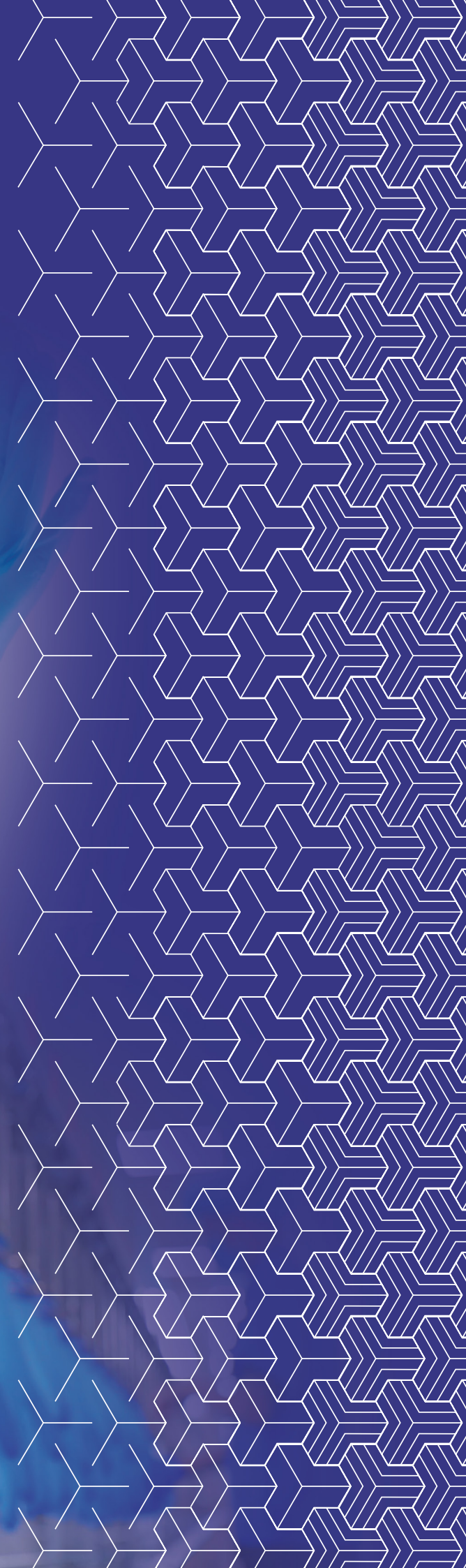


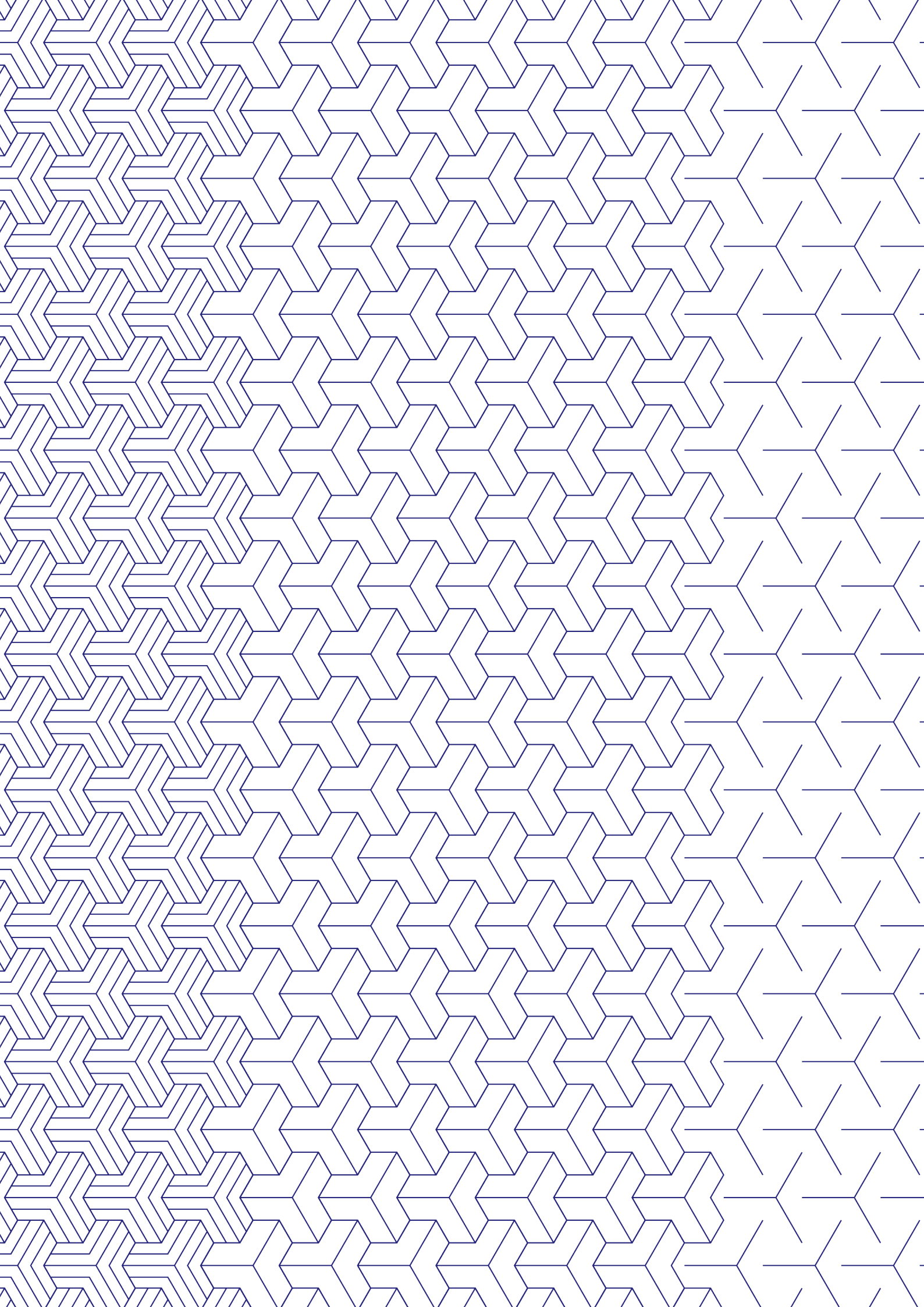


MINISTRY OF INVESTMENT,
TRADE AND INDUSTRY

NEW INDUSTRIAL
MASTER PLAN 2030

RUBBER-BASED PRODUCTS INDUSTRY





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TABLE OF CONTENTS

	Preface	i
	Introduction	2
	Overview of the Document	5
Section	1 Background	6
	Areas Covered	6
	Value Chain	6
	Market Players	7
	Policies, Laws and Regulations	9
Section	2 Performance	10
	IMP3 Focus and Performance	10
	Investments	10
	Exports	11
	Imports	12
	Value-added	13
	Employment	14
	Labour Productivity	13
	Consumption	14
	Research and Development	16
	Linkages with Other Industries	16
Section	3 Trends and Opportunities	17
	Sustainable Rubber	17
	Innovative Rubbers Products	18
	Fourth Industrial Revolution and Digital Transformation	19
Section	4 Challenges	20
	Raw Materials and Research and Development	20
	ESG Compliance	20
	Technology Adoption and Talent	21
Section	5 Strategies and Action Plans	22
	NIMP 2030 Focus	22
	Action Plans	22
	Appendix 1: Incentives	23

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:

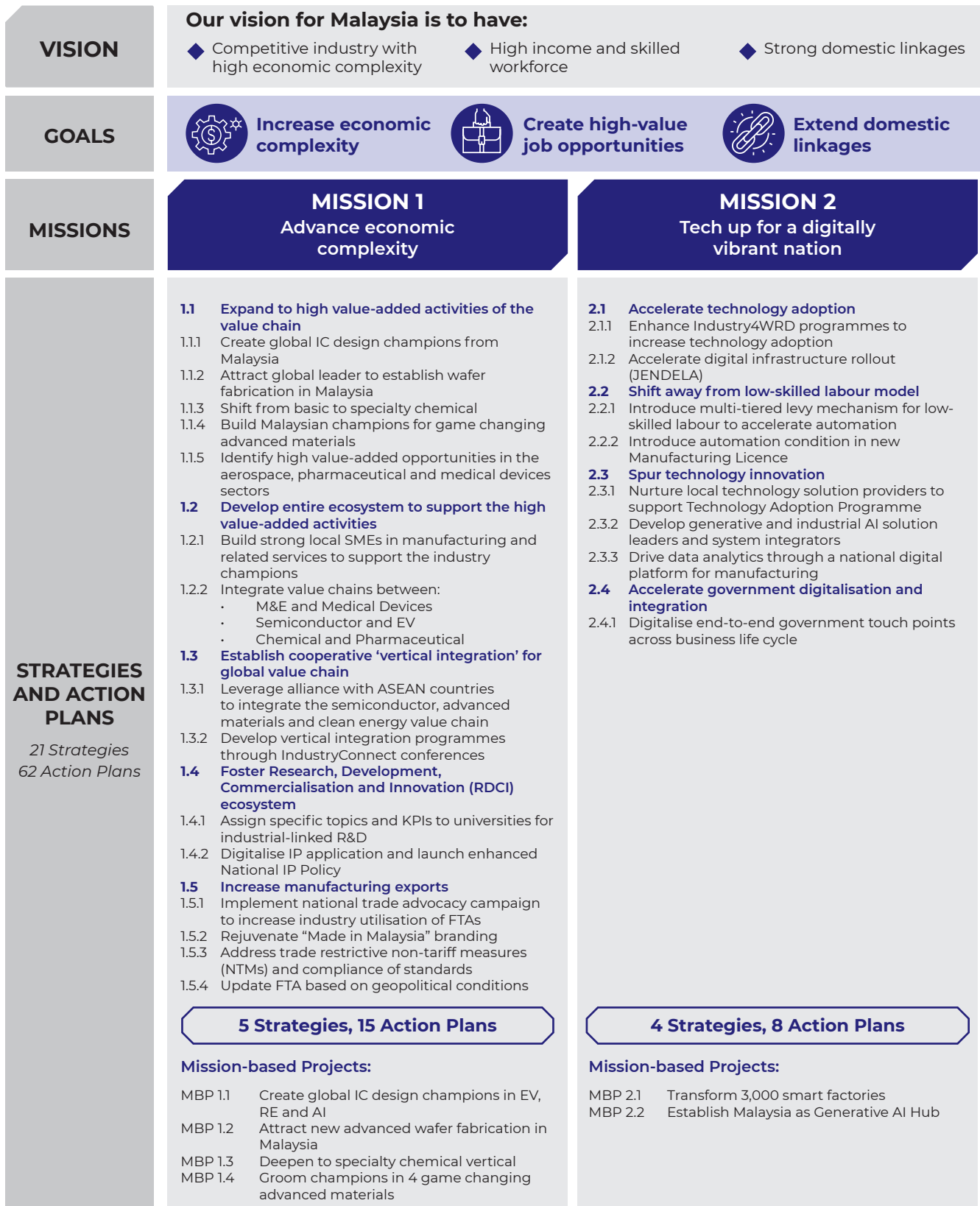
- Provide national strategic direction to lead the industrial development policies;
- Be a conversation piece for investors and other economies on Malaysia's position and direction; and
- Feature the role of the Malaysian Government in shaping the economy.

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

This document is the [NIMP 2030 Sectoral Plan – Rubber-based Products Industry](#).

OVERVIEW OF THE DOCUMENT

This NIMP 2030 Sectoral Plan – Rubber-based Products 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.¹
- 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.

¹ Incentives available for this industry as of time of writing can be found in Appendix 1

SECTION 1 BACKGROUND

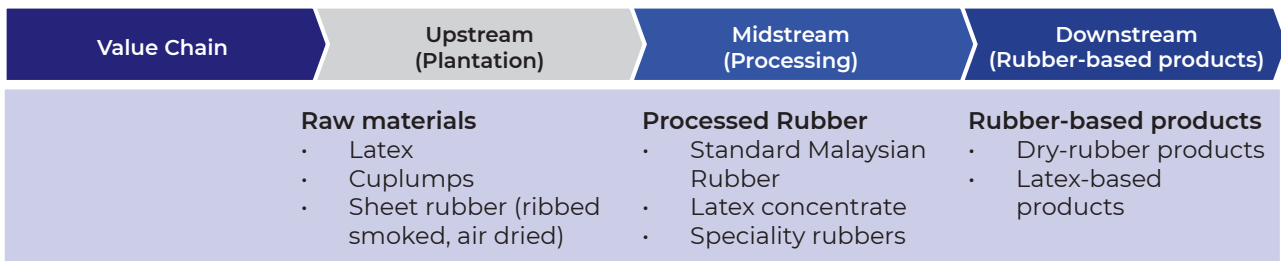
Areas Covered

1. Rubber can be broadly classified into two main categories:
 - i. natural rubber – obtained from the latex of hevea tree species and typically used in the production of various types of rubber products such as tyres, automotive parts and gloves; and
 - ii. synthetic rubber – derived from petroleum by-products and mainly utilised in the production of rubber products either as an alternative to or complementing natural rubber.
2. Malaysia's rubber-based products industry consists of five sub-sectors:
 - i. latex products;
 - ii. tyres and tyre-related products;
 - iii. industrial rubber products;
 - iv. general rubber products; and
 - v. rubber footwear.

Value Chain

3. The rubber sector supply chain is divided into three segments (Figure 18.1):
 - i. upstream (plantation);
 - ii. midstream (processing); and
 - iii. downstream (rubber-based products).

Figure 18.1: Value Chain of Rubber Industry



Source: Malaysian Rubber Board (MRB)

4. Upstream activities, consisting of plantation and agricultural activities such as:
 - i. rubber cultivation;
 - ii. rubber planting; and
 - iii. rubber harvesting.
5. Midstream segment processes raw rubber into two types of intermediate products:
 - i. technically specified rubber (TSR) – called block or standard rubber; and
 - ii. latex concentrate.

6. Downstream segment covers the manufacture of diverse products for:
 - i. transportation (such as tyres and belts);
 - ii. industry (such as plates and bearings);
 - iii. general use (such as threads and shoes); and
 - iv. hygiene and medical application (such as gloves and condoms).
7. Upstream segment is not part of the industry's focus area for the NIMP 2030.

Market Players

8. Generally, industry players in the rubber-based products industry are concentrated within the downstream segment of the value chain² (Figure 18.2).

Figure 18.2: Presence of Industry Players along the Value Chain of Rubber Industry

Value Chain	Upstream (Plantation)	Midstream (Processing)	Downstream (Rubber-based products)
Latex Products			High Presence
Tyre and Tyre-related Products		Low Presence	Low Presence
Industrial and General Rubber Products		Low Presence	High Presence
Rubber Footwear			Low Presence

Source: Malaysian Investment Development Authority (MIDA)

9. Within the downstream segment, manufacturers are mainly present in the production of latex, industrial and general rubber products. There is generally low presence of manufacturers in the tyres and tyre-related products and rubber footwear.
10. The latex products sub-sector comprises more than 125 manufacturers which produce gloves, condoms, catheters, latex threads and others.³ This sub-sector accounts for 80 per cent of total rubber exports:
 - i. The rubber glove industry has a strong ecosystem in Malaysia in terms of machinery, equipment, spare parts, packaging materials, testing services and sterilisation services.
 - ii. Malaysia is home to leading rubber glove producers that have developed successful brands which are recognised by laboratories, hospitals, pharmacists and medical practitioners worldwide.
 - iii. Rubber gloves are also used for other applications including:
 - a. industrial or commercial gloves used in automotive, construction and food services; and
 - b. individual gloves used in household work.
 - iv. According to the Malaysian Rubber Council (MRC), the 'Made in Malaysia' gloves are highly recognised and accepted globally due to its high quality and competitive price.
 - v. Previously, local glove producers relied heavily on imported synthetic latex from countries such as Korea, Japan and Taiwan. Presently, there are two manufacturers in Malaysia that produce synthetic latex locally and two other projects are still under the commissioning stage.

² Midstream level is referred to the production of Ekoprena and Pureprena (modified natural rubber) which could be used as raw materials for rubber tyres and tubes, industrial and general rubber products and rubber by-products/footwear

³ Condoms, surgical gloves, examination gloves and catheters are classified as medical devices

11. Currently, there is sufficient production of tyres and tyre-related products in Malaysia. However, the sub-sector requires more players to become more competitive.
 - i. Malaysia holds the third position among ASEAN countries in the production and assembly of passenger car tyres and commercial vehicle tyres, following Thailand and Indonesia.
 - ii. The country's tyre industry is expected to grow in line with the expansion of the automotive sector driven by increasing vehicle ownership, urban lifestyle trends and improved infrastructure.
 - iii. Malaysia is experiencing growing demand for automobile tyres due to the presence of major global original equipment manufacturers (OEMs) which have established manufacturing plants in the country.
 - iv. However, Malaysia still imports a significant volume of tyres to meet certain specifications for domestic needs. It is crucial for Malaysia to capture a larger share of the global tyre market to emerge as a prominent tyre supplier.
12. The industrial and general rubber products sub-sector comprises 185 companies which produce a wide range of rubber products for the automotive, electrical and electronics (E&E), machinery and equipment (M&E) and construction industries for the domestic and global market, such as:
 - i. mountings;
 - ii. beltings;
 - iii. hoses;
 - iv. tubing; and
 - v. seals and sheeting.
13. The industry associations in Malaysia's rubber-based products industry play important roles in representing the interests of industry stakeholders and promoting the industry as well as developing standards. Non-exhaustive examples of these associations and organisations include:
 - i. Malaysian Rubber Products Manufacturers Association (MRPMA);
 - ii. Malaysian Rubber Glove Manufacturers Association (MARGMA); and
 - iii. Tun Abdul Razak Research Centre (TARRC).
14. Related Ministries and Government Agencies that play a key role in the development of the industry include:
 - i. Ministry of Plantation and Commodities (KPK);
 - ii. Ministry of Investment, Trade and Industry (MITI);
 - iii. Malaysian Rubber Board (MRB);
 - iv. Malaysia Rubber Council (MRC);
 - v. Rubber Research Institute of Malaysia;
 - vi. Malaysian Investment Development Authority (MIDA);
 - vii. Malaysia External Trade Development Corporation (MATRADE);
 - viii. Department of Standards Malaysia (DSM); and
 - ix. SIRIM Berhad (SIRIM).

Policies, Laws and Regulations

15. The industry's development is guided by the National Agricommodity Policy 2021-2030 (DAKN2030).
16. Non-exhaustive laws, standards and regulations applicable to the rubber-based products industry are:
 - i. Malaysian Rubber Board Act 1996;
 - ii. Malaysian Rubber Board (Cess) Order 1999;
 - iii. Malaysian Rubber Board (Licensing and Permit) Regulations 2014; and
 - iv. Malaysian Standard on Rubber and Rubber Products.

SECTION 2 PERFORMANCE

IMP3 Focus and Performance

17. During the period of the IMP3 (2006 to 2020), six strategic thrusts were identified to promote the growth of the rubber industry:
 - i. strengthening and enhancing Malaysia's position as the leading producer and exporter of latex products;
 - ii. expanding the export market for Malaysian rubber products;
 - iii. encouraging outward investment for low value-added rubber products to countries with lower cost of production and availability of natural rubber;
 - iv. expanding the product range by developing the industrial and general rubber products sub-sector;
 - v. developing Malaysia as a regional centre for the testing and certification of rubber products; and
 - vi. upgrading the existing technology, especially in process automation and improving the skills of the workforce.
18. In 2020, Malaysia was the largest producer and exporter of rubber gloves, contributing 67.0 per cent of global supply, and the world's second largest producer of condoms and rubber thread.
19. The rubber-based products industry contributed RM61.7 billion to Malaysia's total exports of RM1.2 trillion in 2021, with an increase of 48.2 per cent year-on-year.

Investments

20. The investment performance (2006 to 2022) of the rubber-based products industry is recorded in Table 18.1 below.

Table 18.1: Approved Investments of Rubber-based Products Industry

Items	Units	IMP3			2021	2022	2021-2022
		2006	2020	2006-2020			
Total Investment	RM billion	0.7	4.3	28.9	5.8	3.6	9.3
Domestic Investment	RM billion	0.5	3.9	16.4	4.9	3.2	8.0
Foreign Investment	RM billion	0.3	0.4	12.6	0.9	0.4	1.3
Number of projects	#	38	42	388	40	22	62
Employment	persons	5,045	11,498	89,048	12,229	7,592	19,821

Source: MIDA

21. During the IMP3 period, a total of 388 projects were approved in the rubber-based products industry with a total investment of RM28.9 billion. These investments committed a total of 89,048 job opportunities.
22. In 2021 and 2022, a total of 62 projects were approved with total investment of RM9.3 billion. These investments committed a total of 19,821 job opportunities.

23. The investments in the industry were supported by tax relief incentives and allowances in the latex sub-sector for automation, process improvements, product development, streamlining of manufacturing facilities and plant expansion – making the industry remain competitive against strong competition from neighbouring countries.
24. From 2006 to 2022, a total of 374 (83.1 per cent) of the 450 approved projects were implemented.

Exports

25. The export performance (2006 to 2022) of the rubber-based products industry is depicted in Table 18.2 below.

Table 18.2: Exports of Rubber-based Products Industry

Item	IMP3			2021	2022	2006-2020	2020-2021	2021-2022
	2006	2020	2006-2020			CAGR	Annual Growth	
Exports (RM billion)	9.3	41.6	259.7	61.7	27.2	11.3%	48.2%	-56.0%

Source: MRB, Department of Statistics Malaysia (DOSM)

26. During the IMP3 period, total exports grew by a CAGR of 11.3 per cent, from RM9.3 billion (2006) to RM41.6 billion (2020).
27. In 2021, exports grew by 48.2 per cent to RM61.7 billion. Subsequently, in 2022, exports declined by 56.0 per cent to RM27.2 billion due to oversupply of rubber gloves in the market as countries began to recover from the COVID-19 pandemic.
28. Overall, the export growth was driven by increased global demand for rubber gloves, supported by the:
- increased production capacity due to reinvestment allowance and public listing of rubber glove manufacturers;
 - product innovation and technology due to intensive research and development (R&D); and
 - increased use of rubber gloves during the COVID-19 pandemic.
29. Malaysian rubber-based products were exported to more than 190 countries. In 2022, major export destinations were:
- United States (US) (RM7.8 billion, 28.8 per cent);
 - China (RM1.8 billion, 6.6 per cent);
 - Germany (RM1.5 billion, 5.6 per cent);
 - Japan (RM1.5 billion, 5.6 per cent); and
 - Brazil (RM0.9 billion, 3.5 per cent).
30. In 2022, major export products included:
- rubber gloves (RM19.0 billion, 70.1 per cent);
 - new pneumatic tyres (RM1.8 billion, 6.6 per cent);
 - tubes, pipes and hoses (RM0.9 billion, 3.2 per cent);
 - rubber thread and cord (RM0.7 billion, 2.7 per cent); and
 - insulated cable, wire and electric conductors (RM0.7 billion, 2.5 per cent).

Imports

31. Table 18.3 presents the imports performance of the industry (2006 to 2022).

Table 18.3: Imports of Rubber-based Products Industry

Item	IMP3			2021	2022	2006-2020	2020-2021	2021-2022
	2006	2020	2006-2020			CAGR	Annual Growth	
Imports (RM billion)	2.4	6.8	74.8	8.9	11.1	7.9%	29.6%	25.6%

Source: MRB, DOSM

32. During the IMP3 period, total imports grew by a CAGR of 7.9 per cent, from RM2.4 billion (2006) to RM6.8 billion (2020).
33. In 2021 and 2022, imports grew by 29.6 per cent and 25.6 per cent to RM8.9 billion and RM11.1 billion respectively – attributed to the higher import of:
- i. reclaimed and waste synthetic rubber;
 - ii. rubber gloves and surgical rubber gloves;
 - iii. hard rubber and articles of rubber;
 - iv. tyres, threads, flaps and inner tubes; and
 - v. unvulcanised compounded rubber.
34. In 2022, major import sources of rubber-based products included:
- i. China (RM3.7 billion, 33.2 per cent);
 - ii. Thailand (RM2.0 billion, 18.0 per cent);
 - iii. Indonesia (RM1.2 billion, 10.8 per cent);
 - iv. Viet Nam (RM0.9 billion, 8.1 per cent); and
 - v. US (RM0.6 billion, 5.8 per cent).
35. Major import products in 2022 were:
- i. new pneumatic tyres (RM3.3 billion, 30.0 per cent);
 - ii. footwear (RM2.2 billion, 19.7 per cent);
 - iii. insulated cable, wire and electric conductors (RM1.4 billion, 12.4 per cent);
 - iv. gloves (RM1.1 billion, 9.7 per cent); and
 - v. gaskets, washers and other seals (RM0.6 billion, 5.7 per cent).

Value-added

36. The industry's value-added (GDP) is recorded below (Table 18.4).

Table 18.4: Value-added of Rubber-based Products Industry

Item	IMP3		2021	2022	2006-2020	2020-2021	2021-2022
	2006	2020			CAGR	Annual Growth	
Value-added⁴ (RM billion)	3.9	12.1	14.5	12.1	8.4%	19.8%	-16.6%

Source: DOSM

37. During the IMP3 period, the contribution of the rubber-based products industry to GDP grew by a CAGR of 8.4 per cent from RM3.9 billion (2006) to RM12.1 billion (2020).
38. In 2021, the industry's GDP contribution grew further by 19.8 per cent to RM14.5 billion. Subsequently, the industry's GDP contribution declined by 16.6 per cent to RM12.1 billion in 2022.
39. Overall, the industry's GDP growth was driven by the increased production capacity of rubber-based products resulting from technological advancements.

Employment

40. The rubber-based products industry's employment is tabulated below (Table 18.5).

Table 18.5: Employment in Rubber-based Products Industry

Item	IMP3		2021	2022	2019-2022
	2019	2020			CAGR
Employment⁵ (persons)	117,846	121,606	122,498	122,297	1.2%

Source: DOSM

41. Employment grew by a CAGR of 1.2 per cent, from 117,846 (2019) to 122,297 persons (2022).
42. The employment growth was in line with the increased demand for rubber-based products, which created more job opportunities in the industry.

Labour Productivity

43. The industry's labour productivity is tabulated below (Table 18.6)

Table 18.6: Labour Productivity of Rubber-based Products Industry

Item	IMP3		2021	2022	2019-2022
	2019	2020			CAGR
Labour Productivity⁶ (RM)	67,368	99,304	118,549	98,996	13.7%

Source: DOSM

⁴ Value-added is 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

⁵ This employment data is based on Monthly Manufacturing Statistics December 2022

⁶ Annual labour productivity is derived from value added per employment

44. The labour productivity of the industry grew by a CAGR of 13.7 per cent from RM67,368 (2019) to RM98,996 (2022).
45. The increase in labour productivity was largely due to the adoption of more efficient processes through usage of Industry 4.0 technologies.

Consumption

46. Table 18.7 presents the consumption of rubber (2006 to 2022).

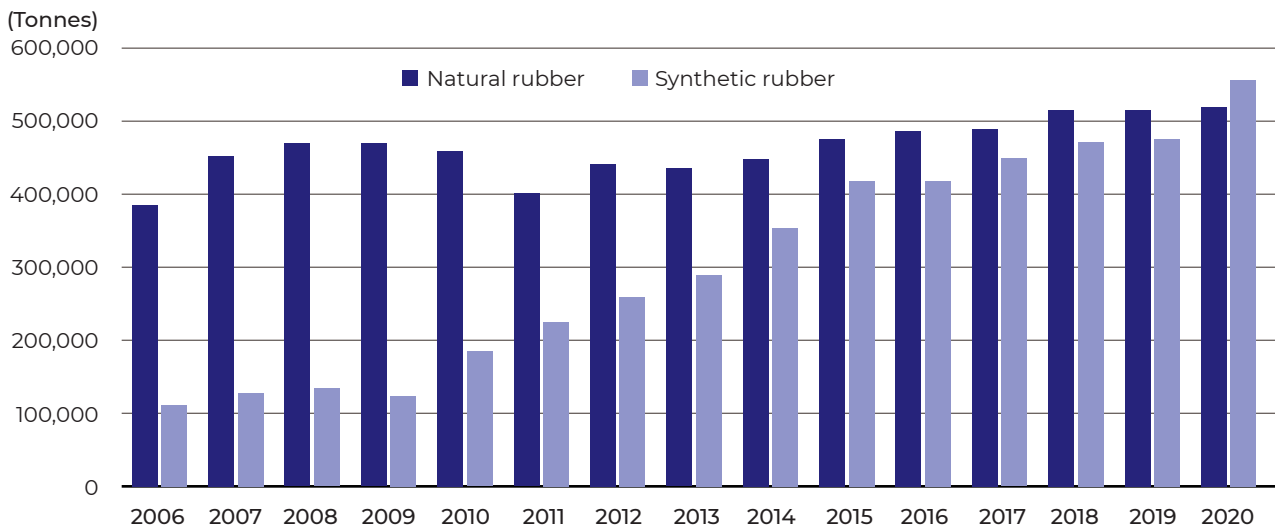
Table 18.7: Consumption of Rubber

Items	IMP3		2021	2022	2006-2020	2020-2021	2021-2022
	2006	2020			CAGR	Annual Growth	
Total (tonnes)	495,709	1,072,566	1,026,044	852,315	5.3%	-4.3%	-16.9%
Natural rubber (tonnes)	383,324	518,732	501,961	426,594	2.0%	-3.2%	-15.0%
Synthetic rubber (tonnes)	112,385	553,834	524,083	425,721	11.2%	-5.4%	-18.8%

Source: MRB, DOSM

47. During the IMP3 period, the consumption of rubber grew by a CAGR of 5.3 per cent, from 495,709 tonnes (2006) to 1,072,566 tonnes (2020), driven by the increase in synthetic rubber consumption of 11.2 per cent.
48. In 2021 and 2022, consumption declined by 4.3 per cent and 16.9 per cent to 1,026,044 tonnes and 852,315 tonnes respectively.
49. The decline in consumption was largely due to:
- oversupply of rubber glove in global market;
 - slowing demand from major consumers such as China, Europe and the US;
 - impact from global economic recovery of COVID-19;
 - higher minimum wage in Malaysia;
 - increased competition from countries such as Thailand, Indonesia and China; and
 - higher prices of natural gas.
50. From 2006 to 2020, the consumption of synthetic rubber in Malaysia increased while the consumption of natural rubber remained in a relatively steady state (Figure 18.3).

Figure 18.3: Malaysia's Rubber Consumption by Type



Source: MRB, DOSM

51. The consumption of rubber-based products is influenced by demand, which is dependent upon:
- sustainable economic growth – related to income and living standards;
 - growth in automotive sector; and
 - growth in health and medical services – resulting in an increased demand for rubber medical products (Table 18.8).⁷

Table 18.8: Output of Selected Rubber-based Products

Items	Tyres	Inner tubes	Catheters	Gloves	Footwear	Rubber band	Rubber sheet	Condoms
Unit	Million	Million	Million	Million pairs	Million pairs	Tonnes	Tonnes	'000
2006	11.6	20	75.9	20,554.0	4.0	6,750	5,677	9,254
2007	13.4	21	108.9	21,118.9	5.7	6,175	4,392	9,768
2008	14.4	21.2	145.1	22,585.6	6.9	5,506	4,420	11,118
2009	13.1	14.6	119.4	23,132.7	5.6	3,301	2,638	11,632
2010	14.7	15.4	129.5	26,257.3	6.7	3,592	3,806	13,344
2011	14.9	15.4	140.2	30,897.8	6.7	3,452	4,542	12,744
2012	16.6	17.4	148.5	31,754.0	6.4	2,197	4,570	11,780
2013	15.2	13.3	160.5	34,628.2	6.3	3,527	3,988	14,587
2014	12.9	10.9	139.8	32,469.6	5.5	2,709	5,554	11,749
2015	12.2	7.9	n.a	34,269.1	4.5	n.a	n.a	12,278
2016	15.8	5.6	n.a	44,426.7	6.1	n.a	n.a	11,358
2017	15.2	5.4	n.a	37,524.7	5.8	n.a	n.a	13,019
2018	13.7	4.8	n.a	54,184.3	5.2	n.a	n.a	9,678

Source: MRB, DOSM

⁷ n.a. = not available. The survey was conducted under the provisions of the Statistics Act 1965 (Revised - 1989). In conformity with the stipulations of this Act, only aggregated figures are published

Research and Development

52. MRB contributes to the development and modernisation of the Malaysian rubber industry in all aspects including:
 - i. cultivation of the rubber tree;
 - ii. extraction and processing of raw rubber;
 - iii. manufacture of rubber products; and
 - iv. marketing of rubber and rubber products.
53. MRB actively promotes the commercialisation of R&D activities, facilitates the transfer of technologies to industry partners and explores new areas of research to support the industry sustainability.
54. MRB continuously conducts R&D on new clones and technologies to improve yields and the management of rubber smallholdings in the upstream sector as well as to improve the rubber processes and to develop new products in the downstream industries.
55. Apart from that, MRB provides calibration services through Global Testing and Consultancy for Rubber (G-TACR) in addition to a wide range of training programmes for businesses to improve skills and knowledge.
56. Other organisations involved in R&D activities include:
 - i. MRC – provides the MRC Global Funding for Rubber Innovation to seed innovative interdisciplinary non-fundamental research with the potential to promote investments in high-value products and technologies within the rubber and rubber products industry;
 - ii. SIRIM – provides funding, training and technical assistance to businesses and organisations in the rubber industry as well as conducting R&D activities;
 - iii. TARRC – provides training and technical assistance to businesses and organisations in the rubber industry as well as conducting R&D activities; and
 - iv. research universities – provides training and technical assistance to businesses and organisations in the rubber industry as well as conducting R&D activities.

Linkages with Other Industries

57. The downstream activities of the rubber-based products industry contribute to other industries including:
 - i. medical devices – medical gloves, condoms and catheters;
 - ii. automotive – production of tyres amongst others;
 - iii. construction – seismic and vibration isolation;
 - iv. marine – rubber shock cells to protect against damage to structures;
 - v. railway – production of rail pads to reduce noise and vibrations; and
 - vi. apparel industry – production of latex thread that is mainly used as elastic bands and supports.

SECTION 3 TRENDS AND OPPORTUNITIES

58. The global rubber market is expected to reach RM328.9 billion⁸ by 2029.⁹
59. The demand for industrial and general rubber goods will be influenced by the growth of the following industries across the Asia-Pacific region:
 - i. automotive – tyres, hoses, seals and gaskets;
 - ii. E&E – connectors, gaskets and seals;
 - iii. construction and infrastructure – roofing, waterproofing, insulation and engineering rubber products;
 - iv. consumer, healthcare and handcraft products – footwear, medical devices and homewares; and
 - v. technology advancements – examples include new rubber compounds or composites for special application.
60. It is essential for Malaysia to diversify its product offerings to sustain and increase its market share in new and emerging areas. The trends and opportunities for the rubber-based products industry include:
 - i. sustainable rubber products;
 - ii. innovative rubber products;
 - iii. circular economy; and
 - iv. Industry 4.0 technologies and digital transformation.

Sustainable Rubber

61. Sustainable rubber is considered a high value-added product as it includes materials that replicate natural rubber properties and are produced in a more environmentally friendly approach and process.
62. Sustainable rubber helps to reduce deforestation and carbon emissions, which in turn helps to mitigate climate change and conserve natural resources. The targeted products include:
 - i. renewable plant and bio-based fillers for rubber applications;
 - ii. enhanced biodegradable materials;
 - iii. lignin dispersion and its utilisation in rubber technology; and
 - iv. green preservatives and modifiers for rubber products application.
63. Sustainable rubber aligns with the growing consumer demand for eco-friendly and responsibly sourced products. This provides opportunities for companies to cater to the market demand and gain competitive advantage.
64. Apart from that, sustainable rubber encourages the adoption of high technology/ Industry 4.0 technologies to help reduce the environmental impact of rubber production. For example, sensors can be used to monitor the health of rubber trees and to collect data on water usage and soil quality.
65. Refer to Action Plan 3 (AP3) in Section 5 for strategies and action plans related to sustainable rubber.

⁸ USD73.42 billion, converted based on exchange rate USD1 to RM4.48

⁹ Source: Maximize Market Research

Innovative Rubbers Products

66. The development of graphene-enhanced rubber products is a rapidly growing field, as these products offer superior strength and durability.
67. Graphene is a nanomaterial which consists of single layer sheets of carbon atoms in a honeycomb structure used as an additive. Adding graphene to rubber films can increase its strength and elasticity by up to 50.0 per cent.
68. Graphene is known to be a sustainable solution and the application can be used in a wide range of consumer-based products, including tyres, condoms, sports and fitness footwear, antibacterial gloves and reusable face masks.
69. The other targeted products for nano materials or advance materials include rubber composites based on multiwall carbon nano tubes (MWCNT) and electrical-conductive rubber blends for corrosion inhibition of carbon steel.
70. Apart from that, increasing demand for Electric Vehicles (EVs), mobile gadgets and wearables are expected to drive battery technology such as stretchable battery.
71. Promotion of circular economy will benefit the environment and offers economic opportunities. Recovered carbon blacks from end-of-life tyres can be utilised as fillers in rubber product application, while rejected gloves and condoms as co-component in low-end rubber products.
72. Other opportunities for enhancements in the industry include:
 - i. razor thin armour;
 - ii. soft rubber sensor for smart textiles;
 - iii. anti-seismic rubber for construction, marine and railway;
 - iv. rubber-based bitumen for road pavement;
 - v. magnetorheological fluid (MRF) in automotive rubber devices;
 - vi. green rubber sound insulators for automotive applications;
 - vii. high-performance glow in the dark thermoplastic vulcanisate (TPV) blends;
 - viii. specialty gloves – including metal detectable nitrile gloves;
 - ix. electrostatic dissipative (ESD) products for semiconductor industry;
 - x. anti-tack technology; and
 - xi. smart tyres such as tyre products integrated with sensors to increase safety, airless tyres and self-healing rubber tyres.
73. Malaysia has the potential to strengthen the local rubber industry, expand global market reach and enhance local brand recognition through the development of innovative rubber products.
74. Refer to Action Plan 2 (AP2) and AP3 in Section 5 for strategies and action plans related to innovative rubber products.

Fourth Industrial Revolution and Digital Transformation

75. 3D/4D/5D printing is the printing of rubber-like material for mass customisation of products which will accelerate prototyping processes, decrease lead times, reduce the error rate to zero and shorten the product development cycle.
76. Other digital transformation areas include precision farming and smart plantation, smart manufacturing advanced harvesting, crop sensors and digital apps for information access, business transactions and monitoring activities.
77. By investing in Industry 4.0 technologies and digital transformation, the industry can reduce dependency on unskilled labour and shift towards a more knowledge-based, IoT-enabled sector to increase local businesses competitiveness. To achieve this, it is essential to provide incentives and encourage smart partnerships in technology adoption/ acquisition.
78. Refer to Action Plan 1 (AP1) and AP3 in Section 5 for strategies and action plans related to Industry 4.0 technologies and digital transformation to increase local business' competitiveness.

SECTION 4 CHALLENGES

79. As demand for rubber-based products is expected to grow, there are several challenges faced by the industry in meeting the demand, including:
- i. raw materials and R&D;
 - ii. ESG compliance; and
 - iii. technology adoption.

Raw Materials and Research and Development

80. There is limited land availability due to low rubber prices, resulting in more valuable crops prioritised over land competition.
81. The industry is vulnerable to climate change as rubber trees are affected by the increase in temperatures, dry spells and prolonged wet season. The scarcity of rubber tappers has caused increasing abandonment of many rubber smallholdings. This results in shortages of natural rubber latex in Malaysia.
82. Separately, research universities conduct highly innovative R&D with limited industry collaboration, leading to low commercialisation rates.
83. There is an opportunity to overcome this challenge by pivoting towards green rubber such as Ekoprena and Pureprena to command higher prices, develop sustainable synthetic rubber alternatives and invest in R&D that is in line with industry.
84. Refer to Action Plan 1 (AP1) in Section 5 for strategies and action plans related to R&D.

ESG Compliance

85. The growing use of rubber-like materials (e.g. silicone, nitrile butadiene rubber (NBR), vinyl and neoprene) has increased Malaysia's carbon footprints.
86. Globally, there is a growing trend towards carbon pricing, with the European Union's (EU) Carbon Border Adjustment Mechanism (CBAM) being one of the latest initiatives aimed at reducing the risk of carbon leakage.
87. Local SME face challenges in complying with ESG requirements due to the high costs and limited resources.
88. There is an opportunity to address these challenges by adopting sustainable practices to reduce carbon emissions through the development of a carbon footprint policy, including tighter carbon audit and reporting.
89. Refer to Action Plan 4 (AP4) in Section 5 for strategies and action plans related to ESG adoption.

Technology Adoption and Talent

90. Currently, there is limited adoption of new technologies and capabilities in downstream activities.
91. The adoption of advanced manufacturing technologies and processes is crucial in meeting the growing demand while remaining cost-effective and competitive. Furthermore, the industry faces insufficient skilled talents and relies heavily on low skilled labour.
92. The industry's readiness to adopt new technologies is limited as financial challenges and unwillingness of companies to diversify or change due to the risks in recouping its investment.
93. To address these challenges, reskilling and upskilling programmes are necessary to accelerate the adoption of Industry 4.0 technologies.
94. Refer to Action Plan 5 (AP5) in Section 5 for strategies and action plans related to technology adoption and talent development.

SECTION 5 STRATEGIES AND ACTION PLANS

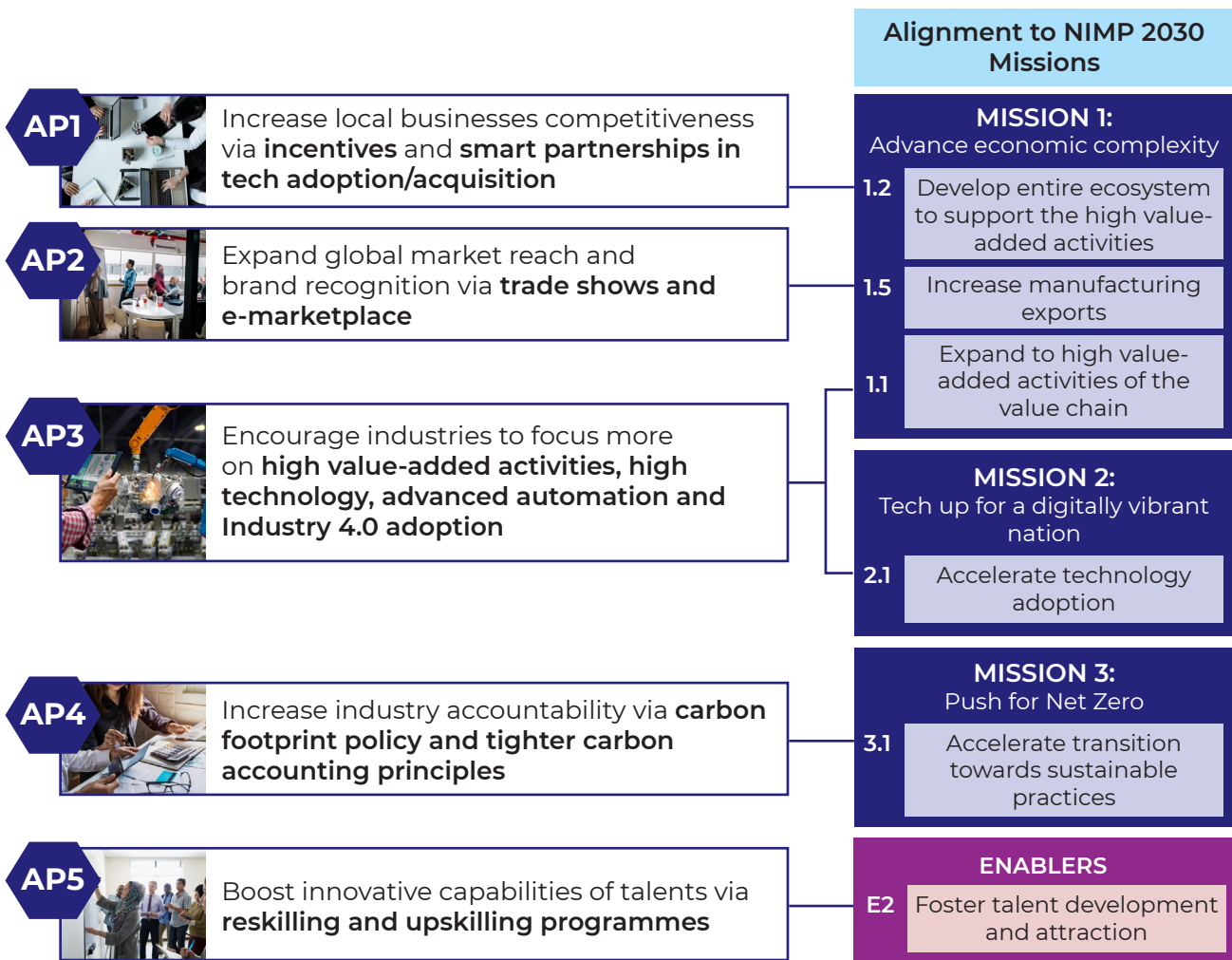
NIMP 2030 Focus

- 95. During the period of the NIMP 2030, the industry focus includes:
 - i. increasing competitiveness of local businesses;
 - ii. intensifying focused initiatives and involvement in trade shows and e-marketplace; and
 - iii. intensifying accountability towards preserving the environment and compliance to ESG.

Action Plans

- 96. Strategies and Action Plans relating to the NIMP 2030's Missions and Enablers are applicable to this industry (Figure 18.4).

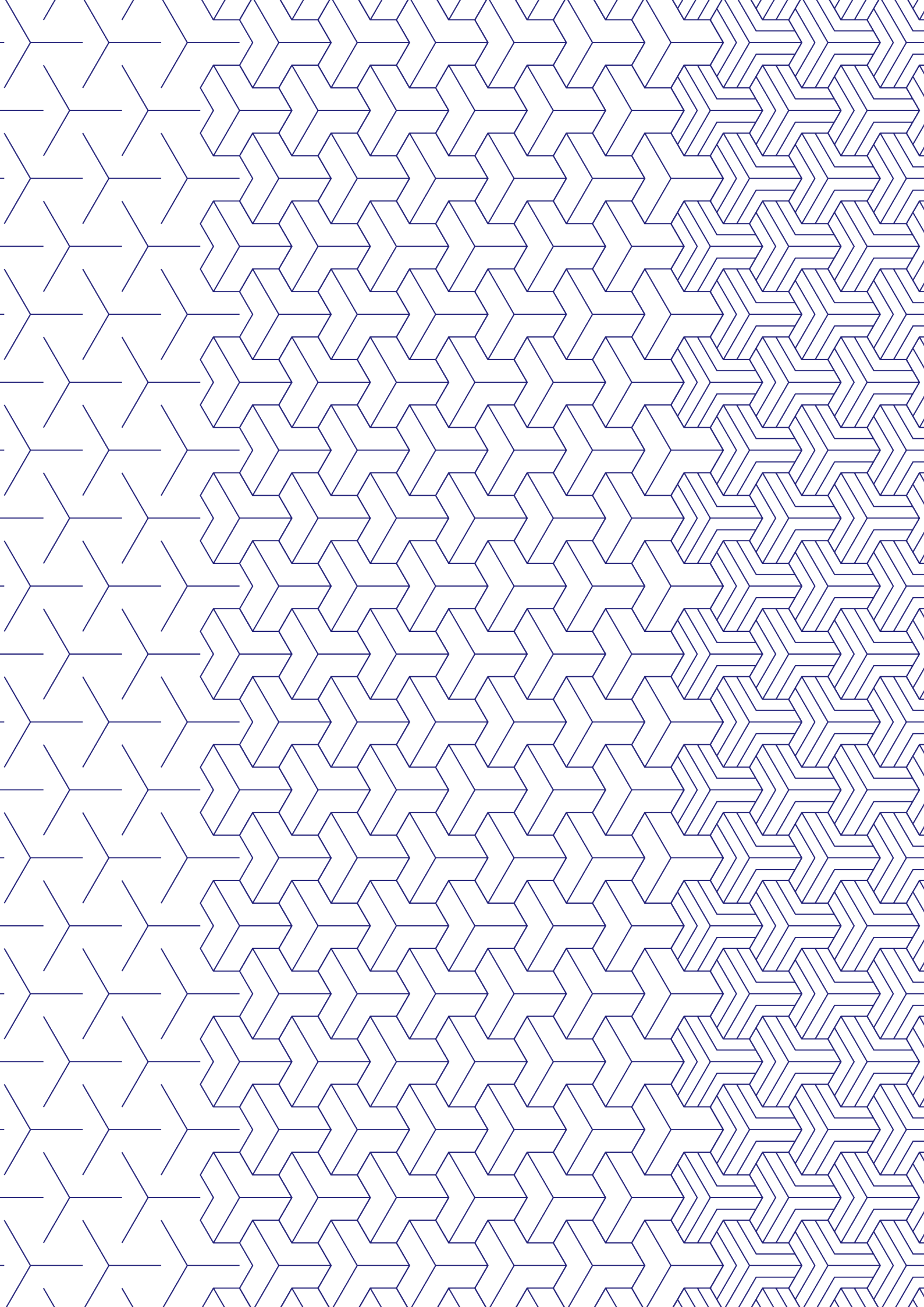
Figure 18.4: Strategies and Action Plans for Rubber-based Products Industry

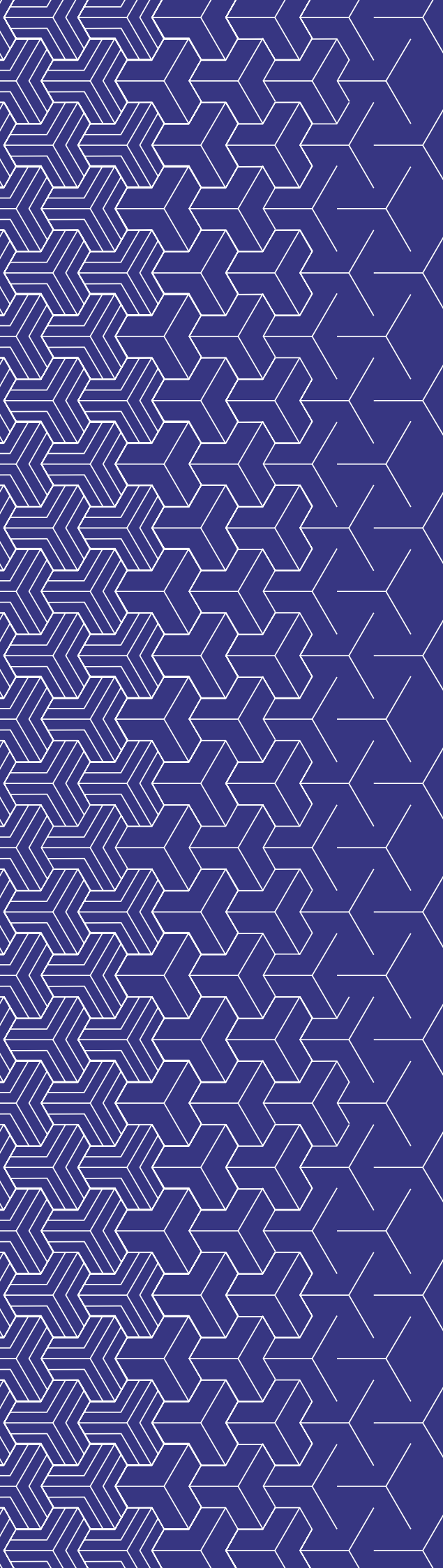


APPENDIX 1 INCENTIVES

There is an array of incentives offered for key players of the rubber-based products industry, these include the following:

Incentives	Agency
Incentives for General Investments	Malaysian Investment Development Authority (MIDA)
Incentives for Small Scale Companies	
Incentive for Strategic Projects	
Incentive for Reinvestments by Existing Company	
Second Round Incentives for Investment by Subsequent Company Formed by Existing Company	
Incentives for Research and Development (R&D): <ul style="list-style-type: none"> • In-House R&D • Contract R&D Company • R&D Company 	
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	
Kedah Rubber City: <ul style="list-style-type: none"> • Full tax exemption • ITA • Stamp duty exemption • Deduction on pre-operational expenditure 	Northern Corridor Implementation Authority (NCIA)





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