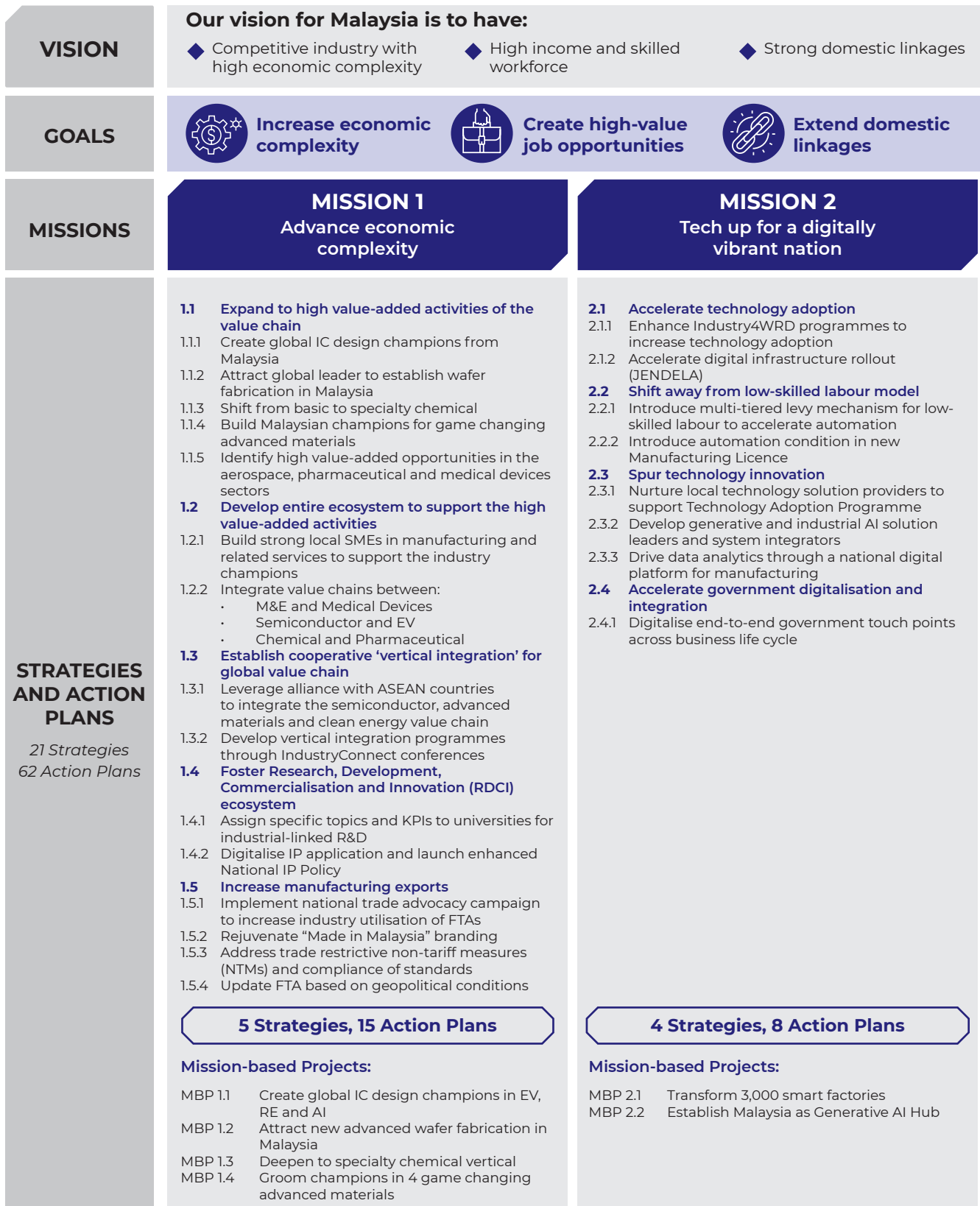
- Provide national strategic direction to lead the industrial development policies;
- Be a conversation piece for investors and other economies on Malaysia's position and direction; and
- Feature the role of the Malaysian Government in shaping the economy.

# INTRODUCTION

## New Industrial Master Plan 2030

The Missions and Enablers identified will be executed through 21 Strategies and 62 Actions Plans to unlock the needed enabling ecosystems. Several catalytic Mission-based

Projects (MBPs) have been identified to catapult the mission-based implementation. The NIMP 2030 strategic framework is illustrated below:





◆ New and existing industry clusters

◆ Balanced and inclusive participation

◆ Sustainable development

**Develop new & existing clusters****Improve inclusivity****Enhance ESG practices****MISSION 3**  
Push for Net Zero**MISSION 4**  
Safeguard economic security and inclusivity**ENABLERS****3.1 Accelerate transition towards sustainable practices**

- 3.1.1 Develop sectoral decarbonisation pathways to guide transition
- 3.1.2 Decarbonise "hard-to-abate" sectors
- 3.1.3 Introduce carbon policy, accounting and tax
- 3.1.4 Launch iESG framework and transition programmes

**3.2 Transition to renewable and clean energy**

- 3.2.1 Enhance adoption scheme for energy efficiency or renewable energy
- 3.2.2 Accelerate availability and accessibility of renewable energy source for the industry

**3.3 Catalyse new green growth areas**

- 3.3.1 Catalyse EV as a key growth driver
- 3.3.2 Grow carbon capture, utilisation and storage (CCUS) as a new sector
- 3.3.3 Develop circular economy framework for the industry

**3.4 Shift towards green infrastructure**

- 3.4.1 Accelerate transformation of industrial estates into eco-industrial parks

**4.1 Develop resilient supply chain**

- 4.1.1 Identify specific supply chain resilience strategies for critical sectors
- 4.1.2 Establish supply chain cooperation and collaboration through G2G and G2B programme
- 4.1.3 Introduce National Mineral Policy for downstream processing of critical minerals

**4.2 Foster climate resilient development**

- 4.2.1 Develop sectoral adaptation pathways
- 4.2.2 Foster an adaptation industry to provide adaptation products and services (including exports)
- 4.2.3 Instil climate resilience measures for critical economic infrastructure

**4.3 Strengthen industrial clusters for regional development**

- 4.3.1 Expand clusters for spillover regional impact
- 4.3.2 Align industrial development plan between Federal and States

**4.4 Empower Bumiputera participation and create inclusive workforce**

- 4.4.1 Uplift capabilities of *Bumiputera* companies in manufacturing via *Tindakan Pembangunan Bumiputera 2030*
- 4.4.2 Develop programme to increase women participation in high-skilled manufacturing employment

**E.1 Mobilise financing ecosystem**

- E.1.1 Introduce NIMP Industrial Development Fund and NIMP Strategic Co-Investment Fund
- E.1.2 Boost financing for digitalisation and decarbonisation transition
- E.1.3 Establish green *sukuk* to facilitate transition
- E.1.4 Establish supply chain financing for SMEs
- E.1.5 Increase utilisation of the capital market
- E.1.6 Expand the imSME platform to show all available funding options including government funding and capital market
- E.1.7 Review government funding for consolidation

**E.2 Foster talent development and attraction**

- E.2.1 Leverage mynext and MYFutureJobs for strategic workforce planning to address long-term demand-supply requirement
- E.2.2 Introduce progressive wage system policy
- E.2.3 Improve policy to enable fast and hassle-free access to high-skilled foreign talents
- E.2.4 Expand TVET programmes for high-skilled jobs in critical sectors
- E.2.5 Raise profile of high-tech manufacturing career to attract interest in STEM subjects

**E.3 Establish best-in-class investor journey for ease of doing business**

- E.3.1 Establish a unified investment strategy and align investment evaluation to new parameters under NIA
- E.3.2 Harmonise and streamline functions and KPIs across IPA landscape
- E.3.3 Review and design competitive, agile and relevant incentives
- E.3.4 Improve One-Stop Portal for seamless investor experience

**E.4 Introduce whole-of-nation governance framework**

- E.4.1 Establish public-private collaborative councils
- E.4.2 Set up NIMP 2030 Delivery Management Unit
- E.4.3 Develop NIMP 2030 dashboard system

**4 Strategies, 10 Action Plans****Mission-based Projects:**

- MBP 3.1 Create decarbonisation pathway role models
- MBP 3.2 Launch locally-manufactured EV
- MBP 3.3 Deploy large-scale CCUS solutions

**4 Strategies, 10 Action Plans****4 Strategies, 19 Action Plans**

## NIMP 2030 SECTORAL PLAN

There are individual enclosures of 21 sectors included as a supplementary reference to the main NIMP 2030 document.

They provide a view of the respective sectoral perspective in the context of the main NIMP 2030 document, and were developed with reference to individual sectoral roadmaps, where applicable.

The 21 sectors are:

Category	Industry
<b>Priority Sectors</b>	<ol style="list-style-type: none"> <li>1. Aerospace</li> <li>2. Chemical</li> <li>3. Electrical and Electronics (E&amp;E)</li> <li>4. Pharmaceutical</li> <li>5. Medical Devices</li> </ol>
<b>Sectors</b>	<ol style="list-style-type: none"> <li>6. Digital and Information and Communication Technology (ICT)</li> <li>7. Automotive</li> <li>8. Food Processing</li> <li>9. Global Services and Professional Services</li> <li>10. <i>Halal</i></li> <li>11. Machinery and Equipment (M&amp;E)</li> <li>12. Manufacturing-Related Services (MRS)</li> <li>13. Metal</li> <li>14. Mineral</li> <li>15. Palm Oil-based Products</li> <li>16. Petroleum Products and Petrochemicals</li> <li>17. Rail</li> <li>18. Rubber-based Products</li> <li>19. Shipbuilding and Ship Repair (SBSR)</li> <li>20. Textile, Apparel and Footwear</li> <li>21. Wood, Paper and Furniture</li> </ol>

This document is the [NIMP 2030 Sectoral Plan – Metal Industry](#).

# OVERVIEW OF THE DOCUMENT

This NIMP 2030 Sectoral Plan – Metal Industry (Document) provides insights into the sector and its prospects during the NIMP 2030 period.

This Document offers a comprehensive understanding of the industry's direction during the NIMP 2030 period based on its historical performance, opportunities and strategies to overcome existing challenges and achieve its targets.

The Document is presented in five sections:

## 1. Background

- This section sets the foundation to help readers understand the industry.
- It delves into the industry's focus area, encompassing its sub-sectors, for a comprehension of the industry's breadth.<sup>1</sup>
- Readers will find details about the industry's value chain and its key players, including the relevant industry associations, in this section.
- The section lists the policies that are related to the industry.

## 2. Performance

- This section reports the industry's performance during specific periods.
- There are two notable periods for the review of the industry's historical performance:
  - the IMP3 period (2006 to 2020); and
  - from 2021 to 2022.
- The performance review of the industry's development includes its investment trends, export and import dynamics, employment figures, value-added and productivity measures.

## 3. Trends and Opportunities

- This section highlights the opportunities and potential avenues for growth that the industry can leverage during the NIMP 2030 period.

## 4. Challenges

- This section provides insights into potential obstacles that could impact the industry's growth and development.

## 5. Strategies and Action Plans

- The final section of the document outlines the future trajectory for the industry.
- This section provides the Strategies and Action Plans that are intended to catalyse the industry during the NIMP 2030 period.
- The Strategies and Action Plans set in this Document have been aligned to the Missions set in the main NIMP 2030 document.

<sup>1</sup> Incentives available for this industry as of time of writing can be found in Appendix 1

## SECTION 1 BACKGROUND

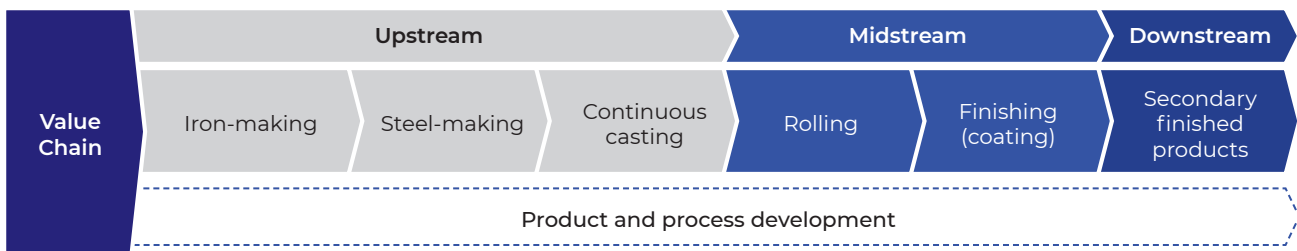
### Areas Covered

1. The metal industry in Malaysia is categorised into two main sub-sectors, which are ferrous metal (iron and steel) and non-ferrous metal.
2. These two categories are further divided into three segments:
  - i. mining;
  - ii. basic metal, covering long and flat products; and
  - iii. fabricated metal.

### Value Chain

3. The metal industry has two production routes – primary and secondary value chain.
  - i. Primary production refers to the production of metal from ore; and
  - ii. Secondary production refers to the production of metal via recycling and recovery of metal scrap.
4. The primary value chain of the metal industry can be divided into three segments (Figure 13.1).

**Figure 13.1: Value Chain of Metal Industry**



*Source: Malaysian Steel Institute (MSI)*

5. The upstream segment of the primary value chain includes:
  - i. iron-making – production of hot metal by blasting iron, coke and coal or reducing iron ore with natural gas or low-quality coke to generate iron goods;
  - ii. steelmaking – process of feeding iron products (e.g. hot briquetted iron (HBI), direct reduced iron (DRI), etc.) into the Electric Arc Furnace (EAF) or Basic Oxygen Furnace (BOF) to produce crude steel products such as billets and blooms; and
  - iii. continuous casting – process of solidifying molten metal (molten steel) into semi-finished slab, billet and bloom.

6. The midstream segment of the primary value chain, covers:
  - i. rolling – process used to shape and reduce the thickness of steel by passing it through a series of rollers. This process can be performed at both hot and cold temperatures, each having their specific benefits and applications. Examples of long products that may be produced include bars, rebars or deformed bars, wire rods and sections, whereas the examples of flat products include hot rolled coils (HRC) and cold rolled coil (CRC); and
  - ii. finishing – involves coating steel products with materials to enhance their characteristics, such as resistance to corrosion, appearance and specific functionalities. Methods used include galvanising, painting and powder coating.
7. Downstream segment – involves further processing of finished long and flat products into secondary finished products. Within this segment, manufacturers enhance products, to create goods intended for direct consumption by end-users.
8. Product and process development activities cut across the three segments.
9. The mining and preparation of raw materials segment is not covered as part of the industry's focus area for the NIMP 2030.

## Market Players

10. There are approximately 164 companies operating in the metal industry. These companies cater to domestic and global markets, addressing the needs for export as well as local consumption.
11. Presently, industry players are evenly distributed across the value chain (Figure 13.2).

**Figure 13.2: Presence of Industry Players along the Value Chain of Metal Industry**

	Iron-making	Steelmaking, and Continuous casting	Rolling and finishing	Secondary finished products
Long Products	High Presence	High Presence	High Presence	High Presence
Flat Products	High Presence	High Presence	High Presence	High Presence

Source: MSI

12. Industry associations in Malaysia's metal industry play important roles in representing the interest of manufacturers, influencing regulations and safeguarding the welfare of manufacturers and consumers, including:
  - i. Malaysian Iron and Steel Industry Federation (MISIF);
  - ii. Malaysia Steel Association (MSA);
  - iii. Malaysian Tin Can Manufacturers Association (MTCMA);
  - iv. Steel Wire Association Malaysia (SWAM); and
  - v. Federation of Malaysian Manufacturers (FMM).

13. Several Ministries and Agencies have prominent roles in Malaysia's metal industry, including:
  - i. Ministry of Investment, Trade and Industry (MITI);
  - ii. Ministry of Economy (KE);
  - iii. Ministry of Finance (MOF);
  - iv. Ministry of Natural Resources, Environment and Climate Change (NRECC);
  - v. Malaysian Steel Institute (MSI);
  - vi. SIRIM Berhad (SIRIM);
  - vii. Construction Industry Development Board (CIDB);
  - viii. Department of Environment (DOE);
  - ix. Royal Malaysian Customs Department (RMCD);
  - x. Malaysian Investment Development Authority (MIDA); and
  - xi. Malaysia External Trade Development Corporation (MATRADE).

### **Policies, Laws and Regulations**

14. The industry's development is guided by the Foresight Study on the Iron and Steel Industry.
15. Laws and regulations related to the metal industry are:
  - i. Environmental Quality Act 1974;
  - ii. Environmental Quality (Scheduled Wastes) Regulations 2005;
  - iii. Customs Order (Prohibition on Imports) 2023; and
  - iv. Guidelines for Importation and Inspection of Metal Scrap.

## SECTION 2 PERFORMANCE

### IMP3 Focus and Performance

16. During the period of the IMP3 (2006 to 2020), the industry was focused on expanding downstream activities of the ferrous metal sub-sector to include a wider range of high value-added products. The industry was expected to increase production of innovative and high-quality products while remaining competitive domestically and globally.
17. The industry underwent significant development with RM129.7 billion total approved investments and RM583.2 billion worth of exports during the IMP3 period. In 2020, the metal industry contributed RM22.2 billion to the Malaysia's Gross Domestic Product (GDP).

### Investments

18. The investment performance (2006 to 2022) of the metal industry is recorded in Table 13.1. Investments within the industry are classified into two categories:
  - i. basic metal products; and
  - ii. fabricated metal.<sup>2</sup>

**Table 13.1: Approved Investments of Metal Industry**

Items	Units	IMP3			2021	2022	2021-2022
		2006	2020	2006-2020			
<b>Basic Metal Products</b>							
<b>Total Investment</b>	RM billion	2.7	14.4	113.6	19.4	2.0	21.4
<b>Domestic Investment</b>	RM billion	0.4	0.3	36.8	0.3	1.1	1.3
<b>Foreign Investment</b>	RM billion	2.3	14.1	76.8	19.2	0.9	20.0
<b>Number of projects</b>	#	29	13	436	22	31	53
<b>Employment</b>	persons	1,482	4,572	66,194	9,283	2,894	12,177
<b>Fabricated Metal Products</b>							
<b>Total Investment</b>	RM billion	0.2	1.9	16.1	0.8	0.3	1.2
<b>Domestic Investment</b>	RM billion	0.1	1.4	9.0	0.6	0.3	0.9
<b>Foreign Investment</b>	RM billion	0.03	0.5	7.1	0.3	0.05	0.4
<b>Number of projects</b>	#	19	48	508	35	25	60
<b>Employment</b>	persons	1,070	2,428	31,608	1,233	737	1,970

Source: MIDA

### Basic Metal Products

19. During the IMP3 period, a total of 436 projects were approved in the metal industry with a total investment of RM113.6 billion. These investments committed a total of 66,194 job opportunities.
20. In 2021 and 2022, a total of 53 projects were approved with a total investment of RM21.4 billion. These investments committed a total of 12,177 job opportunities.

<sup>2</sup> Excluding Engineering Support Industry (ESI)

21. Growth of investment in the sub-sector was influenced by factors such as:
- Belt and Road Initiative (BRI) by the Chinese Government – increased demand for metal products to meet the needs of BRI; and
  - expansion by foreign players, particularly for upstream projects using blast furnace.

### Fabricated Metal

22. During the IMP3 period, a total of 508 projects were approved with a total investment of RM16.1 billion. These investments committed a total of 31,608 job opportunities.
23. In 2021 and 2022, a total of 60 projects were approved with a total investment of RM1.2 billion. These investments committed a total of 1,970 job opportunities.
24. Overall, the sub-sector's investment trend was attributed to:
- nature of investments, wherein investors allocate a substantial amount initially, followed by comparatively smaller amounts in subsequent years;
  - high production costs of downstream products locally which has caused the companies to import the goods or products; and
  - shift towards investments in high-end industries.<sup>3</sup>
25. Overall, 829 (78.4 per cent) of the 1,057 approved projects in the basic metal and fabricated metal categories were implemented from 2006 to 2022.

### Exports

26. Export performance (2006 to 2022) of the metal industry is depicted in Table 13.2.

**Table 13.2: Exports of Metal Industry**

Item	IMP3			2021	2022	2006-2020	2020-2021	2021-2022
	2006	2020	2006-2020			CAGR <sup>4</sup>	Annual Growth	
<b>Exports<sup>5</sup> (RM billion)</b>	23.6	60.4	583.2	91.0	96.9	6.9%	50.7%	6.5%

Source: MATRADE

27. During the IMP3 period, the industry's export grew by a CAGR of 6.9 per cent from RM23.6 billion (2006) to RM60.4 billion (2020).
28. In 2021 and 2022, exports increased further by 50.7 per cent and 6.5 per cent, amounting to RM91.0 billion and RM96.9 billion respectively.
29. The upward trend in export can be attributed to several factors, such as:
- expansion of local production capacity that enabled manufacturers to meet the increased global demand;
  - utilisation of free trade agreements (FTA); and
  - increased demand of iron and steel products from China.

<sup>3</sup> These investment data are captured under Engineering Support Industries (ESI), reported in the NIMP 2030 Sectoral Plan – Machinery and Equipment Industry

<sup>4</sup> Compound annual growth rate

<sup>5</sup> Export data includes data of re-exported metal goods



30. In 2022, major export destinations included:
- Singapore (RM4.2 billion, 4.3 per cent);
  - Hong Kong (RM3.2 billion, 3.3 per cent);
  - China (RM2.9 billion, 3.0 per cent);
  - United States (US) (RM2.5 billion, 2.6 per cent); and
  - Thailand (RM1.3 billion, 1.3 per cent).
31. In 2022, the top exported products were:
- bar rods and iron (RM7.4 billion);
  - bar and rods, hot-rolled (RM7.0 billion);
  - structures, bridge sections and lattice masts (RM2.1 billion);
  - iron and steel screws, bolts and nuts (RM1.6 billion); and
  - iron and steel wire rods and cables (not electrically insulated) (RM0.9 billion).

## Imports

32. Table 13.3 presents the import performance of the industry from 2006 to 2022.

**Table 13.3: Imports of Metal Industry**

Item	IMP3			2021	2022	2006-2020	2020-2021	2021-2022
	2006	2020	2006-2020			CAGR	Annual Growth	
<b>Imports (RM billion)</b>	44.4	71.7	917.6	87.7	97.3	3.5%	22.3%	10.9%

Source: MATRADE

33. During the IMP3 period, the industry's imports increased by a CAGR of 3.5 per cent from RM44.4 billion (2006) to RM71.7 billion (2020).
34. In 2021 and 2022, the industry's imports increased by 22.3 per cent and 10.9 per cent, totalling RM87.7 billion and RM97.3 billion respectively.
35. The increasing import trend was attributed to several factors, such as:
- rise in metal consuming industries such as electrical and electronics (E&E) industry, machinery and equipment (M&E) and construction;
  - lowered local production of metal products caused by the pandemic; and
  - higher production cost of downstream goods compared to imported goods – some import products have zero-duties, further motivating manufacturers to import.

36. In 2022, major import sources included:
- China (RM7.9 billion, 8.1 per cent);
  - Singapore (RM1.9 billion, 2.0 per cent);
  - Japan (RM1.8 billion, 1.8 per cent);
  - Korea (RM1.2 billion, 1.3 per cent); and
  - Thailand (RM1.2 billion, 1.3 per cent).
37. In 2022, major import products were:
- iron and steel screws, bolts and nuts (RM2.7 billion);
  - angles, ships and sections of iron/ non-alloy steel (RM2.5 billion);
  - structures, bridge sections and lattice masts (RM1.4 billion);
  - tubes, pipes and hollow profiles seamless of iron steel (RM1.3 billion); and
  - tube or pipe fittings of iron steel (RM1.2 billion).

## Value-added

38. The metal industry's value-added (GDP) performance (2006 to 2022) is recorded below (Table 13.4).

**Table 13.4: Value-added of Metal Industry**

Item	IMP3		2021	2022	2006-2020	2020-2021	2021-2022
	2006	2020			CAGR	Annual Growth	
<b>Value-added<sup>6</sup> (RM billion)</b>	10.9	22.2	23.4	25.0	5.2%	5.6%	6.6%

Source: Department of Statistics Malaysia (DOSM)

39. During the IMP3 period, the industry's GDP contribution grew by a CAGR of 5.2 per cent from RM10.9 billion (2006) to RM22.2 billion (2020).
40. In 2021 and 2022, the industry's GDP grew by 5.6 per cent and 6.6 per cent to RM23.4 billion and RM25.0 billion respectively.
41. The growth of related industries such as E&E, M&E and automotive were key contributors to the metal industry's GDP growth.

<sup>6</sup> Value-added is measure by the measured by the GDP of the industry; 2006 GDP data is based on constant 2005 prices, while 2020 to 2022 data are based on constant 2015 prices

## Employment

42. The metal industry's employment (2019 to 2022) is tabulated in Table 13.5.

**Table 13.5: Employment in Metal Industry**

Item	IMP3		2021	2022	2019-2022
	2019	2020			CAGR
<b>Employment<sup>7</sup> (persons)</b>	260,887	265,336	267,758	270,780	1.2%

Source: DOSM

43. The industry's employment grew by a CAGR of 1.2 per cent, from 260,887 persons (2019) to 270,780 persons (2022).

44. The rise in employment was attributed to manufacturers expanding their existing operations in Malaysia which created new job opportunities within the manufacturing sector and supporting roles such as finance, procurement and human resources.

## Labour Productivity

45. Performance of the industry's labour productivity (2019 to 2022) is tabulated as follows (Table 13.6).

**Table 13.6: Labour Productivity of Metal Industry**

Item	IMP3		2021	2022	2019-2022
	2019	2020			CAGR
<b>Labour Productivity<sup>8</sup> (RM)</b>	96,893	83,649	87,523	92,289	-1.6%

Source: DOSM

46. The labour productivity of the metal industry has declined by a CAGR of 1.6 per cent, from RM96,893 (2019) to RM92,289 (2022).

47. The labour productivity trend can be attributed to reduced operations during the COVID-19 pandemic and the increase of imported flat and steel products. As of 2022, the industry was recovering to its pre-pandemic levels.

<sup>7</sup> This employment data is based on Monthly Manufacturing Statistics December 2022 and includes ferrous metal, non-ferrous and fabricated metal. Due to change in methodology for employment statistics tabulation in 2019, industry's employment breakdown from 2006 to 2018 is not available

<sup>8</sup> Annual labour productivity is derived from value added per employment

## Production

48. The table below presents the production of long and flat products from ferrous metal (2006 to 2022) (Table 13.7).

**Table 13.7: Production of Long and Flat Products**

Items <sup>9</sup> (million tonnes)	IMP3		2021	2022	2006-2020	2020-2021	2021-2022
	2006	2020			CAGR	Annual Growth	
<b>Long Products</b>	3.5	5.5	5.4	6.0	3.4%	-2.7%	11.5%
<b>Bars</b>	1.9	3.3	3.4	3.9	3.9%	2.4%	13.8%
<b>Wire Rods</b>	1.2	2.2	2.0	2.1	4.6%	-9.2%	7.5%
<b>Sections</b>	0.4	0.03	-	-	-17.2%	-	-
<b>Flat Products</b>	4.2	2.1	2.3	2.1	-4.7%	9.4%	-11.2%
<b>Hot-rolled sheets and strips</b>	1.9	-	-	0.04	-	-	-
<b>Pipes and tubes</b>	0.7	0.6	0.6	0.7	-1.5%	11.7%	5.2%
<b>Cold-rolled sheets and coils</b>	0.6	0.6	0.8	0.5	0.3%	35.6%	-38.6%
<b>Plates</b>	0.3	0.1	0.1	0.1	-6.7%	13.1%	3.6%
<b>Other metallic coated sheets</b>	0.2	0.3	0.3	0.3	1.5%	0.2%	0.8%
<b>Galvanised sheets</b>	0.2	0.4	0.3	0.3	4.4%	-28.1%	-4.6%
<b>Tin Plates</b>	0.1	0.1	0.1	0.1	0.0%	15.1%	-4.8%

Source: MISIF

### Long Products

49. During the IMP3 period, total production of long products grew by a CAGR of 3.4 per cent from 3.5 million tonnes (2006) to 5.5 million tonnes (2020) – attributed to increased demand from the construction sector.
50. In 2021, the production of long products fell by 2.7 per cent to 5.4 million tonnes. The decline was due to the delayed construction of infrastructure projects during the COVID-19 pandemic.
51. Subsequently, in 2022, 6.0 million tonnes of long products were produced, an increase of 11.5 per cent from the previous year. The increased demand for long metal products was due to the resumption of development projects post-pandemic.

### Flat Products

52. Between 2006 and 2020, the production of flat products declined by a CAGR of 4.7 per cent, from 4.2 million tonnes (2006) to 2.1 million tonnes (2020) – attributed to decreased production capacity due to the exit of several major flat product producers from the market between 2016 and 2020.

<sup>9</sup> Data provided is limited to the ferrous sub-sector

53. In 2021, production of flat products grew to 2.3 million tonnes, an increase of 9.4 per cent from the previous year. This was due to the rising demand for E&E products driven by the shift towards digitalisation during the COVID-19 pandemic.
54. In 2022, production fell by 11.2 per cent to 2.1 million tonnes, due to reduced demand from China as the country restricted cross-border trade activities in line with its zero COVID policy.

## Consumption

55. The consumption of long and flat products between 2006 and 2022 is tabulated as follows (Table 13.8).

**Table 13.8: Consumption of Long and Flat Products**

Items <sup>10</sup> (million tonnes)	IMP3		2021	2022	2006-2020	2020-2021	2021-2022
	2006	2020			CAGR	Annual Growth	
<b>Long Products</b>	3.7	3.2	3.2	3.9	-0.9%	-1.0%	20.0%
<b>Bars</b>	1.9	2.2	1.7	2.3	1.3%	-20.4%	28.2%
<b>Wire Rods</b>	1.2	0.6	1.0	1.0	-4.9%	55.4%	3.7%
<b>Sections</b>	0.6	0.4	0.5	0.6	-2.6%	21.8%	21.8%
<b>Flat Products</b>	4.8	5.5	6.0	5.5	0.9%	9.3%	-7.5%
<b>Hot-rolled sheets and strips</b>	1.6	1.8	1.9	2.0	0.8%	6.8%	1.5%
<b>Pipes and tubes</b>	0.2	0.6	0.7	0.9	6.7%	16.9%	27.7%
<b>Cold-rolled sheets and coils</b>	1.4	1.1	1.6	1.0	-1.5%	39.4%	-31.2%
<b>Plates</b>	0.4	0.5	0.3	0.2	0.9%	-39.2%	-32.2%
<b>Other metallic coated sheets</b>	0.2	0.5	0.5	0.5	5.5%	2.5%	-2.6%
<b>Galvanised sheets</b>	0.8	0.8	0.8	0.8	0.5%	0.1%	-7.7%
<b>Tin Plates</b>	0.2	0.2	0.2	0.2	0.6%	5.7%	-7.7%

Source: MISIF

## Long Products

56. During the IMP3 period, consumption of long product decreased by a CAGR of 0.9 per cent from 3.7 million tonnes (2006) to 3.2 million tonnes (2020) – attributed to the decreased demand from the construction sector due to the COVID-19 pandemic.
57. Subsequently, in 2022, consumption of long products increased by 20.0 per cent to 3.9 million tonnes as the nation recovered from the pandemic and development projects regained their momentum.

<sup>10</sup> Data provided is limited to the ferrous sub-sector

## Flat Products

58. From 2006 to 2020, consumption of flat products increased by a CAGR of 0.9 per cent from 4.8 million tonnes (2006) to 5.5 million tonnes (2020). In 2021, consumption of flat products grew further by 9.3 per cent, amounting to 6.0 million tonnes – mainly driven by metal-using industries such as E&E and M&E.
59. In 2022, consumption of flat products decreased by 7.5 per cent due to shortage of supplies in the local landscape.

## Research and Development

60. During the IMP3 period, the Malaysia Steel Institute (MSI) conducted a number of research and development (R&D) activities. Focus areas of R&D activities include:
  - i. development of high-grade carbon steel, rolled carbon steel, prestressed concrete bar, low and high carbon steel wire rod;
  - ii. development of high-grade steel wire rod for construction and industry (e.g. automotive application);
  - iii. development of narrow strip for general application;
  - iv. development of hot-rolled coil (HRC) which was locally unavailable;
  - v. development of automotive grade cold-rolled coil (CRC) for PROTON and Perodua application; and
  - vi. development of alloy grade steel for industrial application.

## SECTION 3 TRENDS AND OPPORTUNITIES

61. The global iron and steel market size is expected to reach RM10.8 trillion by 2030.<sup>11</sup> Factors contributing to this growth include:
  - i. rising urbanisation and infrastructure projects;
  - ii. growth of the E&E and M&E industries driven by semiconductor and automation demands; and
  - iii. transition towards energy efficiency and decarbonisation within the industry.
62. This potential growth has created opportunities for Malaysia to expand and strengthen the domestic industry, ensuring its competitiveness on a global scale.
63. These opportunities include decarbonisation of steel products and shifting towards higher value-added activities.

### Decarbonisation

64. The metal industry is the largest contributor of carbon emissions, accounting for 39.8 per cent of total Industrial Processes and Product Used (IPPU) sector emissions. The emissions were mainly from the production of iron, steel and aluminium.
65. In order to meet Malaysia's aspiration of achieving Net Zero emissions by 2050, there is a need for the industry to accelerate the transition towards energy efficiency and decarbonisation through:
  - i. development of carbon footprint policy – including compulsory carbon audit and reporting;
  - ii. introduction of carbon tax – imposing tax on carbon-emitting companies operating in Malaysia; and
  - iii. introduction of environmental, social and governance (ESG) considerations in manufacturing licence.
66. Refer to Action Plan 2 (AP2) and Action Plan 3 (AP3) in Section 5 for strategies and action plans related to decarbonisation efforts.

### Higher Value-added Products

67. Industries such as E&E, M&E and automotive are expected to grow significantly in the upcoming years.
68. Factors contributing to the progression include growing demand of semiconductors, increased production of Electric Vehicles and Autonomous Vehicles (EV and AV) and an increase in automation of manufacturing processes.
69. This presents an opportunity for the industry to shift towards higher value-added products, such as flat products, that are utilised in these growing industries which requires:
  - i. transforming the industry's production structure;
  - ii. investing in new machinery and equipment;
  - iii. intensifying R&D activities; and
  - iv. encouraging joint ventures (JV) with other steel companies (i.e. foreign companies) – increase capabilities and technology to focus on new technology or products (i.e. high-grade steel).

<sup>11</sup> Source: Grand View Research, the figure RM10.8 trillion is converted from USD2.4 trillion based on the exchange rate of USD1.0 to RM4.48

70. This allows the industry to reduce its reliance on imports while building long term capabilities and capacity in high value-added segments.
71. Refer to Action Plan 1 (AP1) in Section 5 for strategies and action plans related to shifting towards higher value-added activities.



## SECTION 4 CHALLENGES

### Talent

72. At present, there is limited pool of local skilled talents in the industry due to the lack of metallurgy courses offered in local universities.
73. To address this challenge, there is an opportunity for the industry to collaborate with local higher education institutions as well as technical and vocational education and training (TVET) institutions.
74. The collaboration would aid in bridging the existing talent gap and increase talent competencies in the industry. This initiative will facilitate the adoption of Industry 4.0 technologies as well as undertake effective R&D activities.
75. Refer to Action Plan 4 (AP4) in Section 5 for strategies and action plans related to talent development.

### Funding

76. Manufacturers in the metal industry have been facing significant funding hurdles, primarily attributed to the industry's inherent risks, lengthy gestation period and substantial capital requirements.
77. This has restricted manufacturers from shifting toward higher value-added activities, conducting R&D activities and adopting new technologies.
78. To address this challenge, the industry could improve its coordination with financial institutions to ease manufacturers' access to various financing options, such as loans, lines of credit or investment capital.
79. This will expand capital opportunities for industry players, allowing them to intensify R&D activities and adopt new technologies which in turn shift them towards higher value-added segment of the value chain.
80. Refer to Action Plan 1 (API) in Section 5 for strategies and action plan related to shifting towards higher value-added activities.

## SECTION 5 STRATEGIES AND ACTION PLANS

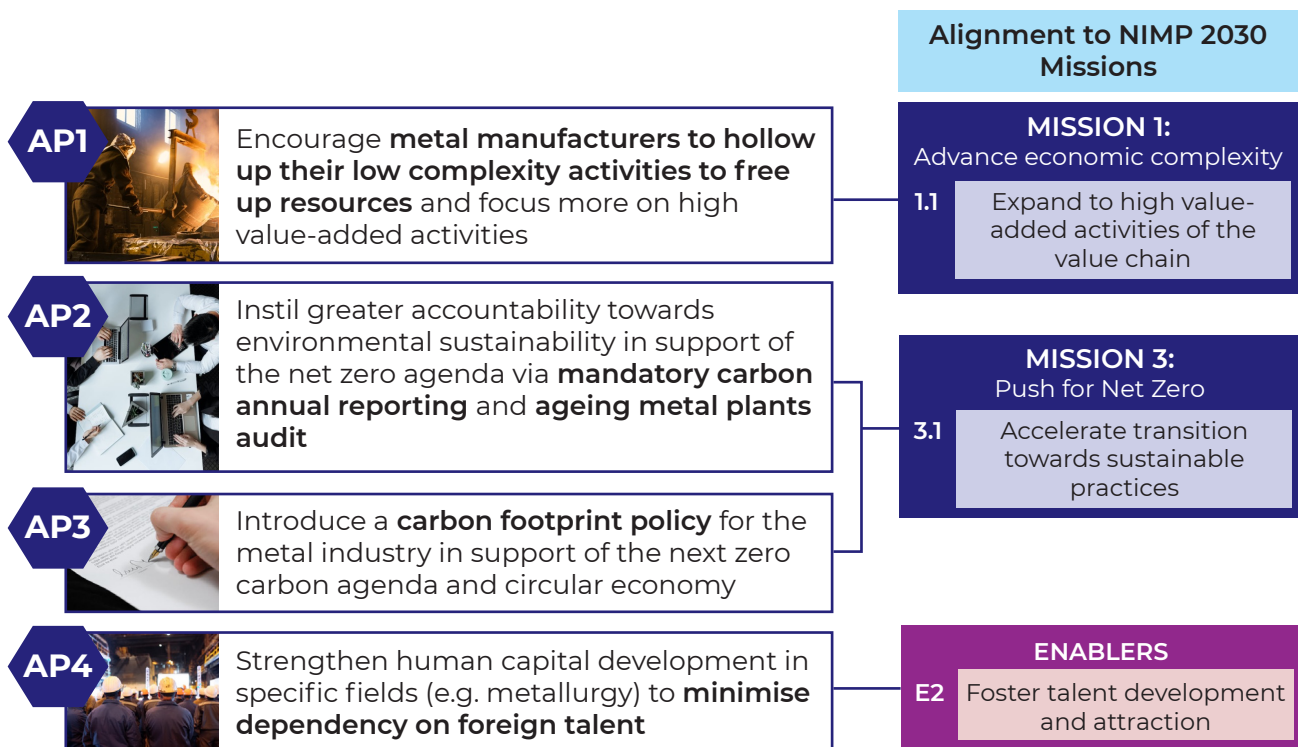
### NIMP 2030 Focus

81. During the NIMP 2030 period, the industry will:
- accelerate the adoption of technology to move towards higher value-added products and services;
  - strengthen local talent capabilities in line with industry needs; and
  - establish regulations and compliance to environmental related standards that aid in transitioning towards low carbon economy.

### Action Plans

82. Strategies and Action Plans relating to the NIMP 2030's Missions and Enablers are applicable to this industry (Figure 13.3).

Figure 13.3: Strategies and Action Plans for Metal Industry



## APPENDIX 1 INCENTIVES

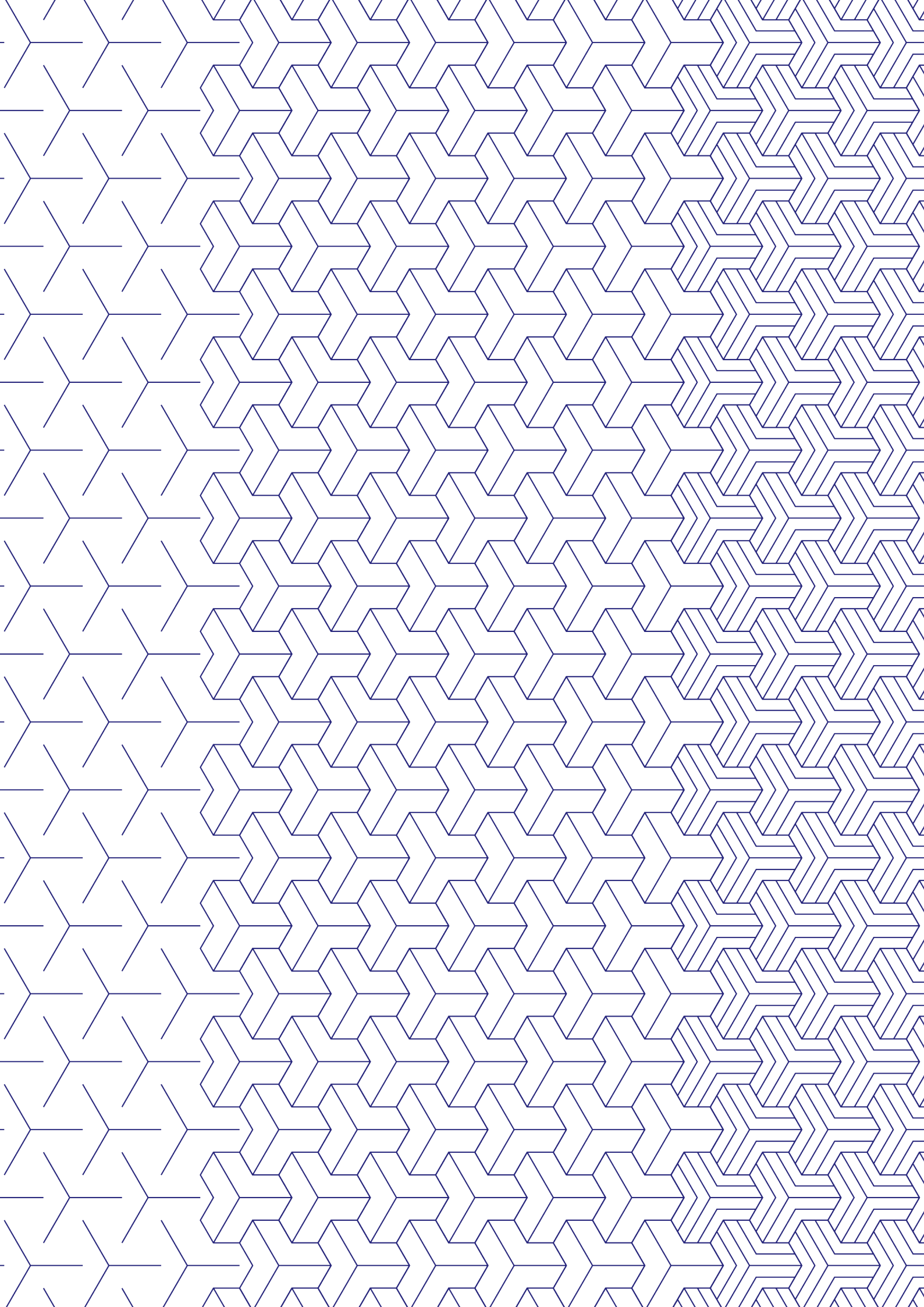
There is an array of incentives offered for key players of metal industry, these include the following:

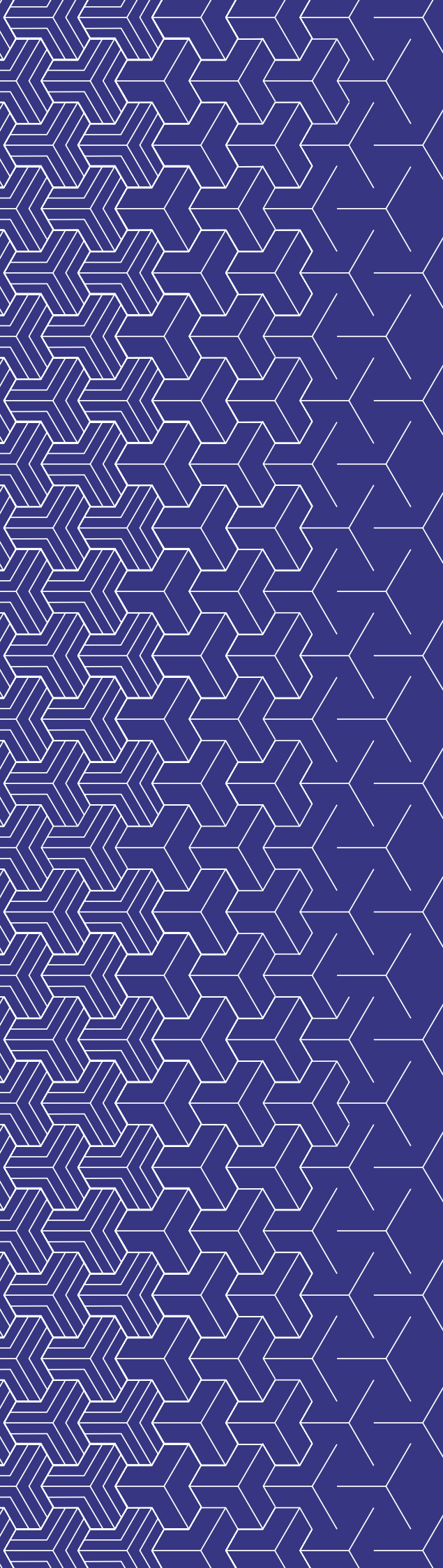
Incentives	Agency
Incentives for General Investments	Malaysian Investment Development Authority (MIDA)
Incentives for High Technology Projects	
Incentives for Small Scale Companies	
Incentives for Research and Development (R&D): <ul style="list-style-type: none"> <li>• In-House R&amp;D</li> <li>• Contract R&amp;D Company</li> <li>• R&amp;D Company</li> </ul>	
Commercialisation of Public Sector R&D Findings in Resource-based and Non-Resource-Based Industries	
Incentive for Automation Capital Allowance (Automation CA)	
Import Duty and/ or Sales Tax Exemption on Machinery/ Equipment/ Raw Materials/ Components	
Reinvestment Allowance	











e ISBN 978-967-0020-29-7



9 789670 020297