

Offshore

Workshop

Business Opportunities

XXth January 2025

Presenter: Ibrahim Alateeq

This presentation may contain certain forward-looking statements. All statements other than statements relating to historical facts are, or may be deemed to be, forward-looking statements. Forward-looking statements include, but are not limited to, statements related to future events or to the company's future financial or operating performance such as the company's expectations and projections regarding its growth, initiatives and strategies, capital expenditures and investments, customer and partner relationships, major projects and product development. These statements may generally, but not always, be identified by the use of words such as "target," "goal," "aim," "believe," "expect," "commit," "anticipate," "intend," "estimate," "should," "will," "shall," "may," "likely," "plan," "strategy," "initiative," "project," "outlook" or similar expressions, including variations and the negatives thereof.

Forward-looking statements reflect the company's expectations, beliefs, estimates, forecasts, projections and assumptions, only as of the date such statements are made, and are subject to known and unknown risks, uncertainties and other important factors beyond the company's control that could cause the company's actual results, performance or achievements to be materially different from the expected results, performance, or achievements expressed or implied by such statements. Factors that could cause actual results to differ materially from the company's expectations include, among other things, the following: global supply, demand and price fluctuations of oil, gas and petrochemicals; global economic conditions; competition in the industries in which the company operates; climate change concerns, weather conditions and related impacts on the global demand for hydrocarbons and hydrocarbon-based products; risks related to the company's ability to successfully meet its ESG targets, including its failure to fully meet its GHG emissions reduction targets by 2050; conditions affecting the transportation of products; operational risk and hazards common in the oil and gas, refining and petrochemicals industries; the cyclical nature of the oil and gas, refining and petrochemicals industries; political and social instability and unrest and actual or potential armed conflicts in the MENA region and other areas; natural disasters and public health pandemics or epidemics; the management of the company's growth; the management of the company's subsidiaries, joint operations, joint ventures, associates and entities in which it holds a minority interest; exposure to inflation, interest rate risk and foreign exchange risk; risks related to operating in a regulated industry and changes to oil, gas, environmental or other regulations that impact the industries in which the company operates; legal proceedings, international trade matters, and other disputes or agreements; and other risks and uncertainties that could cause actual results to differ from the forward-looking statements in this presentation, as set forth in the latest periodic reports filed by the Saudi Arabian Oil Company ("Aramco") with the Saudi Exchange. For additional information on the potential risks and uncertainties that could cause actual results to differ from those presented please see Aramco's most recent annual periodic report filed with the Saudi Exchange and any subsequent filings thereto.

We undertake no obligation to update or revise any forward-looking statement, whether as a result of new information, future events or otherwise. All subsequent written and oral forward-looking statements attributable to us or to persons acting on our behalf are expressly qualified in their entirety by this cautionary statement.

iktva Program Overview (1/2)

The In-Kingdom Total Value Add (iktva) program is designed to drive increased investment, economic diversification, job creation, and workforce development within the Kingdom

Saudi Aramco aims to achieve 70% localization of all spending



iktva in Procurement

2000+ Service contracts	290+ Corporate purchase agreements
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Business Opportunities

12 Sectors	200 Business Opportunities	\$28 bn Annual Market Size
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Anchor Projects

6 Anchor projects

 IMI	 SPARK	 Tuwaiq
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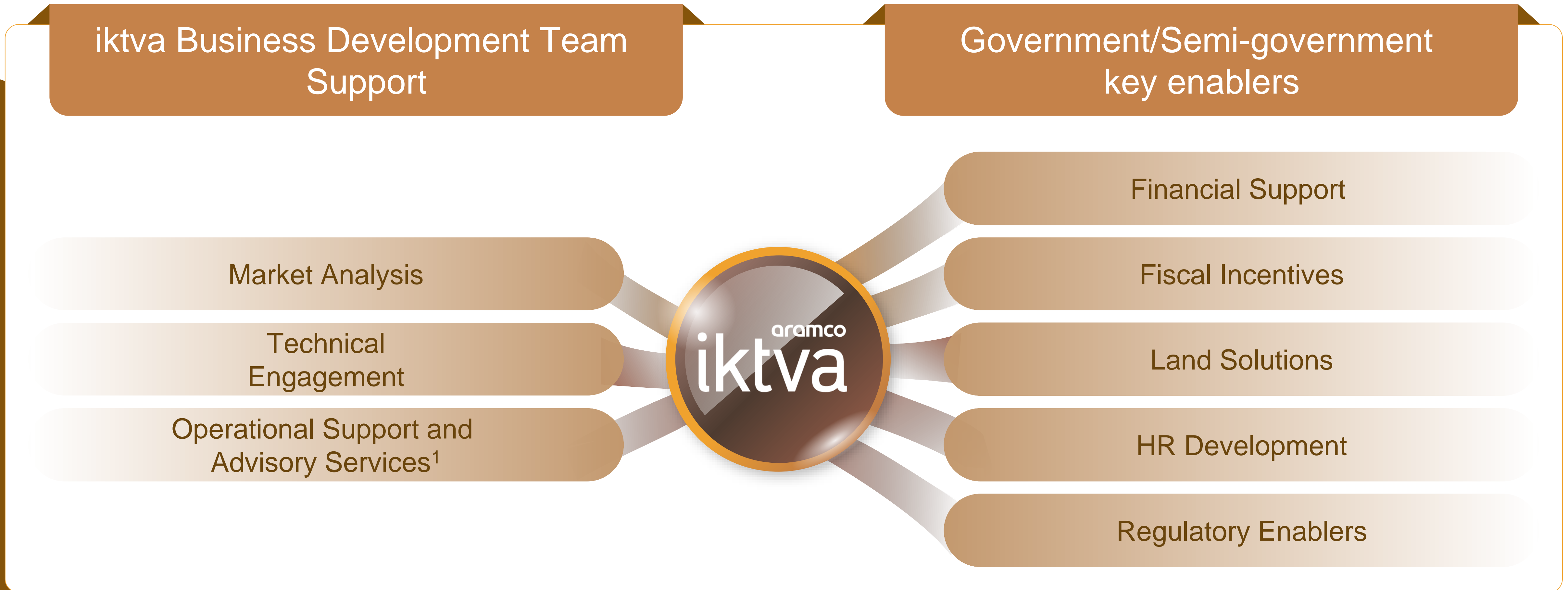
Local Workforce Development

16 National training centers	90+ Programs
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Catalyzing Supply Chains

Note: IMI = International Maritime Industries; SPARK = King Salman Energy Park

Fire protection workshop











Catalyzing Supply Chains

1. Includes broad range of support services provided by the team: user requirements, advisory on available financial and fiscal incentives, guidance on localization process in line with local regulations and standards, action plan development etc.

Why invest in KSA?

Non-exhaustive

 Strong GDP growth and healthy economy	 Big market and game-changing opportunities	 Government incentives and enablers	 Ease of doing business	 Strategic global location	 Favorable demographics
Top 20 economies globally	5 Special Economic Zones drive innovation	\$1.3T+ invested in private sector by 2030	 one of world's most rewarding tax systems	12-15% of global trade passes via Red Sea	17% population growth from 2013-2023
GDP growth among highest projected in 2025 in top economies	6 giga projects driving urbanization and industry	5.7% contribution of FDI to GDP by 2030	Top 5 in the MENA region for ease of doing business	 KSA container ports are among the most efficient globally	67% of population below the age of 35

Catalyzing Supply Chains

Note: FDI = Foreign Direct Investment
Source: IMF; MISA; Vision 2030 Key Performance Indicators; Shareek Program; World Bank

How do we define what is an opportunity?



Growing market

High growth high spend markets



**Limited local players
& import driven**

*Markets with few local contributors
and high import resilience*



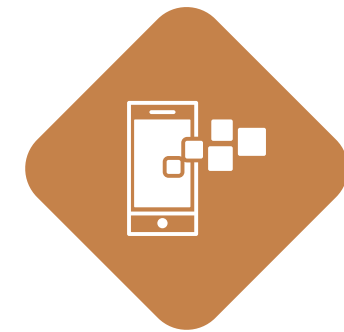
**Technological
& labor feasibility**

*Markets with accessible or
standardized technology and
available skilled labor*

Four key drivers for the KSA offshore market



Saudi Aramco is expected to **increase capital expenditure in offshore projects** to maintain its 12MM bpd of production capacity



KSA has intensified efforts to explore and **exploit deeper offshore resources** leading to the rising demand for **advanced technologies**



Saudi Aramco's **pledge to achieve net zero Scope 1&2 GHG emissions** by 2050 and to reduce upstream carbon intensity by 15% by 2035¹ **boosts adoption of sustainable technological solutions**



Rapid industrialization, urban expansion, and population growth in KSA **significantly raise demand for electricity**, thereby driving the need for an increased oil and gas supply from offshore projects

Catalyzing Supply Chains

1. Against Saudi Aramco's baseline of 2018
Source: Saudi Aramco; Arab News; Consortiq; Desktop research; Team analysis

Offshore Market Overview

KSA offshore

12 opportunities to be discussed today

\$1.98B
6.4% CAGR¹

2024 KSA market size for opportunities
in today's workshop

- 1 Flexible Pipelines
- 2 Subsea Ball Valves
- 3 Marine Rubber Fenders
- 4 Subsea Cable Protectors
- 5 Sacrificial Anodes
- 6 Rolled Sections
- 7 Helipad Lighting & Navigation Aids
- 8 Offshore Geotechnical & Geophysical Survey
- 9 Piles Driving Monitoring Services
- 10 Pipeline In-Line Inspection Services
- 11 Offshore Vessel Services
- 12 Epoxy & Concrete Coatings

Flexible Pipelines

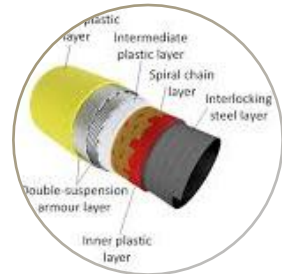
Speaker name

Opportunity profile – flexible pipeline

1

KSA has strong flexible pipe demand to support its oil and gas expansion

Types



Flowlines



Jumpers

Applications



Offshore infrastructure

Example

Abu Safah Field

Berri Field

Manifa Field

2

The flexible pipe market experiences a gradual increase

140

Estimated 2024 KSA market size. \$MM

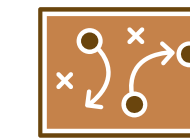
3%

Forecasted 5-year CAGR

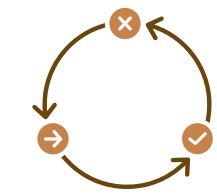
3

Attractive investment opportunities for the flexible pipe value chain

KSA value chain opportunities



Intermediate processes



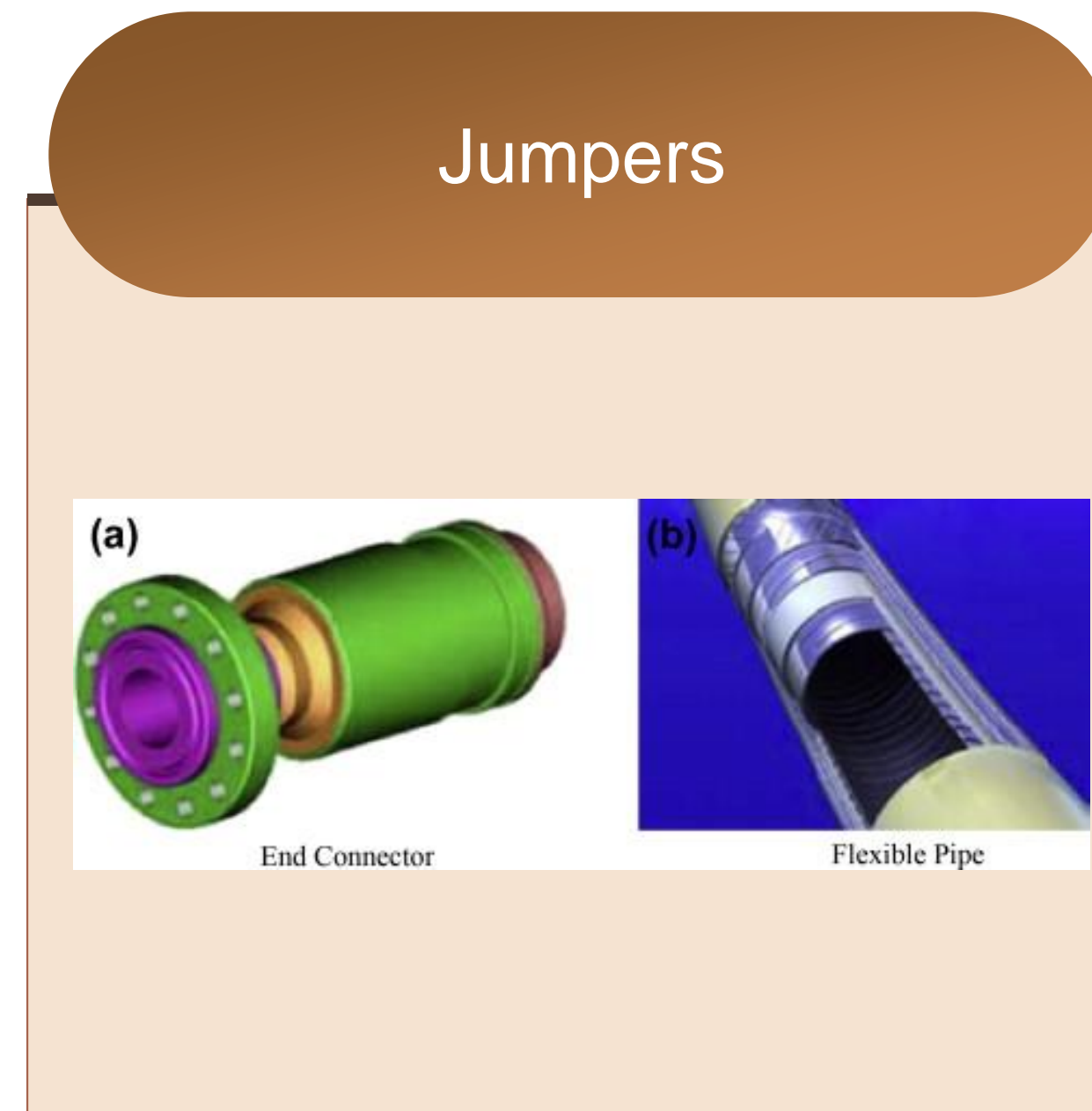
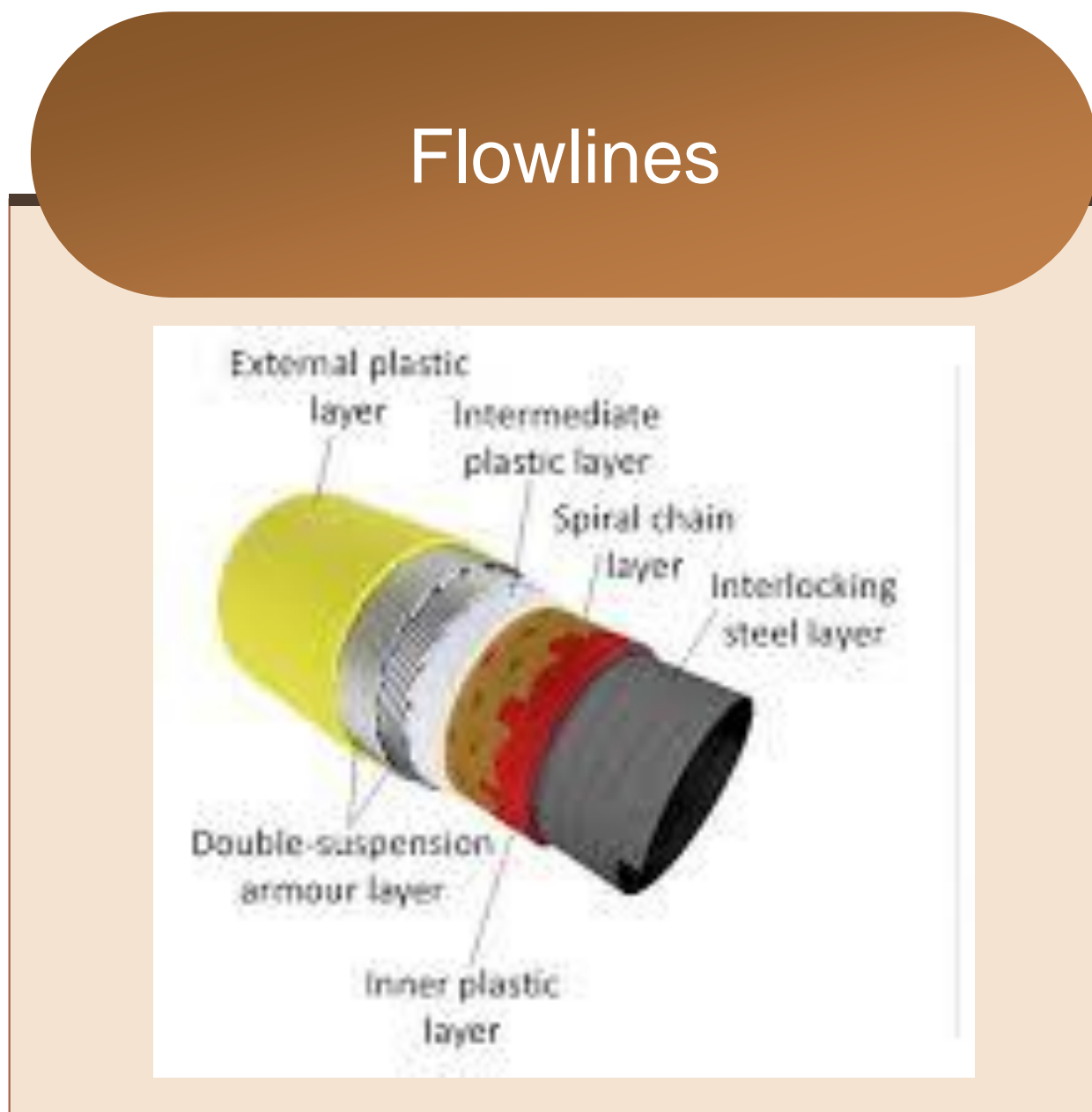
Lifecycle management

KSA enablers

- Financial and technical support
- Custom duty exemptions on machinery
- Specialized training programs

Potential flexible pipeline localized categories

Non-exhaustive



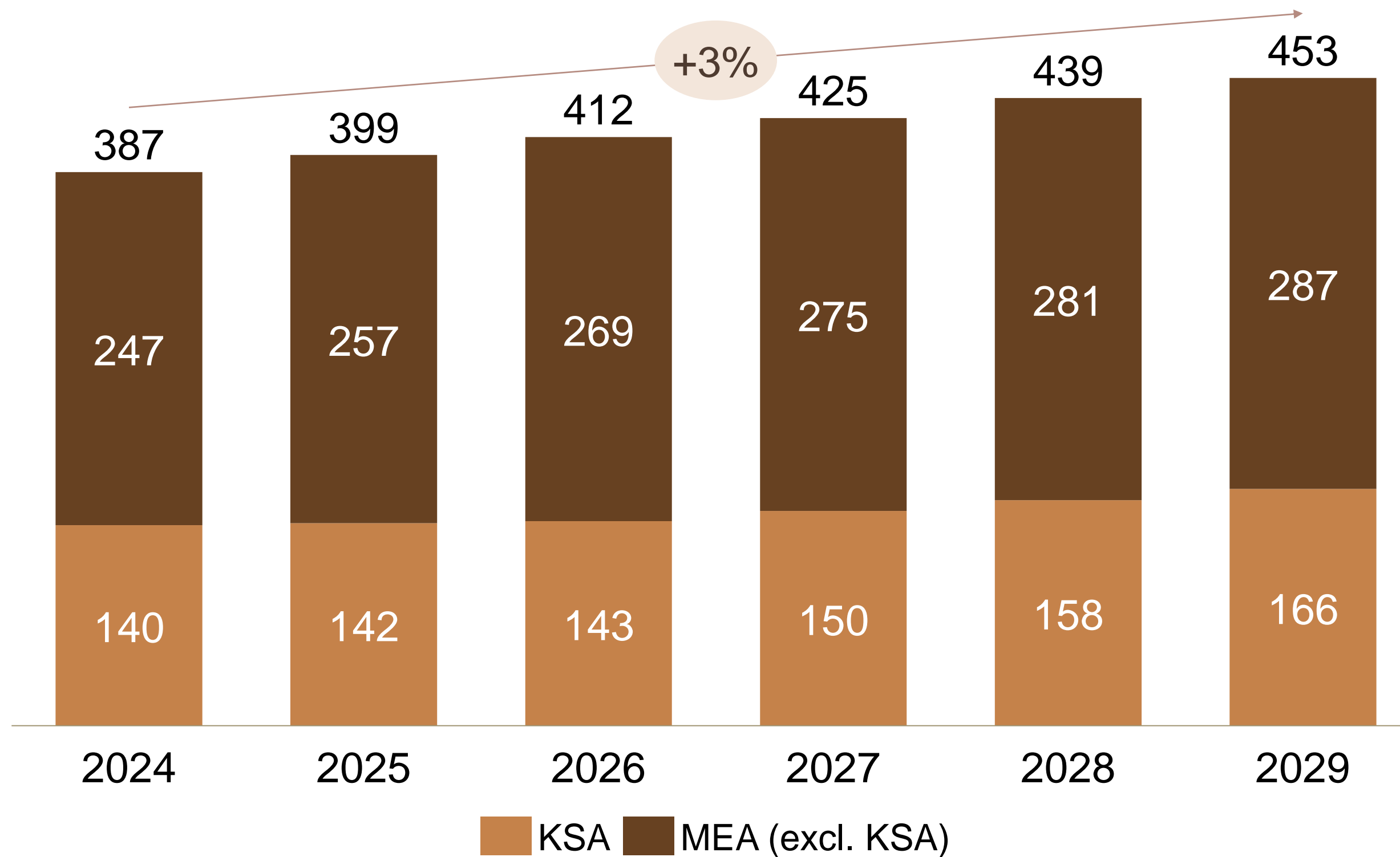
Applications

Usually laid on seabed; transport produced fluids like oil, gas, or water, from wellhead to processing

Short pipe sections to connect subsea structures (wells, manifolds, flowlines); provide flexibility in layouts

Flexible pipeline demand, customers, and drivers

Forecasted KSA and rest of MEA flexible pipe market 2024-2029 (\$MM)



Typical flexible pipes customers in KSA



Oil & gas sector

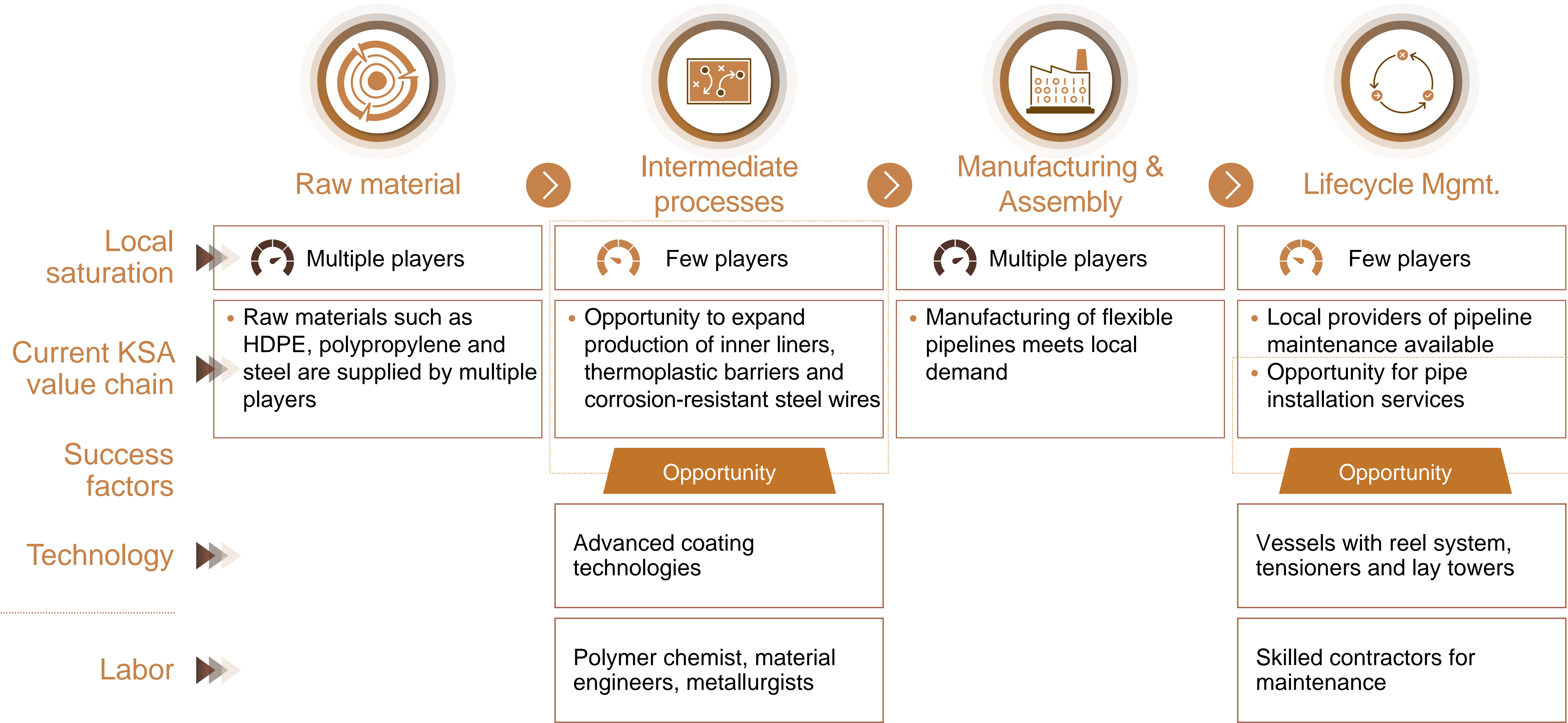
Key KSA demand drivers

- **Sector expansion:** Increased capital expenditure in offshore projects to maintain 12 million bpd of production capacity
- **Industry trends:** Increased use of flexible pipelines in shallow and long horizontal wells boosts demand

Offshore Workshop

Catalyzing Supply Chains

Value chain and key localization opportunities



Offshore Workshop

Catalyzing Supply Chains

Note: HDPE = High-density polyethylene; Lifecycle management including all post-production services, including installation
Source: Team analysis

Investment opportunity and enablers

Key enablers in KSA to drive success¹



Value chain network and financial programs: Nusaned program by SABIC gives access to raw materials and to financial investment to establish local factories



Customs enablers: Custom duty exemption from MoCI on machinery and equipment for establishment of pipeline installation players

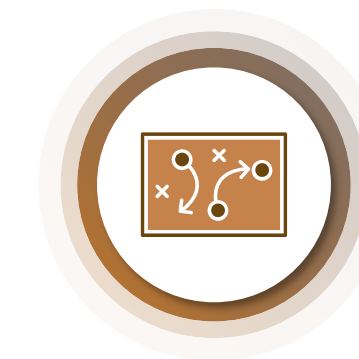


Offshore projects realization: Major new offshore energy projects grow the local demand for flexible pipelines



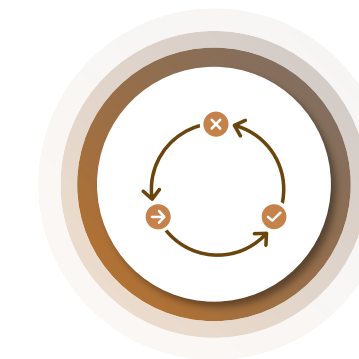
Human capital enablers: National Maritime Academy can offer specialized training for offshore installments of flexible pipelines

Where is the opportunity



Establish component production of inner liners, thermoplastic barriers and corrosion-resistant steel wires

Intermediate processes



Localize the installation process of flexible pipelines

Lifecycle management

Catalyzing Supply Chains

1. Detailed list of all enablers in the backup

Note: MoCI = Ministry of Commerce and Industry; SABIC = Saudi Basic Industries Corporation

Source: Team analysis

Subsea Ball Valves

Speaker name

Opportunity profile – subsea ball valves

1

KSA needs subsea ball valves to realize ongoing oil and gas expansion

Types



Regular ball valves

Applications



Offshore infrastructure

Example

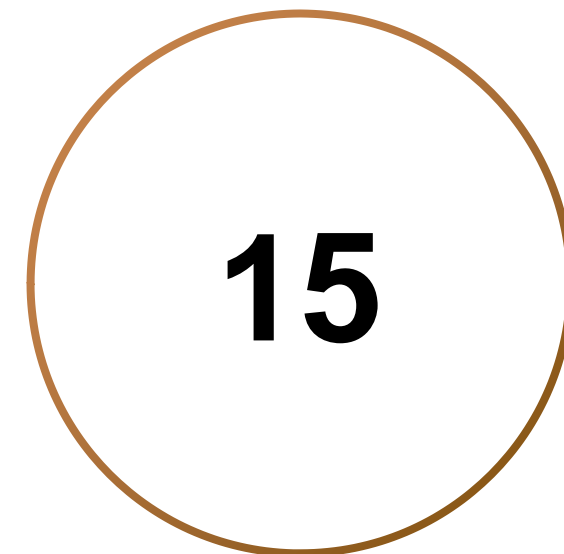
Hasbah Field

Abu Safah Field

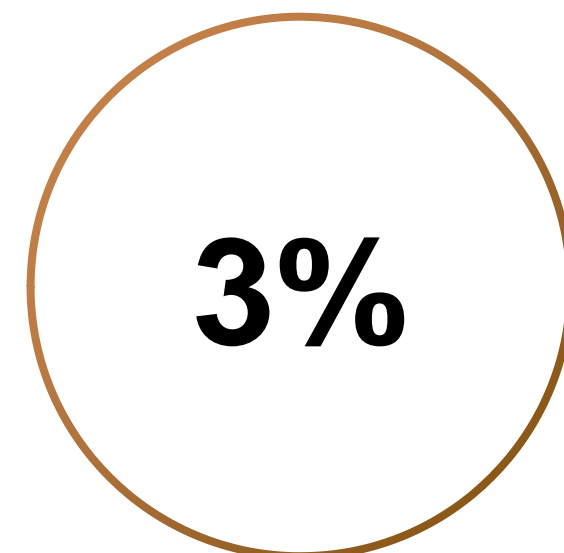
Manifa Field

2

Subsea ball valves market experiences a moderate growth



Estimated 2024 KSA market size. \$MM

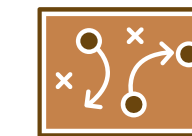


Forecasted 5-year CAGR

3

Attractive investment opportunities for the subsea ball valves value chain

KSA value chain opportunities



Intermediate processes

KSA enablers

- SPSP training programs
- Custom duty exemptions by MoCI
- CAPEX financing programs from SIDF

Catalyzing Supply Chains

Note: SPSP = Saudi Petroleum Services Polytechnic; MoCI = Ministry of Commerce and Industry; SIDF = Saudi Industrial Development Fund
 Source: Value Market Research; Zion Market Research; Expert input; Team analysis

Potential subsea ball valves localized categories

Regular subsea ball valves

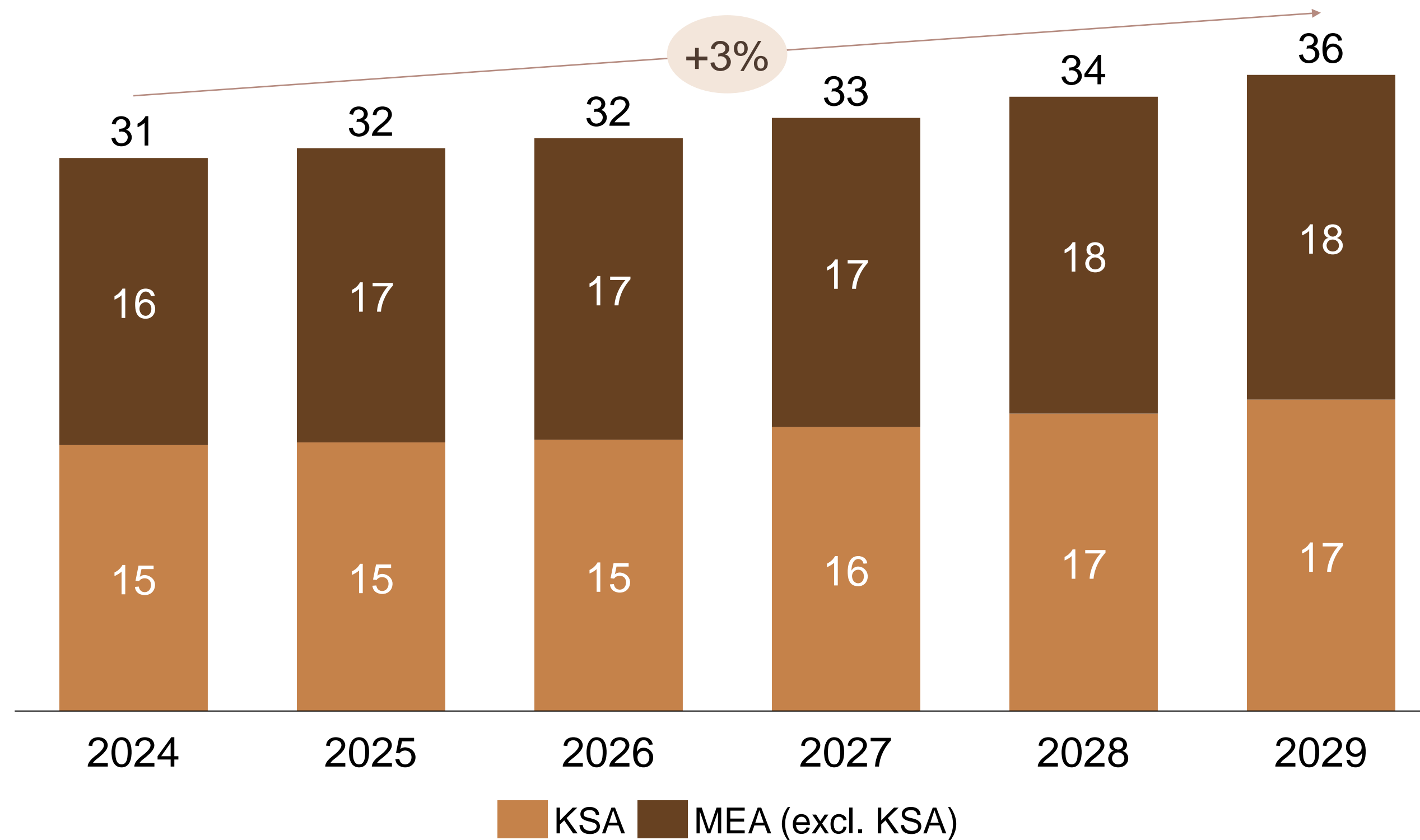


Applications

- Regulation of hydrocarbon flow in underwater pipelines and systems
- Emergency shutdown of subsea systems
- Pressure management
- Isolation of pipelines for maintenance

Subsea ball valves demand, customers, and drivers

Forecasted KSA and rest of MEA subsea ball valves market 2024-2029 (\$MM)



Typical SBV customers in KSA



Oil & gas sector

Key KSA demand drivers

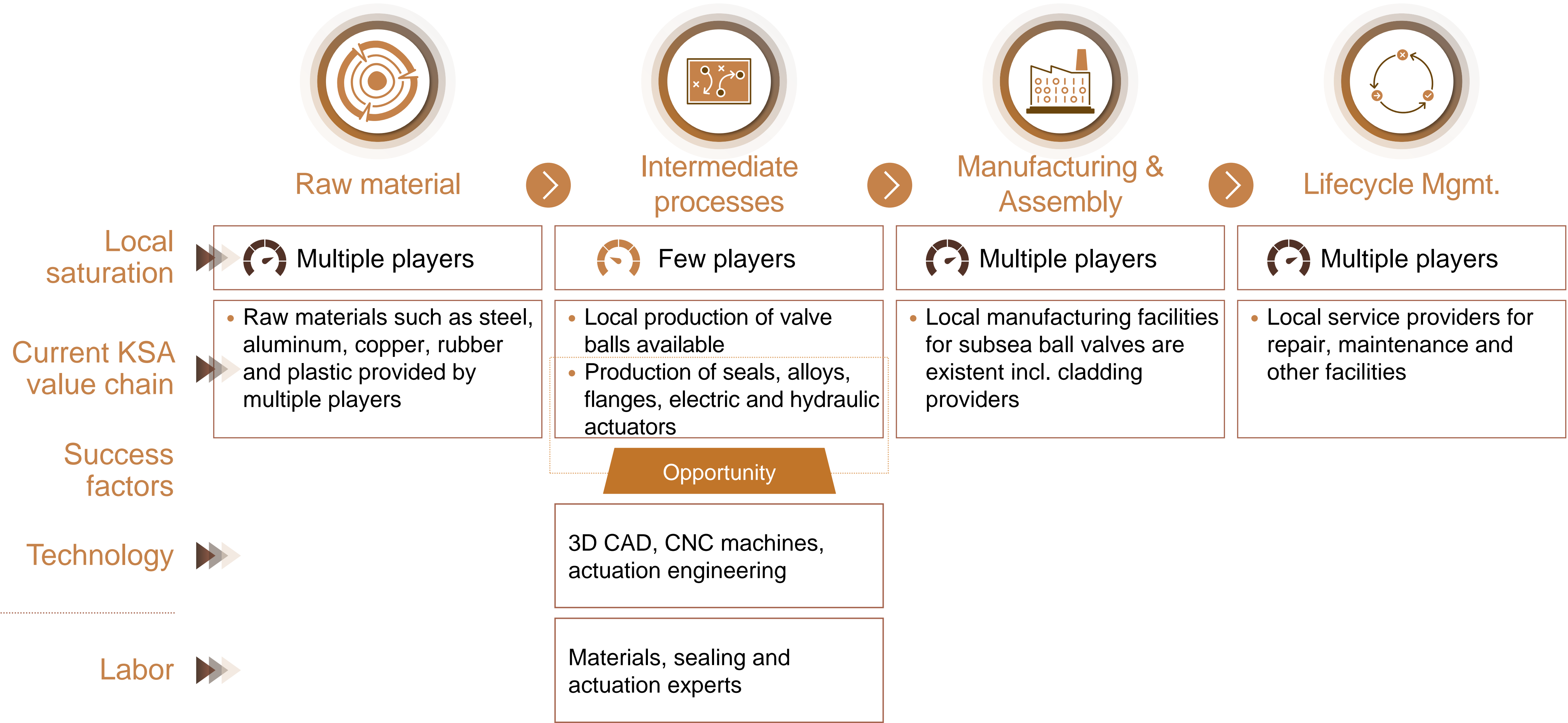
- **Sector expansion:** Capital expenditure increase in offshore projects to maintain production capacity at 12 million bpd
- **Technological advancements:** KSA has intensified its efforts to exploit deeper offshore resources leading to a rising demand for advanced technologies

Offshore Workshop

Catalyzing Supply Chains

Note: SBV = Subsea Ball Valves
Source: Value Market Research; Zion Market Research; Expert input; Team analysis

Value chain and key localization opportunities



Catalyzing Supply Chains

Note: CAD = Computer-aided design; CNC = Computer numerical control; Lifecycle management including all post-production services, including installation
Source: Team analysis

Investment opportunity and enablers

Key enablers in KSA to drive success¹



Technical enablers: Strong forging and cladding overlays capabilities in KSA can be leveraged for the local production of SBVs



Human capital enablers: SPSP can offer workforce skilling programs focusing on the manufacturing processes of SBVs



Customs enablers: Custom duty exemption from MoCI on machinery and equipment for establishment of local component producers



Financial enabler: Access to CAPEX financing programs from SIDF, to establish factories and purchase machinery and equipment

Where is the opportunity



Intermediate processes

Establish local production of advanced seals, alloys, flanges and electric and hydraulic actuator systems

Catalyzing Supply Chains

1. Detailed list of all enablers in the backup

Note: SBV = Subsea Ball Valves; SPSP = Saudi Petroleum Services Polytechnic; MoCI = Ministry of Commerce and Industry; SIDF = Saudi Industrial Development Fund

Source: Team analysis

Marine Rubber Fenders

Speaker name

Opportunity profile – marine rubber fenders

1

KSA needs MRFs to support its offshore oil and gas expansion

Types



V-type MRFs



Cylindrical MRFs



Maritime MRFs

Applications



Offshore infrastructure



Port wharfs



Shipyards

Example

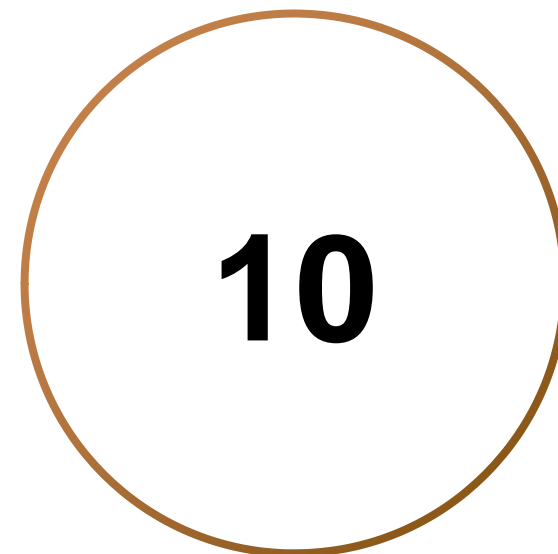
Oil platform jackets

Oxagon

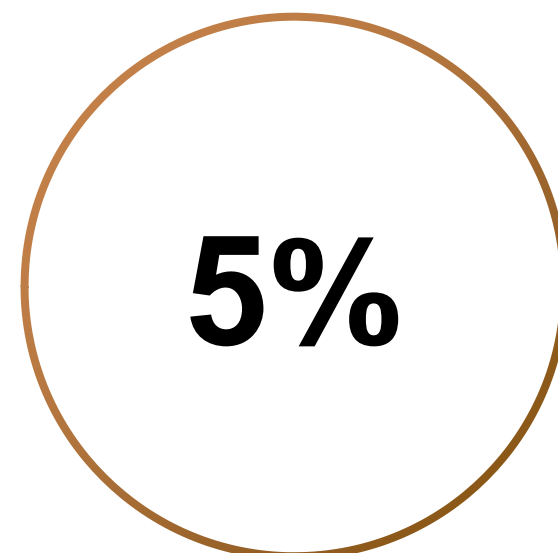
King Salman Shipyard

2

MRFs are a growing market with KSA having the largest share in MEA



Estimated 2024 KSA market size. \$MM

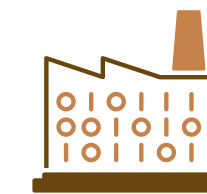


Forecasted 5-year CAGR

3

Attractive investment opportunities for the MRF value chain

KSA value chain opportunities



Manufacturing

KSA enablers

- Regional land and loan programs
- Realization of new offshore projects
- Tax exemptions on export earnings

Catalyzing Supply Chains

Note: MRF = Marine Rubber Fenders
 Source: Transparency Market Research; Expert input; Team analysis

Potential marine rubber fenders localized categories

Non-exhaustive

V-type rubber fenders



Applications

- Offshore platform jackets
- Floating terminals
- Port wharfs and berths

Cylindrical rubber fenders



- Offshore platform jackets
- Floating terminals
- Port wharfs and berths

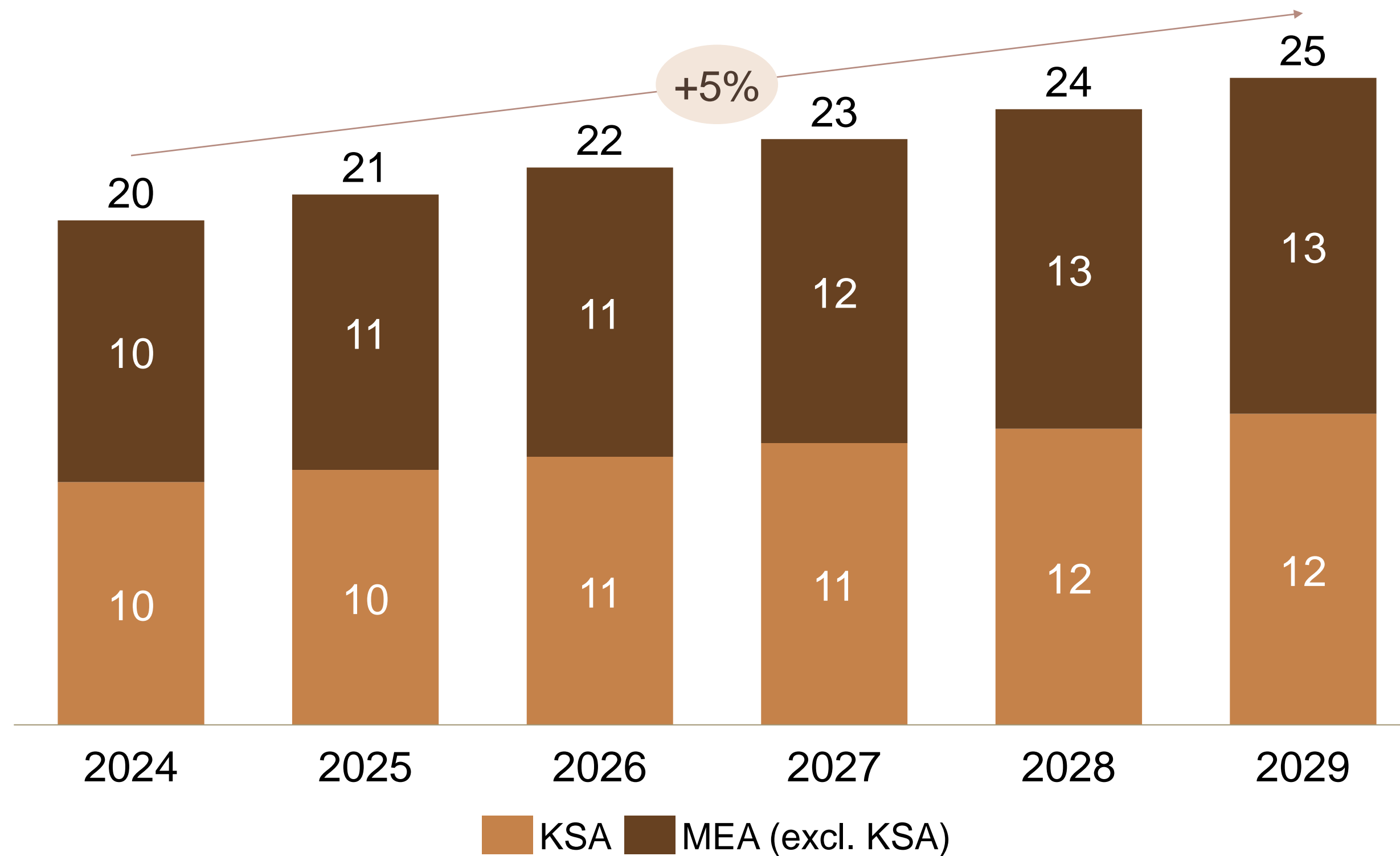
D-type boat rubber fenders



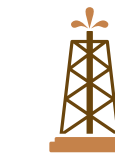
- Shipyards
- Ship operators

Marine rubber fenders demand, customers, and drivers

Forecasted KSA and rest of MEA marine rubber fenders market 2024-2029 (\$MM)



Typical MRF customers in KSA



Oil & gas sector



Port operators

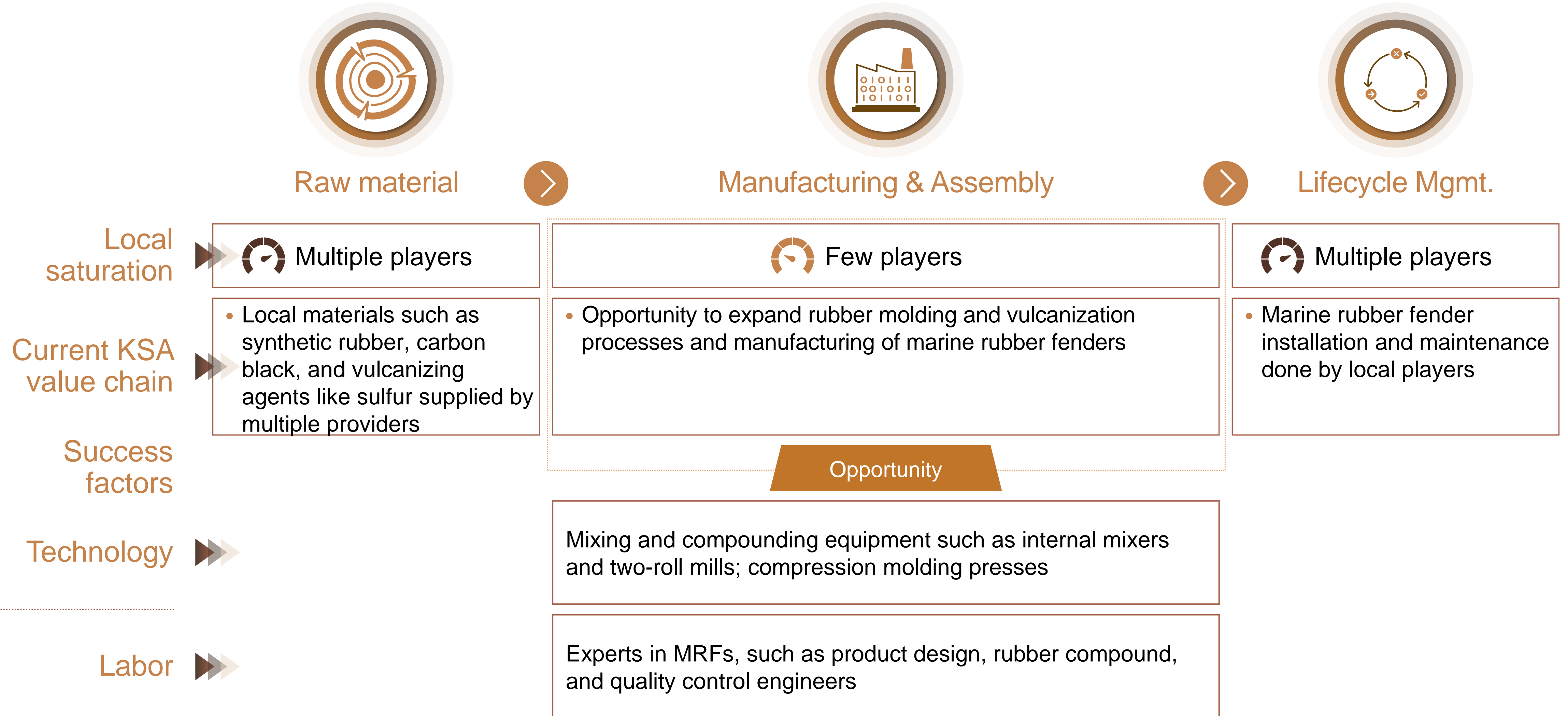
Key KSA demand drivers

- **Industry trends:** Rising emphasis on safety and operational efficiency drives the demand for MRFs
- **Sector expansion:** Expansion of port infrastructure and offshore energy drives the demand for MRFs in new projects

Catalyzing Supply Chains

Note: MRF = Marine Rubber Fenders
Source: Transparency Market Research; Expert input; Team analysis

Value chain and key localization opportunities



Offshore Workshop

Catalyzing Supply Chains

Note: Intermediate processes and manufacturing are generally performed by manufacturers; Lifecycle management including all post-production services, including installation;

MRF = Marine Rubber Fenders

Source: Team analysis

Investment opportunity and enablers

Key enablers in KSA to drive success¹



Subsidies and financial programs: Access to regional land and loan programs to establish manufacturing facilities



Tax incentives: MRF manufacturing eligible for tax exemptions on earning from exports through general authority of Zakat & Tax



Megaprojects realization: Oxagon port, King Salman Shipyard & offshore energy projects will expand the market for MRFs



Human capital enablers: NITI can offer specialized training programs for the manufacturing of MRFs

Where is the opportunity



Localize production plant for MRFs, incl. rubber molding, vulcanization, and manufacturing processes

Manufacturing



Catalyzing Supply Chains

1. Detailed list of all enablers in the backup

Note: MRF = Marine Rubber Fenders; NITI = National Industrial Training Institute

Source: Team analysis

Submarine Cable Protectors

Speaker name

Opportunity profile – submarine cable protectors

1

KSA is in need of SCPs to realize its ongoing offshore O&G expansion

Types



Articulated
pipe protectors

Applications



Offshore infrastructure



Telecom



Environmental monitoring

Example

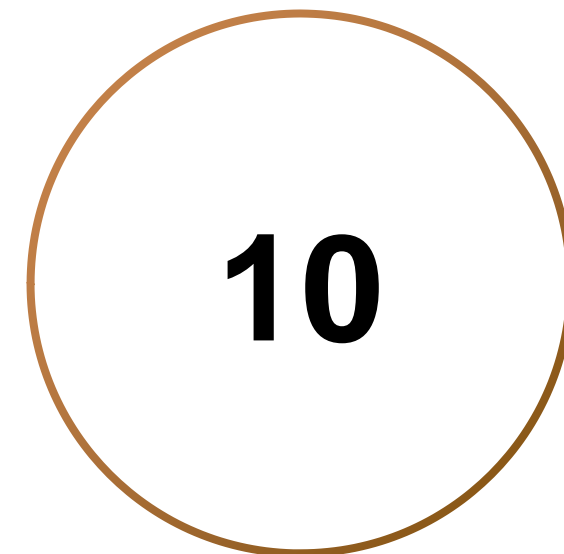
Shallow water cable

2Africa subsea cable

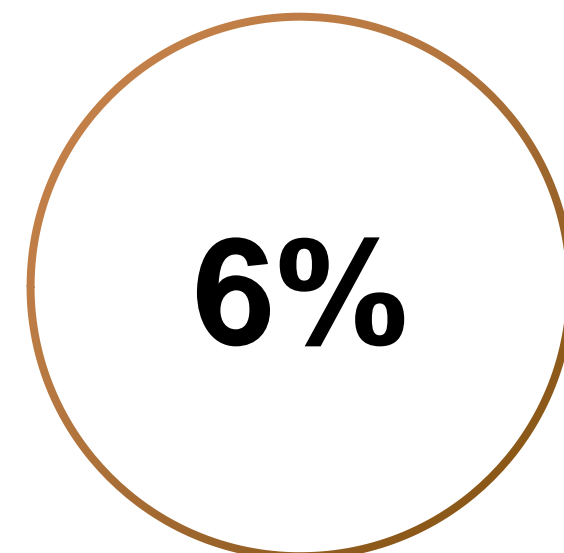
KAUST Red Sea Research

2

MEA SCPs market is expecting strong growth in KSA and MEA



Estimated 2024 KSA market size. \$MM

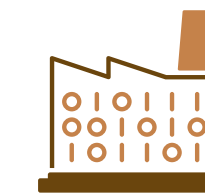


Forecasted 5-year CAGR

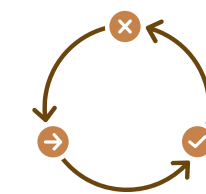
3

Attractive investment opportunities for the SCP value chain

KSA value chain opportunities



Manufacturing



Lifecycle management

KSA enablers

- Working capital financing programs
- Tax exemptions on exports earnings
- Realization of megaprojects

Catalyzing Supply Chains

Note: SCP = Submarine Cable Protectors
 Source: EMIS; Insight Partners; Dataintelo; Expert input; Team analysis

Potential submarine cable protectors localized categories

Articulated pipe protectors

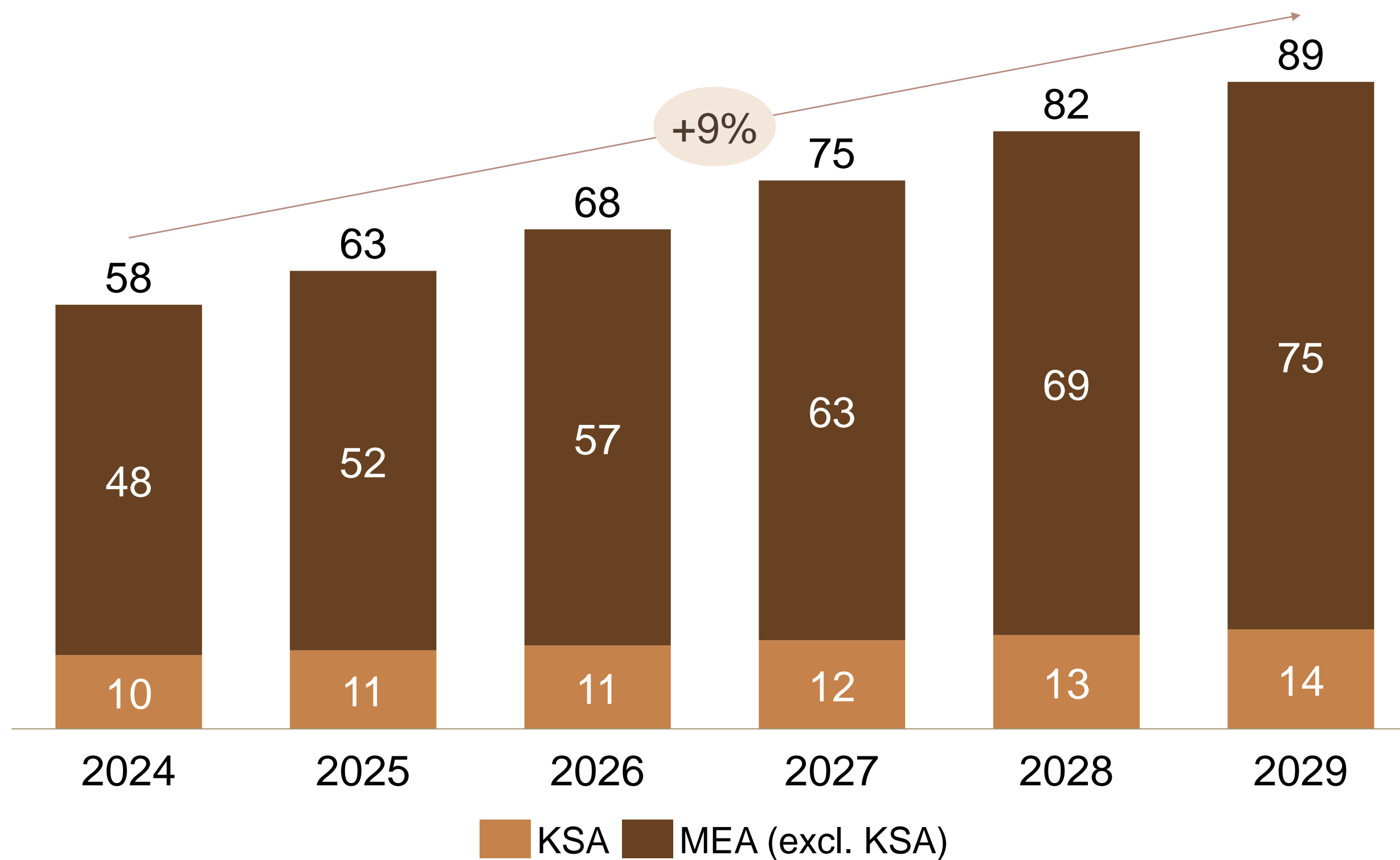


Applications

- Shield subsea cables from physical damage and environmental stresses in challenging marine environments
- Protect cables at points of high risk, such as shallow waters, rocky seabeds, and areas with strong currents and fishing activity

Submarine cable protectors demand, customers, and drivers

Forecasted KSA and rest of MEA submarine cable protector market 2024-2029 (\$MM)



Typical SCP customers in KSA



Oil & gas sector



Telecommunications providers

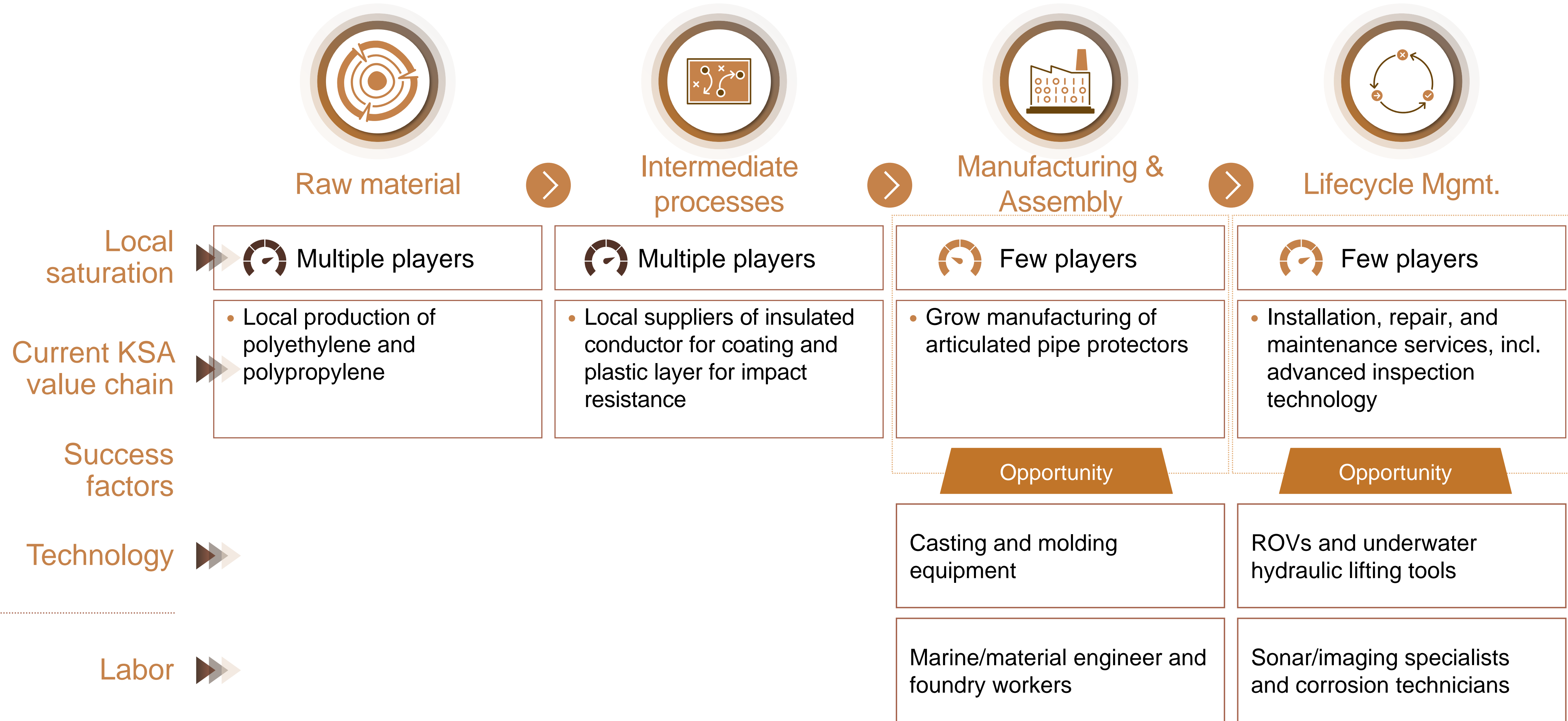
Key KSA demand drivers

- **Sector expansion:** Expansion of the local telecommunications sector and increased CAPEX in offshore energy are fueling demand for SCPs in new projects
- **Industry trends:** Rising emphasis on safety drives the demand for SCPs

Catalyzing Supply Chains

Note: SCP = Submarine Cable Protectors
Source: EMIS; Insight Partners; Dataintelo; Expert input; Team analysis

Value chain and key localization opportunities



Offshore Workshop

Catalyzing Supply Chains

Note: SCP = Submarine Cable Protectors; ROV = Remotely Operated Vehicles; Lifecycle management including all post-production services, including installation
Source: Team analysis

Investment opportunity and enablers

Key enablers in KSA to drive success¹



Financial program: Access to working capital financing from SIDF to build SCP inventory capacities for large-scale projects



Tax incentives: SCP manufacturing eligibility for tax exemptions on earning from exports through general authority of Zakat & Tax



Projects realization: New offshore oil and gas as well as telecommunications projects increase the local demand for SCPs



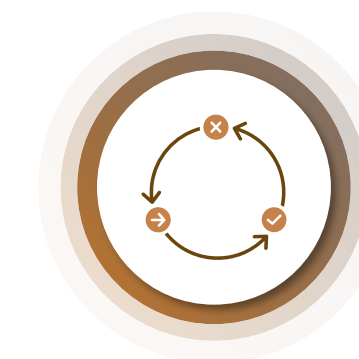
Local market protection: Protection from import competition by providing price preferential under LCGPA

Where is the opportunity



Grow manufacturing and assembly of articulated pipe protectors

Manufacturing



Establish installation, repair, and maintenance services for SCPs, incl. advanced inspection technology (e.g., ROVs and autonomous underwater vehicles)

Lifecycle management

Catalyzing Supply Chains

1. Detailed list of all enablers in the backup

Note: SCP = Submarine Cable Protectors; SIDF = Saudi Industrial Development Fund; LCGPA = Local Content & Government Procurement Authority

Source: Team analysis

Sacrificial Anodes

Speaker name

Opportunity profile – sacrificial anodes

1

KSA has a strong demand for SAs to protect its maritime infrastructure

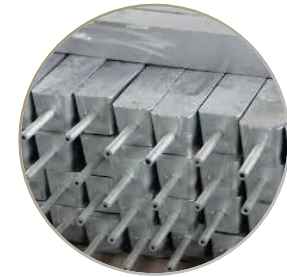
Types



Aluminum SA for saltwater



Zinc SA for saltwater



Magnesium SA for freshwater

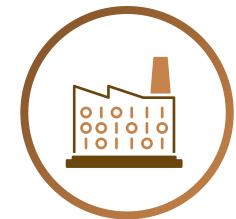
Applications



Offshore infrastructure



Harbor wharfs



Utilities

Example

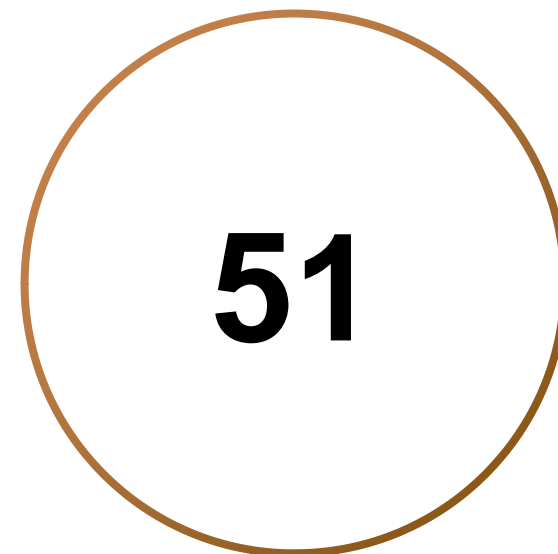
Aramco oil platforms

Oxagon

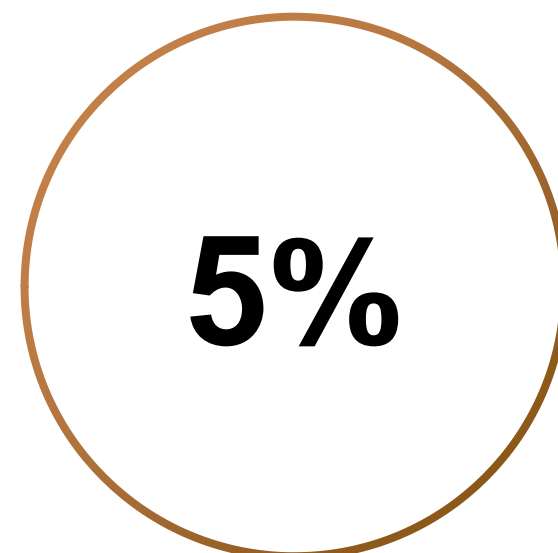
Utilities

2

Sacrificial anodes market is sizable and growing at a moderate rate



Estimated 2024 KSA market size. \$MM

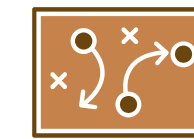


Forecasted 5-year CAGR

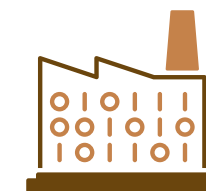
3

Attractive investment opportunities for the sacrificial anodes value chain

KSA value chain opportunities



Intermediate processes



Manufacturing

KSA enablers

- Infrastructure, land & utility subsidies
- Realization of megaprojects
- NITI training for corrosion-specialists

Catalyzing Supply Chains

Note: SA = Sacrificial Anodes; NITI = National Industrial Training Institute
 Source: Future Market Insights; Expert input; Team analysis

Potential sacrificial anodes localized categories

Non-exhaustive

Aluminum SA for saltwater



Applications

- Offshore decks & jackets
- Port wharfs & terminals
- Boat hulls
- Desalination facilities

Zinc SA for saltwater



- Offshore decks & jackets
- Port wharfs & terminals
- Boat hulls

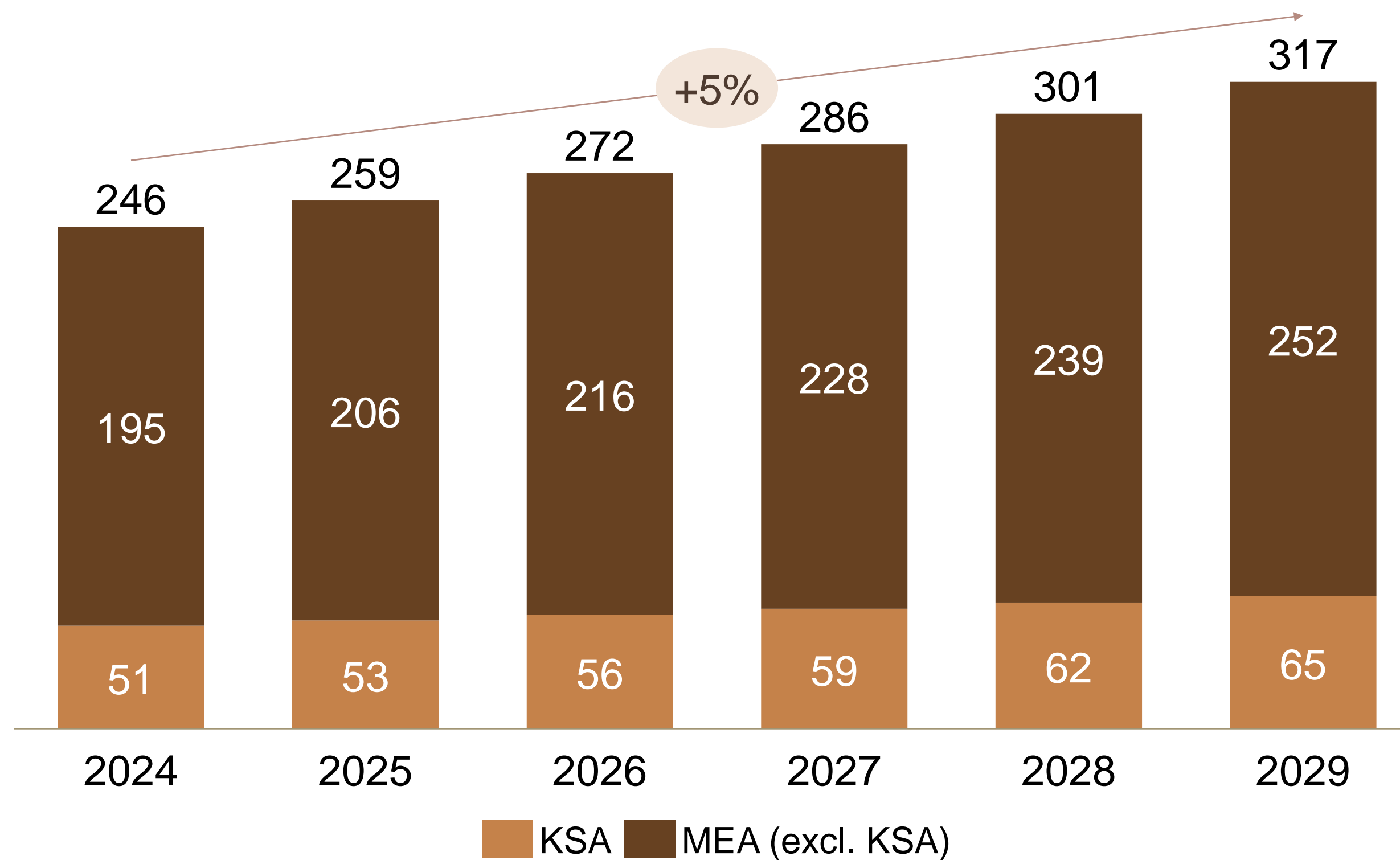
Magnesium SA for freshwater



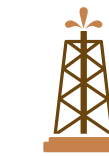
- Onshore pipelines
- Wind farms
- Utility & sewage pipelines

Sacrificial anodes demand, customers, and drivers

Forecasted KSA and rest of MEA sacrificial anodes market 2024-2029 (\$MM)



Typical SA customers in KSA



Oil & gas sector



Port & shipping operators



Utility companies

Key KSA demand drivers

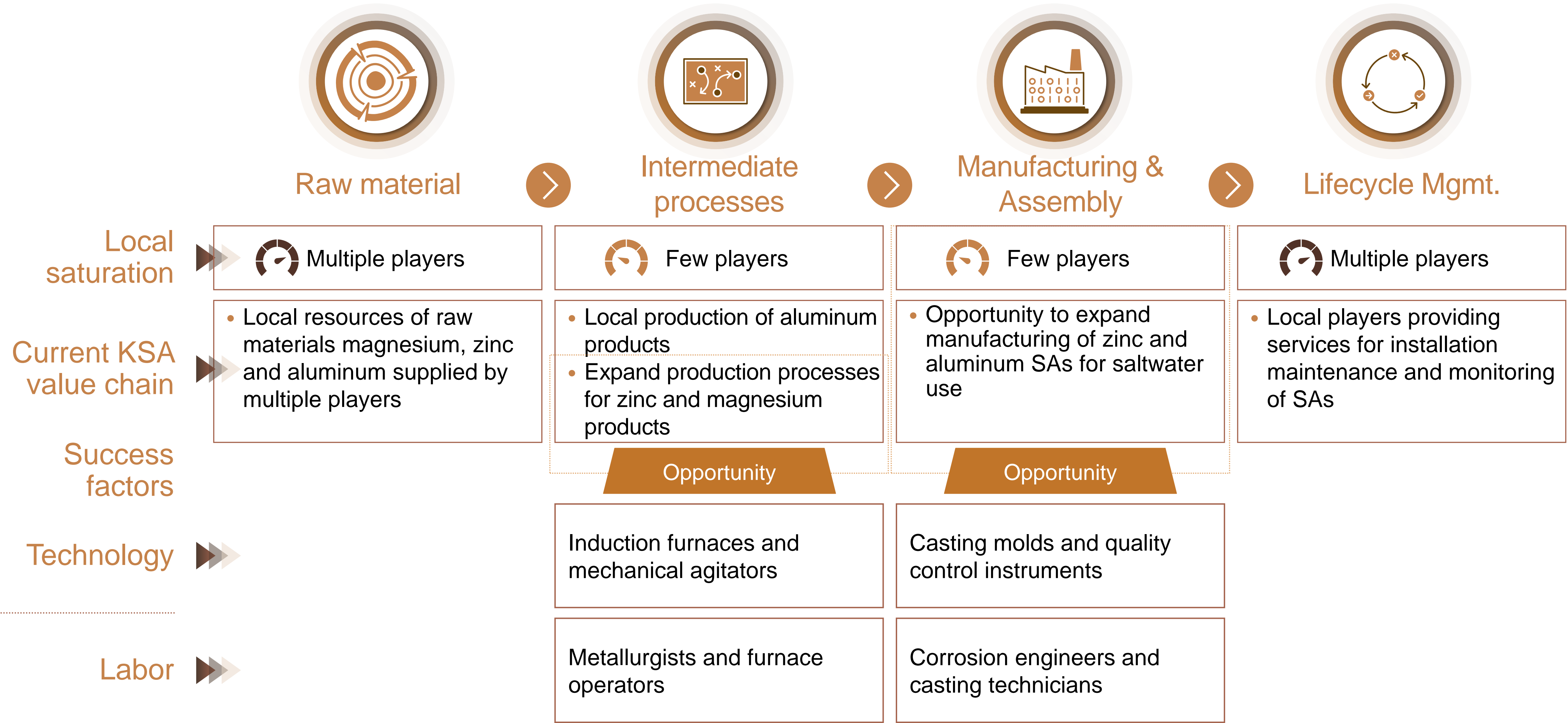
- **Sector expansion:** Capital expenditure increase in offshore projects to maintain production capacity at 12 million bpd
- **Sustainability trends:** Saudi Aramco's GHG ambitions drive the demand for more durable solutions such as the increased replacement of sacrificial anodes

Offshore Workshop

Catalyzing Supply Chains

Note: SA = Sacrificial Anodes; GHG = Greenhouse gases
Source: Future Market Insights; Expert input; Team analysis

Value chain and key localization opportunities



Catalyzing Supply Chains

Note: SA = Sacrificial Anodes; Lifecycle management including all post-production services, including installation
Source: Team analysis

Investment opportunity and enablers

Key enablers in KSA to drive success¹



Value chain network and financial programs: Nusaned program to give access to raw materials and to financial investment to establish local SA manufacturing



Subsidy enablers: Subsidized infrastructure, land, and utilities in dedicated zones, e.g. via MODON, to attract local SA production

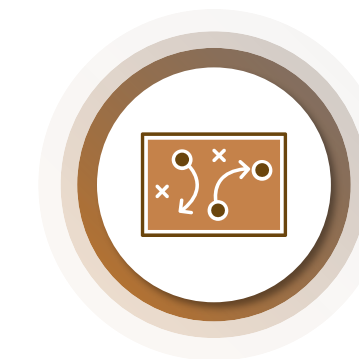


Megaproject realization: New projects such as offshore O&G, Oxagon port, NEOM, & King Salman Shipyard grow the market for SAs



Human capital enablers: NITI training to skill corrosion-specialized engineers for the manufacturing of SAs

Where is the opportunity



Localize processing of zinc and magnesium products

Intermediate processes



Establish manufacturing facilities to produce zinc and aluminum SAs for saltwater use, and magnesium SAs for freshwater use

Manufacturing

Catalyzing Supply Chains

1. Detailed list of all enablers in the backup

Note: SA = Sacrificial Anodes; MODON = Saudi Authority for Industrial Cities and Technology Zones; NITI = National Industrial Training Institute

Source: Team analysis

Rolled Sections

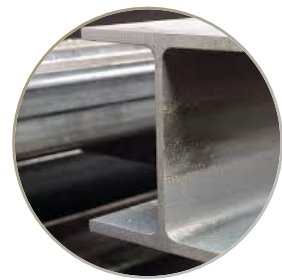
Speaker name

Opportunity profile – rolled sections

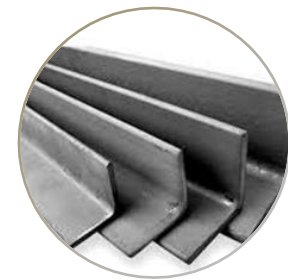
1

KSA needs rolled sections to realize its extensive construction projects

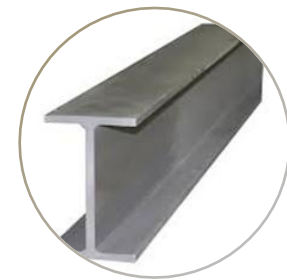
Types



H-shaped



L-shaped

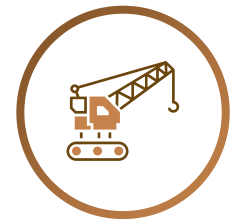


I-shaped

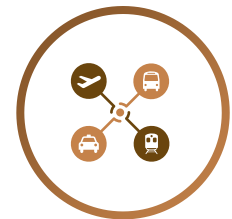
Applications



Offshore infrastructure



Construction



Transportation

Example

Platform frames

Skyscraper frames

Bridges & tunnels

Catalyzing Supply Chains

2

The market for rolled sections is growing at a gradual rate

1173

Estimated 2024 KSA market size. \$MM

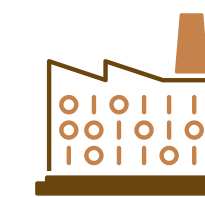
5%

Forecasted 5-year CAGR

3

Attractive investment opportunities for the rolled sections value chain

KSA value chain opportunities



Manufacturing

KSA enablers

- Financial loans for manufacturing
- Tax credits on R&D investments
- Tax exemptions on export earnings

Potential rolled section localized categories

Non-exhaustive

H-shaped beams



L-shaped beams



I-shaped beams



Applications

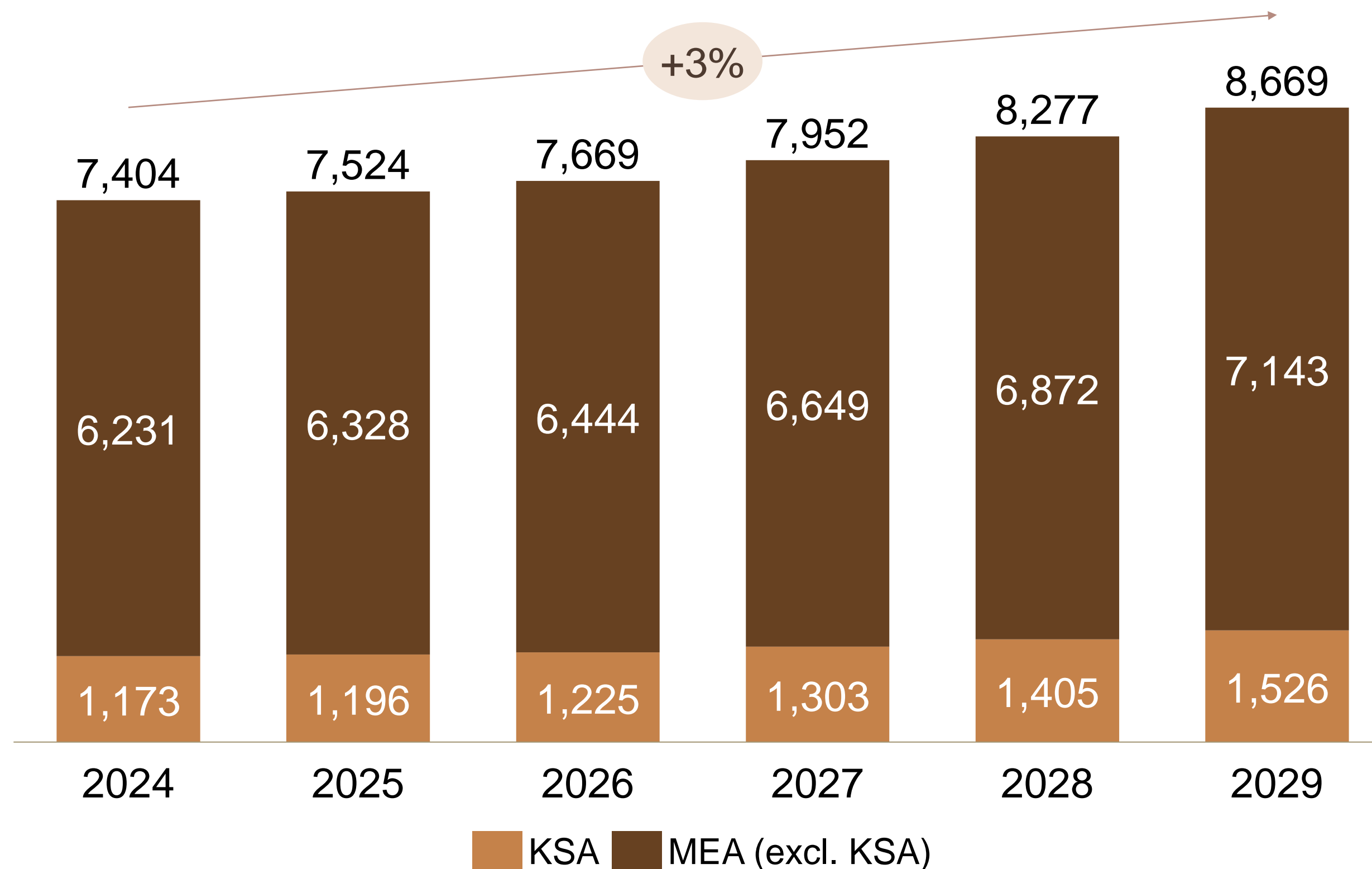
- Used for heavy loads and large spans
- Offshore platforms, building floor, industrial facility piles

- Used for bracing, framing and light structural support
- Platform edges, frames and skids to mount equipment

- Used for bending & tension in horizontal application
- Pipeline racks, cranes and hoists

Rolled section demand, customers, and drivers

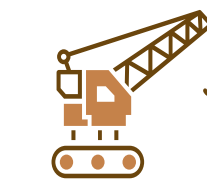
Forecasted KSA and rest of MEA rolled section market 2024-2029 (\$MM)



Typical rolled sections customers in KSA



Oil & gas sector



Construction companies



Transportation companies

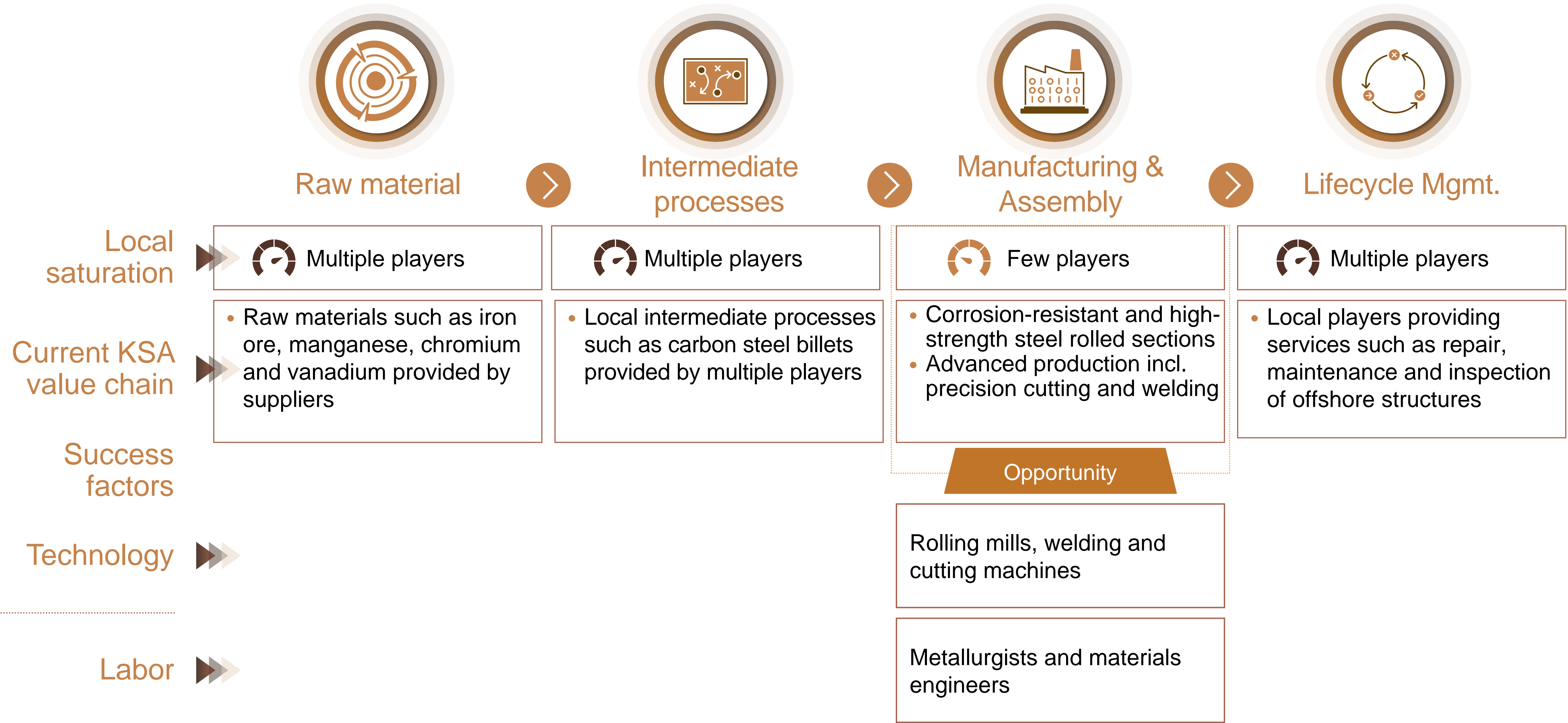
Key KSA demand drivers

- **Economic and demographic factors:** Rapid industrialization, urban expansion, and population growth are significantly raising demand for electricity & construction
- **Sector expansion:** Capital expenditure increase in offshore projects to maintain production capacity at 12 million bpd

Offshore Workshop

Catalyzing Supply Chains

Value chain and key localization opportunities



Offshore Workshop

Catalyzing Supply Chains

Note: Lifecycle management including all post-production services, including installation
Source: Team analysis

Investment opportunity and enablers

Key enablers in KSA to drive success¹



Financial programs: Access to financial loans from SIDF through programs e.g. Kafalah to establish manufacturing



Procurement advantage: LCGPA grants priority in government tenders and relevant exemptions to meet local demand



Tax incentives:

- Tax credits on R&D investments to encourage innovation in steel technologies
- RS manufacturing eligible for tax exemptions on earning from exports through general authority of Zakat & Tax

Where is the opportunity



High-strength and corrosion-resistant steel made with advanced manufacturing incl. precision cutting and welding

Manufacturing

Catalyzing Supply Chains

1. Detailed list of all enablers in the backup

Note: SIDF = Saudi Industrial Development Fund; LCGPA = Local Content & Government Procurement Authority

Source: Team analysis

Helidecks Lighting & Navigation Aids

Speaker name

Opportunity profile – helidecks lighting & navigation aids

1

KSA has a high demand for HLNA in infrastructure and energy projects

Types



Perimeter lighting



Surface floodlighting



Navigation aids

Applications



Offshore infrastructure



Infrastructure



Naval defense

Example

Aramco oil platforms

Skyscraper helipads

Naval vessels

2

The market for HLNA is growing at a moderate rate in KSA and MEA

4

Estimated 2024 KSA market size. \$MM

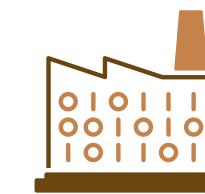
10%

Forecasted 5-year CAGR

3

Attractive investment opportunities for the HLNA value chain

KSA value chain opportunities



Manufacturing

KSA enablers

- Export financing facilities for trade of goods of Arab origin
- Regional land and loan programs
- Industrial training programs

Catalyzing Supply Chains

Potential helidecks lighting & navigation aids localized categories

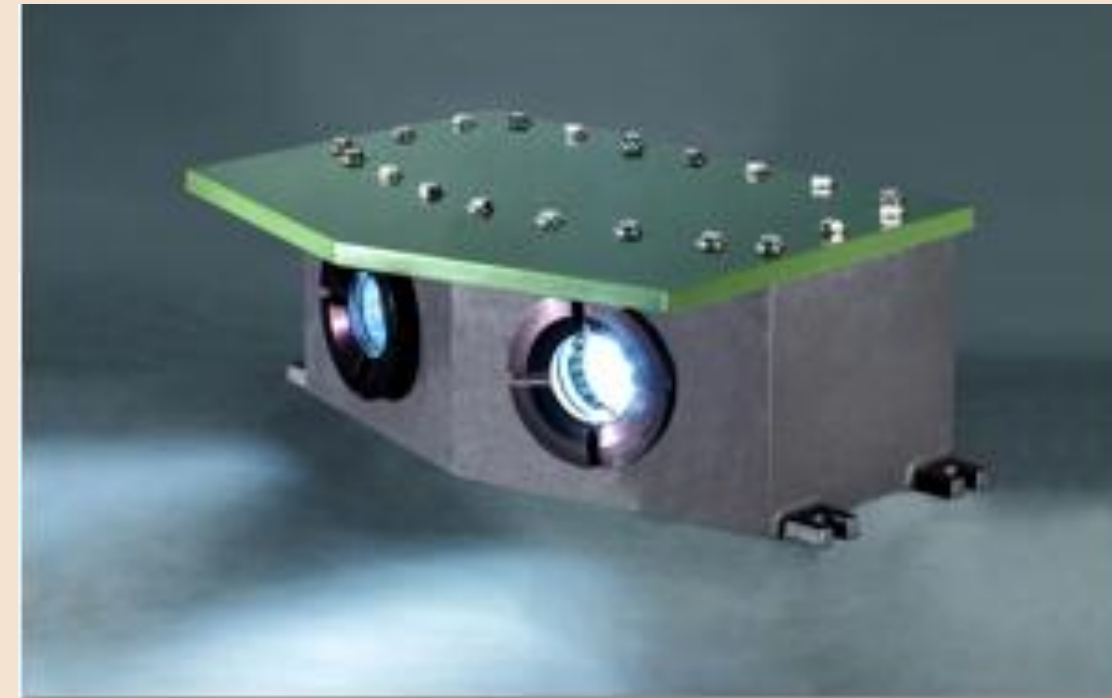
Non-exhaustive

Perimeter lighting



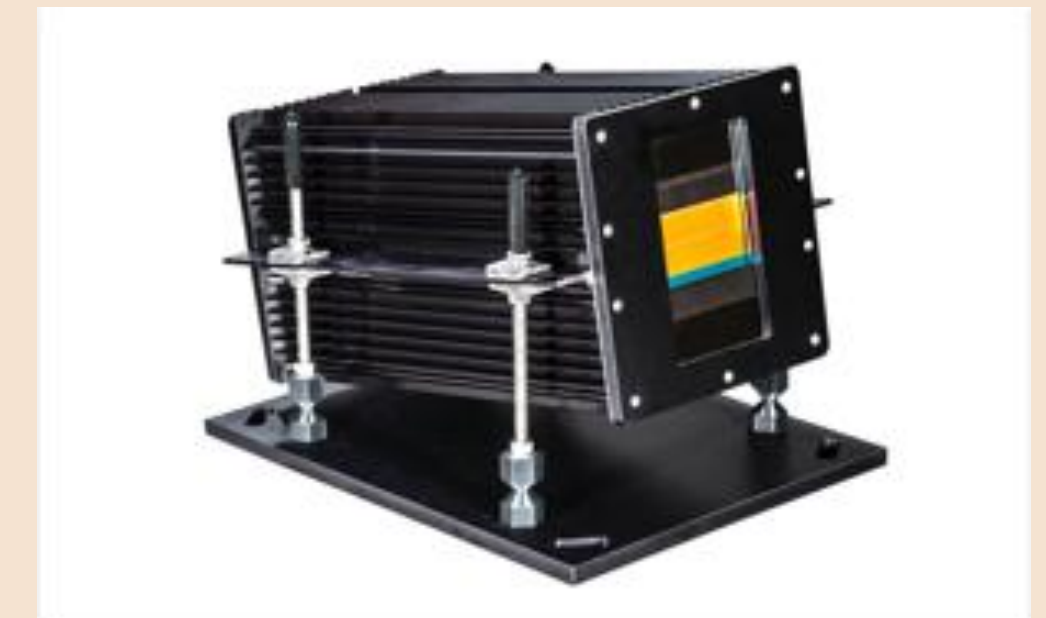
- Applications**
- Offshore oil & gas platforms
 - Naval vessels
 - Hospitals
 - High-rise buildings

Surface floodlighting



- Offshore oil & gas platforms
- Naval vessels
- Hospitals
- High-rise buildings

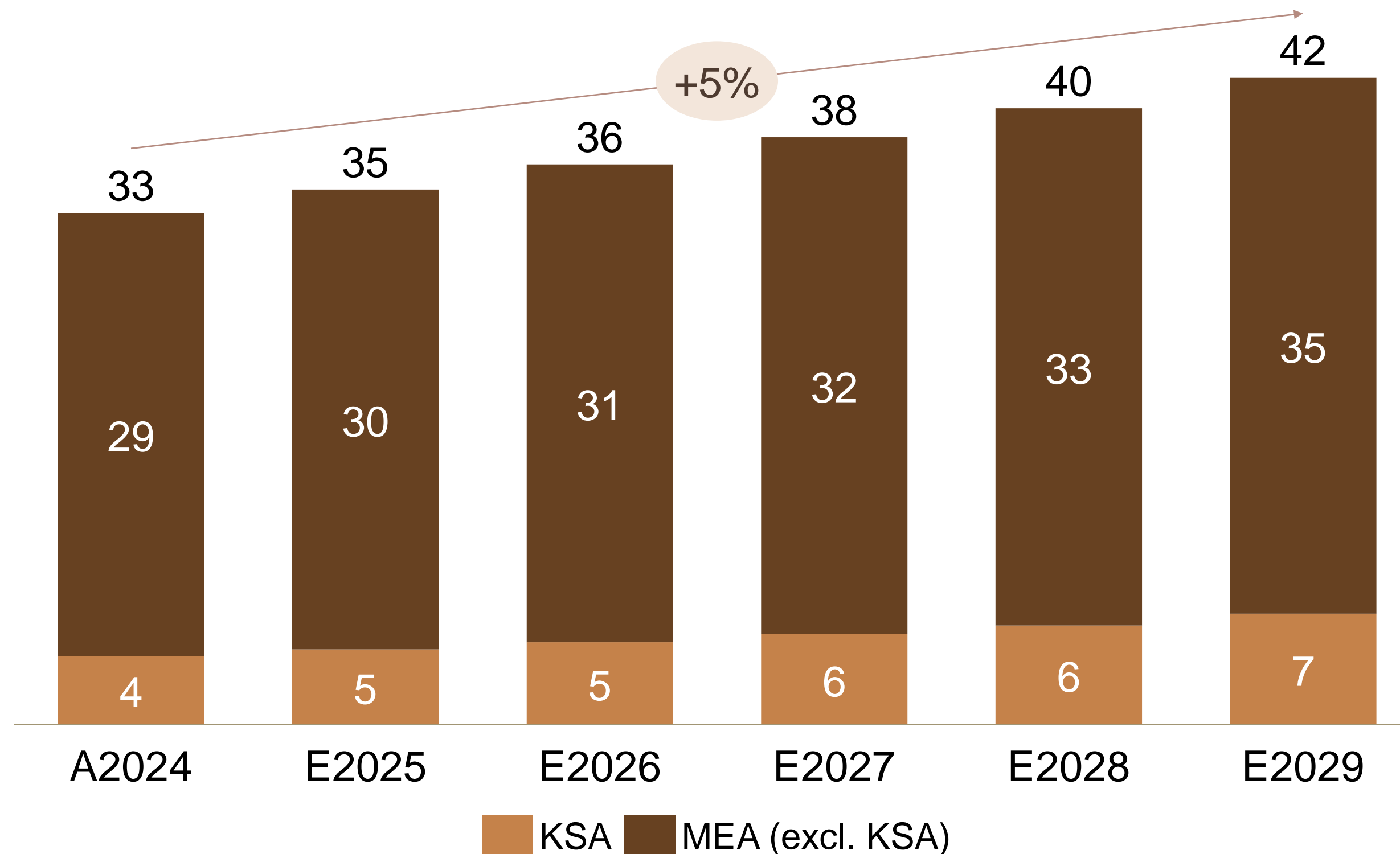
Navigation aids



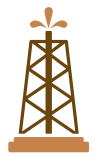


- Offshore oil & gas platforms
- Naval vessels

Helidecks lighting & navigation aids demand, customers, and drivers

Forecasted KSA and rest of MEA HLNA market 2024-2029 (\$MM)



Typical HLNA customers in KSA

-  Oil & gas sector
-  Hospitals
-  Ship operators & shipyards

Key KSA demand drivers

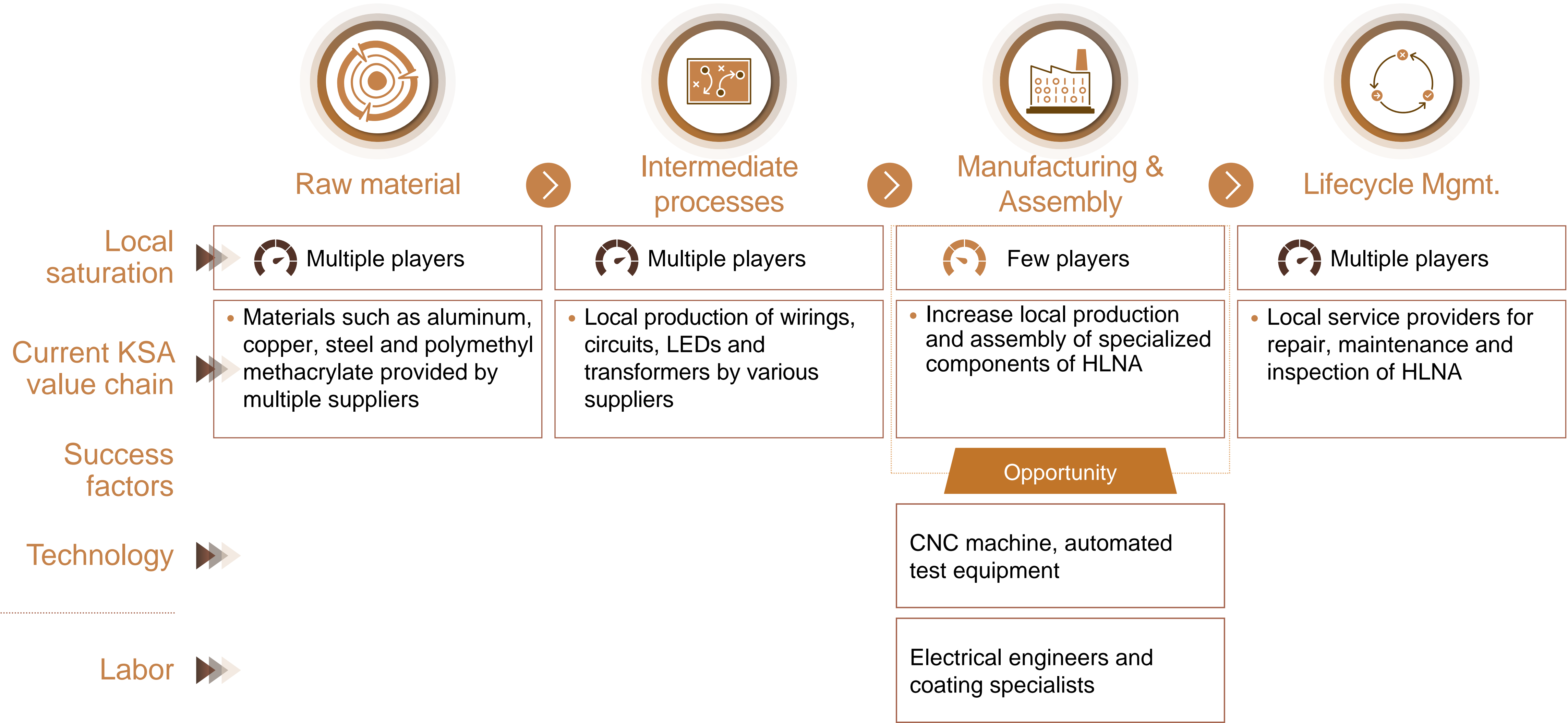
- **Sector expansion:** Saudi Aramco is expected to increase capital expenditure in offshore projects to maintain production capacity at 12 million bpd
- **Industry trends:** Rising emphasis on safety drives the demand for HLNA system installations and frequent maintenance

Offshore Workshop

Catalyzing Supply Chains

Note: HLNA = Helidecks Lighting & Navigation Aids
Source: Technavio; Fortune Business Insights; Expert input; Team analysis

Value chain and key localization opportunities



Catalyzing Supply Chains

Note: HLNA = Helidecks Lighting & Navigation Aids; CNC = Computer Numerical Control; Lifecycle management including all post-production services, including installation
Source: Team analysis

Investment opportunity and enablers

Key enablers in KSA to drive success¹



Financial programs: Access to regional land and loan programs to establish local HLNA manufacturing facilities



Export incentives: Financing facilities for trade transactions of goods of Arab origin, e.g. via the Arab Trade Financing Program, to simplify exports to neighboring countries



Megaprojects realization: Offshore energy projects, naval expansion & infrastructure projects will expand the market for HLNAs



Human capital enablers: NITI can offer specialized courses focusing on the design, production and quality assurance of HLNAs

Where is the opportunity



Localize the production and assembly of specialized components of HLNA systems

Manufacturing



Catalyzing Supply Chains

1. Detailed list of all enablers in the backup

Note: HLNA = Helidecks Lighting & Navigation Aids; NITI = National Industrial Training Institute

Source: Team analysis

**Offshore Geotechnical &
Geophysical Survey**

Speaker name

Opportunity profile – offshore geotechnical & geophysical survey services

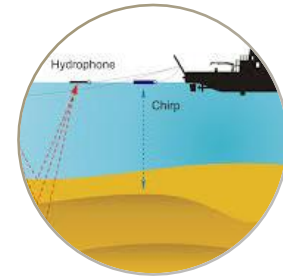
1

KSA has high demand for OGGS to support its oil and gas expansion

Types



Geotechnical



Geophysical

Applications



Offshore infrastructure



Marine infrastructure



Environmental monitoring

Example

Aramco gas fields

Ports & channels

KAUST Red Sea Research

2

OGGS services market is growing at a substantial rate in KSA and MEA

151

Estimated 2024 KSA market size. \$MM

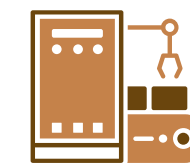
7%

Forecasted 5-year CAGR

3

Attractive investment opportunities for the OGGS value chain

KSA value chain opportunities



Pre-Service Equipment Sourcing

KSA enablers

- Technical & commercial consultation
- Tax credits on R&D investments
- Specialized training programs

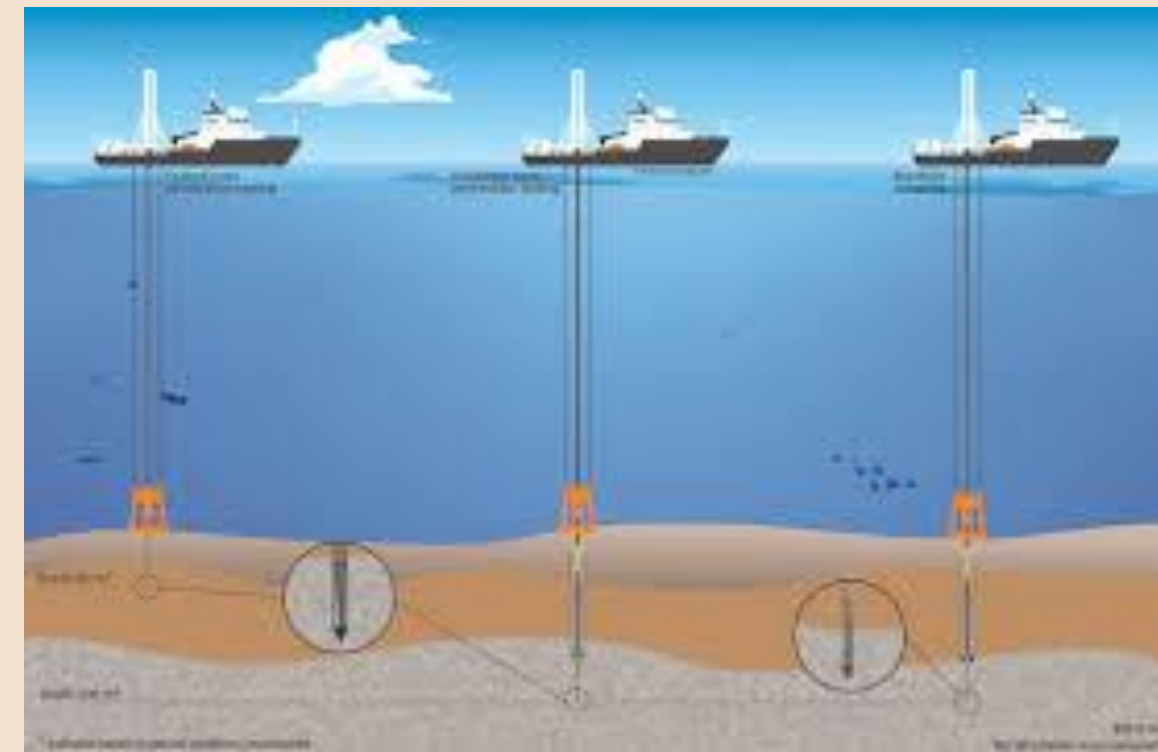
Catalyzing Supply Chains

Note: OGGS = Offshore Geotechnical & Geophysical Survey
Source: EMIS; Expert input; Team analysis

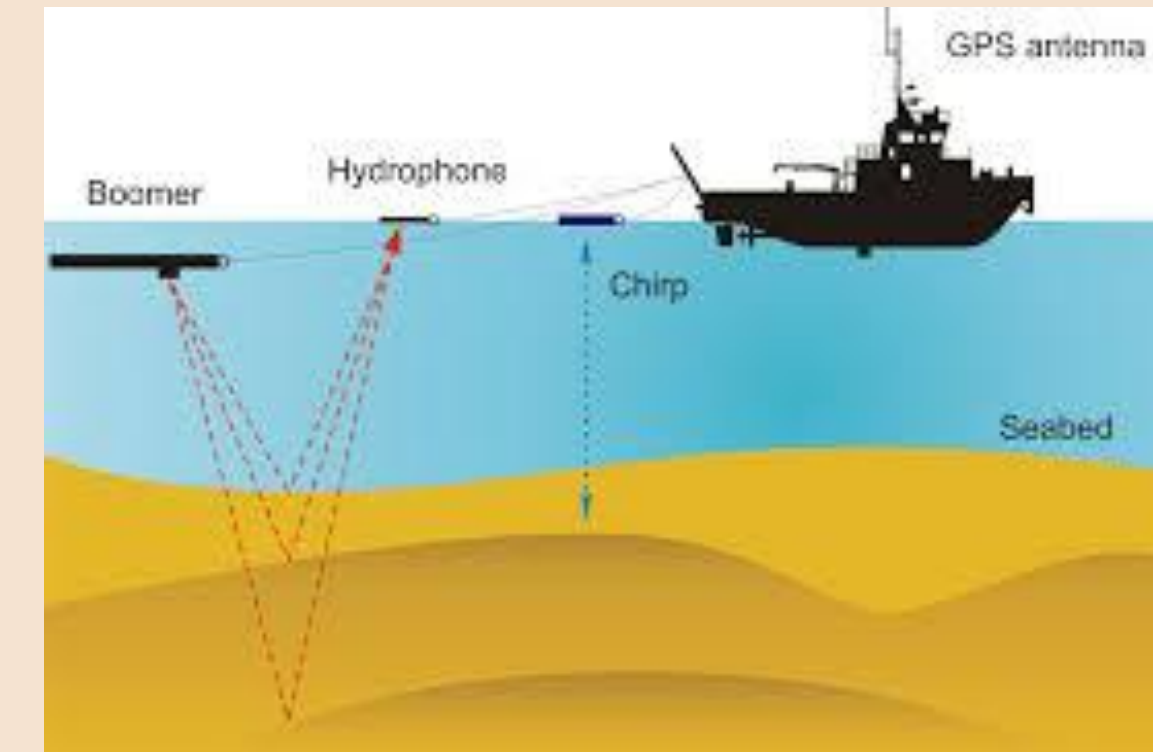
Potential offshore geotechnical & geophysical survey localized categories

Non-exhaustive

Geotechnical survey



Geophysical survey



Applications

Find stable foundations for

- Oil and gas platforms
- Offshore wind farms
- Pipelines
- Subsea cables

Preparations for

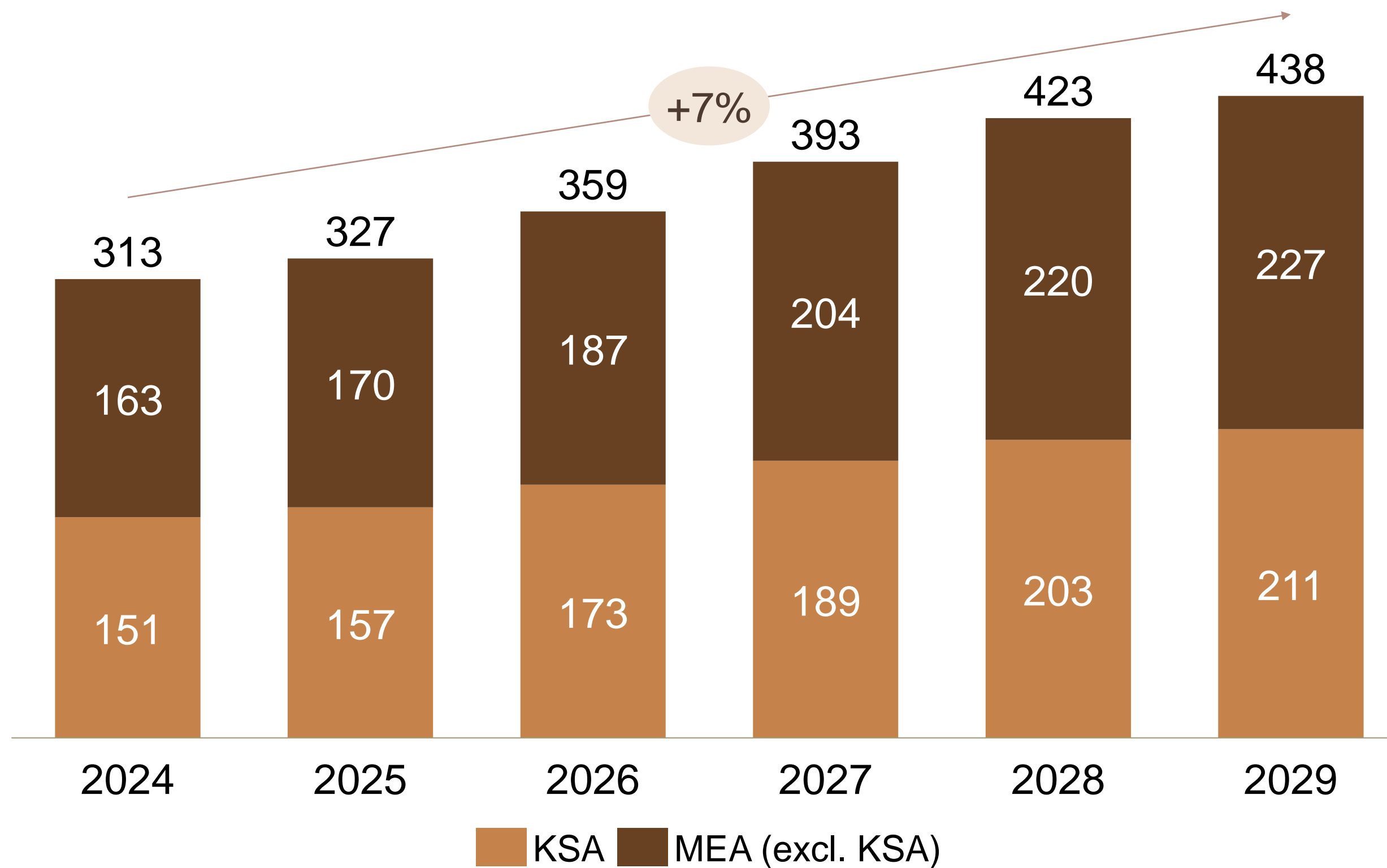
- Drilling
- Pipeline laying
- Coastal infrastructure construction
- Ports and dredged channels

Catalyzing Supply Chains

Note: OGGS = Offshore Geotechnical & Geophysical Survey
Source: Team analysis

Offshore geotechnical & geophysical survey demand, customers, and drivers

Forecasted KSA and rest of MEA OGGS market 2024-2029 (\$MM)



Typical OGGS customers in KSA



Oil & gas sector



Ports operators

Key KSA demand drivers

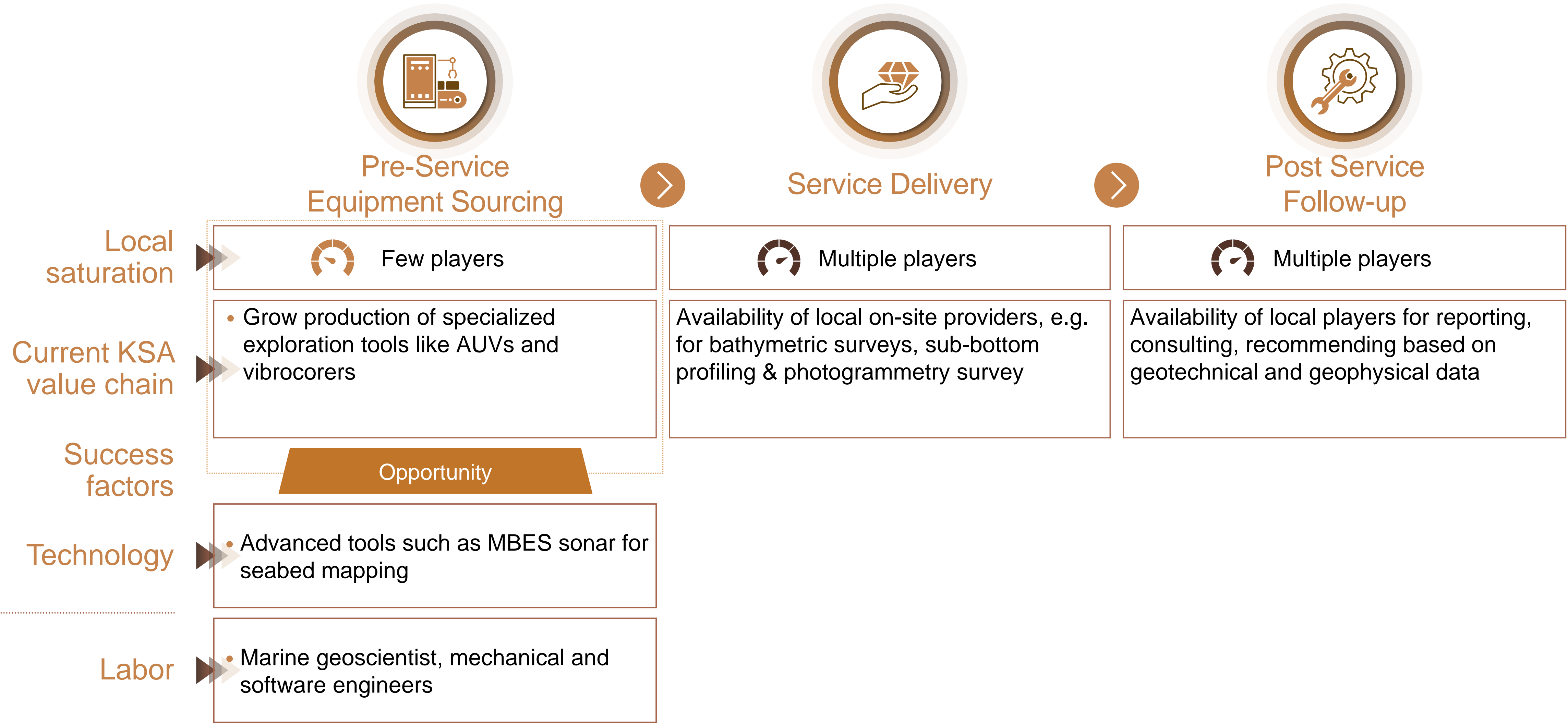
- **Technological advancements:** Intensified efforts to explore and exploit deeper offshore resources require OGGS services
- **Environmental regulations:** Saudi Aramco's sustainability pledges to achieve net zero Scope 1&2 GHG emissions by 2050 boost the adoption of technological solutions

Offshore Workshop

Catalyzing Supply Chains

Note: OGGS = Offshore Geotechnical & Geophysical Survey
Source: EMIS; Expert input; Team analysis

Value chain and key localization opportunities



Catalyzing Supply Chains

Note: OGGS = Offshore Geotechnical & Geophysical Survey; AUV = Autonomous underwater vehicles; MBES = Multibeam echosounder
Source: Team analysis

Investment opportunity and enablers

Key enablers in KSA to drive success¹



Capital enablers: Custom duty exemption from MoCI on machinery and equipment for establishment of local equipment producers



Corporate tax reduction: Tax credits on R&D investments to encourage local innovation capabilities for specialized survey equipment



Technical enablers: Advanced manufacturing support from KACST on technical guidance and infrastructure setup



Human capital enablers: National Maritime Academy offering specialized training for geotechnical and geophysical surveying

Where is the opportunity



Pre-Service
Equipment
Sourcing

Localize production of specialized tools such as AUVs & vibrocorers that can be used for geotechnical and geophysical surveying



Catalyzing Supply Chains

1. Detailed list of all enablers in the backup

Note: OGGs = Offshore Geotechnical & Geophysical Survey; MoCI = Ministry of Commerce and Industry; KACST = King Abdulaziz City for Science & Technology

Source: Team analysis

Piles Driving Monitoring Services

Speaker name

Opportunity profile – piles driving monitoring services




1

KSA has high demand for PDM for construction and maritime projects

Types

Dynamic monitoring Instrumentation-based monitoring Integrity testing

Applications

-  Offshore infrastructure
-  Port wharfs
-  Construction foundations

Example

- Aramco oil platforms
- Oxagon
- High-rise skyscrapers

2

PDM services market is sizable and growing at a moderate rate

103

Estimated 2024 KSA market size. \$MM

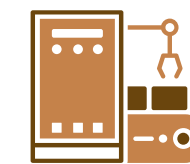
5%

Forecasted 5-year CAGR

3

Attractive investment opportunities for the PDM services value chain

KSA value chain opportunities



Pre-Service Equipment Sourcing

KSA enablers

- Inspection training by ITQAN Institute
- Tax credits on R&D investments
- Infrastructure, land and utility subsidies

Catalyzing Supply Chains

Note: PDM = Piles Driving Monitoring
Source: Insight Partners; Global Data; Expert input; Team analysis

Potential piles driving monitoring services localized categories

Non-exhaustive

Dynamic monitoring

Offers real-time data, helping assess and adjust pile driving parameters on-site, which minimizes potential delays

- Applications**
- Foundation installation for large structures
 - Deep foundation projects

Instrumentation-based monitoring

Provides continuous data on pile stress and environmental interactions, enabling real-time adjustments to maintain structural integrity

- Long-term monitoring
- Critical and high-risk projects (oil & gas, nuclear plants)
- Environmental risk projects

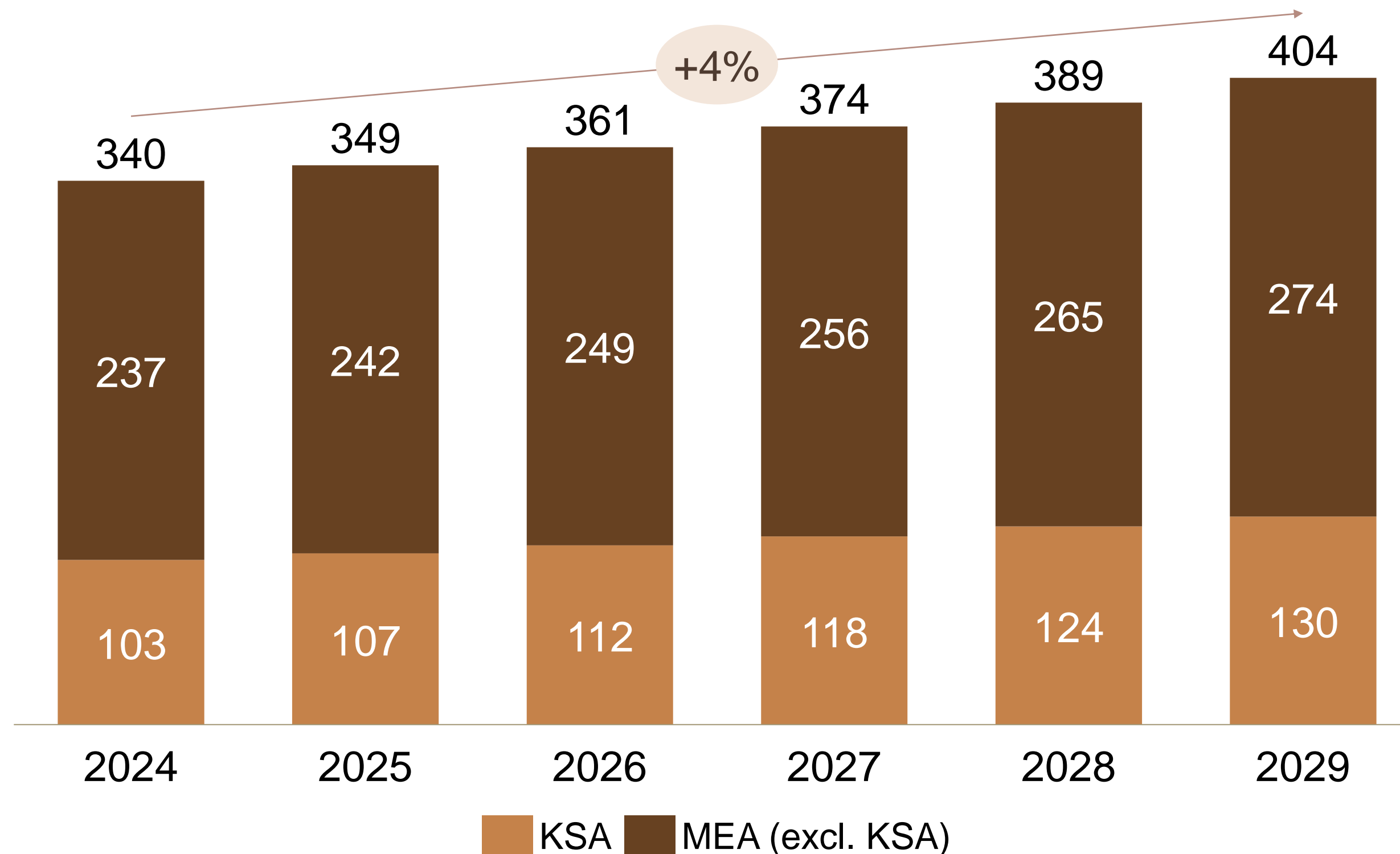
Integrity testing

Helps detect defects like cracks or voids that could impact structural stability, ensuring pile reliability before loading

- Recurring quality control
- Pile refurbishment or repair
- Transportation infrastructure

Piles driving monitoring services demand, customers, and drivers

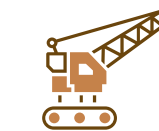
Forecasted KSA and rest of MEA PDM services market 2024-2029 (\$MM)



Typical PDM customers in KSA



Oil & gas sector



Construction companies



Ports operators

Key KSA demand drivers

- **Industry trends:** Rising emphasis on safety and operational efficiency drives the need for PDMs in construction and maritime projects
- **Sector expansion:** Increased capital expenditure in offshore projects to maintain 12 million bpd of production capacity

Catalyzing Supply Chains

Note: PDM = Piles Driving Monitoring
Source: Insight Partners; Global Data; Expert input; Team analysis

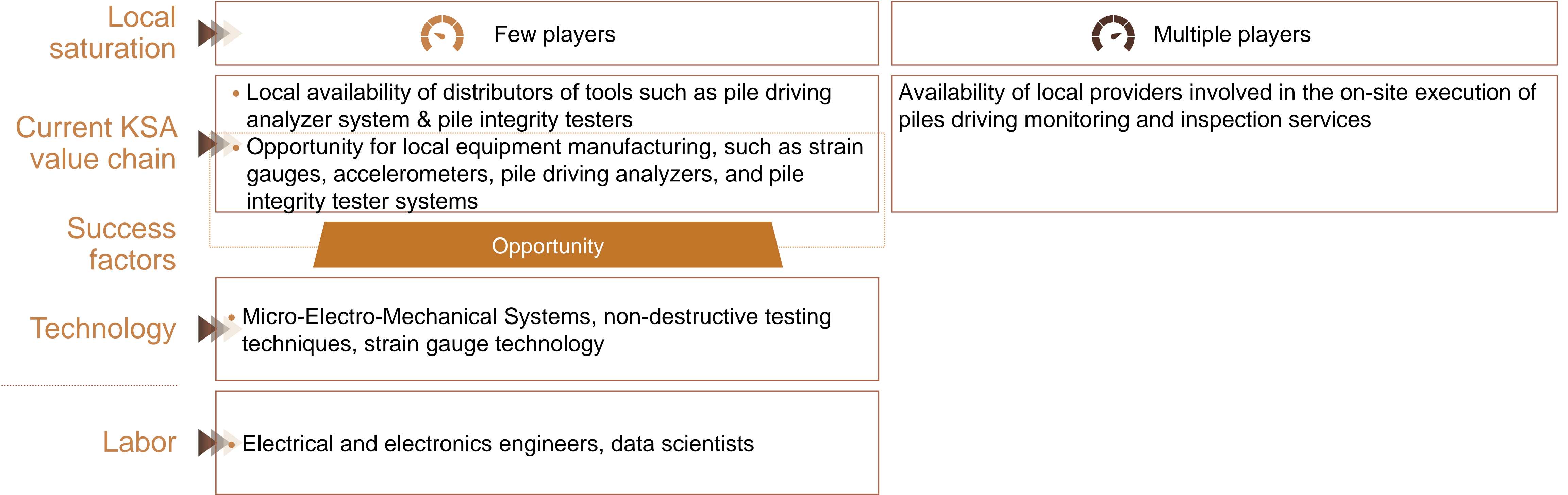
Value chain and key localization opportunities



Pre-Service Equipment Sourcing



Service Delivery



Catalyzing Supply Chains

Note: PDM = Piles Driving Monitoring
Source: Team analysis

Investment opportunity and enablers

Key enablers in KSA to drive success¹



Human capital enablers: ITQAN Institute offering specialized training for pile driving monitoring and inspection



Subsidy enablers: Subsidized infrastructure, land, and utilities in dedicated zones, e.g. via MODON, to attract local production



Corporate tax reduction: Tax credits on R&D investments from ZATCA to encourage local innovation for equipment manufacturing



Project realization: New offshore and onshore oil and gas projects increase the local demand for PDM equipment

Where is the opportunity



Pre-Service
Equipment
Sourcing

Establish local manufacturing for PDM equipment, like strain gauges, accelerometers, pile driving analyzers & integrity tester systems

Catalyzing Supply Chains

1. Detailed list of all enablers in the backup

Note: PDM = Piles Driving Monitoring; ITQAN = Inspection Technology and Quality Assurance National Institute; MODON = Saudi Authority for Industrial Cities and Technology Zone; ZATCA = Zakat, Tax, and Customs

Source: Team analysis

Pipeline In-Line Inspections Services

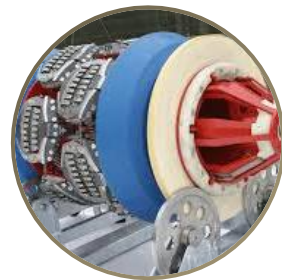
Speaker name

Opportunity profile – pipeline in-line inspections services

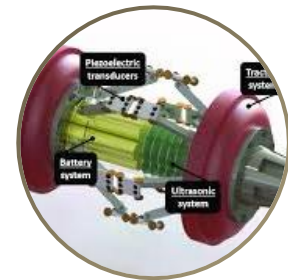
1

KSA needs ILI services to maintain its growing pipeline networks

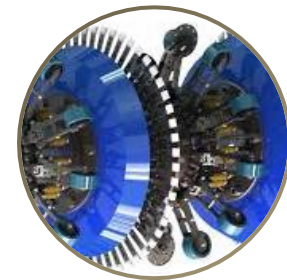
Types



Magnetic flux leakage



Ultrasonic testing



Caliper tools

Applications



Offshore infrastructure



Onshore infrastructure



Water distribution

Example

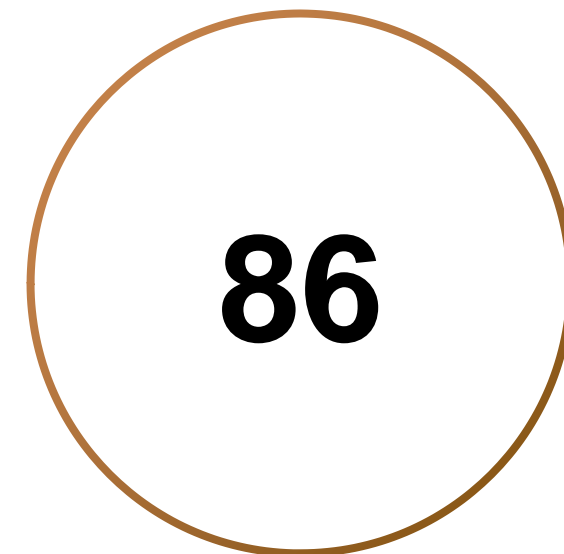
Flowlines

KSA Master Gas System

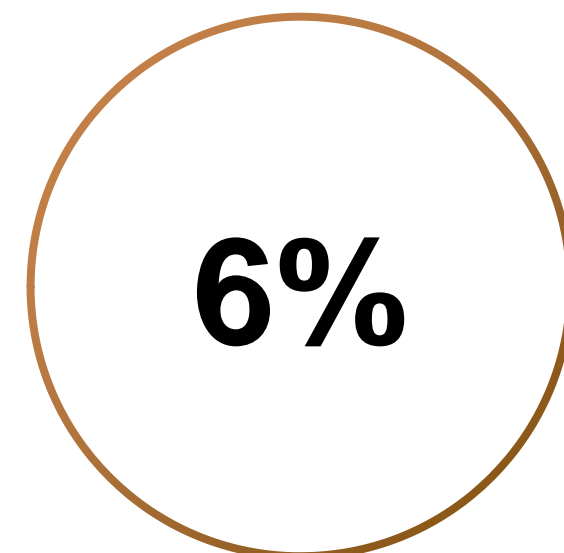
NEOM

2

ILI services market is growing at a moderate rate in KSA and MEA



Estimated 2024 KSA market size. \$MM

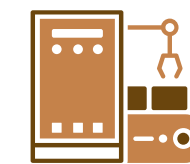


Forecasted 5-year CAGR

3

Attractive investment opportunities for the ILI services value chain

KSA value chain opportunities



Pre-Service Equipment Sourcing

KSA enablers

- Regional land and loan subsidies
- Technical & commercial consultation
- Specialized training programs

Catalyzing Supply Chains

Note: ILI = In-Line Inspection
 Source: EMIS; Expert input; Team analysis

Potential pipeline in-line inspections localized categories

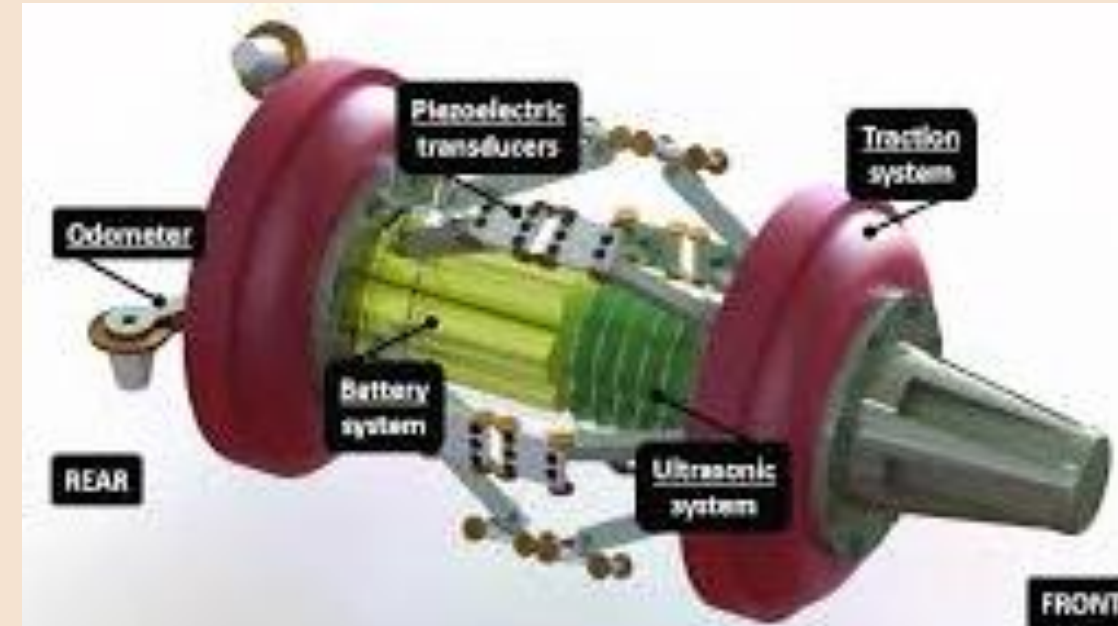
Non-exhaustive

Magnetic Flux Leakage



- Applications**
- Magnetizes pipeline wall to detect metal loss and corrosion

Ultrasonic Testing



- Employs ultrasonic waves to measure wall thickness and detect cracks

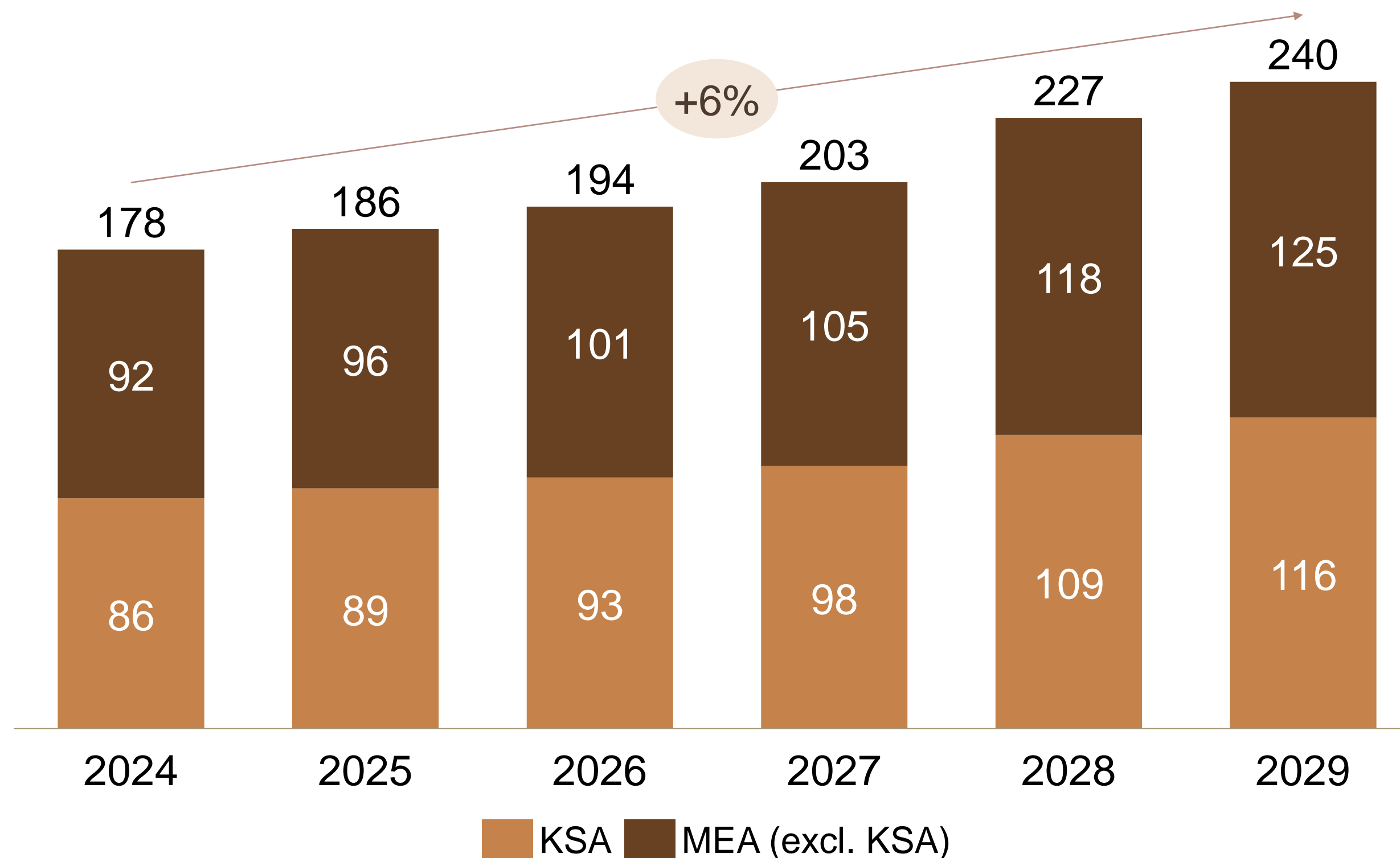
Caliper Tools



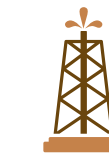
- Measures pipeline geometry to identify deformations such as dents or buckles

Pipeline in-line inspection services demand, customers, and drivers

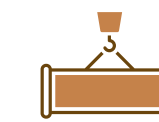
Forecasted KSA and rest of MEA ILI services market 2024-2029 (\$MM)



Typical ILI customers in KSA



Oil & gas sector



Utility providers

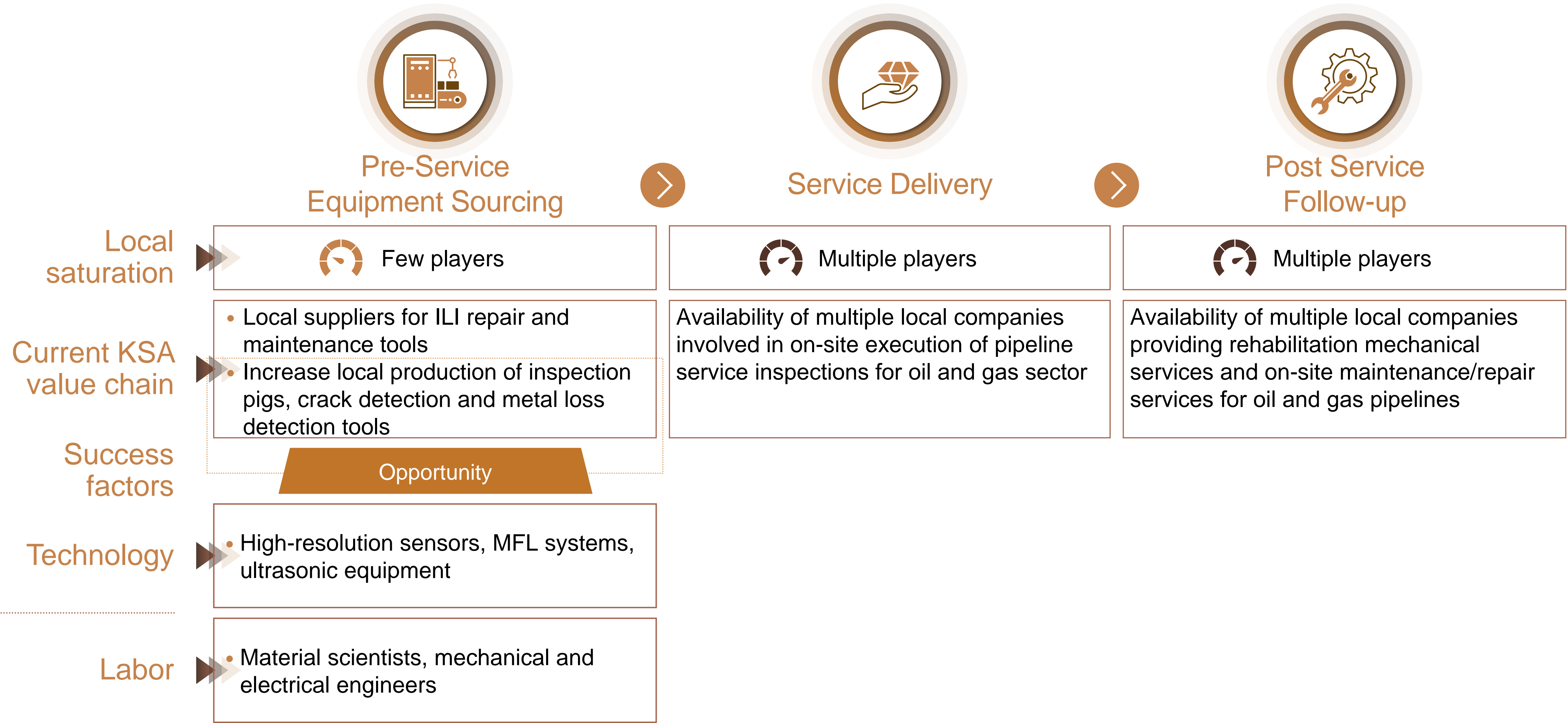
Key KSA demand drivers

- **Industry trends:** Rising emphasis on safety and operational efficiency drives the need for in-line inspections in offshore
- **Sector expansion:** Increased capital expenditure in offshore projects to maintain 12 million bpd of production capacity

Catalyzing Supply Chains

Note: ILI = In-Line Inspection
Source: EMIS; Expert input; Team analysis

Value chain and key localization opportunities



Catalyzing Supply Chains

Note: ILI = In-Line Inspection; MFL = Magnetic flux leakage
Source: Team analysis

Investment opportunity and enablers

Key enablers in KSA to drive success¹



Capital enablers: Regional land and loan programs from SIDF and industrial land authorities such as KAEC for plant setup



Technical enablers: Advanced manufacturing support from KACST on technical guidance and infrastructure setup

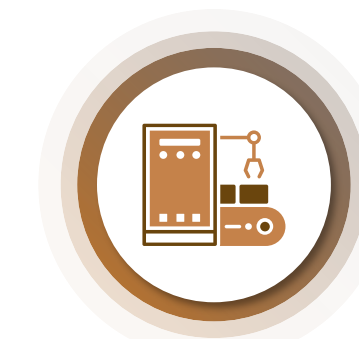


Human capital enablers: NITI can offer specialized courses focusing on production and quality assurance of ILI equipment



Tax incentives: ILI products eligible for tax exemptions on earning from exports through general authority of Zakat & Tax

Where is the opportunity



Pre-Service
Equipment
Sourcing

Establish In-Kingdom manufacturing of in-line inspection pigs for crack detection and metal loss detection

Catalyzing Supply Chains

1. Detailed list of all enablers in the backup

Note: ILI = In-Line Inspection; SIDF = Saudi Industrial Development Fund; KAEC = King Abdullah Economic City; KACST = King Abdulaziz City for Science & Technology; NITI = National Industrial Training Institute

Source: Team analysis

**Supply, Tug, Crew Boats & Cargo
Barges Chartering Services**

Speaker name

Opportunity profile – OSV chartering services

1

KSA has high need for OSV services to run maritime and energy operations

Types



Supply vessels



Tugboats



Cargo barges

Applications



Offshore infrastructure



Port operations



Sea logistics

Example

Aramco oil platforms

Oxagon

Red Sea Project

Catalyzing Supply Chains

Note: OSV = Offshore Support Vessel
 Source: Technavio; Expert input; Team analysis

2

OSV services market is sizeable and growing at a substantial rate

199

Estimated 2024 KSA market size. \$MM

14%

Forecasted 5-year CAGR

3

Attractive investment opportunities for the OSV chartering value chain

KSA value chain opportunities



Service Delivery



Post Service Follow-up

KSA enablers

- CAPEX financing programs
- Offshore megaproject ambitions
- National training offering

Potential OSV chartering services localized categories

Non-exhaustive

Supply vessels



- Applications**
- Support of offshore operations by delivering essential materials and assisting in anchor handling

Tugboats



- Aid in docking, undocking, and navigating larger vessels through confined waterways

Crew boats



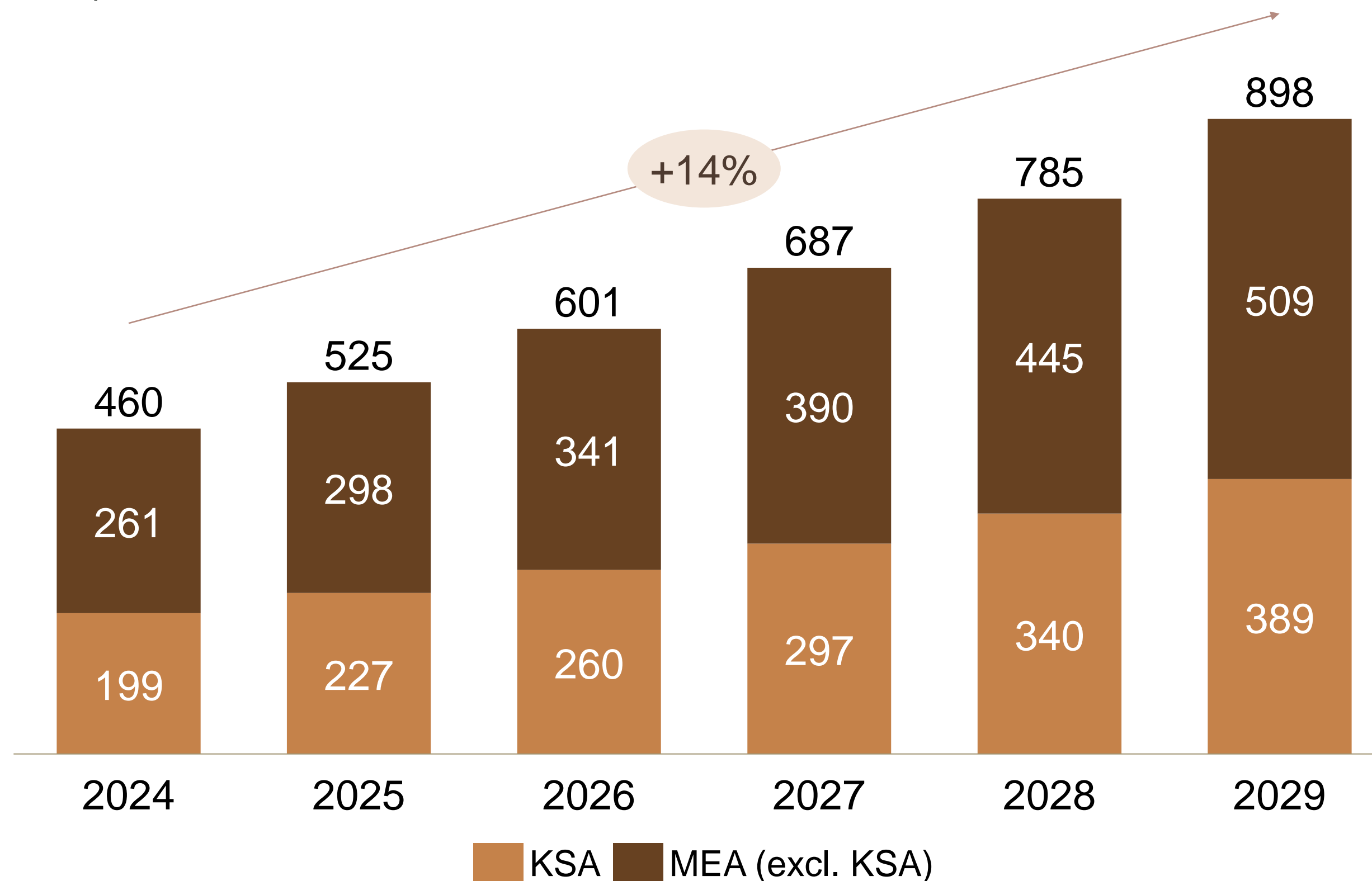
- Transport of crew members, engineers, and support staff to and from platforms, rigs, and other installations

Catalyzing Supply Chains

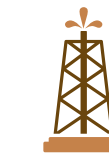
Note: OSV = Offshore Support Vessel
Source: Expert input; Team analysis

OSV chartering services demand, customers, and drivers

Forecasted KSA and rest of MEA OSV services market 2024-2029 (\$MM)



Typical OSV charting customers in KSA



Oil & gas sector



Ports operators

Key KSA demand drivers

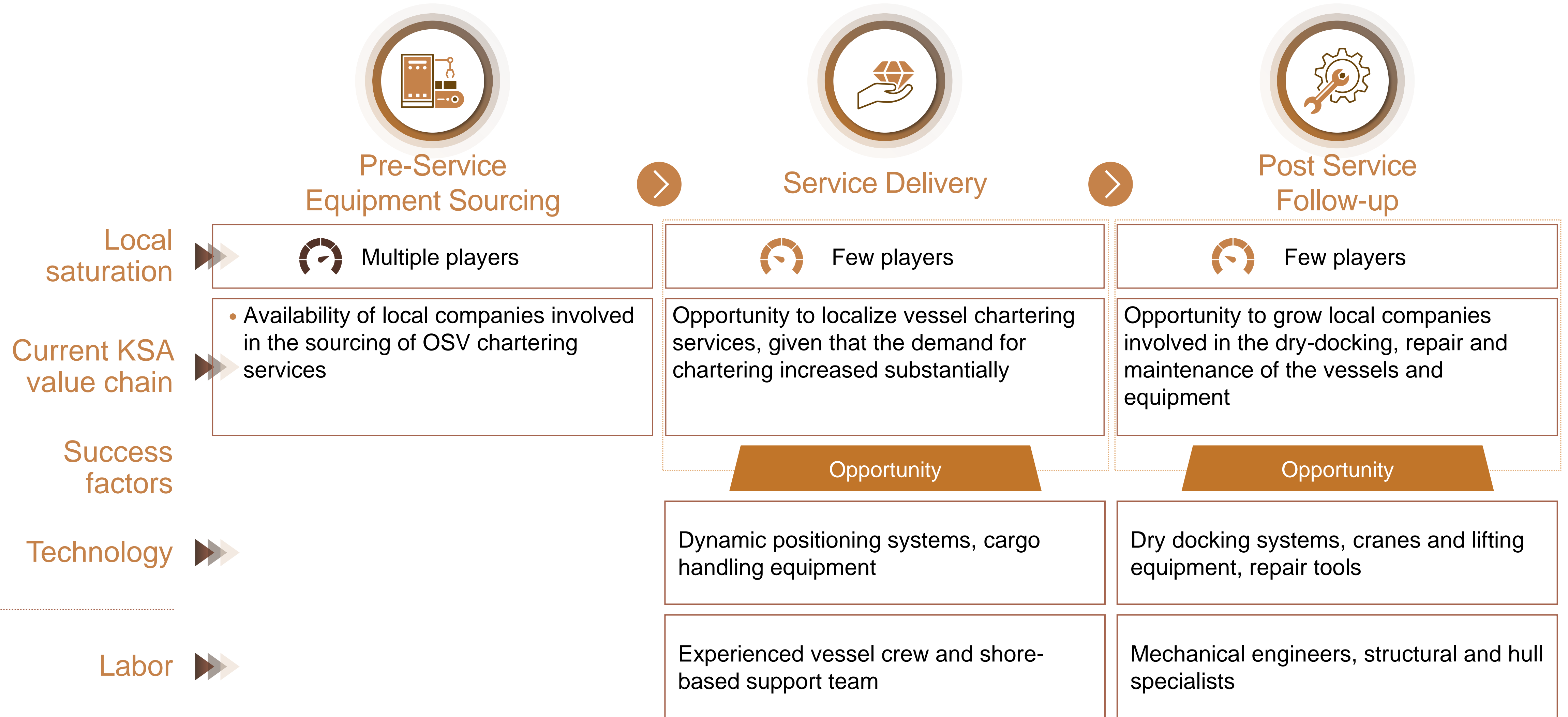
- **Sector expansion:** Increased capital expenditure in offshore projects to maintain 12 million bpd of production capacity
- **Industry trends:** Rising emphasis on operational efficiency drives the demand for external OSV services

Offshore Workshop

Catalyzing Supply Chains

Note: OSV = Offshore Support Vessel
Source: Technavio; Expert input; Team analysis

Value chain and key localization opportunities



Catalyzing Supply Chains

Note: OSV = Offshore Support Vessel
Source: Team analysis

Investment opportunity and enablers

Key enablers in KSA to drive success¹



Financial program: Access to CAPEX financing programs from SIDF to purchase equipment for vessel operations



Human capital enablers: National Maritime Academy offering specialized training for supply boats and cargo barges operations



Customs enablers: Custom duty exemption from MoCI on vessels and equipment for establishment of local OSV services



Megaprojects realization: Oxagon port, King Salman Shipyard and offshore energy projects will stimulate the demand for MRFs

Where is the opportunity



Service
Delivery

Opportunity to localize OSV chartering services, given that spot charter rates and GCC chartering needs have substantially increased



Post Service
Follow-up

Opportunity to grow local providers involved in the dry-docking, repair and maintenance of the vessels and equipment

Catalyzing Supply Chains

1. Detailed list of all enablers in the backup

Note: OSV = Offshore Support Vessel; ; SIDF = Saudi Industrial Development Fund; MoCI = Ministry of Commerce and Industry

Source: Team analysis

Epoxy & Concrete Pipe Coatings

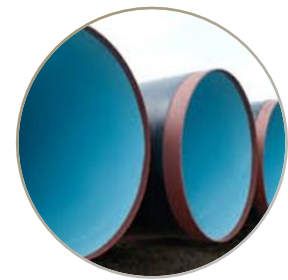
Speaker name

Opportunity profile – epoxy & concrete pipe coatings

1

KSA requires epoxy and concrete coatings across numerous sectors

Types



Epoxy

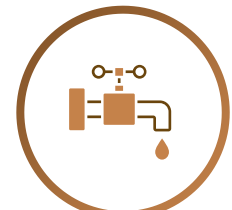


Concrete

Applications



Offshore infrastructure



Water and wastewater



Petrochemical

Example

Pipes and structures

Transport pipes

Sadara

2

Epoxy and concrete coating market is sizeable and growing at a steady rate

36

Estimated 2024 KSA market size. \$MM

6%

Forecasted 5-year CAGR

3

Attractive investment opportunities for the E&C coatings value chain

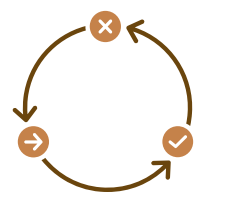
KSA value chain opportunities



Pre-service sourcing



Service delivery



Lifecycle management

KSA enablers

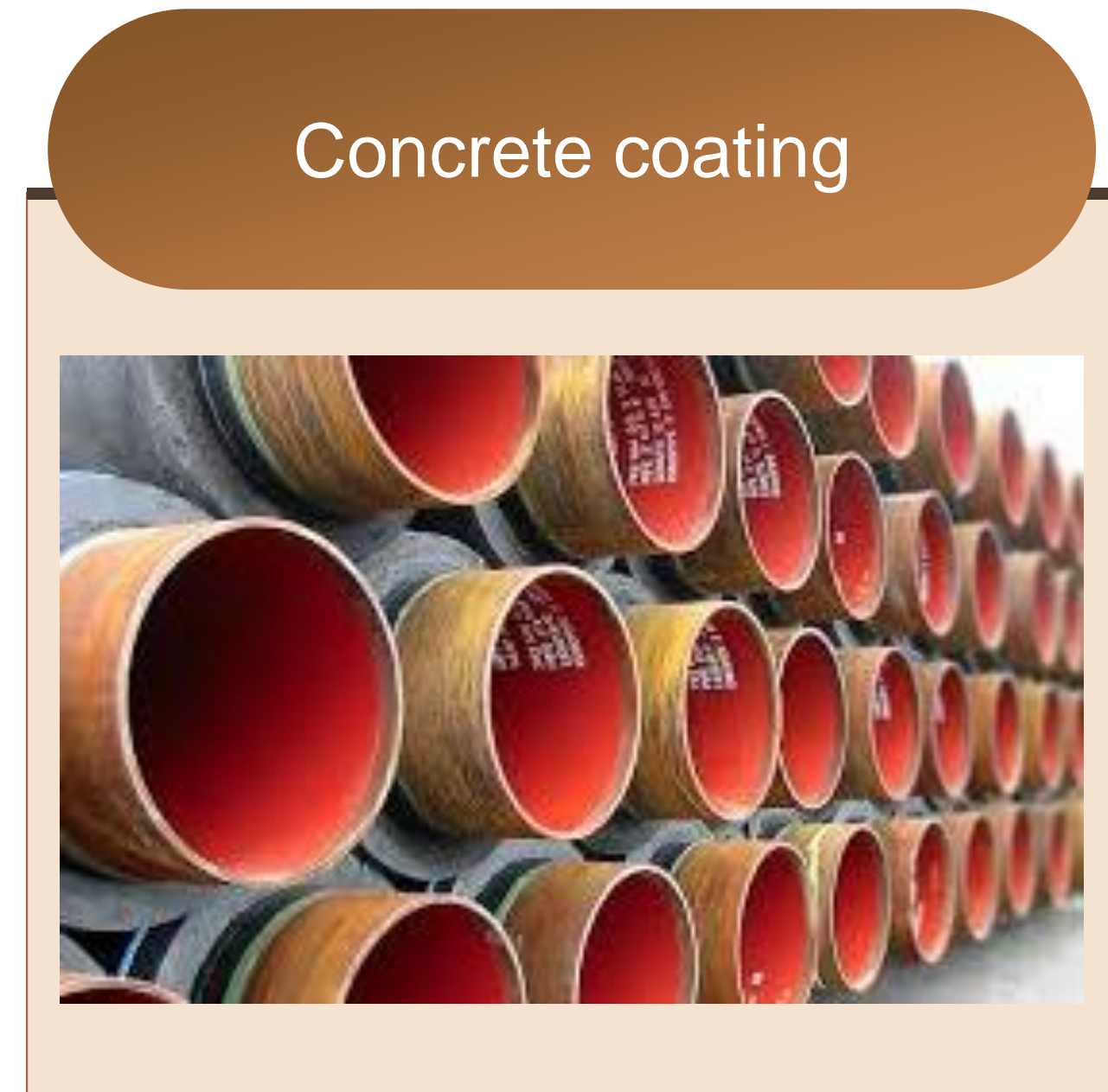
- Customs duty exemption on machinery
- Tax credits on R&D investments
- Subsidized land lease options

Catalyzing Supply Chains

Note: E&C = Epoxy & concrete
 Source: EMIS; Technavio; Team analysis

Potential epoxy & concrete pipe coatings localized categories

Non-exhaustive



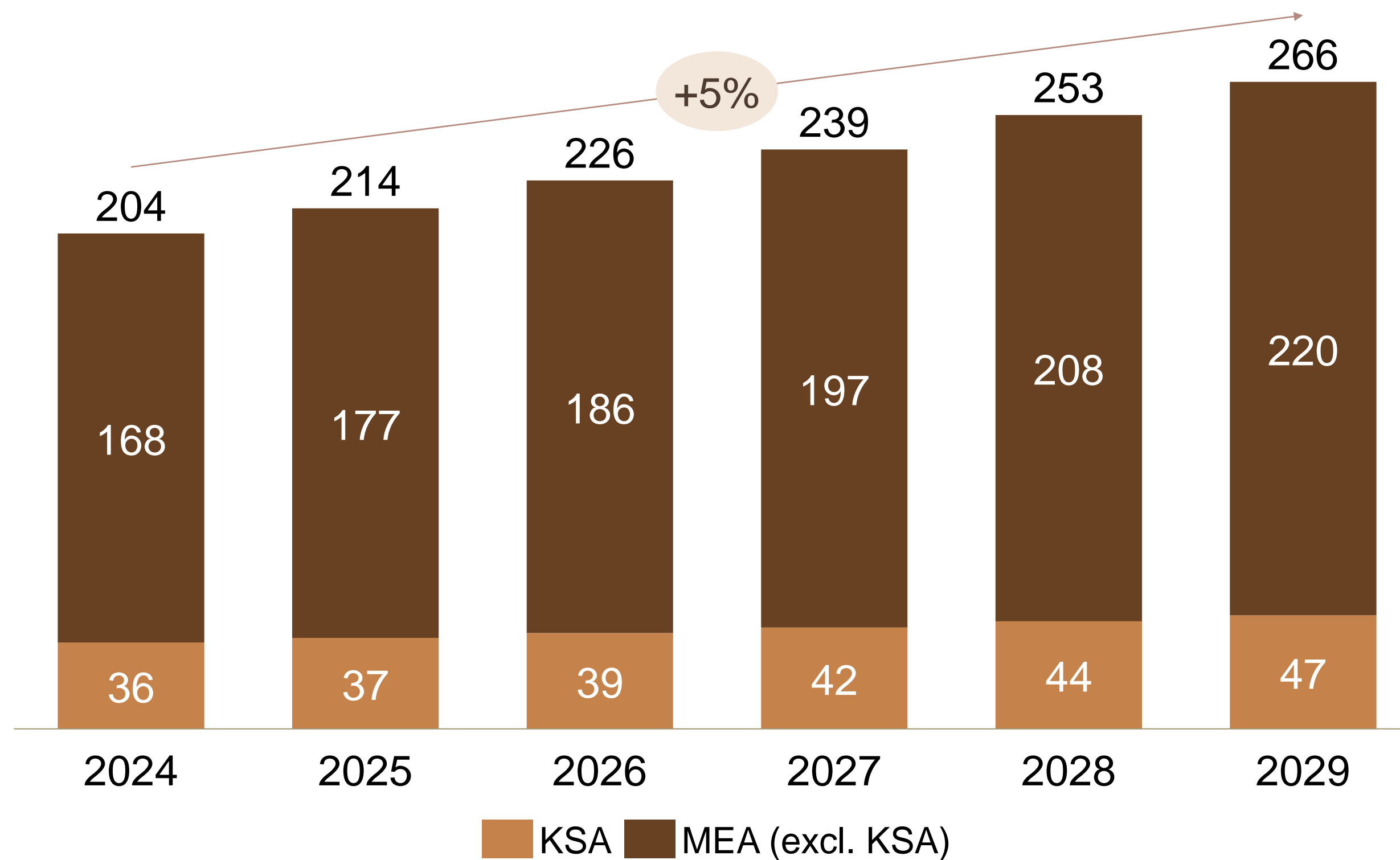
Applications

- Applied to pipes to ensure corrosion protection and flow efficiency
- Used for subsea pipes, storage tanks and offshore structures

- Applied to pipes to provide negative buoyancy for stability on seafloor
- Shields pipes from external impacts

Epoxy & concrete pipe coatings demand, customers, and drivers

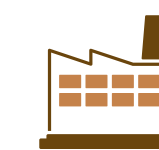
Forecasted MEA and rest of GCC E&C coatings market 2024-2029 (\$MM)



Typical E&C coatings customers in KSA



Oil & gas sector



Utility providers



Petrochemical companies

Key KSA demand drivers

- **Sector growth: Sector expansion:** Expansion of offshore energy projects in KSA drives the demand for epoxy and concrete coatings in subsea and corrosive environments
- **Industry trends:** Pipe coatings demand is growing due to its crucial role in upcoming KSA water system expansions such as water transmission lines and desalination plants

Offshore Workshop

Catalyzing Supply Chains

Note: E&C = Epoxy & concrete
Source: EMIS; Technavio; Team analysis

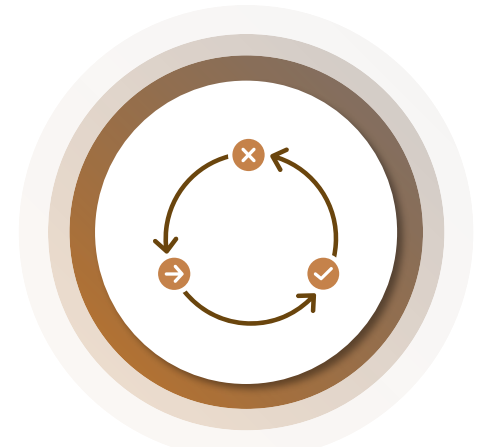
Value chain and key localization opportunities



Pre-Service Sourcing



Service Delivery



Lifecycle Management

Local saturation	Few players	Few players	Few players
Current KSA value chain	Opportunity to increase the number of local providers for FBE coating materials	<ul style="list-style-type: none"> Expand facilities for FBE and concrete coatings application Establish R&D center to improve coatings for local requirements 	<ul style="list-style-type: none"> Establish technical support service center to serve the regional coating market
Success factors	Opportunity	Opportunity	Opportunity
Technology	Mixers, extruders, milling machines and vibrating sieves	Systems extrusion, spray and wrap coating	Coating gauges, ultrasonic testing devices, coating and curing tools
Labor	Chemical engineers and material scientists	Lab technicians, chemical engineers, material scientists	Technical support and coating application specialists

Catalyzing Supply Chains

Note: No intermediate processes as raw materials are directly processed to coatings; FBE = Fusion bonded epoxy
Source: Team analysis

Investment opportunity and enablers

Key enablers in KSA to drive success¹



Customs enablers: Custom duty exemption from MoCI on machinery and equipment for expansion of local pipe coating capabilities



Corporate tax reduction: Tax credits on R&D investments to encourage local innovation capabilities for specialized production



Infrastructure programs: Subsidized land lease options by MODON for manufacturing in designated zones like Jubail Industrial City



Quality assurance: Specialized trainings for Saudi nationals by SPSP on oilfield chemical standards used in KSA

Where is the opportunity



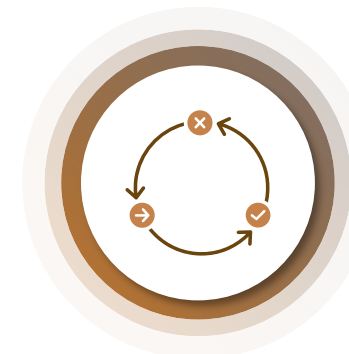
Raw materials

Opportunity to increase the number of local providers for FBE coating materials



Service delivery

Expand facilities for FBE and concrete coatings application; and establish R&D center to improve coatings for regional requirements



Lifecycle management

Establish technical support service center to serve the regional coating market

Catalyzing Supply Chains

1. Detailed list of all enablers in the backup

Note: MoCI = Ministry of Commerce and Industry; MODON = Saudi Authority for Industrial Cities and Technology Zones; SPSP = Saudi Petroleum Services Polytechnic

Source: Team analysis

**Thank
You**