

وزارة الصناعة
والثروة المعدنية
Ministry of Industry and Mineral Resources



National Industrial Strategy (NIS)



وطن
يصنع
An Industrial Nation
National Industrial Strategy



“We are determined to continue with the economic reforms and to ensure the completion and achievement of the Vision’s objectives”

Custodian of the Two Holy Mosques
King Salman bin Abdulaziz Al Saud
may Allah protect him



“ We have all the capabilities we need to enable a competitive and sustainable industrial economy, from young ambitious talent, a distinguished geographic location, rich natural resources, and the presence of leading national industrial companies. Through the National Strategy for Industry and in partnership with the private sector, the Kingdom will become a leading industrial power that contributes to securing global supply chains and exporting high-tech products to the world ”

His Royal Highness Prince

Mohammed bin Salman bin Abdulaziz Al Saud

may Allah protect him

The Crown Prince and the Prime Minister



Bandar bin Ibrahim Al-Khorayef

Minister of Industry and Mineral Resources

The Kingdom of Saudi Arabia is undergoing an economic transformation journey with the aim of strengthening the capabilities of our national economy and diversifying its sources of income, relying on KSA's Vision 2030, whose executive programs outline the features of our bright future. The industrial sector comes at the top of the sectors that are relied upon to support and stimulate economic growth, as it contributes directly and mainly to raising macroeconomic indicators. KSA aims to increase the participation of the industrial sector in the GDP, create job opportunities, attract quality investments, increase non-oil exports, and improve the balance of payments.

The industrial sector in the Kingdom of Saudi Arabia is distinguished by the following: It is an extension of a great legacy that spans more than four decades. It also in-



cludes a group of entities that harmonize with each other to achieve the published goals. The infrastructure, for example, is undertaken by "Modon" and the Royal Commission for Jubail and Yanbu (RCJY). In legislation and studies, the Ministry of Industry and Mineral Resources is making improvements in this aspect. Moreover, Saudi Export Development Authority as well as the National Industrial Development Center (NIDC) are playing important roles in this sector. For financing, it is handled by the Saudi Industrial Development Fund (SIDF) and the Export and Import (EXIM) Bank. These entities collectively contribute to continue achieving the ambitious goals of KSA's Vision 2030.

Over the past five years, the industrial sector coped the positive changes propelled by the Kingdom Vision 2030 and interacted with these changes by achieving several accomplishments included transferring and localizing qualitative industries, revamping industrial cities to promote its attractiveness to investors, launching programs that enhance the Saudi exports' penetration to the global markets, and enabling woman and supporting its projects in the industrial sector. Moreover, the Kingdom aims to maximize the economic value by raising the percentage of local manufacturers' contribution to government procurement, capital and operational expenditures of SOEs

in the industrial sector, in addition to developing human capital, training manpower, and attracting investments to localize the industry

For this purpose, and for the future work in the industrial sector to be based on scientific foundations, and in light of the needs on the ground, it was necessary to design a National Industrial Strategy that contributes to stimulate this sector, achieving more economic diversification and having variety of non-oil income sources. Such strategy will help the industrial sector creating high-value jobs for Saudis, and motivating them to develop their talents to contribute building a pioneering and sustainable industrial sector, which contributes to protecting the industry from dumping and unfair competition, and achieving the positive economic impact from the localization of some industries to support the Kingdom's efforts to overcome economic crises. This will develop distinguished capabilities to attract regional and global investments, keeping pace with the changes witnessed by the world in the areas of innovation and technology, and benefit from the elements of the fourth industrial revolution.

The Kingdom is moving at a continuous and increasing pace towards achieving more goals and ambitions in the industrial sector, such as: Expansion in adjacent industries to oil and gas, and the development of promising

competitive industries such as (military, automotive, pharmaceutical and food industries), in order to build a bright future and a prosperous economy, and to achieve one of the objectives of the "National Industrial Development and Logistics Program" by transforming the Kingdom into a leading industrial powerhouse and a global logistics hub. This will be supported by the directives of the Custodian of the Two Holy Mosques King Salman bin Abdulaziz, and His Royal Highness Prince Mohammed bin Salman bin Abdulaziz, Crown Prince, Prime Minister and Chairman of the Council for Economic Affairs and Development - May Allah protect them.

The Kingdom, with such unlimited support of its leadership, will exert all its energies and capabilities to provide the incentives that support the implementation of this Strategy, so that we will witness - God willing - a remarkable renaissance in this sector, with which the Kingdom will become a global leading industrial powerhouse.

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An Industrial Nation
National Industrial Strategy

01

Executive Summary

01

Executive Summary

KSA’s Vision 2030 focuses on enacting and improving policies and regulations, and adopting major reforms in various fields, including: The economic field, by launching a package of initiatives that collectively aim to achieve the strategic objectives of the Vision, and to achieve a prosperous economy for the Kingdom. The existence of a vibrant and sustainable industrial sector that is competitive and export oriented is an enabler to achieve KSA’s Vision 2030. The industrial sector is the main driver for increasing non-oil exports, attracting foreign investments and investing in research, development and innovation, and creating high-value jobs for Saudis.

• **The National Industrial Strategy (NIS) comes as a comprehensive roadmap that contributes accelerate and diversify the industrial development in the Kingdom, in a unique way, aiming to achieve its vision, which is:**

build an agile and competitive sustainable private sector-led industrial economy

The development of this Strategy is guided by the global trends and the study of the industrial renaissance process in a number of industrial leading countries, learning from the most significant lessons, one of which is realizing the importance of private sector’s participation in the industrial sector and analyzing industrial competitiveness.

The National Industrial Strategy (NIS) was not limited to focusing on the industrial sub-sectors in which the Kingdom can succeed, but went beyond that to identifying prioritized segments within these industrial sub-sectors on which the Kingdom’s resources should be focused.

01

Strategic Objectives

This strategy drives the Kingdom’s focus towards (118) prioritized segments selected according to strategic foundations within (12) priority industrial sub-sectors in which the Kingdom has opportunities to compete at the regional and global levels. In order to achieve this, the National Industrial Strategy (NIS) was based on three strategic objectives:

01 Build industrial national resilience

This will be achieved by developing know-how and manufacturing capabilities related to critical goods and services in order to ensure the Kingdom’s flexibility to address the uncertainty of global changes and maximize resiliency in case of emergency situations such as pandemics or environmental disasters.

02 Become an integrated regional manufacturing hub

This will be achieved by taking advantage of the size of the local market and regional markets through an economic integration model in value chains and related products to create a competitive ability that forms a regional industrial base that contributes to transforming the region into a major and competitive industrial center.

03 Expand global leadership in selected segments

Such leadership requires adopting a set of technologies of the Fourth Industrial Revolution, and focusing on the areas of research, development and innovation.

12
sub-sectors

118
Prioritized Segments



01

Executive
Summary

Enablers

In order to lay the foundations necessary to achieve these strategic objectives, the National Industrial Strategy (NIS) identified (15) enablers to the industrial environment in KSA, which were included within (4) enabling objectives; In order to increase the competitiveness of local manufacturers, attract entrepreneurs and investors, and give subject matter experts the mechanisms to thrive and scale up.

4

Enabling
objectives

15

Industrial Enablers

01

Build world-class supply chains

A competitive and reliable industrial ecosystem can be achieved through high productivity, advanced manufacturing, and cost-competitive flow of goods and services

02

Grow the industrial business base

By improving the legislative and financing environment, raising the participation of industrial SMEs and increasing the participation of the industrial sector in the local content.

03

Unlock KSA international trade

Opening new international horizons to industrial investors and enable exports towards achieving a prosperous economy.

04

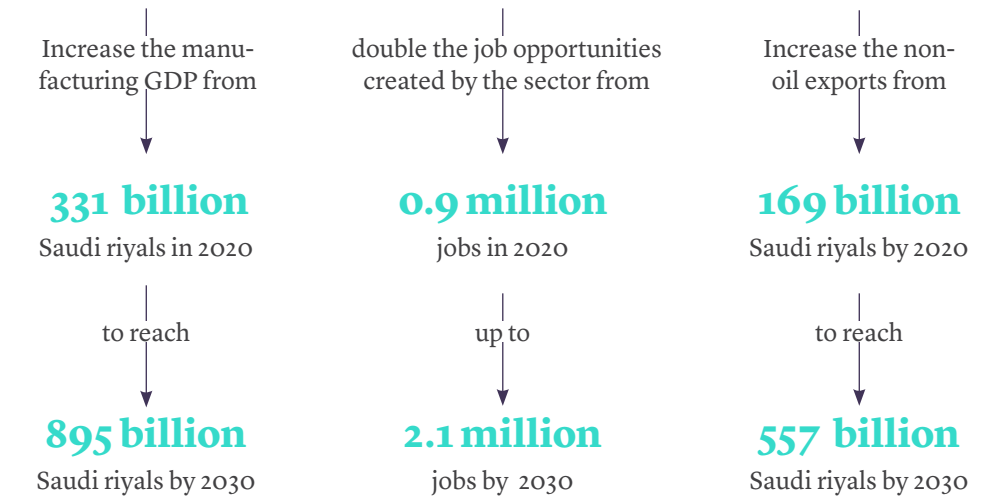
Cultivate innovation and know-how

Through developing, attracting, and retaining talents and developing an innovation culture to help the industrial sector reaching its most sophisticated state.

01

Executive
Summary

The National Industrial Strategy (NIS) will have a huge positive impact on the Kingdom's economy. The industrial sector will:



- **Furthermore, the strategy includes:**
- More than (136) initiatives (including policies and regulations) among these initiatives:
 - Initiatives related to a number of industrial segments, such as the localization of specific services such as the maintenance, repair and overhaul of aircrafts..
 - Enabling initiatives for the industrial sector, such as providing soft loans to finance advanced manufacturing capabilities, providing incentive packages to attract global investors and ensuring the acceleration of knowledge acquisition in a number of areas that have intellectual property rights exclusiveness.
- comprehensive set of key performance indicators, for the purpose of tracking performance, enabling decisions to be taken.
- The implementation of this ambitious strategy requires the existence of an integrated, flexible and appropriate governance model for the industrial sector, designed to empower industrial investors supported by a well-defined implementation plan that contributes to the launch of local manufacturing capabilities .





02

Industrial Development Journey

02

Industrial Development Journey

Impact of the
Kingdom's Vision 2030
on the Industrial Sector

The Kingdom has gone through a vibrant industrial development journey over the past four decades with government support. The industrial sector's development started with the discovery of oil, which became a fundamental pillar in expanding the country's industrial ecosystem.

The first hydrocarbon-based products produced in the Kingdom were agri-nutrients made by the Saudi Arabian Fertilizer Company (SAFCO), which was established as the Kingdom's first petrochemical company in 1965. The Saudi Industrial Development Fund (SIDF) launched in 1974 to provide much-needed financial and consultation services to further develop local industry, along with medium- and long-term loans to establish new plants and expand existing ones.

The Kingdom continued its development efforts in 1975, when oversight of industrial and petrochemical projects was assigned to what was then known as the Ministry of Industry and Electricity. That same year, the Royal Commission for Jubail and Yanbu was established to promote the petrochemical industry by developing the two industrial cities of Jubail and Yanbu. The primary goals included utilizing gas production to develop value-added petrochemicals locally, attracting local and international industrial investment, constructing and operating industrial infrastructure, and developing the local workforce's capabilities. This was followed in 1976 by the establishment of SABIC, with a vision to become a global petrochemical leader.

As the Kingdom's petrochemical industry grew, Saudi Arabia became one of the top global petrochemical producers, and the government began to develop the mining industry. In 1997 Maaden was established with a mandate to develop Saudi Arabia's mineral and metal sectors as the third pillar of the Kingdom's industry, alongside oil and petrochemicals.

In 2001, the Saudi authority for industrial cities and technology zones (Modon) was established to undertake the development and supervision of industrial lands and integrated infrastructure. The number of industrial cities managed by Modon grew to 36 by 2020, representing a total investment of SAR 370 billion.

The Kingdom had great success building its industrial base. Manufacturing accounted for 13% of GDP by 2016 and has grown at an impressive annual rate of 5.3% to reach SAR 258 billion in 2020.

Industrial Development Journey



02

Industrial Development Journey

Impact of the
Kingdom's Vision 2030
on the Industrial Sector

The Kingdom's Vision 2030 presents an ambitious and transformative roadmap leveraging the Kingdom's strengths. It has built a foundation to drive unprecedented reforms in the public sector's operating model, the economy, and society as a whole. This has laid the foundation for future success.

The Kingdom of Saudi Arabia is proceeding with confident and steady steps on its path to development at all economic and social levels, thus contributing to achieving the goals of the Kingdom's Vision 2030. Giga projects - such as NEOM city (The Line), the Red Sea, and Saudi Green Initiative - will help through the demand it will create for goods and services. This will provide an opportunity to advance the Kingdom's industry, by building local manufacturing capabilities, and attracting modern industrial technologies.

Proceeding from the main pillars of the Kingdom's Vision 2030 (a vibrant society, a thriving economy, and an ambitious nation), it has become important to develop the National Industrial Strategy.



02

Industrial Development Journey

Impact of the
Kingdom's Vision 2030
on the Industrial Sector

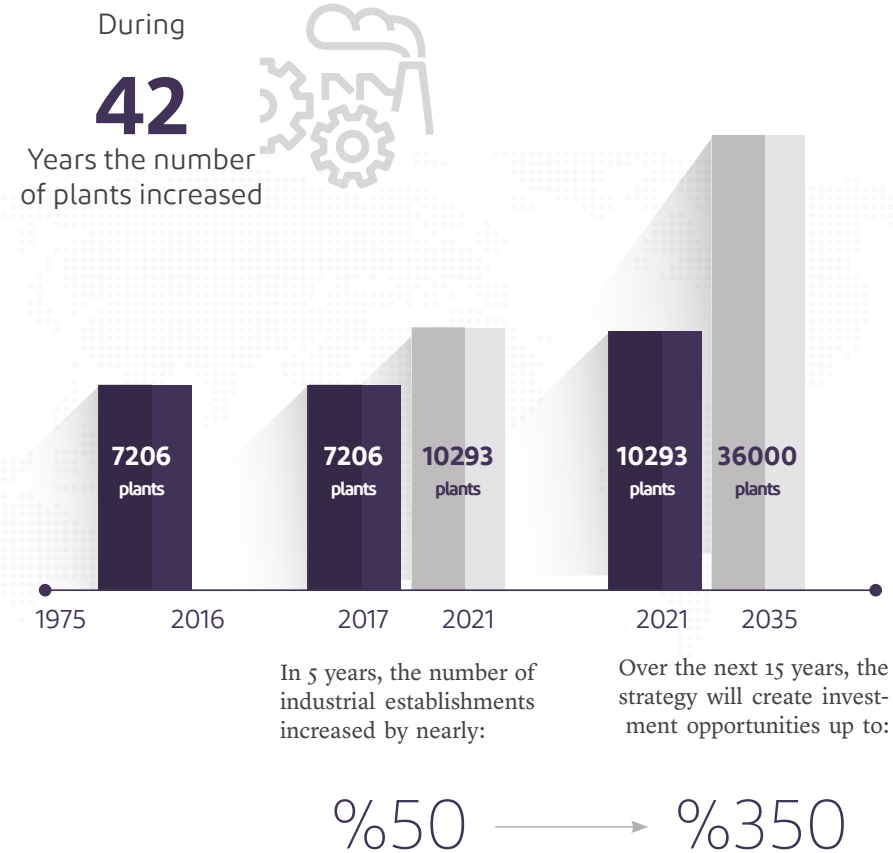
The executing entities contribute in the Industrial ecosystem by supporting the industrial development journey and achieving the objectives of the Kingdom's Vision 2030

executing entity	Contribution
 <p>وزارة الصناعة والثروة المعدنية Ministry of Industry and Mineral Resources</p>	<p>The Ministry of Industry and Mineral Resources is responsible for regulating and licensing industry and mining. It aims to advance the industrial and mining sectors, and contribute to achieving sustainable development, in line with the Kingdom's Vision 2030, which adopted these two sectors as strategic options to diversify the national economy, and raise their contribution to the GDP.</p>
 <p>مدن MODON الهيئة السعودية للمدن الصناعية ومناطق التقنية Saudi Authority for Industrial Cities and Technology Zones</p>	<p>MODON has been mandated to develop industrial lands and integrated infrastructure. Today, 36 existing and under development industrial cities are under its supervision across the Kingdom. In addition, it supervises private industrial complexes and cities.</p>
 <p>الهيئة الملكية للجبيل وينبع Royal Commission for Jubail & Yanbu</p>	<p>Immediately after its establishment, the Royal Commission for Jubail and Yanbu embarked on a journey of challenge and achievement in accordance with an ambitious vision to be the best choice for investors in the petrochemical, mining and energy-intensive industries and the main contributor to growth in the Kingdom.</p>
 <p>الصندوق الصناعي صندوق التنمية الصناعية السعودي Saudi Industrial Development Fund</p>	<p>Saudi Industrial Development Fund was established to play a leading role for 45 years in developing, implementing and achieving industrial development policies and programs, being the main financial enabler for industrial transformation in the Kingdom.</p>
 <p>المصدرات السعودية هيئة تنمية المصدات السعودية</p>	<p>It aims to develop various non-oil exports by supporting exporters to raise their competitiveness and promote their products and services to expand in international markets and overcome obstacles that may limit such expansion.</p>
 <p>المركز الصناعي Industrial Center</p>	<p>The National Industrial Development Center is specialized in attracting industrial investment and industrial development to the heart of the transformation of the industrial sector in the Kingdom of Saudi Arabia. It is responsible for establishing new industries to diversify the economy and meet the aspirations of Vision 2030.</p>
 <p>المركز الوطني للمعلومات الصناعية</p>	<p>The National Industrial Information Center aims to be the reliable industrial and mining knowledge center in the Kingdom to enable direction towards an integrated and competitive industrial and mining ecosystem, and to support industry and mining in the Kingdom by developing information transparency in the market in order to enhance the confidence of investors and decision makers.</p>

02

Industrial Development Journey

Impact of the Kingdom's Vision 2030 on the Industrial Sector



02

Industrial Development Journey

Impact of the Kingdom's Vision 2030 on the Industrial Sector

Examples of initiatives in the National Industrial Development and Logistics Program that contribute to achieving the objectives of the Kingdom's Vision 2030 in the Industrial Sector

Initiative name	About the initiative
Transforming Saudi Industrial Development Fund to become the main financial enabler for industrial transformation in the Kingdom	Transforming Saudi Industrial Development Fund to become the main financial enabler for industrial transformation in the Kingdom by aligning the fund's strategy with the aspirations and objectives of the National Industrial Development and Logistics Program to cover the financial requirements of the target sectors
Establishment of Saudi EXIM Bank	Establishing and launching Saudi EXIM Bank and approving its regulations. The bank approved credit requests that exceeded 10 billion Saudi riyals in 2021. The number of credit requests has reached 125 requests since the establishment of the bank.
Launching of the «Made in Saudi» program	Launching the “Made in Saudi” program with the aim of highlighting and enabling Saudi product to be the preferable option in the local and international markets.
Establishing and developing the Integrated Logistics Bonded Zone at King Khalid International Airport	The Integrated Logistics Bonded Zone (ILBZ) was launched at King Khalid Airport to focus on import and re-export activities, light industries, maintenance, and repair.
Amending Mining Investment Law and regulations	Activating the new Mining Investment Law and issuing 164 exploration licenses and 579 material quarrying licenses in 2021.



02

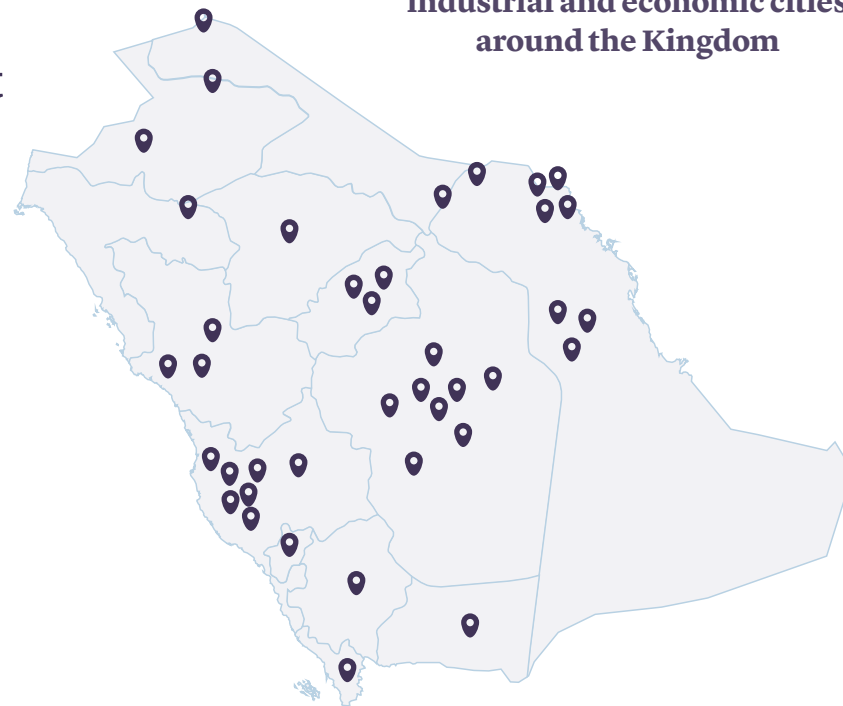
Industrial Development Journey

Impact of the
Kingdom's Vision 2030
on the Industrial Sector

More than

40

industrial and economic cities
around the Kingdom



Industrial Cities Authorities

الهيئة الملكية للجبيل وينبع
Royal Commission for Jubail & Yanbu



**Royal Commission for
Jubail and Yanbu**



**Saudi Authority for Industrial Cities
and Technology Zones (Modon)**



King Abdullah Economic City



King Salman Energy City



Neom Industrial City (Oxagon)



03

NIS Methodology



03

National Industrial Strategy Methodology

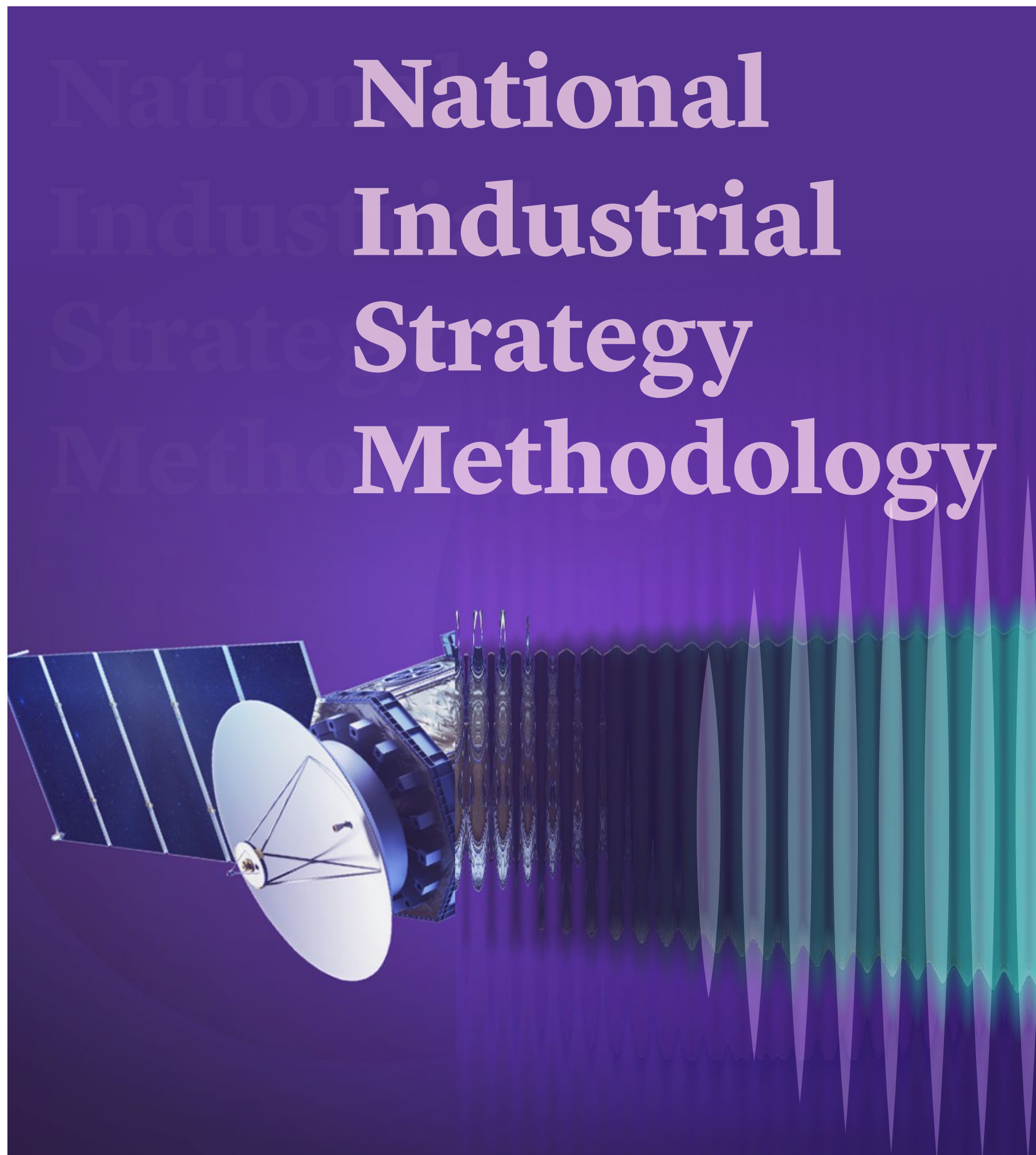
NIS has been developed to ensure reaching flexible, competitive and sustainable industrial economy with executable outputs .

The strategy inspirations and mechanism is aligned with current and future global trends In order to ensure the soundness of the direction and the strategic Choices, research and analysis were carried out at the level of Sub-sectors and value chain segments from the point of view of the industrial investor and the extent to which the indicators of the economy have improved based on the economic strengths of the Kingdom; The most prominent of which are a strategic geographical location, the abundance of natural resources, strong national champions and conglomerates and, stability of monetary policies.

At the strategic level, the strategic direction of the National Industrial Strategy has been aligned with the objectives of the Kingdom's Vision 2030. More than 90 major global trends have also been studied and analyzed and benchmarking comparisons have been made in the industrial development journey for 33 countries that sought industrial advancement. Moreover, 6 forward-looking benchmarking comparisons were made for the industrial future.

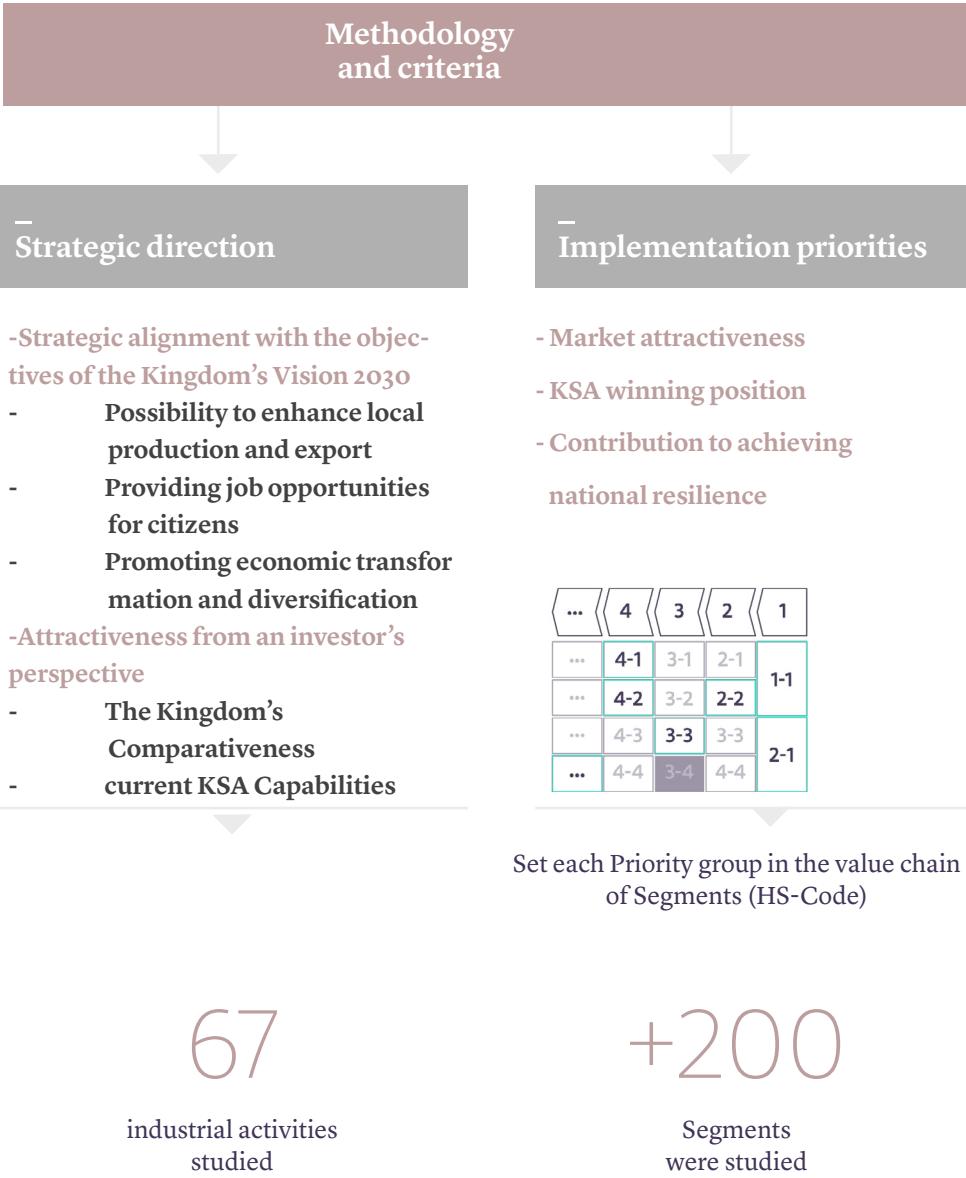
workshops were held to formulate the strategic vision for the industrial sector with a group of international experts, leaders of the industrial ecosystem and representatives of the private industrial sector in the Kingdom. More than 130 global performance indicators related to with industrial investment risks were reviewed. Furthermore, the Strategy was aligned and reviewed with relevant government entities (such as the Ministry of Energy, the Ministry of Investment and others).

At the sub-sector level, work has been done with more than 20 entities from the industrial ecosystem in the Kingdom. Workshops have been held with more than 300 representatives from the private sector, and more than 200 value chain segments have been analyzed at the level of local, regional and global markets, and the investment environment in order to create sectoral initiatives that contribute to addressing challenges and raising the competitiveness of the industrial sector in the Kingdom.



03

National Industrial Strategy Methodology



03

National Industrial Strategy Methodology





04

Current State and Baseline

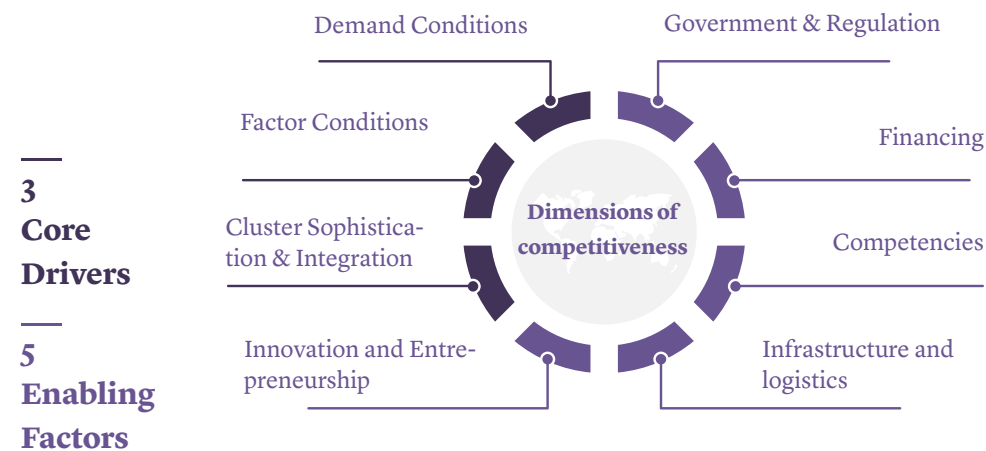
04

Current
State
and
Baseline**Current state of the Industry in the Kingdom**

The performance of the industry in any country is affected by several factors and can be measured in many ways. The United Nations Industrial Development Organization's (UNIDO) annual Competitive Industrial Performance (CIP) Index provides a comprehensive, fact-based analysis. Although CIP index contains multi-components, export performance plays an important role in scoring and influences the kingdom's ranking. The export component is emphasized because a highly competitive industry typically means a country produces more than it consumes and engages in export activity apart from the export of Raw materials.

Sources of competitiveness in the Kingdom

Observation of the economic variables provides a snapshot of the Industry but not an explanation. Today's competitiveness status can be broken down into dimensions that can point to specific areas of improvement. A framework that integrates all competitiveness dimensions were maintained, which considers the eight factors As shown in the figure below.

Competitiveness Framework

04

Current
State
and
Baseline**Main Lenses**

The assessment had to include both qualitative and quantitative grounds to ensure robustness and sensibility to current players' perspectives to the reality in the manufacturing floor

The approach included the assessment through three main lenses

01

First lens

The assessment of 130 KPIs across all dimensions (core drivers and enabling factors) that can characterize the Kingdom's competitiveness against other countries

02

Second lens

The investor lens, which pointed out the dimensions of major attention according to the Global Foreign Direct Investment Confidence Index and report

03

Third lens

The industrial sector perception that was collected during specific engagements for the priority sub-sectors

04

Current State and Baseline

Strengths

An overview of the Kingdom's strengths

01

Strategic location

- The Kingdom of Saudi Arabia is located in the middle of the Arab and Islamic worlds.
- It is a gateway that can reach to more than:
 - 40 fast-growing markets within 4 hours of flying.
 - 13% of global trade that crosses the Red Sea.

02

Strong economy

- More than 33 million consumers.
- Actual GDP growth by 3.2% during 2021, and by more than 10% during the first half of 2022 compared to the same period in 2021.
- Strong FDI inflows of \$19.2 billion in 2021
- Free flow of funds and stability of currency exchange.

03

Natural resources and huge opportunities

- US\$1.3 trillion – untapped mining wealth.
- Saudi Green Initiative which targets reaching zero carbon neutrality in 2060.
- Exerting privatization efforts and effectively involving the private sector in various sectors of the economy
- Giga projects (e.g. NEOM city (The line), Red Sea, etc.)

04

Promotion of business-friendly environment

- Stepping up by 30 places in one year as per Doing Business Report 2020.
- Stepping up by 100 places in the World Bank Companies Establishment Index 2020
- Best Improvement in the world in the classification of Women, Business & Law issued by the World Bank 2020.

05

Quality of life

- First place in the Arab world and 21st globally in the World Happiness Report in 2021.
- Fifteenth place in the world in the lowest rate of organized crime incidents.
- Accelerating the development of tourism and focusing on entertainment and the participation of the sports community

06

Human capabilities

- There are more than 80 universities and colleges in the Kingdom.
- 150 thousand Saudis on scholarships at the most prestigious international universities.
- 9th globally in digital literacy in 2020.
- Young workforce (67% of Saudis are 34 years old or younger).

04

Current State and Baseline

Key Performance Indicators

Investors' Perspective

To get a clear view of how investors view the Kingdom in terms of investment attractiveness, key investment factors (the factors that investors often look for when considering investing in a new market) have been utilized and analyzed. These factors are:

- Tax rates and ease of paying taxes.
- Regulatory transparency and lack of corruption.
- Technical and innovative capabilities.
- General security environment.
- State participation in trade agreements.
- Research and development capabilities.
- Quality of digital infrastructure.

These factors have been identified with 38 key performance indicators that represent priority measures from the investors perspective. The analysis of the key performance indicators has shown that the Kingdom is witnessing a remarkable improvement in government procedures, but with room for improvement in terms of know how, research and development, innovation, and government e-services.

The reform momentum in the Kingdom has improved its attraction to investors, and the Kingdom has a good opportunity to reach the ranks of first-class economies, and this has resulted in six main outputs, namely.

- Ease of doing business.
- Precautionary financial margins.
- Human capital.
- Innovation.
- Regulatory environment.
- Trade patterns.
- Regional competition.

38

Key Performance Indicators



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05

Global Trends

05

Global Trends

Technological dimension

Technological dimension

From a technological standpoint, there are seven main trends that are expected to impact industry

01

The expanding role of data in Production 4.0:

Production 4.0 will require sectors to enhance their capabilities to collect, interpret, and use data. Thus, the market for big data analytics and cloud services will continue to surge. From 2016 to 2020, big data analytics revenue grew by 20% annually, and global cloud services revenue grew by 16% annually. KSA will need to develop the data infrastructure to support the capture and safe usage of large-scale data. Developing data interoperability and connectivity will be key to future supply chains.

02

Increasing penetration of Internet of Things (IoT) devices:

The new Internet is forming as the proliferation of IoT keeps everyone and everything constantly connected. By 2030, the number of IoT units installed is expected to reach 24 billion, which is triple the current number. The IoT will have a large and direct impact on multiple sectors in KSA, ranging from consumer data collection to logistics just-in-time algorithms. The most immediate impacts are expected to be seen in Machinery & Equipment, Medical Devices and Renewables. NIS will need to aid Saudi manufacturers in the adoption of IoT and emerging connectivity ecosystems to ensure continued competitiveness and ability to enter high-value-add segments

03

The increasing sophistication of artificial intelligence (AI):

AI provides an enormous opportunity where governments will need to have strong institutional frameworks (in data ethics, for example). Additionally, governments will need to invest in key research areas and work with businesses to encourage inward investment.

04

Proliferating use of advanced additive manufacturing (3D printing):

The global economy will be disrupted by 3D printing and its ability to produce highly customized products at scale at near-zero additional cost. The 3D Printing Index measures the degree to which countries' labor skills, industrial capabilities, governance, and economic assets support 3D printing. The United States has the highest 3D Printing Index of 7.5, followed by Germany (6.8) and the Republic of Korea (5.6). Distributed global value chains and large centralized factories are at risk of disruption by digital value chains and smaller, highly distributed centers of manufacturing. To support this transition, NIS may consider contributing to labor skill advancement, industrial adoption and capabilities, and 3D printing entrepreneurship through diverse enablers.



05

Global
TrendsTechnological
dimension

05

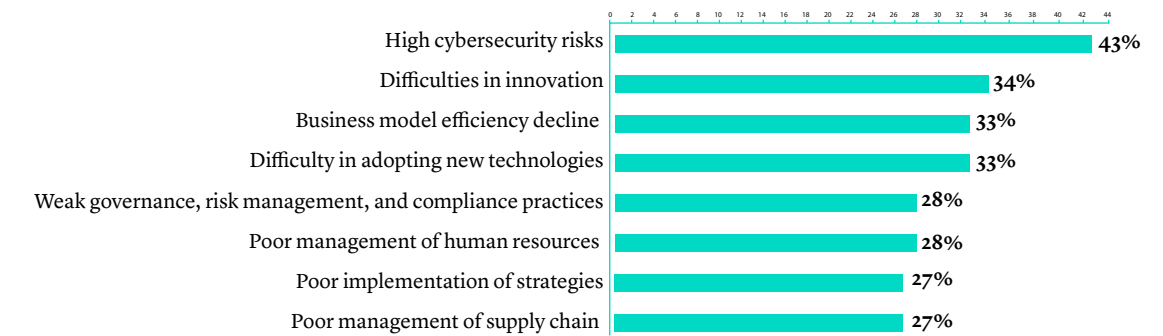
The continued proliferation of advanced automated systems (advanced robotics):

As advanced automated systems proliferate, robots will spread from factory floors to offices, streets, and skies. The primary areas of growth include drones (from drone taxis to delivery drones and selfie drones, “the sky is the limit”), self-driving vehicles (all major vehicle manufacturers plan to enter the autonomous vehicles space), industrial robots (robots are emerging from “the cage” to team with humans), and service robots (from eldercare to site security, the use cases for this robot class are expanding). The rise of automated systems will have profound implications for the factory of the future in KSA, potentially impacting most industrial sectors. The NIS visionary discussion will have to debate how to leapfrog in this area, probably through the diversified acquisition of know-how.

06

Increasing cyber domain friction/code weaponization:

The current explosion of connectivity presents increased risk. CEOs have consistently indicated that rising cybersecurity risks are a top concern, followed by difficulty in innovating and declining business model efficiency, as shown in Exhibit. Deep rifts in cyber preparedness emerged as companies that were ill-prepared to work remotely, accelerated to online work during the COVID-19 pandemic. NIS will need to facilitate cooperation with other Saudi government entities (e.g., MCIT) to build capability against cyber-espionage to protect Saudi manufacturers’ trade secrets.

CEOs’ opinions on the most important operational challenges (percentage)¹⁷

07

The rise of smart cities/infrastructure

Digital innovation is central to the smart city concept – and further involves investment in smart technologies and digital innovations to ultimately improve the well-being of citizens. The Global Smart City Development Index indicates that most cities have started to provide app- or web-based smart city services in transportation, followed by culture, tourism, and city administration. Smart cities will need smart governance – protection of data, reevaluation of business models, and re-regulation versus deregulation will be essential.



05

Global Trends

Environmental dimension

Environmental dimension

The world is at a tipping point in resource management, with dramatic changes underway

From an environmental perspective, there are three main trends.

01

The changing patterns of climate change and environmental degradation

There is a clear correlation between rising man-made emissions and increasing global temperatures, driving severe climate events. With 66% probability, in less than 20 years the emissions limit established to stop global warming at 2°C will be reached, as shown in Exhibit 12. Climate change is already presenting great risks to countries, investors, and companies. The Middle East may be one of the harder hit areas, with broad impact across social and economic spheres. Resilience against such a trend may need to be a core focus of the NIS.

02

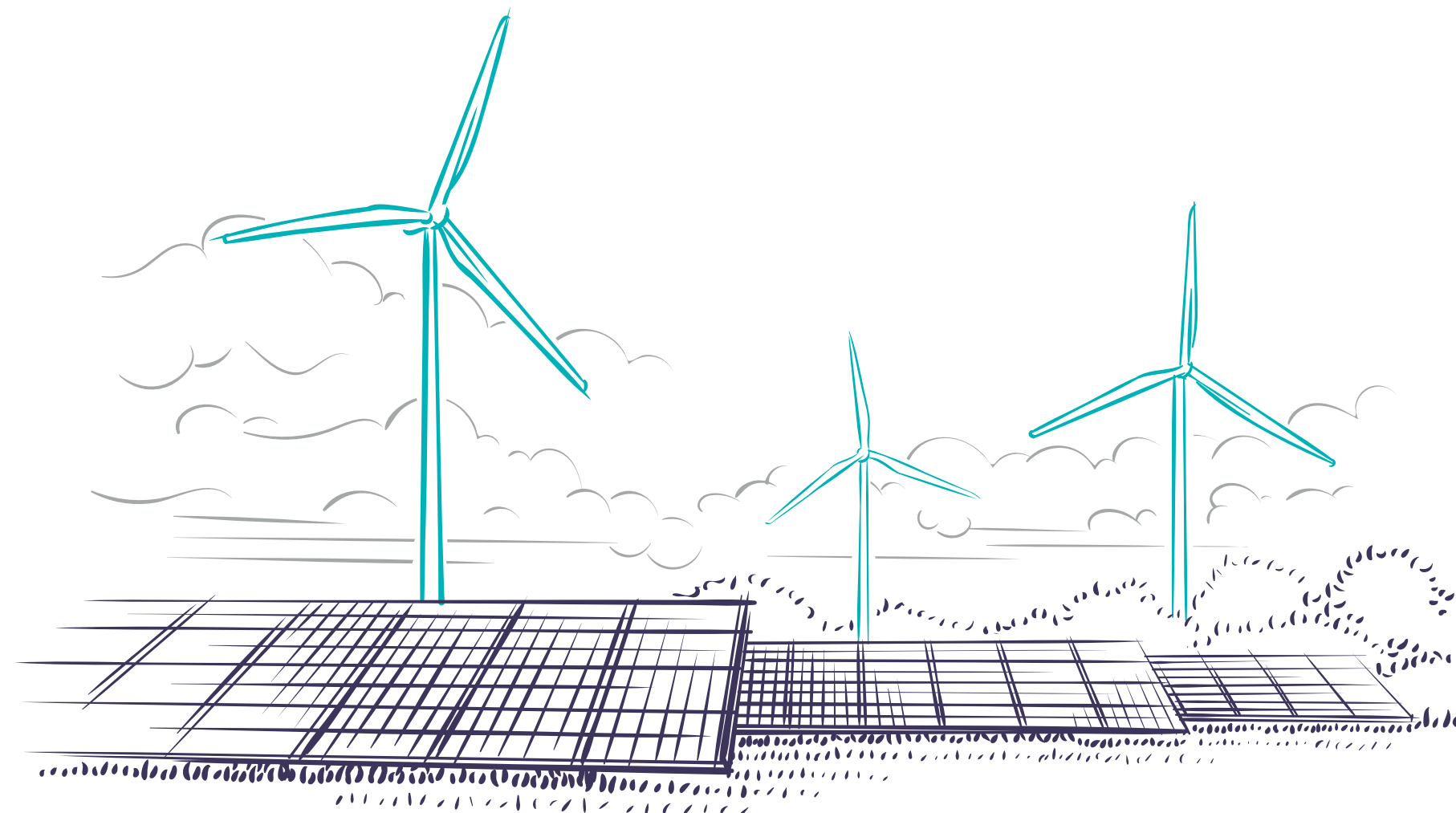
Increasing strain on the global resource nexus of water-food-energy:

Feeding 10 billion people by 2050 will require integrated approaches to climate change, land and water use, and technological development. Water-food interdependencies include the water requirements of agriculture, which uses 70% of water each year. Food-energy interdependencies include the mandated use of agricultural products for biofuels. Energy-water interdependencies include hydropower production and high-water usage in oil sands extraction. An increasing premium on self-sufficiency will have an effect on some industrial sectors, including Food Industry.

03

Diversifying energy mix:

Technological break throughs and favorable market conditions are encouraging the swift growth of renewable energy. Faster-than-expected adoption of renewables (solar and wind) resulting from rapid price decreases for these technologies is emblematic of the massive technology and market shifts that have occurred in the renewable energy Sector in recent years. Oil-producing and -reliant countries will need to make rapid moves to diversify away from their energy reliance, which involves thinking about where to build economic complexity and leveraging existing feedstock to support new industries.



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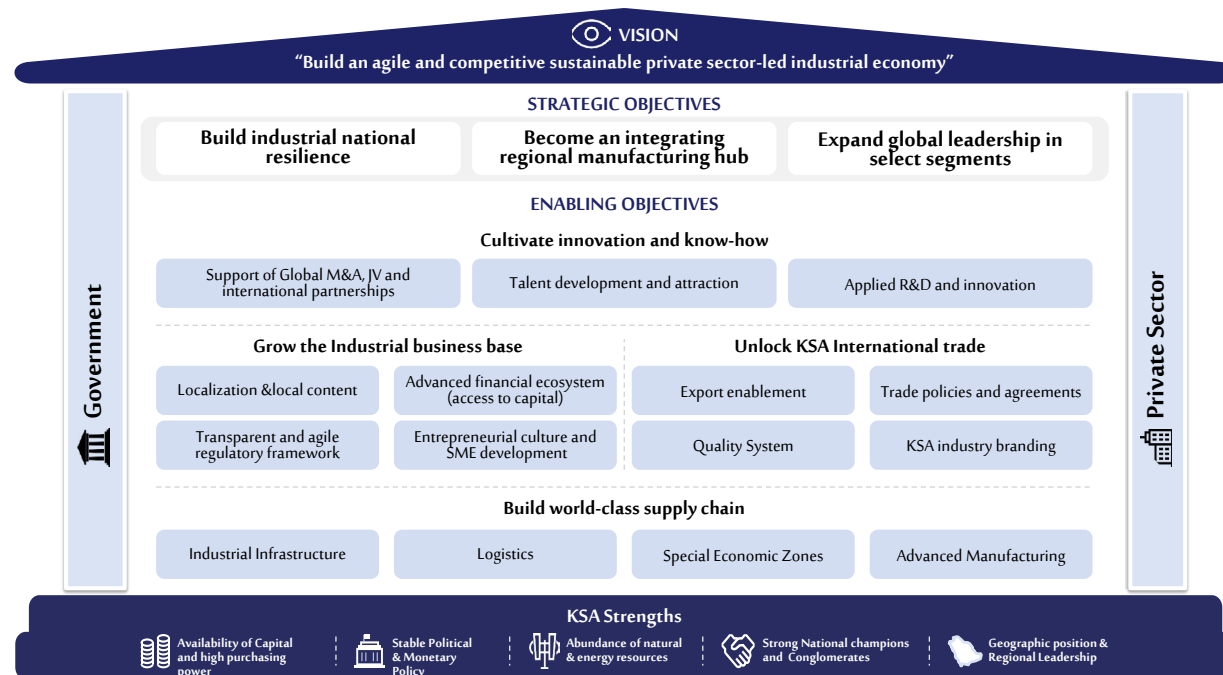
**National
Industrial
Strategy**

06

National Industrial Strategy

The Strategic House of NIS

The strategic house was built with the presence of the government sector as a service provider and an enabler and led by the private sector, based on the strengths of the Kingdom, including: The availability of capital and purchasing power of the government and consumers, stable monetary policies, the availability and diversity of natural resources such as oil, gas, minerals, etc.) and the presence of national champions and conglomerates that support the economy in addition to the Kingdom's distinguished location between 3 continents and its regional impact in the region.



06

National Industrial Strategy

The vision of NIS revolves around “ **Build an agile and competitive, sustainable private sector-led industrial economy** .”

Below is a further analysis of some of the main aspects of the vision of NIS as explained in the Strategic House:

- Build an agile and competitive, sustainable private sector-led industrial economy**
- 01 Sustainability:**
Attaining a sustainable national economy based on the KSA's comparative advantages.
 - 02 Agile:**
Quickly reacting to changing obstacles and keeping up with the pace of technical developments
 - 03 Competitiveness:**
The Strategy aims to transforming the Kingdom into an industrial economy in which manufacturers can compete because of the high added value and quality of their products as well as competitive production costs. This will enable Saudi manufacturers to compete locally and globally.
 - 04 Led by the private sector:**
It is a Vision in which the private sector participates effectively and engages in the transformation of the Saudi industry to become: Proactively, a competitive and growing strength for the Kingdom, keeping pace with the increasing maturity of each industrial sector, which means that almost all related investments emanate from the private sector, while the public sector is often at the service of the nation by providing sound policies and competitive environment for the industrial sector to flourish.

06

National Industrial Strategy

Three strategic objectives, related to measurable performance indicators, were elaborated:

	Build industrial national resilience	Become an integrating regional manufacturing hub	Expand global leadership in select segments
Clarification	<ul style="list-style-type: none"> Saudi industry is seeking resilience to supply chain disruptions that may occur as a result of unexpected conditions (such as the COVID-19 pandemic), or due to geopolitical divisions in selected products. 	<ul style="list-style-type: none"> Taking advantage of the strengths of the Saudi economy such as (purchasing power, capital availability, natural resources) to support industry and stimulate economic integration through partnerships and mutual interests. Regional integration achieves additional competitive advantages that support all parties in advancing the region as a new regional economic force. 	<ul style="list-style-type: none"> The Kingdom benefits from the capabilities of the Public Investment Fund and leading national companies to build an industrial base and possess qualitative technologies to enter global value chains, thereby increasing technical capabilities and transferring knowledge.
Industrial Status by 2035	<p>Increasing national industrial resilience through increased domestic manufacturing and reduced risks of supply chain disruptions by entering into strategic agreements to ensure continuous access to significant goods to ensure citizens' well-being and sustained economic activity.</p>	<ul style="list-style-type: none"> Taking advantage of the size of the local and regional markets through an economic integration model in value chains and associated products to create competitiveness constitutes a regional industrial base that contributes to the region's transformation into a major and competitive industrial center 	<ul style="list-style-type: none"> Building on the strengths of selected groups of goods in which the Kingdom enjoys comparative, economic and strategic advantage to achieve global leadership by guiding and allocating qualitative investments. Investing in promising new technologies for the Kingdom to take a global lead in these goods.
Examples of investment opportunities in support of the strategic objective	<ul style="list-style-type: none"> Taking advantage of domestic demand and localizing biopharmaceutical industries (e.g. vaccines and plasma). Leveraging the kingdom's purchasing power to stimulate localization (such as arms, guided munitions and rocket launchers). Expanding local processing and manufacturing capabilities in poultry and dairy products to enter a diverse manufacturing range such as the cheese industry. 	<ul style="list-style-type: none"> Leveraging regional high demand for machinery and equipment manufacturing serving high growth sectors. Providing maintenance, repair and overhauling service centres to regional airlines in Riyadh, Neom and Jeddah. Coordinating regional efforts to consolidate commercial satellite demand. 	<ul style="list-style-type: none"> Global leadership in manufacturing desalination technology. Global leadership in manufacturing advanced material in automotive and aerospace industry, construction techniques. Global leadership in environment-friendly vehicle manufacturing technologies.

06

National Industrial Strategy

Examples of the most prominent enabling initiatives required to achieve the strategic objectives

Increasing the involvement of SMEs in government tenders

Working on improving government tender regulations with the aim of enhancing the participation of SMEs by dividing tenders in a way that supports their participation.

Incentives to support in creased exports

Encouraging and supporting exports of targeted segments within the NIS through incentives aimed at enabling targeted industries to access global markets.

Demand Visibility

Working with all State-Owned Companies and government entities to calculate and estimate the expected demand for targeted Segments with the aim of estimating demand in the next five to ten years.

Standardization of suppliers' qualification process for state-owned companies

Standardizing the supplier qualification process for state-owned companies, by urging companies to use "Jadeer" platform and signing memoranda of understanding with them and enhancing cooperation generally with state-owned companies.

Optimizing financial solutions for manufacturers

Expanding efforts and increasing soft financial products and solutions including government support to cover the cost of interest or part of it for recipients of local commercial bank loans for the local investors and manufacturers in targeted Segments.

Improving regulations to attract foreign investors

Simplifying regulations of FDI and business management to increase attraction of global manufacturers (e.g.: International Arbitration, Intellectual Property Protection and Reducing Bureaucracy).

06

National Industrial Strategy

Examples of the most prominent enabling initiatives required to achieve the strategic objectives

Strengthening the Kingdom’s trade agreements

Identifying opportunities of industrial value chains integration with regional partners, based on the principles of complementarity and economic complexity, and concluding mutually beneficial agreements at the level of governments (G2G) and trade agreements (for example: Egypt, Jordan, Iraq etc.) which enable the Kingdom to become a regional center for manufacturing.

Creating innovation centers

Establishing innovation centers for mature sectors to meet the research needs of SMEs to provide paid research and development services.

Improving quality standards for targeted segments

Enhancing quality standards in the Kingdom for targeted segments in the NIS to be line with the process of developing international standards (for example: HS codes, testing facilities and quality certificates).

06

National Industrial Strategy

Four enabling objectives have been built to support the achievement of the Strategy’s objectives. Foremost among which is Build a world-class supply chain by providing a leading industrial infrastructure in the industrial cities and strengthening supply chains and logistics services in a way that supports the ease of supply chain integration and the provision of special economic zones that aim to increase exports and adopt advanced industries technologies that enable investors to increase productivity and reduce costs. In order to develop the local industrial sector, the enabling Objective Grow the Industrial business base comes through encouraging localization and local content to increase the demand for local products, facilitate access to industrial finance, create and activate clear and flexible systems and procedures for investors, and support SMEs as one of the main drivers of the industrial sector. To enhance the Kingdom’s position in global markets, the Strategy was keen on Unlock KSA international trade by enabling industrial exports from various ports of the Kingdom, improving bilateral trade policies and agreements, increasing the industrial sector’s contribution to them, raising quality standards in the industrial sector to compete with global products, and promoting the Kingdom’s brand through the program of “Made in Saudi” program. The Strategy also relies on preparing the leading national cadres in the industrial sector through Cultivate innovation and know-how by supporting global mergers and acquisitions to bring international expertise, develop and retain talents, and support applied industrial research and innovations.

4

Enabling objectives that support the achievement of the objectives of the strategy



List of enabling Objectives and their contributions

Enabling Objective	the enabler	The role of the enabler in achieving the enabling Objective
Build a world-class supply chain	Industrial Infrastructure	The advanced infrastructure supports the flow of products and attracts foreign investment.
	Logistics	Reliable, connected, and efficient logistics services are critical to the viability of certain industries and influential to delivery time/cost across value chains.
	Special Economic Zones	Special economic zones promote business development in a specialized and synergistic manner.
	Advanced Manufacturing	Advanced industry will raise the current level of supply chains in the Kingdom, increase productivity, and provide the opportunity to skip similar geographical areas.



06

National Industrial Strategy

List of enabling objective and their contributions:

Enabling objective	The enabler	The role of the Enabler in achieving the enabling objective
grow the Industrial business base	Transparent and agile regulatory framework	Creating a stable, transparent, and flexible regulatory framework along with providing a market vision will lead to gaining the investors' confidence and allowing local operations
	Advanced financial ecosystem (access to capital)	Ad hoc financing mechanisms and its products will meet the unique financing and operational needs for the development of various SMEs
	Localization & local content	Policies will allow local companies to take advantage of domestic demand (including government) and help them expand to build their own capabilities to become competitive
	Entrepreneurial culture and SME development	Promoting an entrepreneurial culture and providing motivation and ad hoc programs for startups and SMEs will enable the development of new businesses
Unlock KSA international trade	Export enablement	Facilitating regional and international exports will increase Saudi companies' access and growth, especially SMEs, due to external demand
	Trade policies and agreements	Favorable regional and bilateral trade agreements will integrate production throughout the region, promote cooperation and meet global demand more efficiently
	Quality System	Raising the Kingdom's standards to international levels will protect Businesses from low-quality imports and reduce barriers to export due to country-specific requirements
	KSA industry branding	Improving the perception of the quality of Saudi products will increase the demand for goods abroad, which encourages increased domestic production
Cultivate innovation and know-how	Support of Global M&A, JV and international partnerships	Attracting global industry leaders to the Kingdom through mergers and acquisitions/joint ventures will import knowledge and develop local industry
	Talent development and attraction	Gaps associated with scarcity of knowledge and skills will be filled through highly skilled local and global talents through training programs, improved livelihood, etc.
	Applied R&D and innovation	Ad hoc research centers and companies will create new applications for existing capabilities and develop new technologies and products

06

National Industrial Strategy

Partnership with the Private Sector and Investment Opportunities

The NIS seeks to enhance efforts to improve the investment environment to attract investments and ensure its Local expansion and growth. The Strategy also depends on the private sector in activating and investing in the segments to attract investments close to 1 trillion Saudi riyals through more than 814 industrial opportunities.

The strategy is also keen to have the private sector represented in the governance through the Industrial Council and other councils and committees.

Interim plans were developed to activate the targeted groups segments taking into account current capabilities, required technologies, and qualification of the human capital to attract 814 opportunities with investment size reaching 979 billion Saudi riyals by 2035.

195
opportunities

Accelerated launching 2022-2025

Groups of the segments that have current capabilities or depend on strategic partnerships

285
opportunities

Diversity and Prosperity 2026-2029

Developing groups of segments to achieve sustainability in growth and build qualitative capabilities

334
opportunities

Entering into new sectors 2030-2035

Groups of the segments that depend on localization of advanced or emerging technologies

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An Industrial Nation
National Industrial Strategy

07

Sub-Sector Strategies

07

Sub-Sector
StrategiesPetrochemical
Industry

Petrochemical Industry

The Kingdom enjoys unique position through which it can benefit from its natural resources, technical capabilities, and production capabilities to maintain its global leadership in the petrochemical industries and expand in final value chains to ensure maximization of the economic and social impact and enhancement of the industrial supply chains in the Kingdom.

The petrochemical industries include several sub sectors including basic petrochemicals, intermediate petrochemicals, and specialty and conversions petrochemicals. Enablers and initiatives were identified to develop and enable the sector under the umbrella of the National Petrochemical Strategy under the leadership of the Ministry of Energy and in alignment with the NIS through identifying the most prominent enabling initiatives and the required governance model to ensure the integration of the petrochemical supply chains with the needs of the downstream industries (specialty chemical formulation, and plastics and Rubber conversion).



07

Sub-Sector
StrategiesSpecialty
Chemical
Formulations

01 The importance of the specialty chemical formulations sector:

Building on its existing capabilities in Basic petrochemicals and some Intermediate petrochemicals, KSA is well positioned to further strengthen its position in the Specialty Chemical Formulations sector by developing and building a sustainable sector to become a global and regional leader. Specialty Chemical Formulations represents an attractive opportunity for the Kingdom for two main reasons:

- First, the industry can contribute to increasing localization, not only within the Chemicals sub-sectors but also in adjacent industries (e.g., Building Materials, Food Processing, Pharmaceuticals).
- Second, Specialty Chemical Formulations has a strong value-adding potential in terms of margins and employment creation compared to Basics and Intermediate Petrochemicals; KSA could leverage the growth of Specialty Chemical Formulations to attract talent and technologies.

02 Market and Trends:

Global Market

The global Chemicals market is expected to grow at a 3.7% CAGR, doubling production volumes from 1,870 million tons per annum in 2020 to 3,867 million tons per annum by 2040. The Chemicals sector is also expected to be a demand driver for oil and gas, gaining share from all other sectors. While oil demand continues to grow, it is expected to peak by 2040, making chemicals a greater area of focus for oil and gas producers.

03 KSA market

Chemicals growth in KSA is mainly focused on the initial stages of the Petrochemical value chain, being a global leader in Basic Petrochemicals and in some selected Intermediates, but with small downstream presence and molecular gaps that limit growth in many chemical chains and its applications. Where developing Specialty Chemical Formulations segments integrated with existing and proposed growth in Basic and Intermediate Petrochemicals will allow the Kingdom to capture the added value of a knowledge-driven industry, with much more relevance in terms of skills and technology transfer to local players. Competence and value drivers vary along the chemical chains, and downstream chemical industries are drivers of employment creation and capabilities development.

07

Sub-Sector Strategies

Specialty Chemical Formulations

Competence and value drivers along the chemicals industry's value chain

01

Raw materials

- Trading flows imbalances (volume allocation).
- International price references and spreads.
- Local demand balances and committed offtakes
- Flexibility in the allocation (molecule optimization).

02

Basic Petrochemicals:

- Basic technology (licenses) and process knowledge.
- Total cash cost and total delivered with a given technology and supply chain set up.

03

Intermediate Petrochemicals:

- Downstream potential of the derivatives produced.
- Medium flexibility in production (scheduling, ability to swing portfolio with the same asset).
- Raw materials supply competitiveness (level of integration).

04

Specialty Chemical Formulations:

- Formulation capabilities and recipes.
- Maximum flexibility of assets (batch production, complex scheduling)
- Technical assistance.

05

Plastics and Rubber Conversion, and end-applications

- Proximity to end users (OEMs in tiering models, consumer goods and healthcare players).
- Ability to manage wide portfolios within a given technology or chemicals family.

07

Sub-Sector Strategies

Specialty Chemical Formulations

Summary of Key Specialty Chemical Formulations trends and potential implications for National Industrial Strategy

Segment trends	Implications for National Industrial Strategy
Shifts to tailored end-user products	<ul style="list-style-type: none"> - The shift in end-user demand towards more technical assistance across all applications - tailored end products restrict bulk production and increase the dependance on proprietary formulations.
Stronger intellectual property rights, formulation, and licensing protection	<ul style="list-style-type: none"> - Companies are more protective of their Intellectual Properties and less eager for technology transfer, pushing the industry into consolidation of players (JVs and acquisitions).
Focus on sustainability	<ul style="list-style-type: none"> - Set regulations and ambitious objectives to reduce waste generation and increase recycling efforts. - Waste management costs challenge producers and call for partnerships and schemes to afford required services
Disruption of global trade	<ul style="list-style-type: none"> - Proliferation of tariff and non-tariff barriers for chemicals is key for selfsufficiency (i.e., monomers availability) and boosting domestic producers in developing regions.

07

Sub-Sector Strategies.

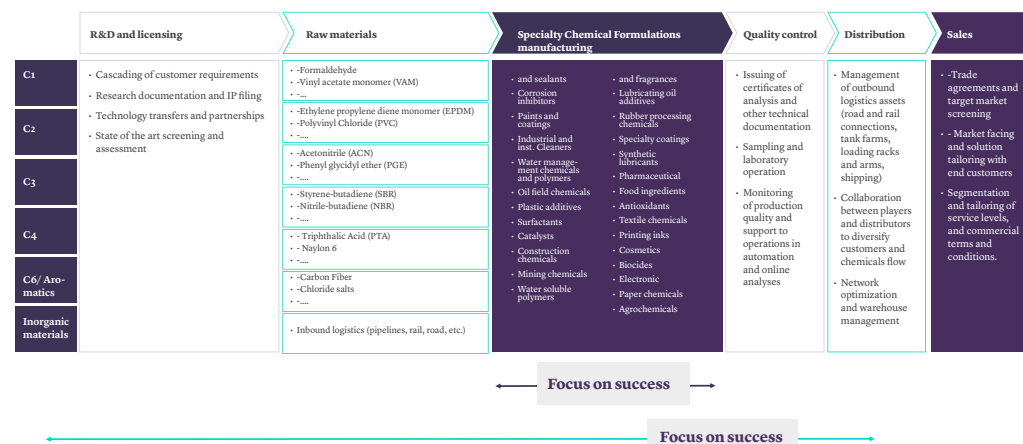
Specialty Chemical Formulations

01

Segment Selection:

The value chain for Specialty Chemical Formulations considers process and product life cycle, from R&D to distribution and sales. The focus of R&D and technology is on formulation and application knowledge, including technical assistance to end users. Some intellectual protection is filed to cover new applications of certain formulations or new routes and configuration of production processes, but to a large extent technology and innovation are centered in the abovementioned formulation and technical collaboration with end users. Raw materials are Basic, Intermediate, conversion and specialty Petrochemical molecules that in some cases are common to multiple applications. The subsector itself is segmented based on the specific application, with a generally accepted classification that has been adopted and adapted to define 30 distinctive segments in NIS. Distribution is more complex than in Basic, Intermediate, conversion and specialty Petrochemicals, given the average volumes and the portfolio, formulations, and grades complexity. The logistics are also different, smaller in volumes and requiring specific services and packaging types. Sales and quality control are closely linked to the technical functions, as part of the discussed relevance of the tailored manufacturing and technical support to customers.

Specialty Chemical Formulations value chain



The Specialty Chemical Formulations assessment is inspired by NIS strategic objectives aiming at expanding global and regional reach by leveraging existing capabilities. To become a regional integrated export hub for Specialty Chemical Formulations, the ability to integrate with raw materials locally was studied, along with the availability of local technology and licenses (with or without joint venture requirements) and the current base of manufacturers and global players for each segment. To contribute to expanding global leadership, global/regional growth in each application was analyzed, along with resilience of global trends.

07

Sub-Sector Strategies.

Specialty Chemical Formulations

A total of 30 Specialty Chemical Formulations were assessed with 20 applications filtered for their potential to assist KSA's growth.

Specialty Chemical groups analyzed and prioritized*

Water management chemicals & polymers	Industrial and inst. Cleaners	Paints and Coatings	Corrosion inhibitors	Adhesives and sealants
Construction chemicals	Specialty coatings	Surfactants	Rubber-processing chemicals	Oil field chemicals
Water soluble polymers	Flavors & Fragrances	Synthetic lubricants	Pharmaceuticals	Mining chemicals
Antioxidants	Plastic additives	Food ingredients	Catalysts	Lubricating oil additives
Cosmetics chemicals	Printing inks	Specialty polymers (specialty films)	Nutraceutical ingredients	Flame retardant
Agrochemicals	Paper chemicals specialty	Electronic chemicals	Biocides	Textile chemicals

Legend of used terms

- Specialties prioritized
- Other chemicals
- Potential for global reach
- Important for national resilience

* Oil field chemicals, water management chemicals, industrial & inst. cleaners, catalysts and construction chemicals have been considered in the National Petrochemical Strategy. These molecules will be localized through the petrochemicals sector split governance

07

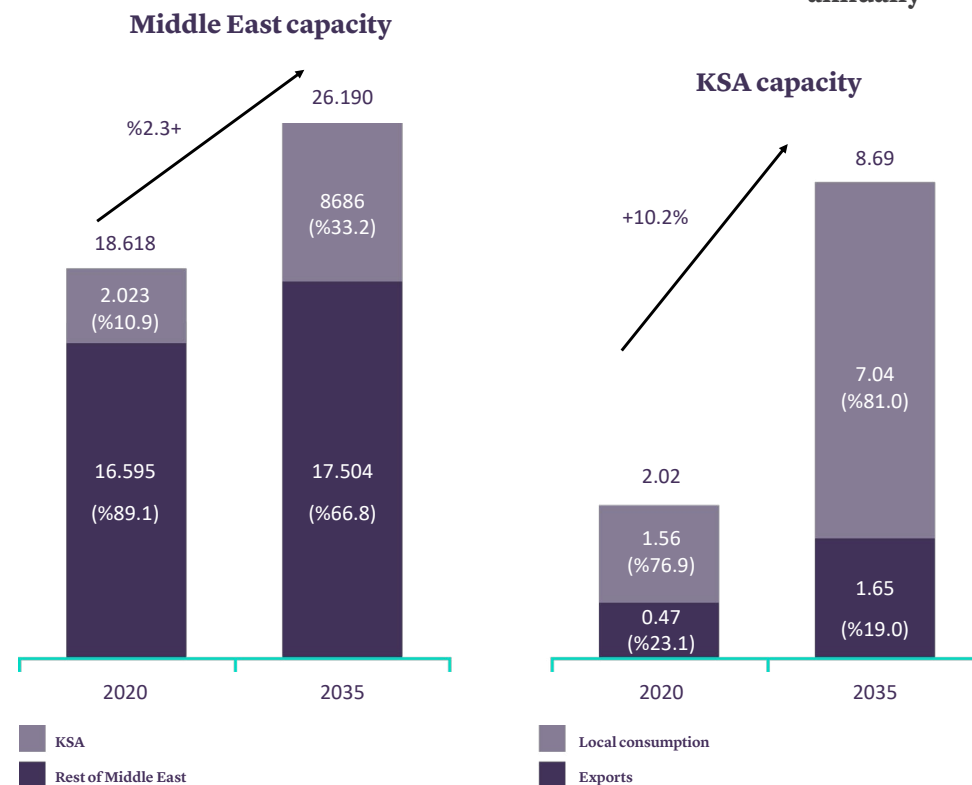
Sub-Sector Strategies

Specialty Chemical Formulations

KSA's Specialty Chemical Formulations growth is expected to outpace the moderate 2.3% CAGR growth forecast for the MEA region. KSA's Specialty Chemical Formulations capacity plan is to grow by 6.7 million tonnes per annum (MTPA) through 2030, up to 8.7 MTPA. By 2035, KSA's Specialty Chemical Formulations sector will have gained 22% of the regional market share. In terms of revenue, this represents an additional SAR 93.5 bn annually.

It should be noted that the selection of the specialty segments is based on priority inputs from the industrial investor's point of view. Considering that the industrial sector's comprehensive enablers support all specialty families even those that have not been selected.

Current and projected capabilities for the Specialty Chemical Formulations Industry:



6.7

million tons
Annual Growth

93.5

billion riyals additional revenue
annually

07

Sub-Sector Strategies

Plastics and Rubber Conversion

Plastic and Rubber Manufacturing Products Sector

01

The importance of Plastics and Rubber Conversion sector

Leveraging its existing capabilities in upstream chemicals, KSA is well positioned to develop and build capacity in Plastics and Rubber Conversion to become a regional and global leader. The Kingdom is a global leader in the production of resins for the conversion industries, in particular polyolefins, but only a fraction (as low as 10%) of this production is consumed locally. A similar situation will happen in other Conversion segments if downstream capacities are not developed. In elastomers, the Kingdom is starting to produce some monomers and fillers that are mostly exported and will continue expanding the portfolio of basic molecules, with just 8% of the non-tires conversion localized and with no tires manufacturer in the country. An identical situation happens in the case of the polyurethanes. Conversion activities, together with specialty chemical formulations, drive the margin capture and the employment creation in the Chemicals industry. Plastics and Rubber Conversion therefore represents an attractive opportunity for the Kingdom for three main reasons:

- The industry is witnessing increased global and regional demand that the Kingdom can leverage to capture volumes bringing scale to grow to a relevant regional and global market share.
- Plastics and Rubber Conversion can contribute to increasing localization in the supply chains of adjacent industries (e.g., Automotive, Food packaging, Construction).
- The sub-sector has a stronger value-adding potential than upstream chemicals (Basic, Intermediate, Conversion and Specialty Petrochemicals), which KSA could leverage to attract different profiles of international players to bring knowledge and technologies to the Kingdom.

07

Sub-Sector Strategies

Plastics and Rubber Conversion

02

Market and Trends

Global Market

The global Chemicals market is expected to grow at a 3.7% CAGR, doubling production volumes from 1,870 million tons per annum in 2020 to 3,867 million tons per annum by 2040. The Chemicals sector is also expected to be a demand driver for oil and gas, gaining share from all other sectors. While oil demand continues to grow, it is expected to peak by 2040, making chemicals a greater area of focus for oil and gas producers.

KSA market

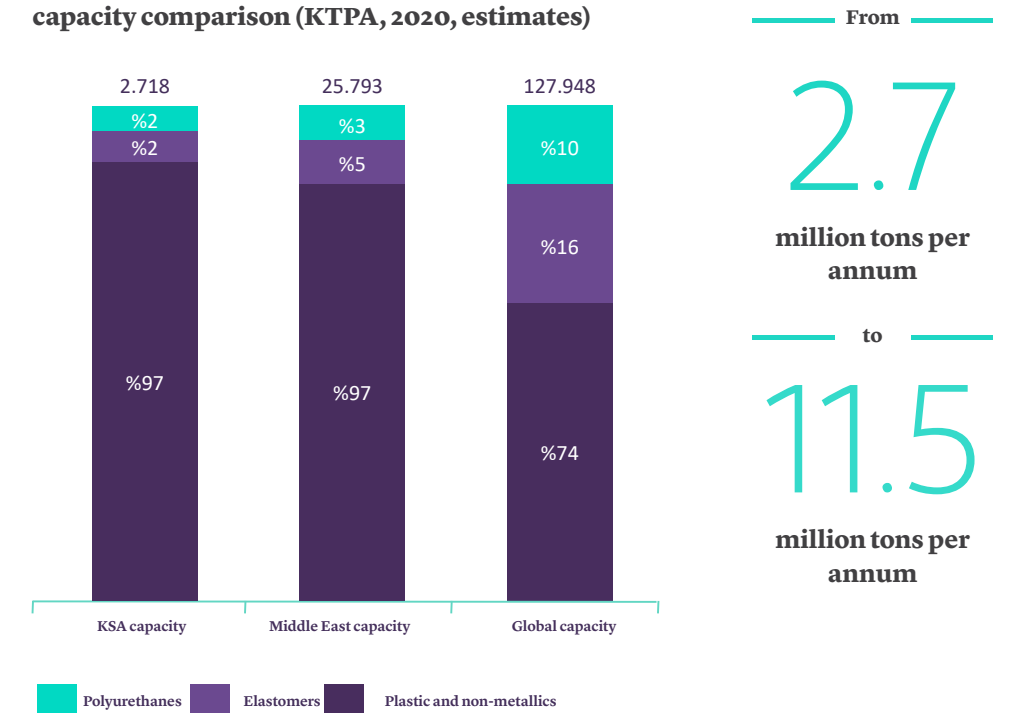
In Plastics and Rubber Conversion, KSA currently captures 2.1% of the global market and 10.5% of the regional MEA market. Current activity is focused on plastics. There is a limited development of elastomers conversion, with just 40 kilo tons per annum (KTPA), despite a total imported demand of tires and elastomers components in finished goods of close to 1 MTPA. A similar situation happens in polyurethanes, with only four local companies that are able to formulate and run system houses, processing small amounts. The regional market is mostly dominated by imports, with a clear opportunity for KSA to substitute some share of these. Elastomers and polyurethanes represent a localization and growth opportunity given the change in feedstock mix and technology configuration in Upstream Petrochemicals, which will make the building blocks needed by these segments much more available. KSA's Chemicals sector already has a mature Plastics and Nonmetallics segment, but there are still growing categories that can be developed to cover the demand gap (i.e., engineering plastics in applications such as medical equipment parts and electrical components, automotive parts, extension of non-metallic to sectors beyond energy and utilities).

07

Sub-Sector Strategies

Plastics and Rubber Conversion

Global, Regional and KSA Plastic and rubber conversion capacity comparison (KTPA, 2020, estimates)

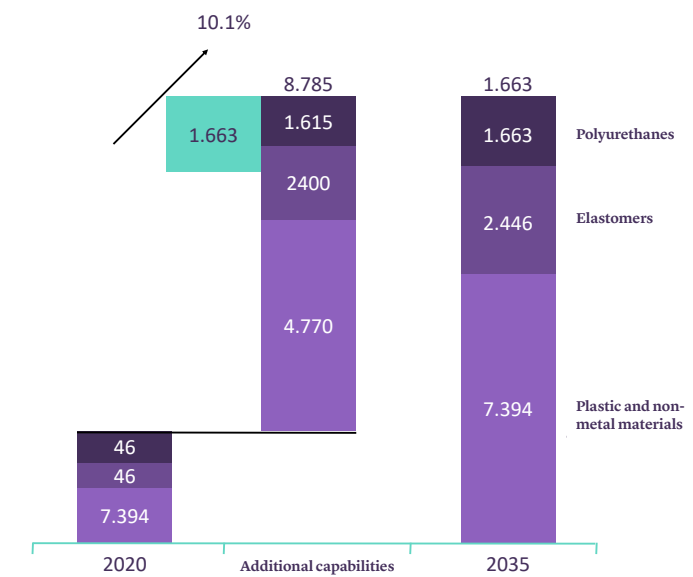


Additional capacities in NIS's Plastics and Rubber Conversion portfolio will increase total volumes across the three segments from the current 2.7 MTPA up to 11.5 MTPA.

(From) 2.7 million tons per annum to 11.5 million tons per annum.

Current and additional capabilities in Plastics and Rubber Conversion sector (KTPA).

Current and additional capabilities in the plastics and rubber manufacturing products (kilotons per annum)



07

Sub-Sector Strategies.

Plastics and Rubber Conversion

Summary of major trends in Plastics and Rubber Conversion and possible impacts on the National Industrial Strategy

Trends of the Sector	Potential implications for NIS
Shifts in end-user applications	<ul style="list-style-type: none">- The shift in end-user demand towards healthcare and consumer goods- The move to lightweight materials favoring non-metallics
Circular economy	<ul style="list-style-type: none">- Set regulations and ambitious objectives to reduce waste generation and increase recycling efforts- Circular economy putting commodity and packaging plastics under pressure
Growing emphasis on research and product development in new segments	<ul style="list-style-type: none">- Develop or acquire technology and processes to satisfy the internal and regional demand for new products in non-metallics, elastomers and PUs
Disruption of global trade	<ul style="list-style-type: none">- Proliferation of tariff and non-tariff barriers for chemicals is key for selfsufficiency (i.e., monomers availability) and boosting domestic producers in developing regions.

07

Sub-Sector Strategies.

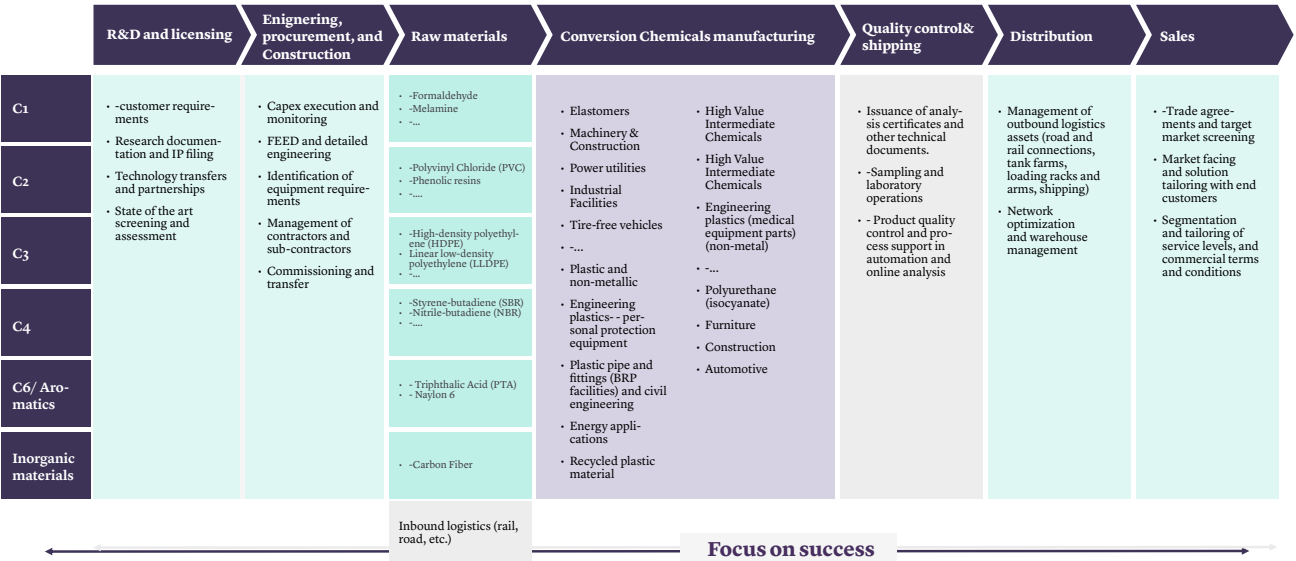
Plastics and Rubber Conversion

Plastic and Rubber Manufacturing Products Sector

03 Segment Selection:

The Plastics and Rubber Conversion value chain considers the full process and product life cycle, from R&D to distribution and sales. Similar to the case in Specialty Chemical Formulations, solutions tailored to some customer segments are key drivers of value. There are elements related with formulation and properties and others related to the physical design of the end plastics, elastomeric, composite or urethane-based parts.

Better to add “Plastics and Elastomers Conversion value chain” before the value chain.



07

Sub-Sector Strategies

Plastics and Rubber Conversion

The Plastics and Rubber Conversion segments assessment is inspired by the NIS strategic objectives aiming at expanding global and regional reach and leveraging existing capabilities. To contribute to becoming a regional integrating export hub, Plastics and Rubber Conversion has not only an intrinsic potential but also the ability to enable other sectors by supplying parts and materials needed by them (e.g., construction and civil engineering, automotive, aerospace, medical devices and consumables). Integration with raw materials locally was studied at the Upstream Petrochemicals, and segment levels. Availability of local technologies and licenses (with or without JV requirements) was also assessed, and additional inputs from the private sector on this point was gathered at a segment level. To contribute to expanding global leadership, global/regional growth in conversion products has been analyzed along with resilience to global trends. A total of 20 Plastics and Rubber Conversion subsegments and applications have been selected as priority. NIS portfolio and capacities include important considerations related to the circular economy trend, adding 540 KTPA of recycles. Similarly, it reflects the growth of non-metallic materials in energy and utilities applications and the expected slower expansion of these materials into other sectors. It proposes accelerated growth in elastomers and polyurethanes, aiming to make the Kingdom a global leader in both segments, materializing its right to win based on the position that the country's producers will play in the upstream Petrochemicals portfolios and also based on ongoing initiatives and local private sector companies' focus on these segments.

07

Sub-Sector Strategies

Plastic and Rubber Conversion

Prioritized Plastics and Rubber Conversion segments:

01

Plastics and non-metallics

- High Value Intermediate
- High Value packaging
- Recycling Plastics
- Engineering plastics (Protective Gear)
- Engineering plastics (Electrical Component / thermosets)
- Engineering plastics (automotive parts)
- Engineering plastics (sports and recreation)
- Engineering plastics- medical equipment parts
- Energy applications
- Plastic pipes and fittings (GRP Utilities and civil engineering)
- Construction (Plastic pipes and Fittings)

Elastomers

- Tires
- Machinery and construction
- Power utilities
- Industrial
- Automotive non-tires

Polyurethanes

- Polyurethanes (furniture)
- Polyurethanes (automotive)
- Polyurethanes (construction)

The proposed growth in Plastics and Rubber Conversion of over 8.8 MTPA, which wouldbring total capacity up to 10.5 MTPA, means that the sub-sector is expected to almost quadruple its annual growth in global capacity and gain a regional leading role in plastics and a global position in elastomers and polyurethanes markets by 2035.

07

Sub-Sector
Strategies.

Food Processing

Food Processing

01

The Importance of the Food Processing

- This sector plays a key role in achieving the resilience of food supply chain and has an excellent preference for transition to the secondary phase of manufacturing due to the presence of strong conglomerates and private companies with expansionary potential in key sectors (such as cheese, dairy and seafood industries).
- There is a large regional and global market opportunity, and KSA has significant potential in both the domestic and regional food-and-beverage (F&B) markets, with expected growth across all product segments
- a pivotal sub-sector for national resilience; building on lessons learned from the COVID-19 pandemic
- Finally, there is increasing integration of tech know-how and skills in this sub-sector that is developing trained, skilled workers who add unique high value to products.

07

Sub-Sector
Strategies.

Food Processing

02

Market and Trends

The Food Processing market is divided into 9 key segments: Red Meat; Poultry; Dairy; Seafood; Dates; Fruits, Vegetables and Nuts; Confectionery; Animal and Vegetable Oils; and Beverages.

9

Segments

Global market

The global F&B market was valued at USD 6.27 tn in 2019 and is expected to grow at a CAGR of 6% until 2030, when it will reach USD 12 tn. All segments in the F&B global market are expected to grow steadily, with the largest segment, Fruits, Vegetables and Nuts, growing at a CAGR of 6.1% through 2030. The 3 core drivers of this noteworthy market growth are the increase in personal disposable income, increase in caloric intake in the developing world, and population growth.

Regional market

The regional F&B market is experiencing a similar market trend, growing at a CAGR of 7% from USD 263 bn in 2019 to USD 562 bn by 2030. All segments in the regional F&B market are expecting steady growth, with the largest segment, Confectionery, expecting the most substantial growth at a CAGR of 8.3%. In terms of trade, KSA is the top importer of Dairy (secondary processed dairy in form of cheese, yogurt or butter), and Confectionery, where its largest import market is the UAE. Morocco is the region's top exporter of Seafood, while Turkey is the top exporter of Fruits, Vegetables and Nuts, Confectionery, and Animal and Vegetable Oil

KSA market

At the local level, forecasts indicate that the food and beverage market grew from 154 billion Saudi riyals in 2019 to 214 billion Saudi riyals in 2030, at an annual growth rate of 3%. Among the reasons behind this growth, the increase of the consumers' spending on food and beverage (an increase in the rate by %1.4) and population growth (an increase in the rate by 1.73%). These drivers are predicted to push steady growth across all product segments through 2030.

07

Sub-Sector
Strategies.

Food Processing

Production, consumption and trade of essential food segments



- Production in thousand ton
- Consumption in thousand ton
- Trade balance (Million USD)

07

Sub-Sector
Strategies.

Food Processing

Summary of key Food Processing trends and potential implications for National Industrial Strategy

Sub-sector Trends	Potential Implications for NIS
Growing focus on national resilience and food security	<ul style="list-style-type: none"> National resilience in essential food segments as a priority to ensure national security due to COVID.
Rapid development of agricultural technologies	<ul style="list-style-type: none"> Proliferation of hydroponics, advanced irrigation systems, industry 4.0 applications that make growing fruits and vegetables feasible in KSA's hot and dry environment Primary processing segments can use select locally grown agricultural products and reduce the sourcing costs
Increased investment in cultured meat	<ul style="list-style-type: none"> Attracting investments in cultured meat as an alternative to animal farming, and a sustainable way to increase food security, particularly in red meat and poultry.
Integration across the value chain	<ul style="list-style-type: none"> Proliferation of AgTech parks reduces the factor and transactional costs for primary and secondary processing segments The integration to advanced logistics infrastructure and cold chains increasing the potential for playing in regional and global markets
Increased demand for organic, healthy, and innovative products	<ul style="list-style-type: none"> Increasing demand for fruits and vegetables due to the shift to vegetarian and vegan diets Rising demand for innovative packaging due to busy and individual lifestyles The shift of secondary processing to organic, raw and alternative ingredients, such as date-based confectionery products

07

Sub-Sector Strategies.

Food Processing

03

Segments Selection

A methodology was adopted to define the food Processing sector’s value chain from production supplies to distribution. Since the National Industrial Strategy focuses on manufacturing activities, then only those segments that fall under the primary and secondary processing have been evaluated. As the KSA Food Processing Industry is well-established, all 18 segments under consideration were studied and none was deprioritized

Food Processing value chain

Value chains	Inputs	Production	Primary Processing	Secondary Processing	Distribution
Red meat	• Essential inputs • Fertilizers • Pesticide • Seeds	• Broiler	• Chilled/frozen red meat	• Processed red meat	• Warehousing
Poultry		• Livestock	• Chilled/frozen poultry	• Processed poultry	• Cold chains
Diary		• Aquatic food products	• Milk	• Cheese, yogurt, and butter	• Traditional vs. Modern Stores
Seafood	• Agrotech	• Plantation	• Frozen seafood	• Canned and processed seafood	• Local market vs. exports
Fruits, vegetables, and nuts	• Industry 4.0 • Smart farming, robots cleaners, the Internet of things and drones • Growing technologies • Hydroponics, irrigation technologies and soil technologies • Farming structures • Vertical farming, greenhouses	• Plantation	• Packaged vegetables	• Juices, sauces and functional food	• Mass vs. premium/healthy market
Dates		• Grains, Cereals and sugars	• Dates	• Date-based confect. & functional foods	
Confectionery		• Oil Seeds	• Flour, sugar, cocoa & coffee beans	• Confectionery	
Vegetable and animal oils		• Water	• Unrefined	• Refined oils	
Beverages			• Potable water	• Carbonated/sweetened beverages	

← Considered for how to win

Focus of the Strategy

→ Considered for how to win →

07

Sub-Sector Strategies.

Renewables

Renewables

01

The Importance of Renewables

The domestic market for Renewables is poised for growth due to the Kingdom’s ambitious objective to reach 50% of its energy mix used for power production through Renewables by 2030, KSA is reaching global records in terms of levelized cost of energy (LCOE) (e.g., The Shuaibah PV project achieved the lowest levelized cost of energy (LCOE) in the world at 1.04c/KWh, and the Sudair PV project is the single-largest contracted solar photovoltaic (PV) plant in the world with 1,500MW and has the second lowest production cost globally for solar PV electricity production at 1.24c/KWh). Beyond this ambitious utilization of Renewables in the domestic market, there is also a great opportunity to manufacture and export Renewables equipment to address the increasing needs throughout the MENA region.

In addition, KSA is one of the best locations worldwide for the production of solar energy due to its naturally sunny conditions, which will not only allow it to produce electricity from the sun at competitive cost but also will help maintain the supply of electricity in remote areas utilizing distributed generation. The Renewables industry is driven by innovation and R&D, which will attract a highly specialized workforce (e.g., R&D, batteries, energy storage, specialized manufacturing) that will serve not only Renewables but also help develop other industries.



07

Sub-Sector Strategies

Renewables

02

Segment Selection

The segments across the Renewables value chain were assessed for the three sources of Renewables energy aligned with the Ministry of Energy: Solar PV, CSP and Wind (onshore).

Renewables value chain

Renewables value chain	Key associated services	Manufacturing				Key associated services	
	Research and development	Raw materials	Components Manufacturing	Module manufacturing and assembly		Engineering, Procurement, and Construction	Operations and Maintenance
Wind Power	Wind R&D - Demand for raw materials have been captured by Metals Cluster	- Steel and Iron	-Tower	-Nacelle -Generator and gearbox assembly (including shaft) - Solar Modules - Solar cell and aluminum frames assembly - Concentrated Solar Power modules		- Engineering, consultancy, sourcing, installation (wind)	- Operations and Maintenance (wind)
		-Polymer	-Blades				
		- Fiberglass	-Gearbox				
		- Aluminum	-Generator				
Solar PV	-Solar R&D	- Poly Silicone	-Silicon ingots and wafers	- Energy Storage Solutions - batteries manufacturing		- Engineering, consultancy, sourcing and installation (solar and concentrated solar power)	- Operations and Maintenance (solar and concentrated solar power)
		- Steel	-Solar cells				
		- Ethylene vinyl acetate resins	-Balance of System components				
		-Glass, Aluminum, and Steel	-Mirrors				
Concentrated Solar Power	Concentrated Solar Power R&D		-Tubes				
			-Concrete rings				
			-Steel frames				

07

Sub-Sector Strategies

Aerospace

Aerospace

01

The importance of Aerospace industry

The development of the Aerospace industry Sub-sector will bring many benefits to the Kingdom:

- developing a base of manufacturers and service providers (mainly MRO) will allow KSA to tap into its domestic civil aviation market, which will continue to grow as Saudi Arabia opens up to travel and tourism; similarly, in military aviation there is also great potential given KSA’s defense spending
- the Aerospace industry promotes the creation of highly skilled professionals who typically lead the generation of ideas that are later applied to other sectors (e.g. aerodynamic).
- involvement in the Aerospace sub-sector builds technological know-how/ knowledge that creates opportunities in adjacent sectors.

Overall, the Aerospace sub-sector will increase national resilience and create rewarding jobs for Saudis.



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Sub-Sector
Strategies.

Aerospace

02

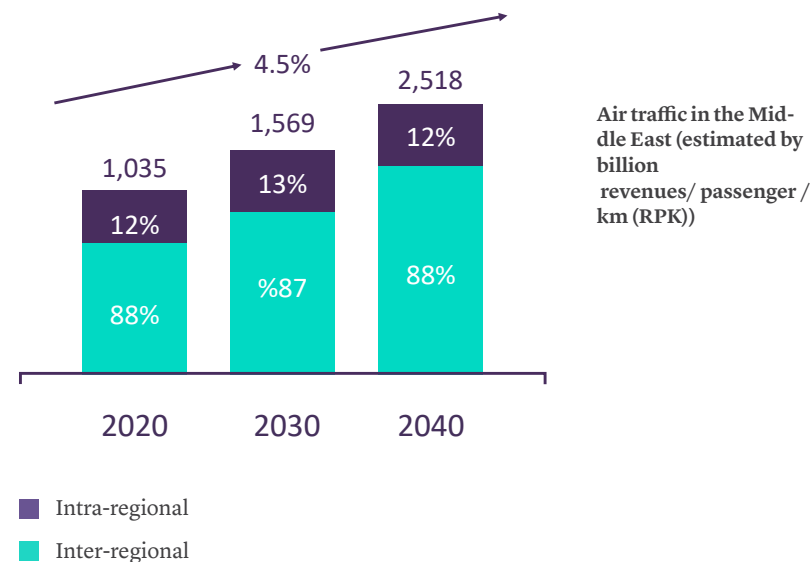
Market and Trends

Global Market

The global Aerospace manufacturing market is currently growing at 4% and is estimated to reach a value of USD 850 bn by 2030 driven by the increasing number of passengers worldwide (12,726 Billion revenue / kilometer / passenger by 2030). This growth is also driven by the need to replace old planes with new fleets, especially to adapt to new flying patterns that favor regional routes and smaller air carriers. By 2039, the global commercial fleet is expected to double from 25,900 to 48,400 aircrafts. Looking long-term, the value of the civil and defense aerospace market is expected to be USD 8.5 tn over the next decade. Both local and global defense markets will have enduring demand driven by geopolitical and security challenges.

Regional Market

Regionally, airline traffic growth in the Middle East is projected to increase by an average of 4.5% per year (vs. global growth of 4%), resulting in a USD 18 bn market by 2030. This growth is driven by the fundamental global drivers, supplemented by key regional drivers: tourism and transit, led by mega-projects like NEOM, the Qiddiya Project and the Red Sea Project. Moreover, the increase of tourism activities across different countries in the region will result in higher traffic flows. The air service market in the Middle East is also expected to grow to USD 725 bn, with a fleet size of 3,500 aircrafts by 2039 (versus 1500 in 2019). Most of the traffic in the Middle East is still intercontinental/ connecting traffic, which was hard hit by the COVID-19 slump. Intra-regional integration, along with greater inter-regional integration, is expected to support traffic flows.



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Sub-Sector
Strategies.

Aerospace

02

KSA Market

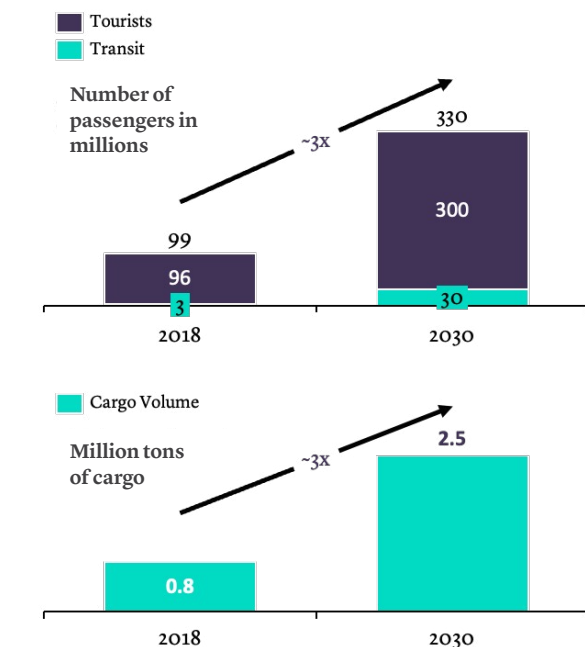
In KSA, commercial passenger demand is expected to triple from 99 mn in 2021 to 330 mn by 2030, driven by rising tourism and transit demand. Likewise, air cargo demand is estimated to grow from 0.8 mn tons in 2021 and reach 2.5 mn tons in 2030. To keep up with this growth in passengers and cargo, the current airfleet will need to double by 2030.

The domestic civil market has entered a new phase of rapid growth due to by infrastructure, connectivity and travel to the country. The Helicopter Company's purchase of Airbus helicopters and local airlines' fleet expansion of 100 Airbus A320 neo aircraft are two examples. The Kingdom's military market is also prominent (KSA is fifth in global defense spending) which includes 702 aircraft. The Aftermarket Service segment is prominent due to the large base of aircrafts based in KSA as well as the aircraft transiting through KSA airports, which will require MRO over the life cycle. Therefore, there is a need to build and maintain aerospace industry capability in the Kingdom.

Trends of the Aerospace Sub-sector shape many elements of this sub-sector and affect factories and service providers in the coming decades through:

- Changing travel patterns
- Emerging Aerospace markets
- Digital manufacturing solutions
- Carbon neutral options

The demand for civil aviation in KSA is expected to witness massive increases in line with tourism and shipping expectations



07

Sub-Sector Strategies.

Aerospace

Aerospace sub-sector Trends and Potential Implications for NIS

Trends of the Sector	Potential implications for NIS
Changing travel patterns/customer preferences generate new airlines	<ul style="list-style-type: none">The creation of new programs/ product lines(such as the new Boeing 7 × 7) provides opportunities to emerging companies in the industry supply chain.Locally, Saudi civil airlines are likely to modify their fleet components in order to improve routes and take advantage of the flexibility offered by smaller aircrafts.The transition to narrow-body aircraft is likely to affect spending on maintenance, repair, overhauling and associated capacity options.
Accelerating the adoption of digital technology in manufacturing (e.g. preventive maintenance)	<ul style="list-style-type: none">Adopting digital technologies represents an accelerated trend to support cost efficiency and profit margin performance.For example, preventive maintenance, Internet of things and sensors enable the collection of vast amounts of data to anticipate the aircraft's needs of maintenance operations, reduce unplanned maintenance, risks and operational costs.For example, 3D printing in aircraft contributes in timely replacement.
Emerging Aerospace markets at an accelerated pace (e.g. drones, satellites/space market)	<ul style="list-style-type: none">The rapidly growing drone and satellite markets are entering civil aviation, while previously limited to military operations (Saudi Space Authority is collaborating with the Ministry of Industry and Mineral Resources to develop the Aerospace sector).An opportunity to create new platforms through which the Kingdom can achieve leadership
Increased investments in the development of carbon neutral aviation options	<ul style="list-style-type: none">Given forward-looking aviation trends, carbon neutral investment options will continue to attract R&D efforts.The opportunity for the Kingdom to invest in R&D of new technologies related to carbon neutral aviation stands out here.

These trends and implications will create many opportunities for Saudi manufacturing plants to enter the Aerospace sub-sector.

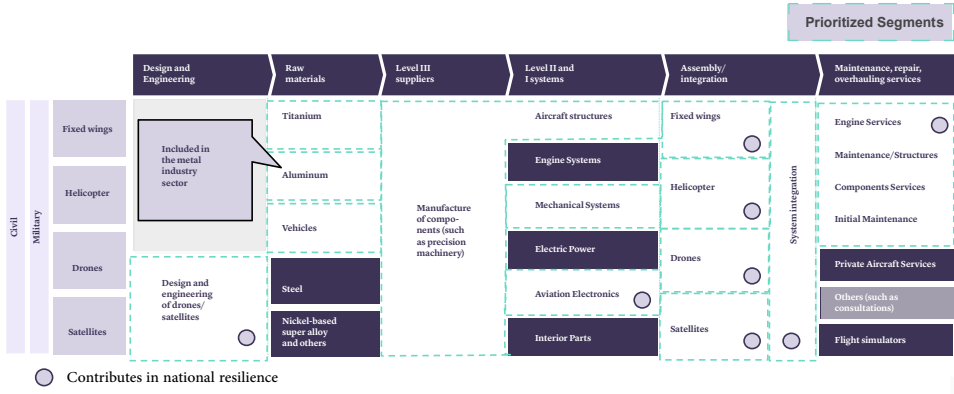
07

Sub-Sector Strategies.

Aerospace

03 Selection of Segments

Summary of selected Segments in the Aerospace industry sub-sector value chain



It is important to note that deprioritized segments can still be developed by any investor leveraging the cross-cutting enablers of the industrial sector. Deprioritized segments could be evaluated on a case-by-case basis and considered at later stages.



07

Sub-Sector Strategies.

Automotive

Automotive sub-sector

01 The Importance of Automotive sub-sector

Localization of automotive sub-sector is expected to bring significant benefits to the Kingdom:

- the sub-sector represents a highly attractive regional opportunity, as the light vehicles market is sizable and projected to grow at more than twice the average global rate during the next decade.
- the sub-sector will create strong downstream pull for other priority clusters (e.g., metals, chemicals) and contribute to the Kingdom's ambition to diversify away from oil.
- KSA is particularly well positioned to export to numerous nearby markets, particularly countries with no passenger vehicle manufacturer presence.
- Developing the Automotive sub-sector will attract a highly specialized workforce with a focus on higher value-add products (e.g., lithium-ion batteries), which will enrich the domestic pool of talent.

02 Market and Trends

The Automotive market is segmented based on vehicle classes and typically represented in two broad categories: Light Vehicles (passenger cars and light commercial vehicles weighing less than 6 tonnes and Medium & Heavy Commercial Vehicles (commercial vehicles weighting between 6 to 15 tonnes and more than 15 tonnes, as well as buses).

Global Market

The light vehicle sales worldwide was 76,876,764 vehicles in 2020, with a decline of 14% from the previous year due to the impact of the Covid-19 pandemic. By comparison, sales of medium and heavy commercial vehicles reached 3,216,524 vehicles in 2020. Similarly, the Automotive market can also be segmented by powertrain options, with four categories having been defined for the sub-sector: Internal Combustion Engine (ICE), Hybrid Electric Vehicle (HEV), Battery Electric Vehicle (BEV), and Fuel Cell Electric Vehicle (FCEV). As of 2020, close to 90% of Light Vehicles sales are ICE-based vehicles. However, a major shift toward alternative powertrain options has begun, mainly due to regulatory initiatives fostering EV adoption. By 2030, global sales of ICE-based vehicles are expected to drop below 50%, while sales of HEVs will top 30%, and sales of BEVs will capture 21% of the global market share.

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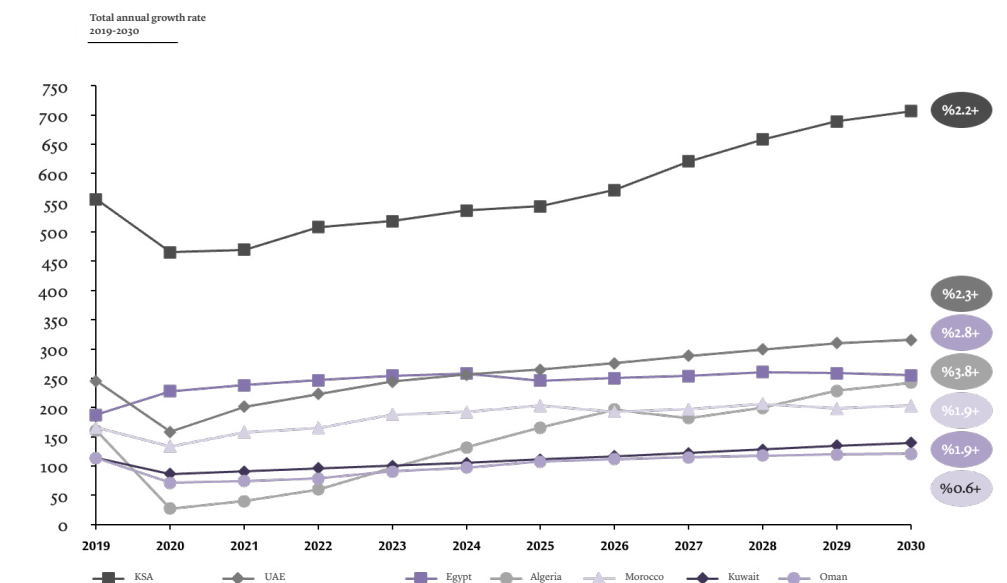
Sub-Sector Strategies.

Automotive

02 Regional market

Within the Greater Arab Free Trade Area (GAFTA) region, Light Vehicle sales are projected to increase by an average of 2.5% per year (compared to global growth of 1.2%) and will remain dominated by Saudi Arabia and the United Arab Emirates, with a combined market share of ~45%. The region saw Light Vehicle sales of 1,335,366 in 2020, a drop of close to 24% from the prior year, and are not expected to return to pre-COVID-19 levels until 2024. The transition toward alternative powertrain options is projected at a much slower pace within GAFTA, with ICE-based vehicles sales remaining close to 80% market share by 2030, mainly due to the region's abundant access to cheap oil. However, growth in HEVs and BEVs will accelerate post-2025 as lithium-ion battery costs continue to decrease, thereby increasing the appeal of EVs relative to ICE-based vehicles

Sales of light vehicles in the GAFTA by top countries



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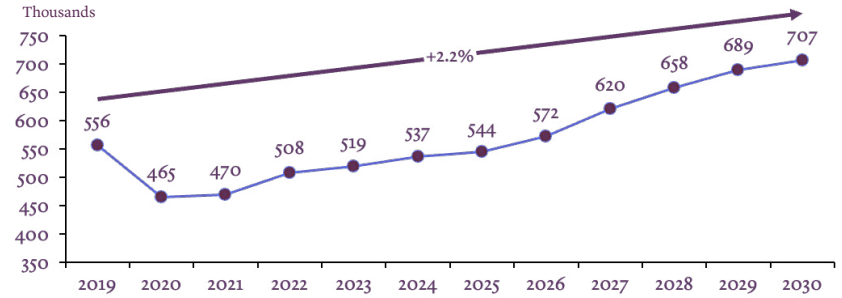
Sub-Sector Strategies.

Automotive

02

KSA market

Domestically, the Kingdom has seen its 2019 Light Vehicle sales volume slashed by double digits (-16%) due to the pandemic, with sales of 465,359 units in 2020. Saudi Light Vehicle sales will grow by 2.2% over the next decade but will be slow to recover from the pandemic and are not expected to return to pre-COVID-19 levels before 2026.



Sales of Saudi light vehicles will grow by 2.2% over the next decade, but will slowly recover from the pandemic, where it would not be expected to return to pre-COVID-19 levels before 2026.

Trends: Summary of major trends in the automotive sub-sector and their potential implications for NIS

Trends of the Sector	Potential Implications for NIS
Increased connectivity in vehicles	<ul style="list-style-type: none">Driven particularly by younger and more technically savvy generations, connectivity will become a key differentiator in the future with customers putting a stronger focus on convenience, a trend which could be particularly relevant to KSA due to its young population
Massive investments in self-driving technologies	<ul style="list-style-type: none">OEMs & tech companies are doubling down on funding and autonomous driving is expected to be at the heart of NEOM, but its wide use is still decades away due to remaining barriers in machine learning and self-driving software, regulations, and public acceptanceIn KSA, KAUST is at the forefront of developing this technology and launched its first self-driving vehicle in ٢٠١٩ with its campus shuttle

07

Sub-Sector Strategies.

Automotive

Trends: Summary of major trends in the automotive sector and their potential implications for NIS

Trends of the Sector	Potential Implications for NIS
Increasing popularity of shared mobility services	<ul style="list-style-type: none">Potential decrease in sales of new vehicles as customers reduce their ownership of cars and people prefer other transportation methods such as Uber, Careem, etc.However, KSA's removal of the long-standing ban on female drivers will have a counter effect as more women take to the road.
Accelerating growth for electric vehicles	<ul style="list-style-type: none">No BEV manufacturer presence in region presents opportunity for an OEM to establish first mover advantage and to become a regional leader to meet, although at a slower pace, the upcoming shift towards electric vehicles.
Increased use of lightweight materials in car composition	<ul style="list-style-type: none">Retirement of older cars in favor of newer cars with better and lighter materials will increase competition between OEMs (e.g., carbon fiber, high-end plastics, aluminum)
Moves toward Carbon-Zero agenda	<ul style="list-style-type: none">With no CO2 emissions, fuel cell electric vehicles (hydrogen-powered) could become a viable powertrain alternative over the long-term, particularly for long-haul heavy commercial vehicles, as TCO decreases and solution becomes more affordable



07

Sub-Sector Strategies.

Automotive

03 Segment Selection

Summary of Selected Segments in the Automotive Industry Value Chain

Segments	Relevant key activities	Manufacturing				Relevant key activities
	Tier 3 material suppliers	Tier 2 & Tier 1 Suppliers Component specialists & Parts Integrators		OEMs Manufacturing/assemblers		Distribution and after sales
		(1) Seating	Exhaust system	(21) Light Vehicles: Battery electric vehicles		Retailers
	Steel	(2) Plastic modules	Mirrors	(22) Light Vehicles: internal combustion engines		
	Aluminum	(3) Tires	Driver Controls	Light vehicles: fuel cells electric vehicles		Wholesalers
	Plastic materials	Fully built engine	(14) Instrument cluster	Battery Electric Commercial Vehicles		
		(5) External plastic fittings	(15) Wipers	Commercial vehicles with internal combustion engines		Maintenance centers
	Rubber	Suspension system	Brake system equipment	(26) fuel cells commercial vehicles		
		Consumables	Steering system			
		Drivetrain system	Lighting			
		(9) HVAC	(19) Glass			
	Glass	Fuel tank	(20) Lithium-ion batteries			

It is important to note that deprioritized segments can still be developed by any investor leveraging the cross-cutting enablers of the industrial sector. Deprioritized segments could be evaluated on a case-by-case basis and considered at later stages.



07

Sub-Sector Strategies

Maritime industries

Maritime Industries Sub-sector

01 The Importance of Maritime Industries Sector

Maritime Industries is important to the Kingdom, as it seeks to localize the shipbuilding industry and its related operations and maintenance and overhaul (MRO). Expectations indicate that by 2030, maritime Industries will contribute by 10 billion Saudi riyals to the GDP and create 32,000 jobs. **The importance of the maritime industries stems from the growing local demand, substitution away from imports, ambition to localize new industrial segments, and create opportunity for exports.**

Shipbuilding will enable the Kingdom to localize the manufacturing of commercial, naval and recreational ships by establishing a world-class hub (King Salman Complex for Maritime Industries) and attracting ship manufacturers and service centers to the Kingdom. It will also contribute to creating new high-value-add jobs for Saudi nationals. Accordingly, this will enable the Kingdom to diversify the economy through the localization of a new industrial segment where 90% of the Kingdom's demand is imported at the current state.

02 Market and Trends

Global Market

The global ship demand was estimated to be USD 201 bn in 2019. This can be further broken down into three segments: commercial vessels, naval vessels, and recreational vessels.

The first segment, commercial vessels, includes bulk carriers, LNG carriers, containers, offshore vessels, and cruise vessels. The market size of this segment in 2019 was estimated to be USD 79 bn or 181 mn deadweight tonnage (dwt). Commercial shipbuilding has suffered in recent years due to oversupply and a reduction in global oil trade. Investments have dropped by 43% in 2019 compared to 2013 figures, while the supply market is currently dominated by China, South Korea, and Japan, which own a combined 96% of total supply by volume.

The second segment, naval vessels, includes submarines, aircraft carriers, destroyers, patrol boats, and landing craft. This segment, on the other hand, is growing, with a total estimated market size at USD 89 bn in 2019. The top 40% of this supply is controlled by 4 players, while the remaining 60% is fragmented among smaller players.

The last segment, recreational vessels, includes yachts, superyachts, powerboats, and passenger ferries. This fast-growing segment had a market size estimated at USD 33 bn in 2019 and is expected to grow at a rate of 11.8% annually.

07

Sub-Sector Strategies

Maritime industries

02 Regional market

For commercial vessels, KSA is currently the largest buyer regionally with major demand coming from the Oil & Gas industry. The annual demand for KSA was 579 dwt, compared to 277 dwt for the UAE and 150 dwt for Oman. Currently most of the GCC demand is fulfilled by global leaders (South Korea, China, and Vietnam) while local production focuses on small ships. Most GCC countries have localized their ship repair needs, but KSA still relies on overseas capabilities for repair and maintenance.

Similarly, regional naval vessel demand is fulfilled by global shipbuilders with 2019-2028 demand estimated at SAR 198 bn. A total of SAR 81 bn has been awarded, but only SAR 14 bn went to regional shipyards while the remaining SAR 67 bn went to Germany, Italy, Spain, and France.

The Middle East and Africa recreational vessels market is currently estimated at USD 1.2 bn and is growing at 15.6% annually, representing the fastest growth among all regions

KSA Market

KSA is the largest commercial vessel buyer in the GCC, driven by the Oil & Gas industry, and has a total annual demand of 579 dwt. This demand is primarily driven by Bahri, which has an estimated demand of 400 dwt annually. KSA currently has limited repair capabilities, with an estimated repair spend of SAR 168 mn in 2017-2020.

KSA is also the largest buyer of naval vessels in the Middle East, with an estimated demand of SAR 82 bn between 2019-2028.

Finally, the recreational boat market is small relative to per capita but is expected to grow rapidly with the development of tourism and maritime infrastructure in the kingdom

Finally, the recreational vessel market is considered small compared to per capita income, with the potential for rapid growth through the development of the infrastructure of tourism and maritime industry in the Kingdom.

07

Sub-Sector
Strategies.Maritime
industries

Trends: The adjacent table shows several major trends of the maritime industry sector and their potential implications for NIS.

Trends of the Sub-sector	Potential Implication for NIS
Market consolidation in commercial shipbuilding	<ul style="list-style-type: none"> Increasing alliances between shipbuilders (China, South Korea, and Japan meet 96% of the market need) in response to a shrinking market and declining profit. Establishing local content requirements for future purchases to attract investors. Harnessing local market demand to transform into a regional shipbuilding complex.
The importance of government incentives	<ul style="list-style-type: none"> Harnessing the strategic location and level to establish an industrial sector that meets the growing local and regional demand. Government incentives are essential to establish a high level and ensure the continuity of the industry through incentives (including funding, vocational training, and infrastructure)
High demand for recreational boats in the Kingdom	<ul style="list-style-type: none"> The growth of marine tourism in the Red Sea leads to the possibility of localizing the recreational ships Taking into consideration the requirements of local content to ensure localization.
Asset intensive industry	<ul style="list-style-type: none"> Increasing the alliance between specialized production lines such as cruise vessels, naval vessels, oil and gas commercial vessels Realize cost synergies by leveraging scale

Summary of the main trends of the maritime sub-sector sector and their potential implications for NIS

03 Selection of Segments

The value chain for the shipbuilding industry includes R&D and design, manufacturing of key components and parts, assembly, system integration, MRO, upgrades, and disposals. KSA is active in few parts of the naval ship value chain and there is a large potential to further localize the value chain in the Kingdom.

07

Sub-Sector
Strategies.Pharmaceutical
and
Biopharmaceutical

Pharmaceutical and Biopharmaceutical sub-sector

01 The Importance of the Pharmaceutical and Biopharmaceutical industry

The Pharmaceuticals and Biopharma industries are expected to benefit from the ambitious healthcare transformation program and the government's commitment to support local capabilities through local content policies. The Kingdom is the largest market in the region, with a market value of SAR 28 billion in 2020. The biopharma industry is still growing globally, and the majority of players are small-sized highly specialized companies. The Kingdom has an opportunity to develop the Biopharma industry at early stages to cement its role and leadership in the region and leverage its current local capabilities in the conventional pharmaceuticals through vertical integration toward higher value-added segments. Finally, as ever-evolving global scenarios threaten supply chain integrity, essential medicine and products of national importance (e.g., vaccines, blood) are critical to ensure sustainable supply for the Kingdom

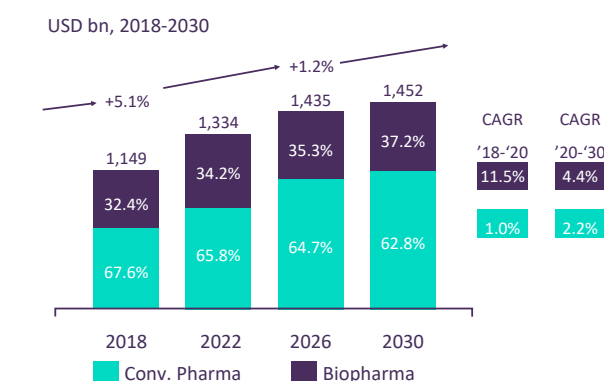
02 Market and Trends

The pharmaceutical market is usually divided into two main categories: Conventional pharmaceuticals and biopharmaceuticals

Global Market

Globally, the Pharmaceuticals market size reached USD 1,149 bn in 2018 and while spending is expected to increase considerably between the years 2020 and 2022 due to the COVID-19 pandemic, it is expected to return to pre-COVID outlook post-2022 and gradually increase to reach USD 1,450 bn by 2030. Biopharmaceuticals are forecasted to increase their global market share of pharma spend from ~32% in 2018 to ~37% by 2030. On the other hand, spending on Conventional Pharmaceuticals reached USD 777 bn in 2018, constituting a 68% market share, but the growth rate is expected to decline in response to global pharmaceutical companies shifting their focus toward Biopharmaceuticals. As such, their market share will drop to 63% by 2030 with a CAGR of only 1.8% over the forecasted period 2018-2030.

- 1- Pharmaceutical products from organs or containing living organs
- 2- Pharmaceutical products derived from chemical components



07

Sub-Sector
Strategies.Pharmaceutical
and
Biopharmaceutical

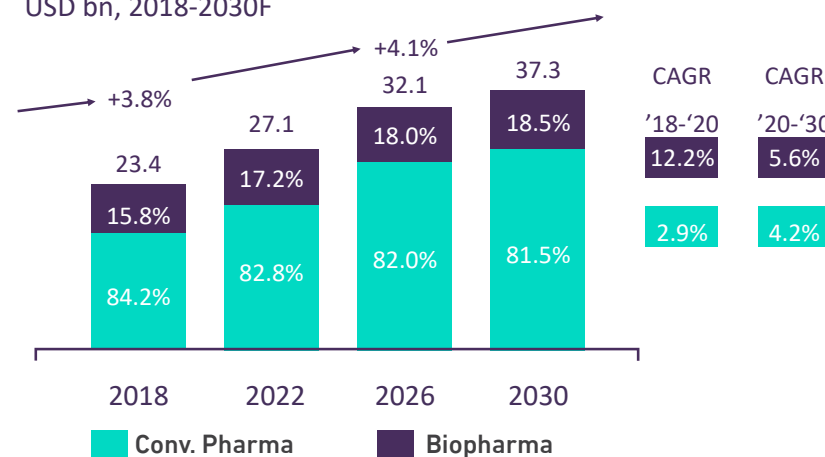
02

Biopharmaceuticals are witnessing higher adoption rates in developed economies, highlighting a shift toward the new technology. This is supported by advanced regulatory frameworks allowing adoption of Biopharmaceutical products as well as high patient awareness toward their efficacy, standards, and quality.

Regional Market

The MEA region's Pharmaceuticals market is expecting a steady growth of 4% between the years 2018 and 2030, with spending growing from USD 23.4 bn in 2018 to USD 37.3 bn in 2030. The market split between Biopharmaceuticals and Conventional Pharmaceuticals is heavily weighted towards the latter. Whereas the spending on Conventional Pharmaceuticals totaled USD 19.7 bn in 2018, Biopharma spending only reached USD 3.7 bn in the same year. But in the period between 2020 and 2030, the spending on Conventional Pharmaceuticals is expected to experience a slower growth rate of 4.2% as opposed to 5.6% growth rate in Biopharmaceuticals

USD bn, 2018-2030F



The heavy tilt towards Conventional Pharma stems from the higher cost sensitivity for related products. Generics are the next focus of interest for the MEA region with higher adoption rates expected till 2028 (~5.6% CAGR)

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Sub-Sector
Strategies.Pharmaceutical
and
Biopharmaceutical

02

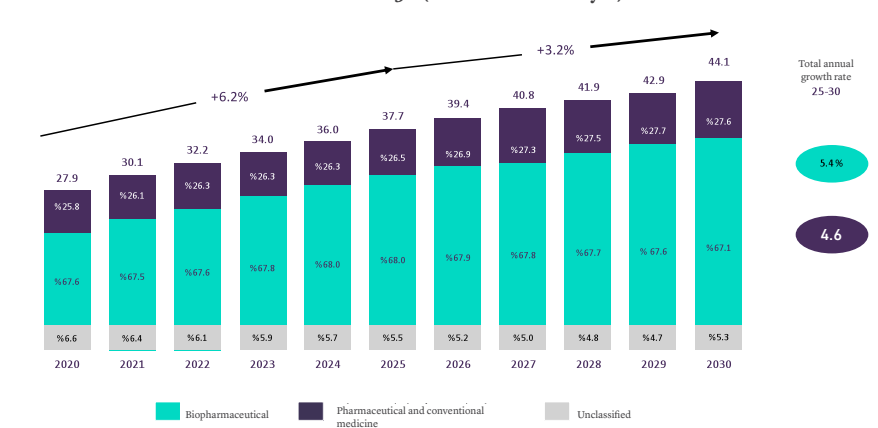
KSA Market

Current market dynamics forecast that the KSA market will continue its reliance on Conventional Pharmaceuticals, with increased adoption forecasted for biologic drugs by 2030.

The Kingdom's Pharmaceuticals market reached SAR 27.9 bn in 2020, with Conventional Pharmaceuticals at a ~68% share, Biopharmaceuticals ~26%, and the remaining ~6% unclassified. Generic and patented drugs each have a 50% share in the KSA Conventional market and are expected to retain this even split while reaching an overall market size of SAR 7.9 bn by 2030.

The national shift of focus toward biotechnology is encouraged by national initiatives to build an enabling infrastructure for the sector ecosystem and future growth (e.g., National Biotechnology Strategy, PIF investments). The Pharmaceuticals market is expected to reach SAR 44.1 bn by 2030, with Biopharmaceuticals representing 27.6% of this amount.

The value of the Saudi pharmaceutical market between 2020 and 2030 (in billion Saudi riyal)



KSA is expected to be the largest consumer of biologic drugs in the region, while local production is focused on generics F&F and secondary packaging. Due to limited capabilities, local production covers ~25% of demand while ~75% of Pharmaceuticals are imported.

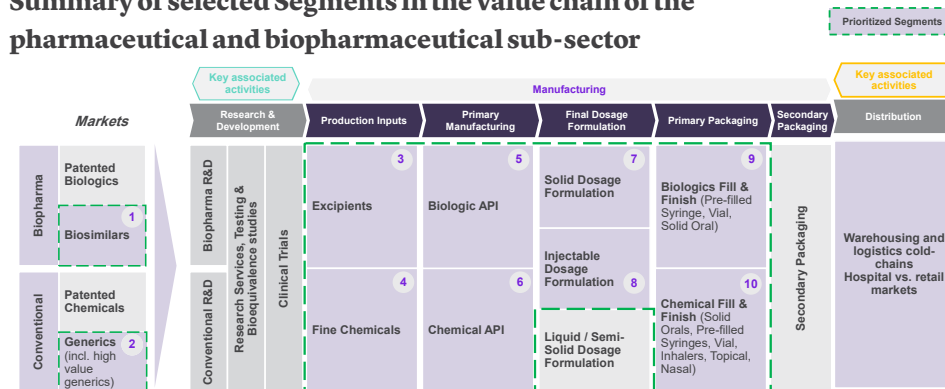
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Sub-Sector Strategies.

Pharmaceutical
and
Biopharmaceutical

03 Segment Selection

Summary of selected Segments in the value chain of the pharmaceutical and biopharmaceutical sub-sector



It is important to note that deprioritized segments can still be developed by any investor leveraging the cross-cutting enablers of the industrial sector. Deprioritized segments could be evaluated on a case-by-case basis and considered at later stages.

07

Sub-Sector Strategies.

Medical Devices

Medical Devices Industry sub-sector

01 The Importance of the Medical Devices Industry Sector

- The Medical Devices industry is expected to benefit from the ambitious healthcare transformation program and the government's commitment to support local capabilities through local content policies
- the industry represents a highly attractive domestic opportunity, as there is a high potential to cater to the Kingdom serving the increasing domestic demand and largest medical devices market in the region
- The kingdom's proximity to and free trade agreements with countries in the region with much higher Medical Devices spend per capita than the global average and promising market growth forecasts create ideal conditions for investment in this industry.
- Medical Devices manufacturing skill set and value chain capabilities have similarities with other sectors, promising cross-pollination of industrial know-how and value chain capabilities.
- The sub-sector has become more strategically important amid the COVID-19 pandemic to ensure self-sufficiency for essential medical products and secure national resilience of healthcare supply chains.



07

Sub-Sector
Strategies.

Medical Devices

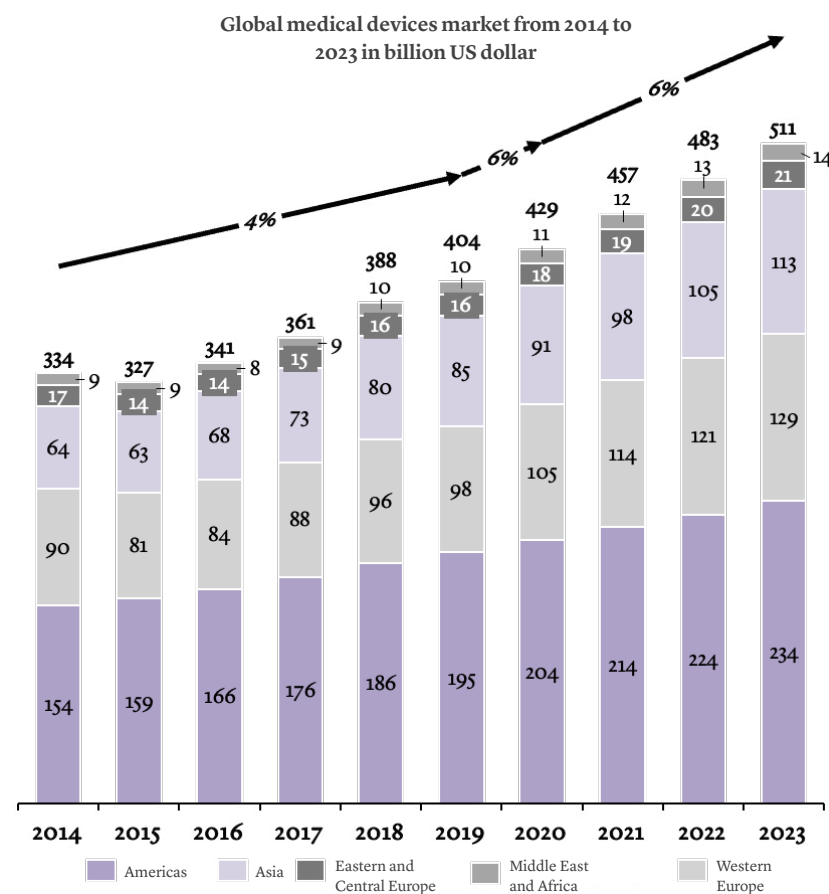
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Market and Trends

The Medical Devices industry is a diverse, innovative, and dynamic sector. Throughout history, medical devices have been used for a multitude of medical treatments and therapies. As such, the industry has witnessed remarkable growth over the years, with significant differentiation in the types of available products.

Global Market

Globally, the Medical Devices market reached USD 404 bn in 2019. In 2020, the COVID-19 outbreak drove increased spending on health personnel, infrastructure, administration, medical equipment, and consumables. However, the pandemic is reducing the uptake in high-margin products like innovative medical devices because resources have been redirected to treating COVID-19 patients. In other words, the Medical Devices industry has seen its focus shift toward producing specific commodity-type equipment like ventilators and personal protective equipment (PPE) rather than innovative equipment. Nevertheless, the global market is expected to grow faster than it did last decade (6% vs. 4%) and reach USD 511 bn by 2023. While the Americas is projected to remain the world's largest Medical Devices market, all regions are expected to grow at faster rates in the coming three years



*Figures excl. IVD & Lab Equipment

*Figures refer to ex-factory prices

07

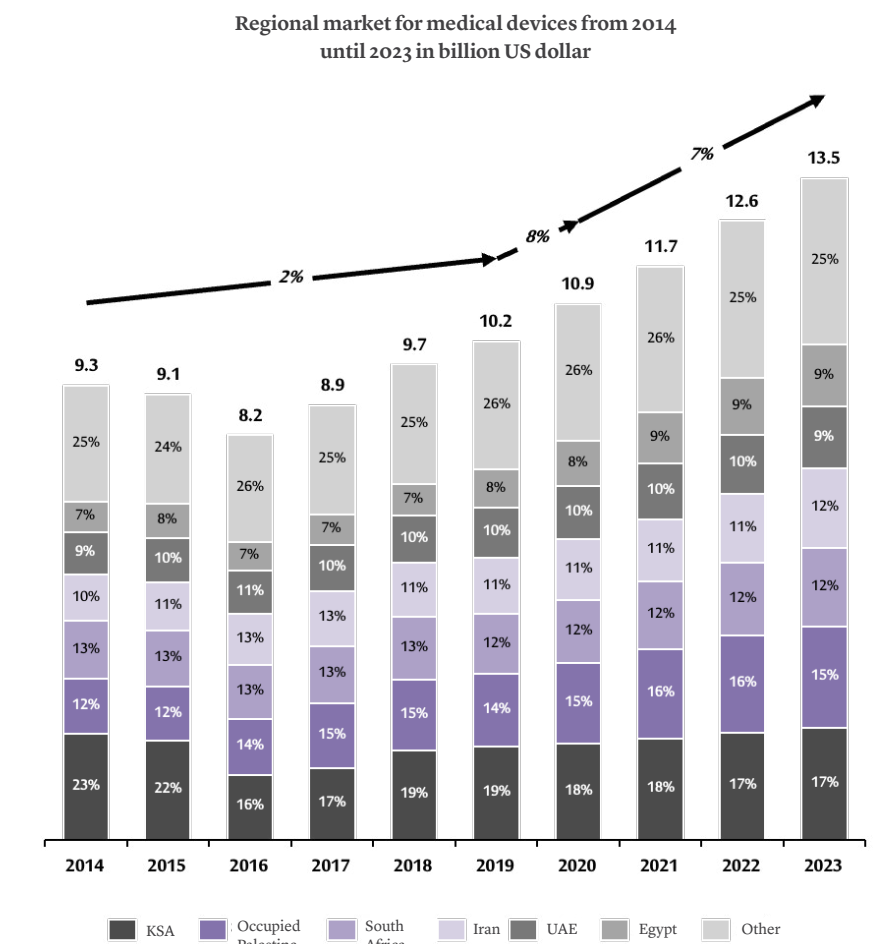
Sub-Sector
Strategies.

Medical Devices

02

Regional Market

The MEA market is forecasted to be the highest growing region for Medical Devices (7.3% growth vs. global 6.0% over the period 2020-2023), driven by economic prosperity, growing medical awareness, aging populations, and wider healthcare coverage and subsequent expenditures. As shown in Exhibit 172, KSA is expected to remain the single-largest market in the region, retaining a 17% market share by 2023



*Figures excl. IVD & Lab Equipment

*Figures refer to ex-factory prices

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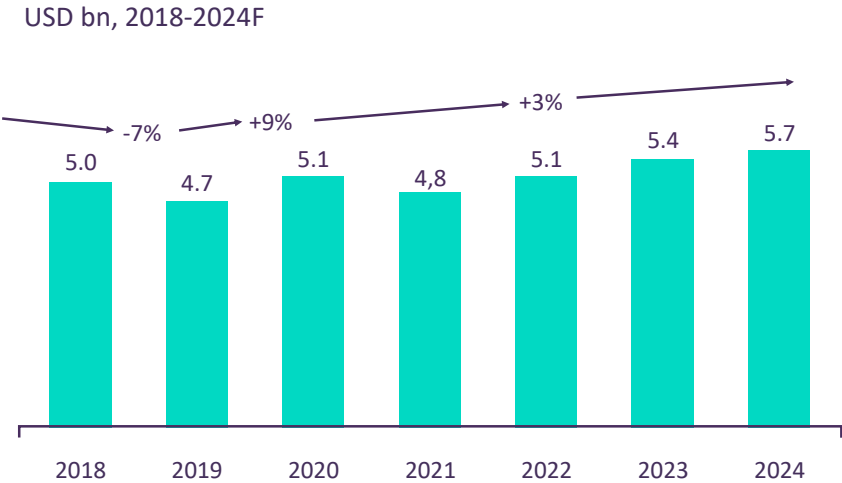
Sub-Sector Strategies.

Medical Devices

02

KSA Market

Despite a large drop in 2015-16 due to the oil market crises, KSA’s Medical Devices industry remains the biggest market in the region and is expected to grow at more than 5% from 2020 to 2023, backed by increasing demand and healthcare expansions. Between 2019 and 2030, the KSA Medical Devices market is expected to grow by 50% from USD 5 bn to USD 7.5 bn. The government is considered a main driver, with over ~66% market share.



07

Sub-Sector Strategies.

Medical Devices

Trends: A list of trends of the medical devices industry sub-sector and their potential implications for NIS

Trends of the Sector	Potential Implications for NIS
<div>National Healthcare transformation program “New models of care”</div>	<ul style="list-style-type: none">Introduce local content requirements to public tenders to encourage local manufacturing investmentsLeverage future large procurement demand to attract global know-how and technologyEnsure concentrated power of buyer (i.e. NUP-CO) is leveraged to support localization ambitions, and not to cause elimination due to lack of economies of scale in comparison with international competition
<div>Shift towards customer centricity and low-cost solutions</div>	<ul style="list-style-type: none">Leverage growing government efficiency efforts to promote local supplier alternatives in low/medium manufacturing technologiesProvide enabling infrastructure and regulatory framework to enhance certification, clinical trials and medical approvals processesProvide agile product specification and tender evaluation processes capable of rapidly accepting quality new products to the market
<div>Increasing industry consolidation, and focus on CMO1</div>	<ul style="list-style-type: none">Support local players in implementing process enhancement and sustaining engineering to develop required capabilities to enter CMO1 agreements with global partnersLeverage capital investments (e.g. Private Equity, Sovereign Wealth Funds) to attract strategic CMO1 capabilities in KSA (e.g. product design, device assembly, process improvement, testing)
<div>High growth of Med-Tech innovations and IoMT2</div>	<ul style="list-style-type: none">Foster 3D printing technologies to enable early entry to high growth product manufacturing technologyProvide enabling infrastructure and regulatory framework to encourage MedTech innovations in both novel products and IoMT2Opportunity to provide a leading MedTech innovation hub offering attractive ecosystem enablers, including reliable and secure medical data and ease of business incentives
<div>Heightened need for supply chain resilience</div>	<ul style="list-style-type: none">Encourage investments in products directly related to areas of essential healthcare and emergency situations (e.g. chronic diseases, PoC3 kits)



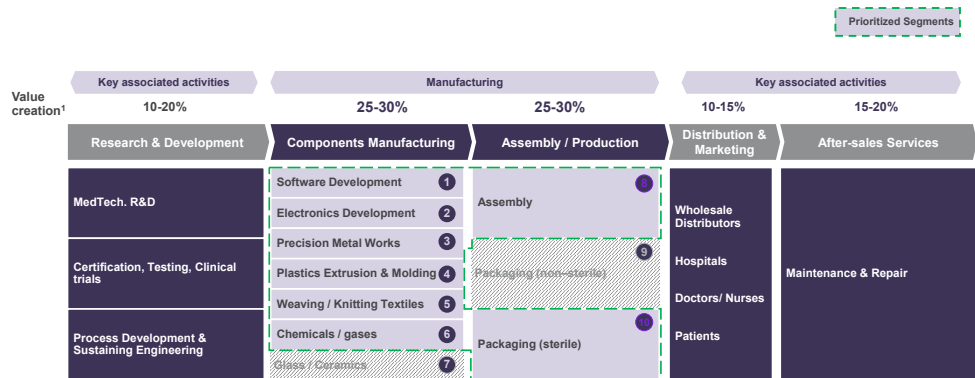
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Sub-Sector Strategies.

Medical Devices

03 Segment Selection

Summary of selected segments of the medical devices sub-sector sector value chain



It is important to note that deprioritized segments can still be developed by any investor leveraging the cross-cutting enablers of the industrial sector. Deprioritized segments could be evaluated on a case-by-case basis and considered at later stages.



07

Sub-Sector Strategies.

Military Industries

Military Industries Sub-sector

01 The Importance of the Military Industries sub-sector

Saudi Arabia is one of the top 5 countries in military spending, but its localization in 2016 was less than 5%. As such, one of the main strategic goals for Vision 2030 is the localization of the Military Industry, with an ambition to localize 50% of the industry by 2030.

The development of the Military industry will bring enormous benefits to the Kingdom, as it will allow it to tap into its significant domestic market demand. In addition, the Military industry will create highly skilled jobs for Saudi nationals. Building Military production capabilities will lead to the development of technological know-how and enable knowledge transfer, thereby enabling opportunities in adjacent sectors. Finally, localizing the Military industry will contribute to the diversification efforts of the Kingdom and its Vision 2030 goals.

02 Segment Selections

The military industries comprised of several sub-industries:

- Sub-industries of strategic nature such as defense electronics, missiles, and unmanned aerial vehicle.
- Sub-industries of high economic value and less complexity such as maintenance, repair, and operation (MRO), and the systems and structural components of military equipment.

The sector also includes high-tech industries such as radars and electromagnetic weapons.

The selected Segments for the military industries sector

Fields of strategic nature

- Defense electronics.
- Conventional ammunition and weapons.
- Ammunition, guided missiles, and bombers.
- Systems and structural components of unmanned aerial vehicles.
- Cyberwarfare.

Fields of high economic value and less complexity

- Maintenance, repair, and overhauling of unmanned aerial vehicle.
- Maintenance, repair, overhauling, and parts of fixed-wing aircraft.
- Systems and structural components of land systems.
- Maintenance, repair, overhauling, and spare parts of land systems.
- Maintenance, repair, overhauling, and spare parts of maritime systems.
- Systems and structural components of maritime systems.



07

Sub-Sector
Strategies.Building
Materials

Building Materials Sub-sector

01

The Importance of the Building Materials Industry Sub-sector

The Building Materials industry has a unique opportunity to leverage KSA's dynamism in the coming years, and thus grow its scale both domestically and regionally to bring increased economic benefit to the Kingdom. First, the giga projects under development mean there is significant potential in both the domestic and regional construction markets, which provide the opportunity to export to the MENA region. Second, the capabilities built by the Kingdom can make KSA a regional leader in the construction and building materials industries. Third, the integration of advanced construction methods will lead to the development of trained and skilled workers who add unique, high value to products. Finally, from a country perspective, the Building Materials industry is imperative to shift the focus toward the circular economy and energy-efficient designs that reduce reliance on fuel.

02

Market and Trends

The Building Materials market is composed of four main elements: Cement, Ceramics, Glass, and Stone

Global Market

The global construction market is growing, with a value of USD 4,663 bn in 2020 that is expected to reach USD 8,490 bn by 2030, growing 5% per year. Delving deeper into the elements, the Cement industry is expected to see slower growth, rising from USD 3.9 bn in 2019 to USD 4.2 bn in 2028. Given its relatively high transport cost, cement is typically produced locally and the industry is characterized by national and multinational consolidation (China being the largest consumer, producer and exporter). The Ceramic industry is expected to grow by 5.5% (2019-2025), yielding similar growth to the construction market. The ceramic tiles segment has the highest global demand and requires strong design capabilities. The Glass industry is also expected to grow at a CAGR of 5.3% (2015-2025). In terms of trade, the United States is the top importer and China the top exporter of glass. Packaging glass (e.g., bottles and jars) accounts for 45% of all global glass production. Lastly, the Stone market is expected to grow by 4% (2018-2026). Stone is traded globally, with China as both the largest importer and exporter. Within the Stone industry, granite has the highest market share, accounting for 45% of the whole stone market in 2020.

02

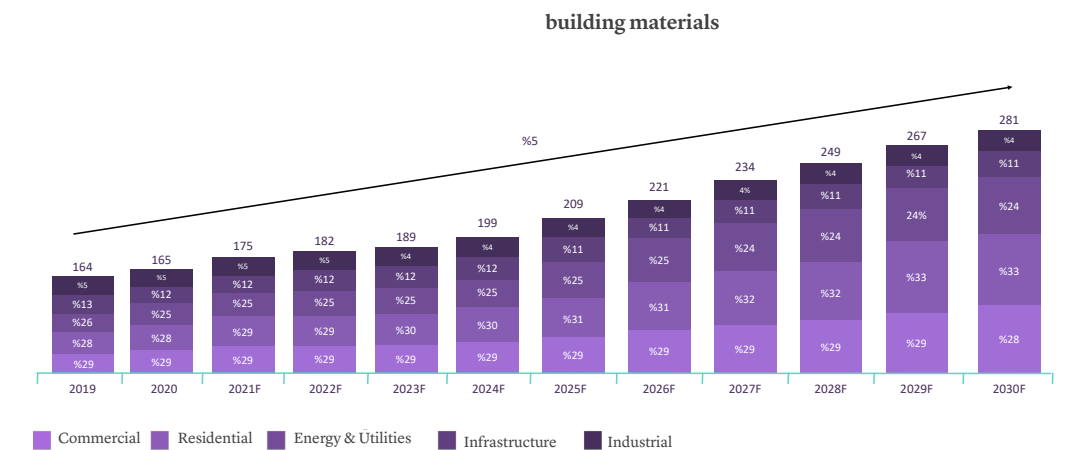
Regional Market

The regional construction market is experiencing faster growth than the global market, growing at a CAGR of 6% from USD 223 bn in 2019 to USD 404 bn in 2030. From a trade perspective, Turkey is the leader in overall building material exports. In Cement, Turkey is the top exporter with the US as the main export market. In Ceramics, Turkey is not only the top exporter, but also a leader in ceramic design. On the other hand, KSA is the top importer of Ceramics within the MENA region. In Glass, Turkey is both the top exporter (of which 28% is packaging glass) and importer (of which 31% is glass fibers) in the region. Packaging glass is the segment with the highest regional production, making up the majority of exports. Lastly, KSA is a major importer of Stone (90% of which is marble) while the UAE is the top regional exporter (of which 85% is limestone)

KSA Market

Driven by the numerous planned giga projects in the Kingdom as well as other commercial, residential, energy and utilities, infrastructure, and industrial projects, the KSA Construction Market is growing at a CAGR of 5% (2019-2030) and is estimated to reach a value of SAR 280 bn by 2030.

07

Sub-Sector
Strategies.Building
Materials

07

Sub-Sector Strategies.

Building Materials

Summary of Main Market Trends

Trends of the Sub-sector	Potential Implication for NIS
Offsite construction	<ul style="list-style-type: none">Government mandate to move construction off-site, particularly with mega-projects (e.g., NEOM, The Red Sea Project)Increased demand for fast delivery, cost-effectiveness, and eco-friendliness drives the demand for pre-fabricated buildings
Modern methods of construction	<ul style="list-style-type: none">Increased use of modern methods of construction (e.g., insulated precast systems, insulated concrete forms, etc.) as part of Ministry of Housing's BTSI initiative to reduce costs and increase sustainability
Advanced methods of construction	<ul style="list-style-type: none">Increased use of advanced methods of construction (e.g., 3D Printing, Robotics, etc.) especially those recommended by Ministry of Housing's BTSI initiative to enhance project delivery, increase sustainability and increase project affordability
Sustainability and carbon footprint reduction	<ul style="list-style-type: none">Increasing regulations and incentives promoting energy efficiency solutions and reducing energy use in building materials and construction (e.g., green cement - currently being used in NEOM and The Red Sea Project's construction, use of non-metallic insulation)
Circular economy	<ul style="list-style-type: none">Increased recycling efforts and growing adoption of recycled materials for manufacturing new products (e.g., glass, cement, bricks)Increased government initiatives to promote recycling, following environment concerns worldwide for effective waste management
Non-metallics in construction	<ul style="list-style-type: none">Proliferation of non-metallics as an energy-efficient solution for insulation (covered in more detail under the Chemicals Cluster)Potential replacement of metals by non-metallic FRPs in the long run, due to durability and strong static properties

03

Segment Selections

Summary of the selected Segments in the value chain of the building materials industry Sub-Sector

						Preselected	Integrated into end products	De-prioritized segments (filter-1)	
Value chains	Quarrying	Primary processing	Secondary processing	Building materials	Construction & distribution	Real estate			
Cement	Limestone	Clinker	Cement	Concrete & mortar	Advanced methods of construction <ul style="list-style-type: none">– 3D Printing– Robotics– Advanced prefabricated construction	Local marketing and selling			
	Clay			Modular concrete					
	Marl								
Ceramics	Surface clays	Clay powder	Plastic clay	Ceramic tiles	– Drones				
	Shale			Sanitary ware					– Advanced software
	Fire clays			Clay bricks					
Glass	Silica sand	Soda ash	Formed glass	Float glass	Distribution <ul style="list-style-type: none">– Warehousing– Traditional vs. modern retail– Local market vs. exports				
	Limestone	Glass batch	Fiberglass	Packaging glass					
	Others (iron, carbon)		Glass wool						
Stone	Natural Basalt	Stone blocks	Polished, cut stone	Rock wool	Architecture & design <ul style="list-style-type: none">– Mega-projects– Housing				
	Natural Granite			Granite					
	Natural Marble			Marble					
	Natural Limestone			Limestone					
	Natural Gypsum			Synthetic stone					
				Gypsum boards					

It is important to note that deprioritized segments can still be developed by any investor leveraging the cross-cuttingenablers of the industrial sector. Deprioritized segments could be evaluated on a case-by-case basis and considered at later stages.

07

Sub-Sector Strategies.

Machinery and Equipment

Machinery and Equipment Industry sub-sector

01

The Importance of the Machinery and Equipment Industry sub-sector

Machinery and Equipment (M&E) covers a very wide range of equipment that can be categorized based on its application (upstream, downstream, petrochemicals, mining, power generation, renewables, water & wastewater, construction, and others) as well as its technical functionality (rotating equipment, electrical equipment, static equipment, general industrial equipment, and specialized equipment).

The M&E sub-sector is of special strategic relevance for the development of the manufacturing sector since it not only provides the equipment used in manufacturing and maintenance (e.g., welding equipment, spare parts) for all other sub-sectors but also equipment for the ongoing operations of other activities critical to the KSA economy (e.g., O&G, desalination, construction).

Through 2030, all economic activities will grow in line with the direction of Vision 2030. The industrial sub-sectors will see a dramatic increase in line with the NIS. KSA's local M&E manufacturers have a unique opportunity to increase market share and manufacture the equipment that will be required by all sub-sectors to achieve the NIS objectives. giga projects such as NEOM will require large amounts of equipment during construction. The new manufacturing facilities established by the investment attracted by the NIS will also require equipment for their operations. KSA faces a great opportunity to localize M&E demand.



07

Sub-Sector
StrategiesMachinery and
Equipment

02

Market and Trends

The M&E market is expected to grow globally, regionally, and locally to address the needs for equipment driven by the increasing demand of several industries as well as the need to develop resilient supply chains that can maintain normal operations during disruptive events.

Global Market

Globally, the production of M&E reached USD 3.7 tn in 2019, with Asia Pacific, Western Europe, and North America dominating the market.

The main growth drivers are the increase in demand from several industries heavily reliant on M&E (e.g., mining, construction, agriculture), the rapid increase in demand across all sectors from rapidly growing economies (e.g., China), a series of global mega-projects requiring high volumes of M&E for their construction and operations, and an increasing focus on building resilient supply chains.

The segments with the highest market share globally are engines and turbines, pumps, compressors, and automation systems. The industry is heavily influenced by significant innovation in industrial machinery manufacturing and operations (e.g., IoT, 3D printing, sensors) accelerating the growth of the M&E market. From 2019 to 2030, global production should increase by 4%, though growth will slow down after 2030.

Regional Market

Within the MEA region, M&E total production will follow the same growth rate as the global market. Total production reached a value of USD 47 bn in 2019 and will grow by 4% annually through 2030 to reach USD 71 bn. The region's M&E demand is driven by ambitious national visions and strategies (e.g., KSA Vision 2030, South Africa Vision 2030, Egypt Vision 2030) and large-scale development projects.

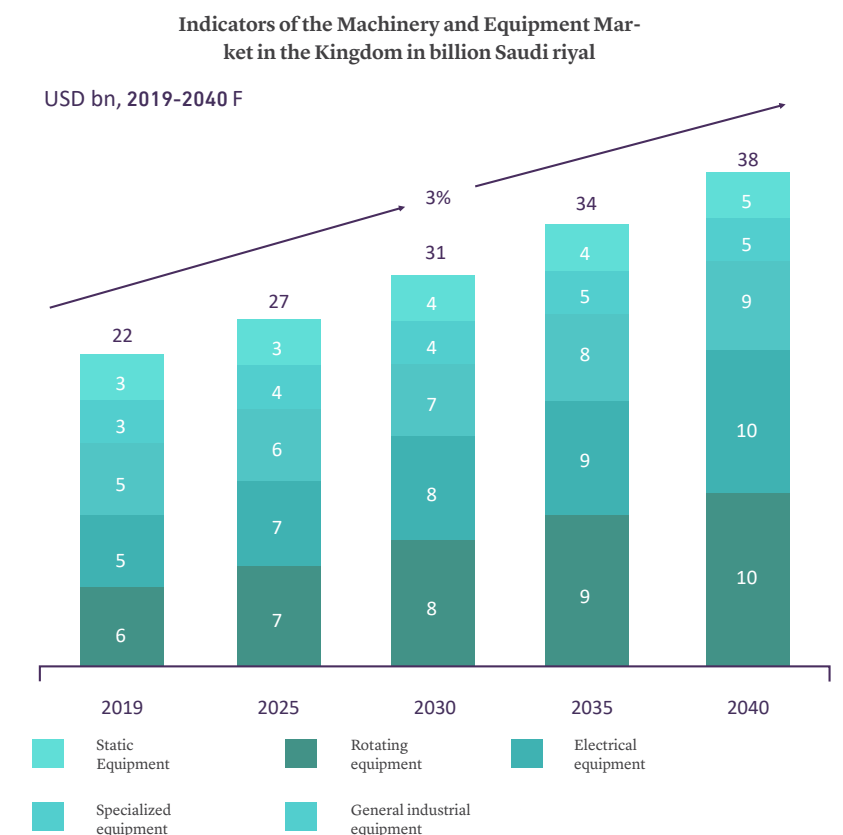
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Sub-Sector
StrategiesMachinery and
Equipment

02

KSA Market

Domestically, the M&E market is expected to grow at 3% annually between 2019 and 2040, providing a great opportunity to localize the incremental demand for equipment. Demand will continue to be concentrated in three main categories: static equipment, rotating equipment, and electrical equipment. The market in the Kingdom is driven by the demand from the O&G and utilities sectors. The government's ambitious investment in mega projects like NEOM is another large driver of M&E. The demand for M&E from sub-sectors like Aerospace, Automotive, Food Processing & Agriculture, and Construction represents another driver for the M&E sub-sector.



07

Sub-Sector
Strategies.Machinery and
Equipment

Summary of the Trends of the Machinery and Equipment Industry Sub-sector and their Possible Impacts on the National Industrial Strategy

01

Use of future technologies (IOT / Sensors)

IOT/Sensors are impacting the type of factories coming online in the future

- New type of factories can be considered
- Highly competitive future market, as Chinese companies are competing for market share at global scale in new technologies

02

Automation, Robotics, and AI/ML capabilities

Improvements in efficiency, decreasing errors, accuracy and product quality are being observed

- Increase in the competitiveness levels globally; May require focus on developing these capabilities
- Increased skill requirements and capabilities to manage robotics/intelligent equipment.

03

Composite Materials

- **Composite materials are being leveraged for numerous advantageous properties (e.g., lightness, corrosion resistance, rigidity)**
- Consideration is required to assess impact on M&E products that are being considered for localization

-
- Impact for NIS

07

Sub-Sector
Strategies.Machinery and
Equipment

Summary of the Trends of the Machinery and Equipment Industry Sector and their Potential Implications on the NIS

04

3D Printing Capabilities

Threat of substitutes

3D printing industry will provide strong future potential for mass customization

- Two critical impact:
- Assessment on the capability and strategy to build 3D machines in Kingdom
- Evaluate products that may get affected by 3D printing

05

Trend towards after market Services

Threat of substitutes

- Secondary components demand requirement for different sector (auto, oil & gas, metals, mining etc.) can impact strategies of select products
- Favorable policies on local M&E waste management and recycling

06

Pandemic Impact

- **A pandemic can significantly disrupt the supply chain and investments, thus creating a risk for future**
- Disruption in global supply chain gives opportunities to address it locally
- May lead to lower levels of foreign investments

-
- Impact for NIS

07

Sub-Sector Strategies

Machinery and Equipment

“Level of imports” 2019

- More than \$0.9 billion
- \$0.6 – \$0.9 billion
- billion \$0.6 – \$0.3
- Less than \$0.3 billion

03

Segments Selection

Key components and parts within Tier-1 M&E were studied. In addition, Tier-2 and Tier-3 components integrated into Tier-1 were also studied. Selected products were organized into three waves, to focus on localizing products with the largest market as well as those where there is a higher opportunity to effectively localize the manufacture.

Wave 1 Products	Valves	Transformers	Process Automation & Systems
	Switchgears	Liquid Pumps	Electric Motors
Wave 2 Products	Tubes, pipes and connectors	Cable and wiring conductors	Air or Vacuum Pumps and Compressors
	Filtering Machinery	HVAC	Heat Exchangers and Boilers
	Electric accumulators	Electrical & apparatus control panels	Lightening units and component
	Refrigerators & Freezers		
Wave 3 Products	Borehole and Sinking Machinery	Electric Generators	Turbines and turbo-propellers
	Vessels and Tanks	Bottling Machinery	Lifting Machinery
	Oil and Water Filters	Field Instrumentation	Escalators and Elevators
	Cranes, and hoists	Hydraulic and pneumatic engines	Furnaces and Ovens
	Sorting, Screening, Washing, Crushing Machinery	Machinery for Rubber/Plastics Manufacturing	Food, Beverage & Tobacco Machinery
	Fire Extinguish Systems & Components	Pulleys, gears and rollers	Internal Combustion Engines
	Agricultural or Forestry machinery	Textile and Apparel Machinery	Transmission Shafts/Cranks
	Gas Generator (Producer Gas)	Electrolyser Equipment	

07

Sub-Sector Strategies

Metals

Industries - Steel

Metals Industries - Steel

01

The Importance of Metals Industries - Steel

The Metals industry is a strategic sector for the Kingdom to grow and further develop, as it serves as an enabler to other sectors. The Metals industry is vital to enabling downstream development of other sectors (e.g., construction, automotive, renewables, aerospace) by providing critical raw materials and stimulating the manufacturing industry. Today, close to 75% of KSA's Steel production capacity focuses on Rebar and Wire Rod, which are heavily used in construction, while products like Plates, Tinplate, and Round Billets are imported. Thus, new Steel production capabilities need to be developed to meet the increasing demand for critical raw materials from other clusters. Both the domestic and regional Steel markets have significant growth potential across many product segments. Finally, the Metals industry has the potential to make a significant contribution to Saudi GDP and employment through import substitution and export potential

02

Market and Trends

Global Market

Globally, crude Steel consumption reached ~1,880 mn metric tons in 2020, with more than half of this total used by China. Global consumption is projected to increase ~1.7% annually over the next decade to surpass 2,220 mn metric tons by 2030, with the fastest growth expected in India, where consumption is expected to grow by ~3.4% annually. However, Steel production capacity increases outpace mill closures, creating a persistent global surplus. This has led to depressed utilization rates, depressed prices, and higher costs, which puts the industry's long-term economic viability and efficiency in peril.

Regional Market

Overcapacity is a major issue faced by the GCC region, as more than 60% of the total regional Steel production capacity is concentrated in Rebar and Wire Rods for the construction sector. By far, Saudi Arabia has the highest production capacity compared to its regional peers, with more than triple the capacity of Qatar, the second highest country. Nevertheless, all of the region's capacities are concentrated in midstream and downstream segments, with none of the GCC countries having any upstream capabilities. Thus, all GCC Steel producers import Direct Reduction (DR) grade iron ore to serve as feed-stock for their direct reduction iron plants.

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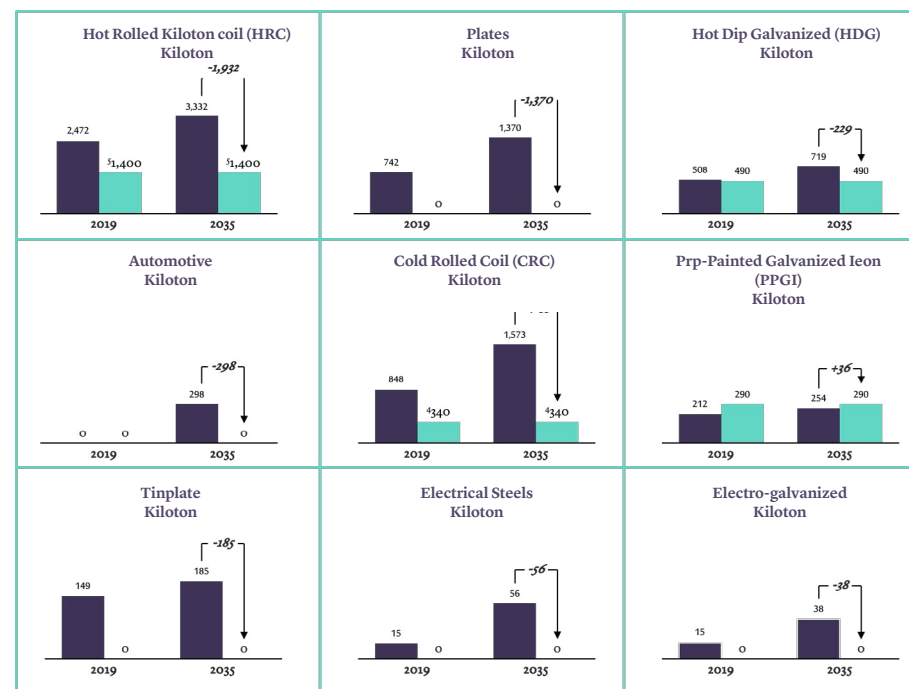
Sub-Sector Strategies.

Metals
Industries - Steel

02 KSA Market

In 2019, the Kingdom had large gaps in many of its flat product groups because it lacked specific capabilities (e.g., in the high-growth thin-gauge segment for Hot Rolled Coil), insufficient production capacity (e.g., in Cold Rolled Coil, where domestic demand exceeds production capacity), or lack of capabilities all together in specific product groups (e.g., in Plates and Tinplate, where no capacity currently exists). These gaps will widen significantly over the next 15 years if no additional capacity is added. In addition, a new gap will form due to demand from the Automotive sector once vehicle production begins in 2025, while existing gaps in Electrical Steels and Electro-galvanized will wide.

A summary of local demand and potentials of manufacturing flat steel products (in kiloton)



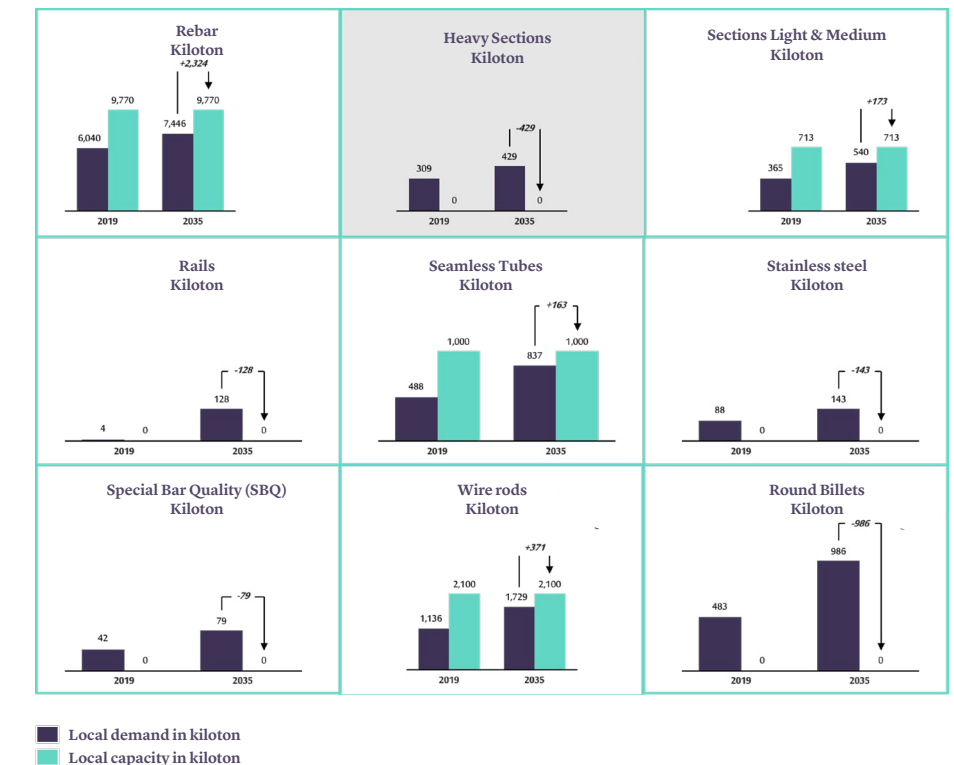
Local demand in kiloton
Local capacity in kiloton

07

Sub-Sector Strategies.

Metals
Industries - Steel

A summary of local demand and production capacity of long steel products and other steel products



Local demand in kiloton
Local capacity in kiloton

07

Sub-Sector Strategies.

Metals
Industries - Steel

Summary of the main trends of the steel Industry and the potential implications for NIS

Trends	Potential Implications for NIS
Decarbonization	<ul style="list-style-type: none">Increasing regulations to cut emissions in metal industry, mainly pushed by advanced economics to ensure carbon neutrality by 2050Requirements to invest in CCUs (carbon capture, use and/or storage), or alternative reduction of carbon emissions comply with regulations.
Energy Reforms	<ul style="list-style-type: none">Electricity prices increased significantly over last decades, reaching similar regional levels and increasing production costs of manufacturers, thereby lowering their cost competitivenessInvestment should be considered to reduce prices for projects with high energy intensive processes.
Digitalization	<ul style="list-style-type: none">Higher employment of digitalization to optimize operations such as sales forecasts and predictive maintenanceEncourage digital transformation in metals industry to integrate digital to end-to-end value chain and stay competitive against global players
Global overcapacity in Steel	<ul style="list-style-type: none">Overcapacity due to slowing demand in recent years and sluggish recovery after COVID-19 will lead to increased competition and price warsOpportunity to focus on specialized and high-grade alloys with new investments in specific downstream industries (e.g., defense)

07

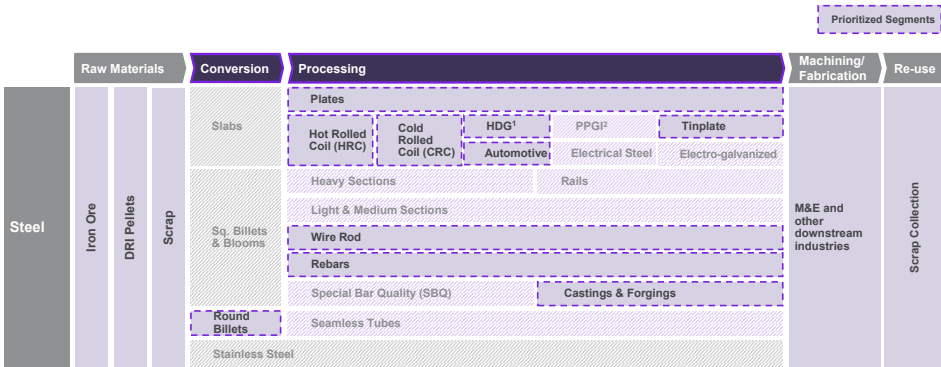
Sub-Sector Strategies.

Metals
Industries - Steel

03 Segments Selection

The main sectors were identified along the steel industry value chain that ranges between raw materials and the ones recycled and re-used. However, given that NIS focuses on manufacturing activities, the relevant steel sectors were evaluated while the raw materials were covered as part of the mining strategy, while machining, casting, and re-use are considered “relevant key activities”. 21 segments were analyzed that include transformation and manufacturing activities.

Summary of selected segments in the steel industry



07

Sub-Sector Strategies.

Metals Industries - Aluminum

Metals Industries - Aluminum

01 The Importance of Metals Industries - Aluminum

The Metals industry is a strategic sector for the Kingdom to grow and further develop, as it serves as an enabler to other sectors. The Metals industry is vital to enabling downstream development of other sectors (e.g., construction, automotive, renewables, aerospace) by providing critical raw materials and stimulating manufacturing. Today, KSA's Aluminium capabilities focus on four product categories: can stock, extrusions, conductor wire, and automotive sheet. However products like foil, plate, and castings are imported, and some current capacities are projected to be insufficient to cater to increasing domestic demand. Thus, new Aluminium production capabilities need to be developed, in addition to the expansion in local manufacturing capabilities, to meet the increasing demand of critical raw materials from other sub-sector. Both the domestic and regional Aluminium markets have significant growth potential across many product segments. Finally, the Metals industry has the potential to make a significant contribution to Saudi GDP and employment through import substitution and export potential.

02 Market and Trends

Global Market

In 2019, the global Aluminium consumption reached ~66 mn metric tons and is projected to reach ~88 mn metric tons by 2030, representing a CAGR of ~2.4%. Although China will continue to hold close to 60% of the market share, the Middle East and Asia (excluding China) are projected to grow at a faster rate, surpassing 3% annually over the next decade. Delving deeper into the market, global consumption is heavily dominated by the construction and transport sectors, which account for ~50% of global use combined. Transport's demand is projected to rise as aluminium is increasingly used in automotive.

Regional Market

All GCC countries have operations in the midstream and downstream segments of the Aluminium industry, producing Primary Aluminium and various end-use products (e.g., extrusions, conductor wire). However, only KSA and UAE cover the entire spectrum of the value chain. Ma'aden's Al Ba'itha mine produces ~4.2 mn metric tons of bauxite ore annually that is transported to Ras Al Khair's Aluminium Complex for refining and smelting. The UAE goes a different route, as Emirates Global Aluminium operates a bauxite mine in Guinea and refines and smelts the material in Abu Dhabi and Dubai.

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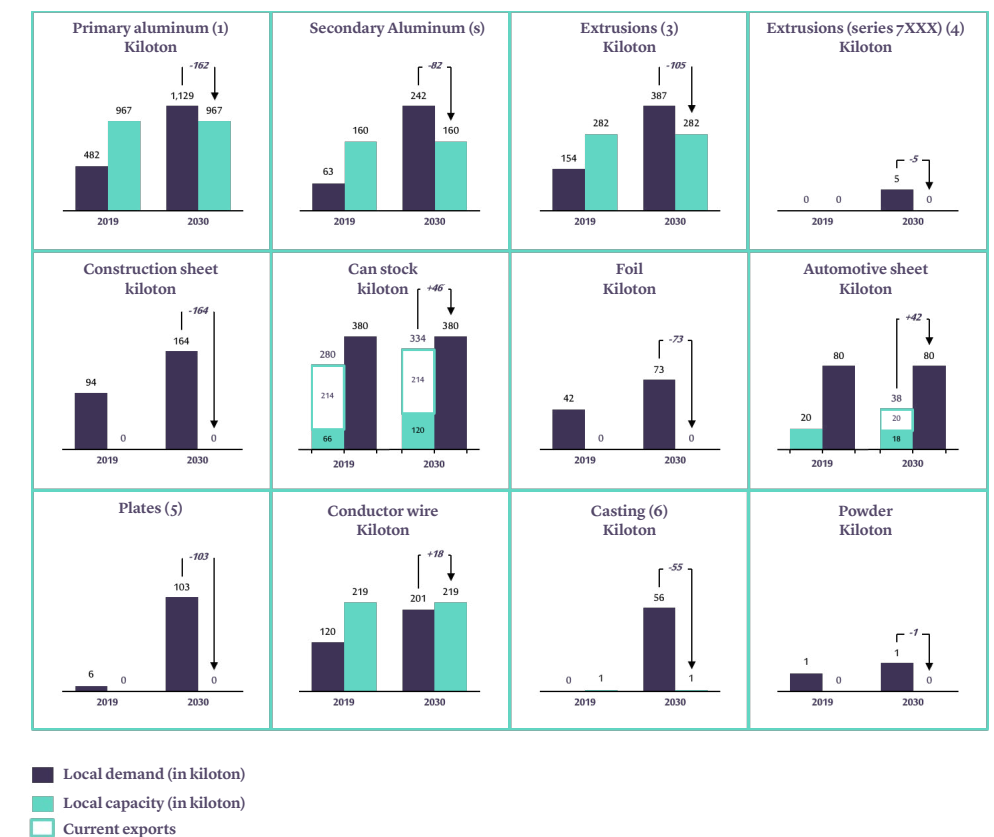
Sub-Sector Strategies.

Metals Industries - Aluminum

02 KSA Market

Over the next decade, the Kingdom is poised for large growth in the Aluminium industry with demand projected to increase from 482 kt in 2019 to 1,129 kt in 2030, mainly driven by the ramp up in other high-value-add sectors (e.g., automotive, renewables, aerospace). In particular, demand for extrusions and Flat Rolled Products (e.g., plate, foil, automotive sheet) will increase significantly, growing annually at rates of 8.9% and 7.9% respectively. Additionally, demand for Aluminium castings will kick in in 2023 and reach 56 kt annually by 2030.z

Summary of local demand and local capacity in aluminum products (in kiloton)



Note: The capacity is supposed to remain constant until 2030.

1. Demand represents finished aluminum products, supply total existing Ma'aden's output in primary aluminum
2. Demand 2019 represents scrap collected and recycled domestically (excl. imports of 97kt in 2019); demand 2030 represents aggregate of domestic scrap and exported scrap (179 kt in 2019);
3. Includes 129 kt of demand for 6XXX Series from Renewables sector;
4. Demand for 7XXX Series stems from Aerospace sector;
5. ~70% of new demand in plate comes from aerospace;
6. Demand driven by M&E Compressors (~31%), upcoming automotive wheels (~36%) & aerospace sectors (~34%)

07

Sub-Sector Strategies.

Metals
Industries -
Aluminum

Summary of the main trends of the aluminum Industry and the potential implications for NIS

Trends	Potential Implications for NIS
Decarbonization	<ul style="list-style-type: none">Increasing regulations to cut emissions in metal industry, mainly pushed by advanced economics to ensure carbon neutrality by 2050Requirements to invest in CCUs (carbon capture, use and/or storage), or alternative reduction of carbon emissions comply with regulations
Energy Reforms	<ul style="list-style-type: none">Electricity prices increased significantly over last decades, reaching similar regional levels and increasing production costs of manufacturers, thereby lowering their cost competitiveness.
Digitalization	<ul style="list-style-type: none">Higher employment of digitalization to optimize operations such as sales forecasts and predictive maintenanceEncourage digital transformation in metals industry to integrate digital to end-to-end value chain and stay competitive against global players
Circular Economy	<ul style="list-style-type: none">Aluminum could be recycled as a circular material for several times without losing its original properties (light weight, conductivity, formability, durability, and impermeability), which are important features for aluminum recycling stations and could help KSA in saving around 90% of the energy usually needed for producing primary aluminum.
Drive of China and lightweight materials in Aluminum	<ul style="list-style-type: none">Opportunity to supply increasing demand for lightweight materials by China's quick recovery after COVID-19 and downstream demand(e.g. Auto) for lightweight materialsEncourage investments in specialized aluminum manufacturing to be able to supply increasing global demand

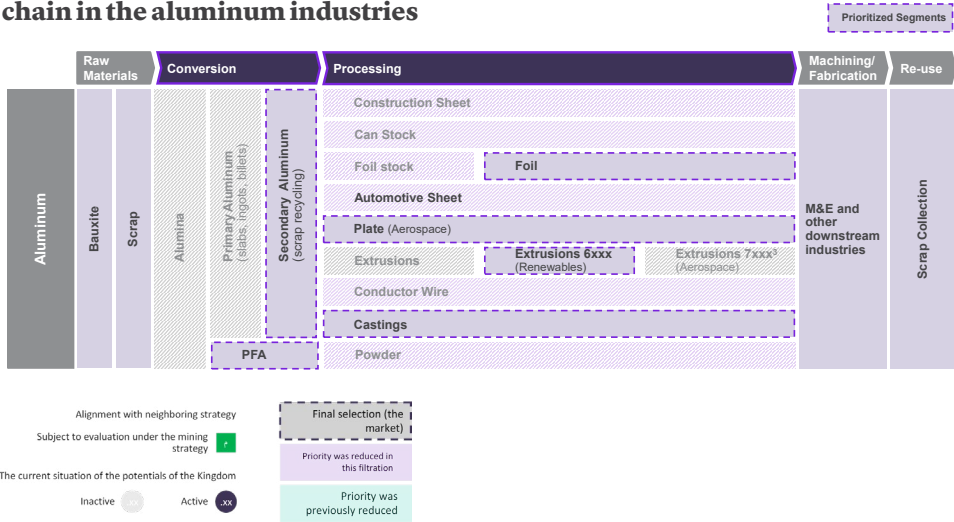
07

Sub-Sector Strategies.

Metals
Industries -
Aluminum

03 Segments Selection

Summary of selected segments within the value chain in the aluminum industries



07

Sub-Sector Strategies

Metals Industries - Copper

Metals Industries - Copper

01

The Importance of Metals Industries - Copper

The Metals industry is a strategic sector for the Kingdom to grow and further develop, as it serves as an enabler to other sectors. The Metals industry is vital to enabling downstream development of other sectors (e.g., construction, automotive, renewables, aerospace) by providing critical raw materials and stimulating the manufacturing industry. Today, KSA has capabilities at both ends of the Copper value chain through various mines upstream and large capacities in downstream wire and cable. However, the Kingdom does not have refining or smelting operations, and thus relies on copper cathode imports. As such, new midstream capabilities need to be developed to leverage domestic scrap and regional upstream capabilities in copper concentrate. In addition, KSA needs to support domestic players in the development of value-added capabilities like Copper Tube. Both the domestic and regional Copper markets have significant growth potential across various product segments. Finally, the Metals industry has the potential to make a significant contribution to Saudi GDP and employment through import substitution and export potential.

02

Market and Trends

Global Market

Global Refined Copper consumption reached 24 mn metric tons in 2020 and is expected to grow by ~1.6% annually over the next decade. Although China is the largest market, its consumption will increase by only 0.7% until 2030 while the rest of Asia (excluding China) will grow by 3.8% over the same period. On the other hand, the Middle East region is expected to grow the fastest, with a growth rate of 4.1% annually.

Regional Market

Regionally, the Copper sector is mainly concentrated between the UAE and KSA with a focus on downstream production. Saudi Arabia has large manufacturing capacity in wire and cable with minor capacity in rods. On the other hand, the UAE has a large capacity in rods with smaller capacity in wire and cable, and minor capacity in strip. Nevertheless, the Kingdom is the only GCC country to have upstream operations through various mines producing a total of 60 kt per year of ore.

07

Sub-Sector Strategies

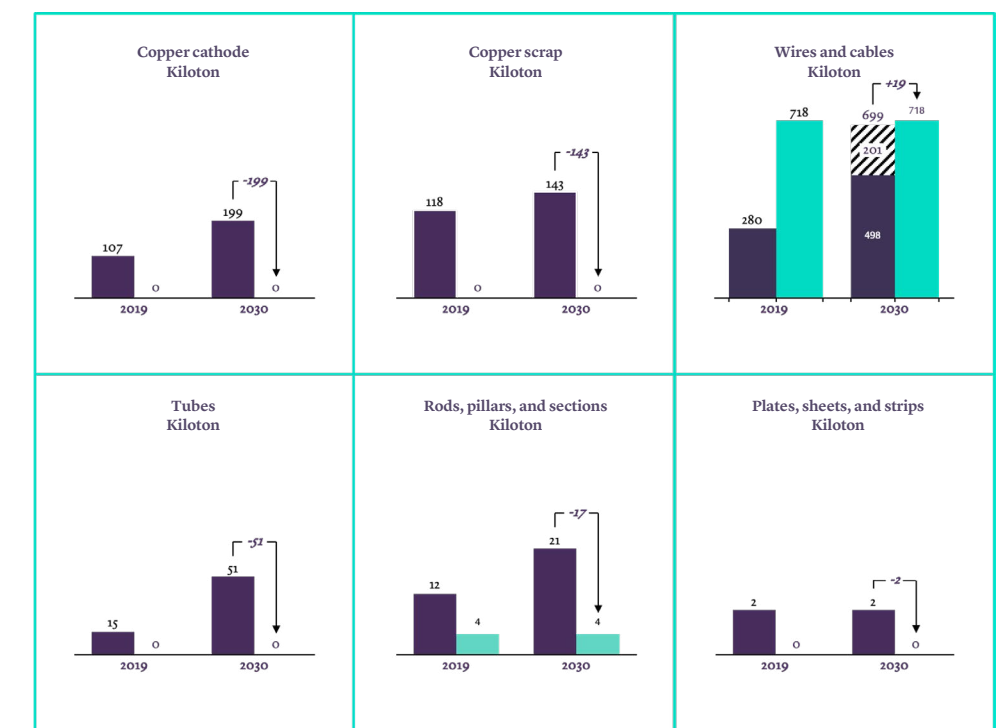
Metals Industries - Copper

02

KSA Market

The Saudi Copper industry focuses on upstream and downstream activities, with no local refining or smelting capabilities. As such, the country exports its copper ore and concentrate, mainly to China, India and Japan. Similarly, due to its lack of midstream capabilities to transfer scrap into higher value-add, the country exports copper scrap to Korea, India and Japan. On the other hand, it imports copper cathodes to be used in the production of downstream products (e.g., wire and cable, rods), with more than 80% imported from Democratic Republic of Congo.

Summary of the local demand and the local capacity in copper products (in kiloton)



■ Local demand (in kiloton)
 ■ Local capacity (in kiloton)
 ▨ Export Potential

Note: The capacity is supposed to remain constant until 2030.

● Opportunity for exporting in wires and cables based on the expected imports from South Africa, Oman, Jordan, Kenya, Egypt, Ethiopia that can be targeted by the Kingdom.

07

Sub-Sector Strategies.

Metals
Industries -
Copper

Summary of the main trends of the copper industry and the potential implications for NIS

Trends	Potential Implications for NIS
Decarbonization	<ul style="list-style-type: none">Increasing regulations to cut emissions in metal industry, mainly pushed by advanced economics to ensure carbon neutrality by 2050Requirements to invest in CCUs (carbon capture, use and/or storage), or alternative reduction of carbon emissions comply with regulations.
Energy Reforms	<ul style="list-style-type: none">Electricity prices increased significantly over last decades, reaching similar regional levels and increasing production costs of manufacturers, thereby lowering their cost competitiveness
Digitalization	<ul style="list-style-type: none">Higher employment of digitalization to optimize operations such as sales forecasts and predictive maintenanceEncourage digital transformation in metals industry to integrate digital to end-to-end value chain and stay competitive against global players
Circular Economy	<ul style="list-style-type: none">As a circular material, copper is suitable for endless recycling without loss of properties, allowing it an infinite lifeRecovering copper from applications such as motors, transformers and cables can help KSA use up to 85% less energy than in primary production
Demand from EVs, renewables and storage for Copper	<ul style="list-style-type: none">Higher demand for coppers driven by EV charging systems and batteries, as well as solar / wind farms and updates on the gridEncourage investments to develop production capabilities to supply increasing demand from downstream industries

07

Sub-Sector Strategies.

Metals
Industries -
Copper

03

Segments Selection

Summary of selected segments in the value chain of the Copper sector



It is important to note that deprioritized segments can still be developed by any investor leveraging the cross-cutting enablers of the industrial sector. Deprioritized segments could be evaluated on a case-by-case basis and considered at later tages.

07

Sub-Sector Strategies.

Metal Industries - Titanium

01 Metal Industries - Titanium

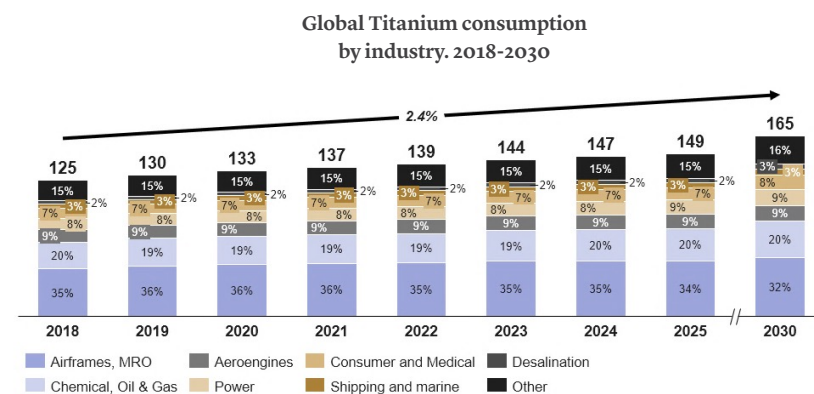
01 The Importance of Metal Industries - Titanium

The Metals industry is a strategic sector for the Kingdom to grow and further develop, as it serves as an enabler to other sectors. The Metals industry is vital to enabling downstream development of other sectors (e.g., construction, automotive, renewables, aerospace) by providing critical raw materials and stimulating the manufacturing industry. Unlike other metals, Titanium is a global market with value chain capabilities spread across different countries. In recent years, KSA has taken important steps toward establishing the country's titanium value chain by setting up a titanium slagging and sponge plant. Moreover, the Kingdom plans to integrate further into the midstream segment of the value chain by developing melting and forging capabilities to produce semi-finished products (e.g., Ingots, Billets, Slabs). In addition, KSA will move further down the value chain by developing specific downstream capabilities (e.g., in value-added Titanium products such as Tubes and Profile Extrusions). Both developments will help KSA realize its Titanium sector ambition of becoming globally competitive and capturing a strong share of the global Aerospace and Industrial Titanium demand, in addition to developing world-class talent.

02 Market and Trends

Global Market

Globally, Titanium consumption reached ~133 kt in 2020 and is expected to grow at 2.2% annually over the next decade to reach consumption of 165 kt by 2030. Titanium has two main applications: Aerospace & Defence and Industrial Applications. The Aerospace & Defence segment is the largest market, representing nearly 45% of demand and expected to grow at 1.8% annually until 2030. Within this segment, Airframes accounts for 80% of demand, which is expected to increase from 48 kt in 2020 to 54 kt in 2030. Aeroengines take a less share of the demand by being limited to stationary parts and rotating equipment that require higher purity "triple melt" alloys and is expected to increase from 12 kt in 2020 to 14 kt in 2030.



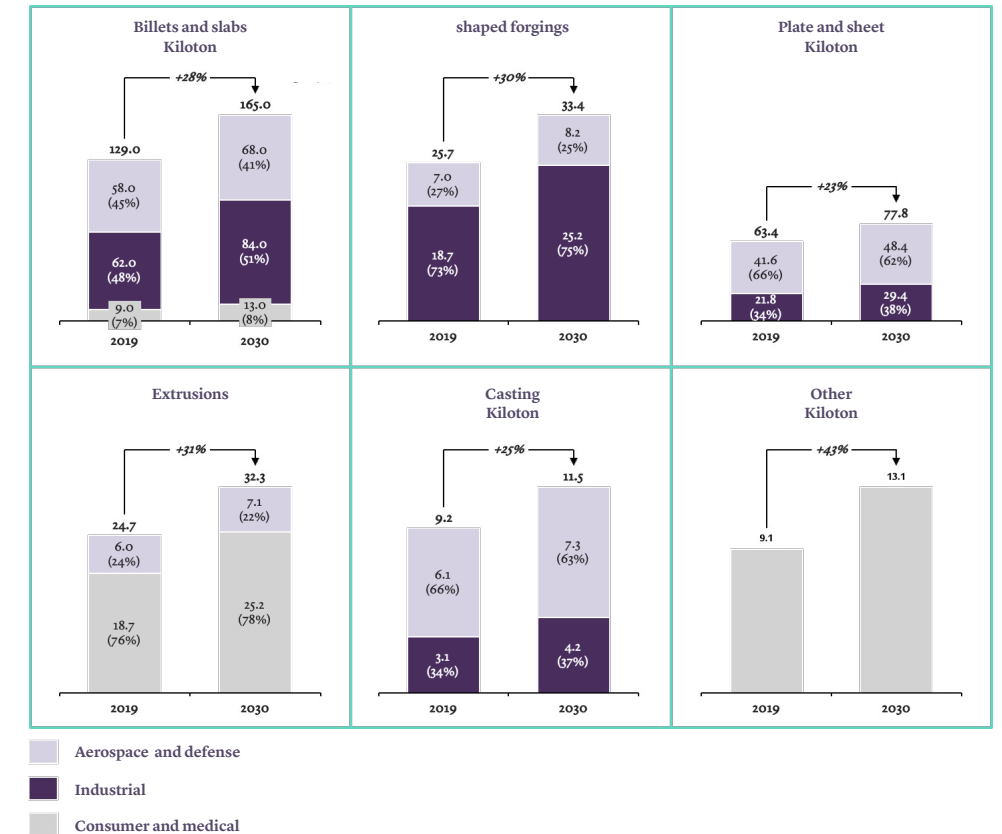
07

Sub-Sector Strategies.

Metal Industries - Titanium

Consumption of industrial titanium globally

On a product level, between 2019 and 2030 demand for all categories across the value chain is expected to grow by more than 20%. Demand for semi-finished products like Billets & Slabs, which are further refined into downstream products, will increase by 28% over the period. Shaped Forgings, mostly used in Industrial Applications, will grow from ~26 kt in 2019 to ~33 kt in 2030. Plate & Sheet, mostly used in the Aerospace & Defence segment, will grow from ~63 kt in 2019 to ~78 kt in 2030. Finally, demand for Extrusions, which are mainly used in the Consumer & Medical sectors, will grow from ~25 kt in 2019 to ~32 kt in 2030.



07

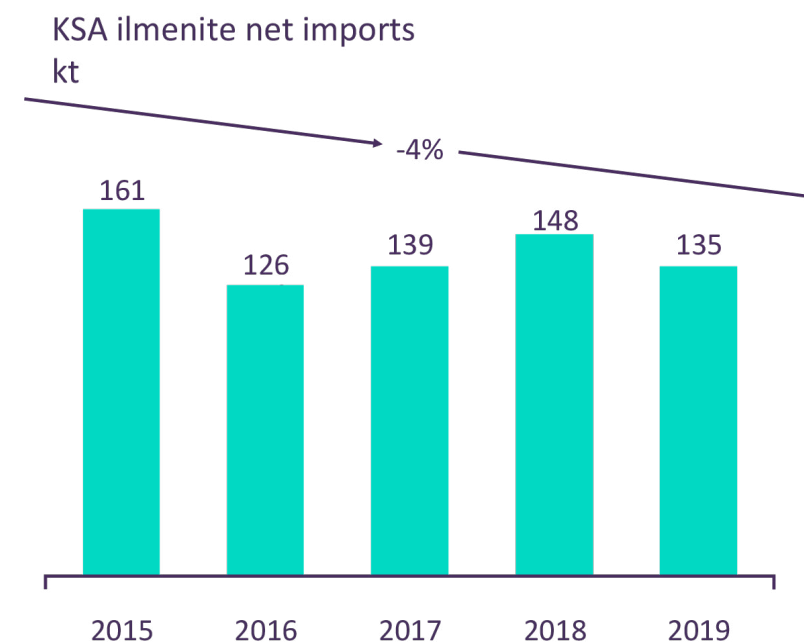
Sub-Sector Strategies

Metal
Industries -
Titanium

02

KSA Market

Although Titanium is not mined in KSA, the Kingdom leverages the strong global footprint of Cristal (which is 79% owned by Tasnee) to source ilmenite from Brazil and Australia. As such, the Kingdom is fully dependent on imports of ilmenite, which feeds Titanium midstream manufacturing operations. In the Kingdom, investments have been made in the Titanium value chain, particularly in a Titanium slagger and Sponge plant. KSA plans to further integrate in the midstream segment by developing capabilities in Melting and Forging to produce semi-finished products (e.g., Ingots, Billets, Slabs). In addition, it also plans to integrate further into the downstream segment of the value chain by developing capabilities in value-added Titanium products like Tube and Profiles Extrusions.



In addition, it also plans to integrate further into the downstream segment of the value chain by developing capabilities in value-added Titanium products like Tube and Profiles Extrusions.

07

Sub-Sector Strategies

Metal
Industries -
Titanium

Summary of the main trends of the titanium industry and their potential implications for NIS

Cluster trends	Potential implications for the NIS
Decarbonization	<ul style="list-style-type: none"> Increasing regulations to cut emissions in metal industry, mainly pushed by advanced economics to ensure carbon neutrality by 2050 Requirements to invest in CCUs (carbon capture, use and/or storage), or alternative reduction of carbon emissions comply with regulations
Energy Reforms	<ul style="list-style-type: none"> Electricity prices increased significantly over last decades, reaching similar regional levels and increasing production costs of manufacturers, thereby lowering their cost competitiveness
Digitalization	<ul style="list-style-type: none"> Increasing the employment of digital transformation to improve operations (such as sales forecasts and preventative maintenance). Encouraging digital transformation in the metal sector by integrating digitalization into the final value chain and maintaining competitiveness compared to global parties.
Stable Titanium sponge prices due to excess supply	<ul style="list-style-type: none"> The price for titanium sponge is driven by A&D and industrial demand; demand-supply balance kept prices above 5,000 USD/ton and generally stable for decades Manufacturers should invest in downstream manufacturing capabilities to ensure higher value add and obtain higher unit prices

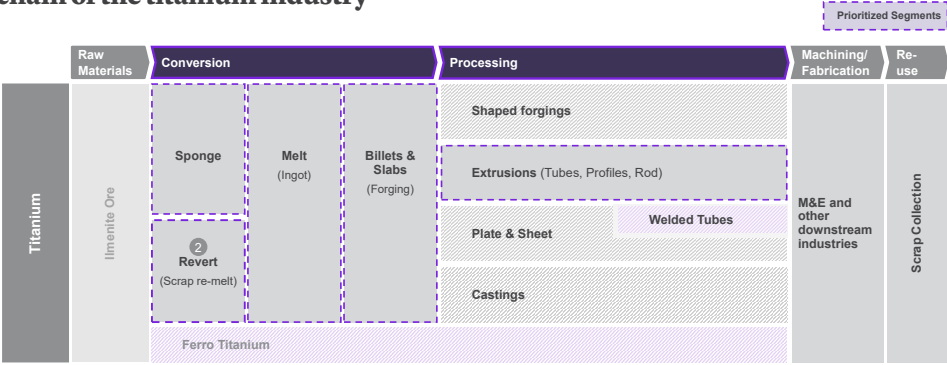
07

Sub-Sector Strategies.

Metal Industries - Titanium

03 Segments Selection

Summary of selected segments in the value chain of the titanium industry



It is important to note that deprioritized segments can still be developed by any investor leveraging the cross-cutting enablers of the industrial sector. Deprioritized segments could be evaluated on a case-by-case basis and be considered at later stages.



07

Sub-Sector Strategies

Most Prominent Initiatives

About the Most Prominent Initiatives of the National Industrial Strategy

- Transforming existing research and development centers into industrial technical application centers to develop industrial applications and providing technical support
- Developing technologies of recycling and facilities necessary for the circular economy through coordination with the entities concerned with recycling (such as The Saudi Investment Recycling Company (SIRC)).
- Enabling local producers, enhancing trading and securing alternative supplies through commercial agreements and import identification programs
- Evaluating the need for exempting the main raw materials used in the industry from custom tariff (such as tuna , oil seeds, cocoa).
- Equipping the food complex in Jeddah, which provides the necessary infrastructure, services, and facilities necessary for food industries factories.
- Equipping the food complex of seafood in Jazan.
- Enabling the Saudi Halal brand to be a global brand and transforming the Kingdom into a logistics center for Halal food.
- Implementing the local content policies to enable machinery and equipment industries.
- Developing incentives packages to attract OEMs and ensure partnerships that contribute in transferring the technology and know-how (for example, aerospace parts, drones... etc.).
- Coordinate with regional countries to pool aerospace demand to create a critical mass and align on country capabilities in the supply chain to optimize synergies, avoid potential cannibalization.
- Work with pre-identified local tier-2 & tier-1 suppliers with strong potential to define a growth program to cater to upcoming demand from domestic OEMs, and support participation in Quality Certification Program of global OEMs
- Enabling local and global suppliers to work on agreements to establish manufacturing and assembling facilities locally.

07

Sub-Sector Strategies

Most Prominent Initiatives

About the Most Prominent Initiatives of the National Industrial Strategy

- Approve tailored incentive packages to increase attractiveness for anchor OEMs and global suppliers to establish local manufacturing capabilities (e.g., flexible financing, import tariff exemption on specific components not locally manufactured, CapEx grants, and human capital support development)
- Enabling and periodically reviewing pharmaceutical procurement (such as mandatory list and price preferences).
- Leverage national clinical trials excellence center (National Command Center) to coordinate and promote clinical trial activity in KSA
- Consider incentivizing R&D expenditure by providing matching grants/ loans (proportional or equal) to investors with committed investments in target value-chain capabilities
- Coordinate to offer SMEs tailored contracts encouraging higher share in government procurement and support to localization objectives (e.g., extended periods, annual renewal conditions, favorable sizing, early tender announcements, expedited financial payback/ reimbursement).
- Promote a MedTech innovation center to provide industry focused know-how transfer programs in key industry skillsets (e.g., pre-clinical/ clinical evaluation, trainings, proto-typing, product design).
- Developing and enhancing investment enablers in industrial zones to attract global manufacturers and enhancing participation of SMEs (such as low prices, ready facilities, and plug and play infrastructure).
- Developing the infrastructure of King Salman Complex for Maritime Industries.
- Developing national talents at the maritime industries sector through the National Maritime Academy.

08

Economic Impact

08

Economic
Impact

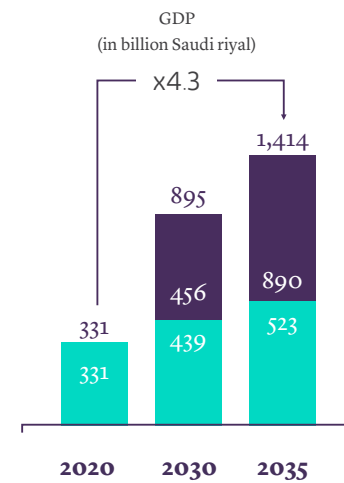
General Economic Impact of the Industrial Sector

The implementation of NIS will enhance the industrial sector in the Kingdom as the sector will achieve the following by 2030:

01

Annual GDP exceeded 895 billion Saudi riyals with an increase of 2.7 times in 2030 and 4.3 times in 2035 in comparison with the levels of 2020.

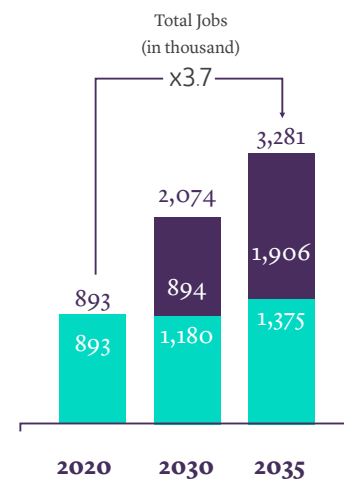
■ NIS Upside
■ The current value with organic growth



02

Creating nearly 2.1 million direct and indirect industrial jobs with an increase of 2.3 times in 2030 and 3.7 times in 2035 in comparison with 2020.

■ NIS Upside
■ The current value with organic growth



03

Annual manufacturing goods exports exceed 557 billion Saudi riyals with an increase reaching 3 times in 2030 and 5.3 times in 2035 in comparison with 2020.

■ NIS Upside
■ The current value with organic growth



08

Economic
Impact

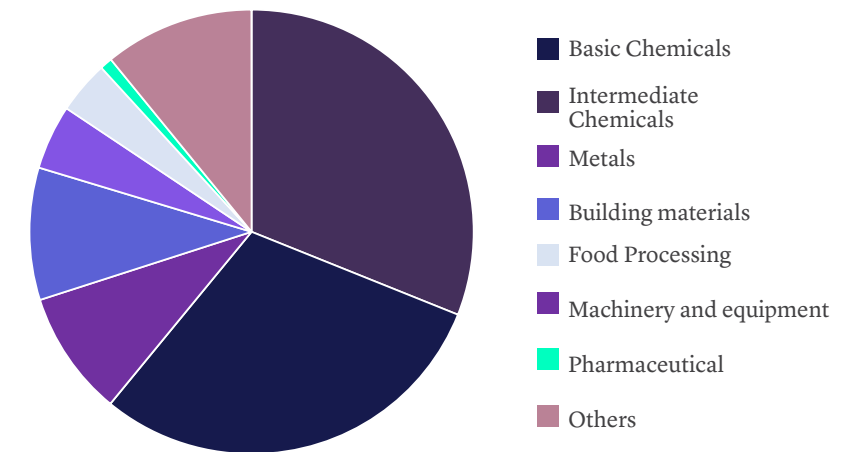
Through NIS, it is expected that the Kingdom will achieve improvements across the elements of economic complexity, represented by the diversity and uniqueness of industrial exports

Economic complexity is defined as the measure of knowledge in the society that is reflected through the products it produces. The economic complexity of a certain country is calculated based on the widespread and diversity of the exports produced by the country.

The National Industrial Strategy through the targeted industries will allow the Kingdom to reach advanced ranks in the economic complexity as entering into and exporting new industries that are not widely available is one of the most important guidelines of the National Industrial Strategy.

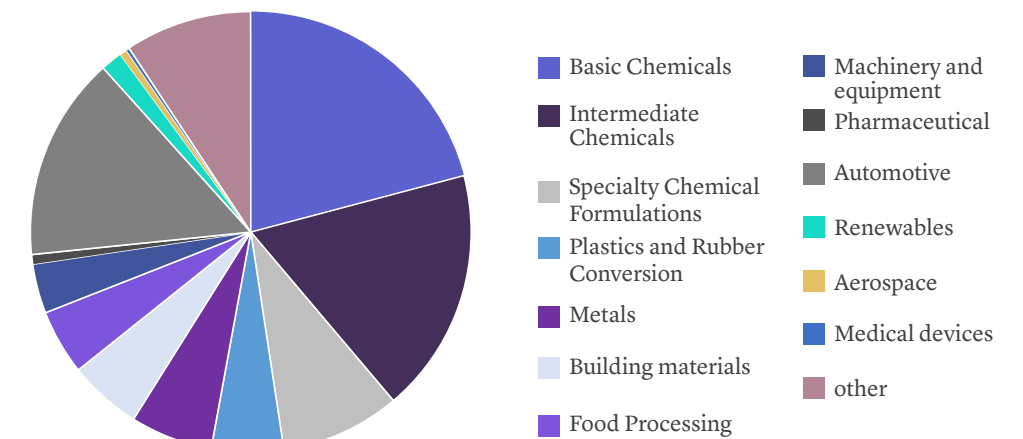
Non-oil exports distributed by sectors in 2020

169 billion Saudi riyals



Non-oil exports distributed by sectors in 2035

892 billion Saudi riyals



08

**+36
thousand
factories**
by 2035

Most prominent
enablers

Most prominent enablers:

- entities, government-owned companies and Public Investment Fund projects with a view to estimating demand in the next 5 to 10 years.
- Increasing SMEs' contribution to government tenders.
- Improving regulations to attract foreign investors (for example: international arbitration, intellectual property protection and bureaucracy reduction).
- Facilitating priority visas to attract the necessary talent for promising and technical sectors.

An illustrative map of the development of the Kingdom's industrial sector in 2035



وطن يصنع

An Industrial Nation
National Industrial Strategy

09

Key Performance Indicators

09

Key Performance Indicators

The below table clarifies the main elements of the key performance indicators of the Higher Committee of Industry in addition to the baseline and the targets.

Indicator Name	Baseline 2020	2030	2035	Clarification
Competitive Industrial Performance Index - CIP (Rank)	37	20	Top 15	The Kingdom aspires to be among the top 15 countries in the world in the industrial sector competitiveness and the economic complexity.
Economic Complexity Index - ECI (Rank)	39	20	Top 15	
Manufacturing GDP (in billion Saudi riyal)	331	895	1,413	Increasing the GDP which would contribute to the advancement of the Kingdom's position within the G20.
Manufacturing exports (in billion Saudi riyal)	169	557	892	Increasing manufacturing exports as the Strategy is aiming to improve the competitiveness of local products, which will lead to improvement in the balance of trade.
Manufacturing sector employment (thousand job)	893	2,074	3,281	Creating new manufacturing jobs to reach almost 3 times in comparison with 2020.
NIS Localization Ratio (%)	41%	57%	64%	Growth in the percentage of local industries localization by a multiple of 1.4.

وطن
يصنع

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National Industrial Strategy



10

Governance

10

Governance

The lessons learned from the benchmarking comparisons of the governance of industrial strategies for countries that have gone through the modern industrial renaissance were used in the governance design principles of NIS and the most prominent of which are:

01

Integration

Creating enabling environment that supports integration and collaboration between all Sub-sector and governmental entities and avoids overlapping of responsibilities

03

Disciplined & agile

Disciplined monitoring of the progress of the Strategy implementation to enable taking corrective actions, overcoming obstacles, and adapting to changes

05

Customer-oriented

A governance that is designed to serve the customers based on the investors' journey to ensure meeting the needs of the private sector

02

Industry-driven

driven by the industrial sector, implementing segment-specific actions and coordinating with government on required enablers.

04

Efficient & lean

Efficient use of resources with minimal bureaucratic interfaces ensuring ease of implementation

10

Governance

The most prominent principles were created to design the governance to achieve the aspirations of the Strategy, which are:

01

Top-level sponsorship:

Industrial strategies of countries achieving rapid industrial growth are directly sponsored by heads of government. The priority of the topic, the cross-sectoral and cross-government nature of Industrial policies, and its influence in the overall economy require many times the direct involvement of the heads of state.

03

Central coordination entity

The central teams will follow up the implementation of the strategy and coordinate the efforts between the senior leadership and legislative bodies of the industrial ecosystem, the Sector's enablers and the private sector companies.

02

Industrial Private Sector Participation

The industrial private sector parties participate in leadership roles in activating the Strategy and they have effective roles in the industrial sub-sectors work teams.

04

Assigning the implementation of the enablers to the authorities according to the mandates

Assigning each enabler to a relevant execution entity according to the mandate of the authority that will lead the implementation of the enabler and coordinate with the central teams responsible for activating the Strategy.

10

Governance

The governance of NIS

The Strategy adopted an effective governance model that indicates the relevant entities' roles to align and follow up the implementation of the Strategy.

The Strategy adopted an effective governance model that indicates the relevant entities' roles to align and follow up the implementation of the Strategy.

The Council of Economic and Development Affairs shall review and authenticate the National Industrial Strategy to obtain the final approval from the Council of Ministers. The governance of the Strategy has included the Higher Committee for the Industrial Development (HCID) that leads the efforts to develop the industrial sector through coordinating the sector enablement procedures by formulating and implementing strategies and policies, following up the implementation of the initiatives of the Strategy, overcoming obstacles.

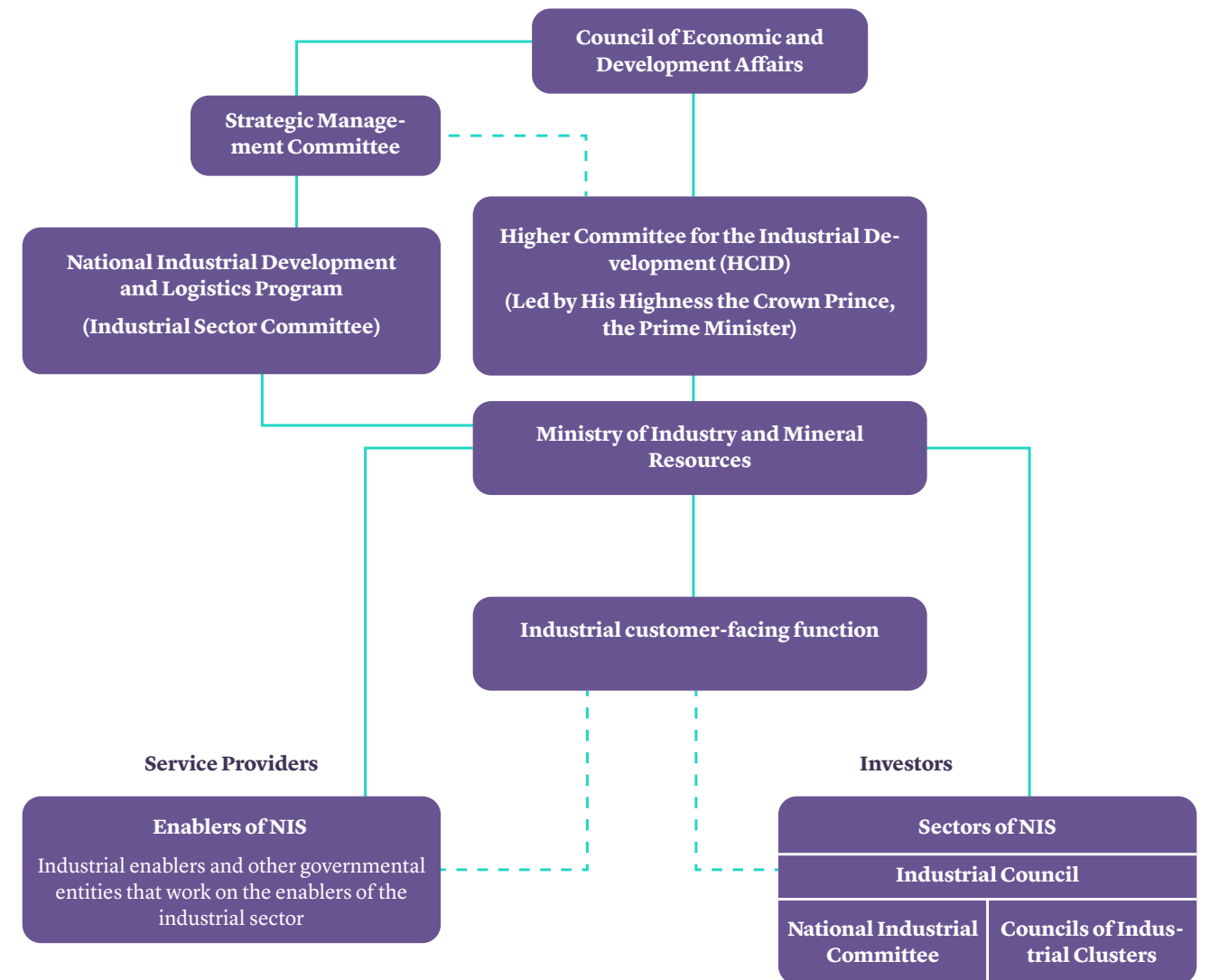
The National Industrial Development and Logistics Program works on the strategic alignment between the national strategies related to the industrial sector and undertakes the responsibility of implementing the initiatives of the Strategy to achieve the targets of the Kingdom's Vision 2030 and access the necessary financing. It also endorses the financing decisions of the National Industrial Strategy.

The Ministry of Industry and Mineral Resources leads the process of developing

policies and strategies across the industry and the industrial sectors supervised by it. It undertakes the responsibility of implementing the strategy. In the proposed governance model, the enablers of the National Industrial Strategy were assigned to the governmental entities that implement the initiatives of the Strategy and provide enablement according to their specialty.

In order to serve the industrial investors and reduce the obstacles that they may face, the Industrial customer-facing function was established to serve the industrial clients by providing industrial data, business development, and linking with other governmental entities in coordination with the Ministry of Investment. Given that the industrial private sector is a key partner in achieving the targets of the Strategy, the Industrial Council- which includes representatives from governmental entities and the industrial private sector- communicates with industrial investors to understand and analyze the needs of the industrial sector and submits them along with escalating the challenges to the Ministry of Industry and Mineral Resources as needed.

The governance of NIS



- - - Coordination

— Reporting

وزارة الصناعة
والثروة المعدنية
Ministry of Industry and Mineral Resources



National Industrial Strategy (NIS) An industrial nation

وطن
يصنع

الاستراتيجية
الوطنية للصناعة