aramco iktva Forum & Exhibition 2025

Static & Rotating Equipment

Workshop

Business Opportunities

14th January 2025

Static & Rotating Equipment Workshop

Catalyzing Supply Chains

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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

Business Opportunities

- **12** Sectors
- **200** Business Opportunities
- **$28 bn** Annual Market Size

Anchor Projects

6 Anchor projects

- IMI
- SPARK
- Tuwaiq

Local Workforce Development

- **16** National training centers
- **90+** Programs

Catalyzing Supply Chains

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

iktva Program Overview (2/2)

Non-exhaustive

iktva Business Development Team Support

- Market Analysis
- Technical Engagement
- Operational Support and Advisory Services[1]

Government/Semi-government key enablers

- Financial Support
- Fiscal Incentives
- Land Solutions
- HR Development
- Regulatory Enablers

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.

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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

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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?

1 Growing market

High growth high spend markets

2 Limited local players & import driven

Markets with few local contributors and high import resilience

3 Technological & labor feasibility

Markets with accessible or standardized technology and available skilled labor

Four key drivers for the KSA static & rotating equipment market

- **Energy sector drives demand** for static and rotating equipment
- **Construction sector relies on static and rotating** equipment and is set to hit USD 126.8 Bn by 2032, growing at 7.3% CAGR

Technologies like digital twins[1] and automation enhance productivity and precision, driving need for equipment like cranes

Stringent environmental regulations such as SASO energy efficiency standards promote sustainability in industrial equipment

- **Vision 2030's focus on economic diversification** drives demand for advanced manufacturing and construction machinery
- **Government emphasis on digitalization and energy efficiency** drive demand for energy-efficient, digitally integrated equipment

1. Digital twins are virtual replicas of physical assets, processes, or systems, created using real-time data and simulations

Note: SASO = The Saudi Standards, Metrology, and Quality Organization

Source: Market Research Reports; Imarc Group Reports; IWF; PWC

Static & Rotating Equipment Megaprojects

Non-exhaustive

NEOM

Digital twin technology at NEOM port to automate

- 10 ship-to-shore cranes
- 30 electric cranes

Aramco Master Gas Program (MGS)

Extensive network of pipes connecting gas production and processing facilities

- $25B contracts awarded for MGS III expansion
- Expansion of Fadhili gas plant awarded with $7.7B in contracts, including air compressors

The Red Sea Project

- Uses crane on a 210-class barge[1] to install bridge segments for Red Sea Project
- Uses floating crane system with 500-ton capacity to position beams onto piers[2]

National Desalination Program

Sustainable water resource management as a key objective of Vision 2030

- Ras Al-Khair desalination plant features 2,650 MW power facility using 5x600 MW and 2x220 MW gas turbines

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1. Barge is a flat-bottomed vessel used to transport heavy materials and equipment over water
2. Piers are vertical supports that hold up bridges or docks, anchoring structural segments securely

Source: Mevea; Bloomberg; Saudi Aramco; Spark Saudi Arabia; Market Research Reports

Static & Rotating Equipment Market Overview (1/2)

KSA static & rotating equipment

$5.37B

5.4% CAGR[1]

2024 KSA market size for opportunities in today's workshop

21 opportunities to be discussed today

1. Centrifugal Blower
2. Air Compressor
3. Flanges
4. Fittings
5. Cranes
6. Heat Exchanger
7. Boiler
8. Bolts, Nuts, and Rivets
9. Clamps
10. Pipe Coatings
11. Diesel Engine

1. 5-year forecasted KSA CAGR (2024-2029)

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Static & Rotating Equipment Market Overview (2/2)

KSA static & rotating equipment

$5.37B

5.4% CAGR[1]

2024 KSA market size for opportunities in today's workshop

21 opportunities to be discussed today

12	Vessel Internals
13	Flare
14	Pipe Cladding
15	Rotary Pumps
16	Gas Turbines
17	Spectacle Plates
18	Plug Valves
19	Steel Pipe Bending
20	AGT Servicing & Overhaul
21	Gas Turbine Spare Parts

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1. 5-year forecasted KSA CAGR (2024-2029)

Optional

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Workshop Agenda

No.	Title of the Investment Opportunity	Presenters
	Introduction	Nasser Alrushoud
1	Centrifugal Blower	Abdulrahman Alotaibi
2	Air Compressor	
3	Flanges	
4	Fittings	
5	Cranes	
6	Heat Exchanger	
7	Boilers	Mohammed Alotaibi
8	Bolts, Nuts, and Rivets	
9	Clamps	
10	Pipe Coatings	
11	Diesel Engine	
12	Vessel Internals	
13	Flare	Khalid Alotaibi
14	Pipe Cladding	
15	Rotary Pumps	
16	Gas Turbines	
17	Spectacle Plates	
18	Valve Plug	
19	Steel Pipe Bending	Laila Alramadan
20	AGT Servicing & Overhaul	
21	Gas Turbine Spare Parts	
	Closing Remarks	

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Centrifugal Blower

Abdulrahman Alotaibi

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Opportunity profile—centrifugal blower

1
KSA has a strong demand for CBs to support its oil and gas expansion

Types


Radial


Backward-curved


Multistage

Applications	Example
Oil and gas	Gas flaring systems
Infrastructure	Residential HVAC
Petrochemical	Vapor recovery

2
The centrifugal blower market experiences a steady increase

35 Estimated 2024 KSA market size. $MM

6% Forecasted 5-year CAGR

3
Attractive investment opportunities for centrifugal blower value chain

KSA value chain opportunities

- Intermediate processes
- Manufacturing

KSA enablers

- Raw material supply programs
- Machinery customs duty exemptions
- Employee upskilling initiatives

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Note: HVAC = Heating, Ventilation and Air Conditioning
Source: Global Market Insights; Team analysis

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Potential centrifugal blower localized categories

Non-exhaustive

	Radial blowers	Backward-curved blowers	Multistage blowers
			
Applications	• Fume extraction • Dust collection systems during refining • Gas flaring systems	• Ventilation in hazardous environments • Flue gas treatment systems to control emissions	• VRUs to capture and reuse hydrocarbon vapors • Compression of gases for transport or reinjection

Note: VRUs = Vapor recovery units
Source: Team analysis

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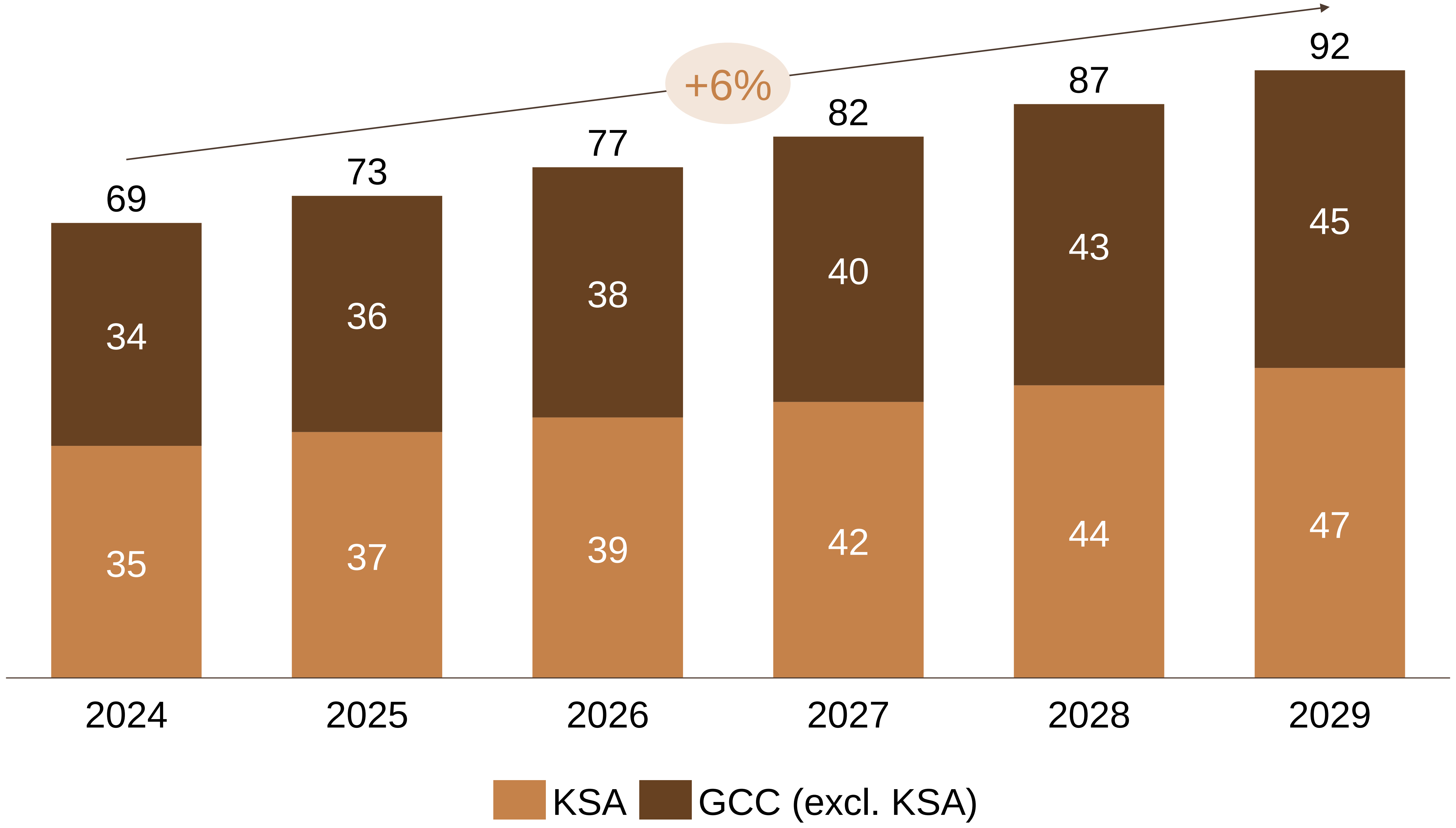
Centrifugal blower demand, customers, and drivers

Forecasted KSA and rest of GCC CB market 2024-2029 ($MM)



Typical CB customers in KSA

- Oil & gas sector
- Refineries & chemical plants
- Commercial building operators

Key KSA demand drivers

- Industry trends: KSA construction sector is expected to grow at a CAGR of 7.30% until 2030, driving the demand for centrifugal blowers
- Sector expansion: Increased capital expenditure in energy projects to maintain 12 million bpd of production capacity

Catalyzing Supply Chains

Note: CB = Centrifugal blower
Source: Global Market Insights; Team analysis

Value chain and key localization opportunities

	Raw material	Intermediate processes	Manufacturing and assembly	Lifecycle management
Local saturation	Multiple players	Few players	Few players	Multiple players
Current KSA value chain	• Raw materials such as stainless steel, cast iron, aluminum, and polymers supplied by out-of-Kingdom players	• Expand processes for seals, control systems, and electrical motors	• Opportunity to grow the number of production factories to meet increased local demand	• Installation, preventive maintenance, servicing and repairing provided by multiple players
		Opportunity	Opportunity	
Success factors				
Technology		Material processing tools, CNC/winding machining	CNC machining, balancing machines, coating tools	
Labor		Electrical, control system and mechanical engineers	Electrical and mechanical engineers	

Catalyzing Supply Chains

Note: Lifecycle management including all post-production services, including installation; CNC = Computer Numerical Control
Source: Team analysis

Air Compressor

Abdulrahman Alotaibi

Opportunity profile—air compressor

1

Air compressors needed for growing energy and construction demand

Types


Rotary screw


Centrifugal


Reciprocating

Applications	Example
Oil and gas	Gas compression
Construction	Jackhammer & rivet tools
Mining	Excavation equipment

2

The air compressor market increases at a steady rate in GCC and KSA

523 — Estimated 2024 KSA market size. $MM

5% — Forecasted 5-year CAGR

3

Attractive investment opportunities for the air compressor value chain

KSA value chain opportunities

- Intermediate processes
- Manufacturing

KSA enablers

- Regional land and loan programs
- Market analysis and consulting service
- Customs duty exemptions for exports

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Source: EMIS; Grand View Research; Team analysis

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Potential air compressor localized categories

Non-exhaustive

Rotary screw compressors

Centrifugal compressors

Reciprocating compressors

Applications

Rotary screw compressors	Centrifugal compressors	Reciprocating compressors
• Powering drills and excavation equipment • Operating jackhammer and sandblasting equipment	• Feeding compressed air into turbines • Compressing gases for chemical reactions	• Powering pneumatic tools and inflating tires • Operating machinery with intermittent air supply

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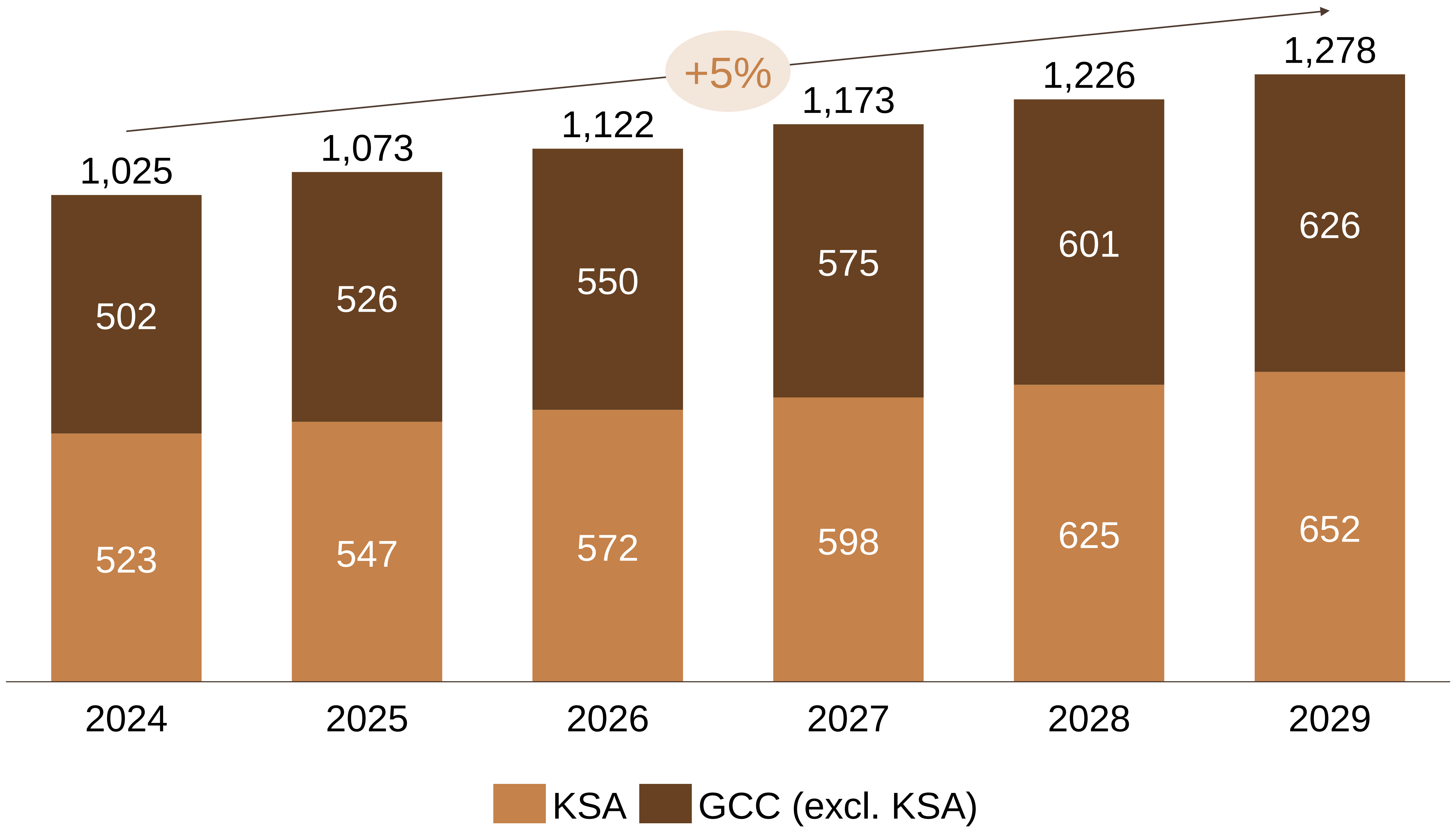
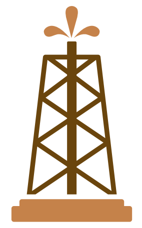
Source: Team analysis

Air compressor demand, customers, and drivers

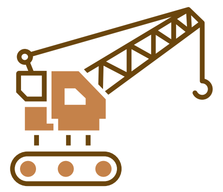
Forecasted KSA and rest of GCC air compressor market 2024-2029 ($MM)



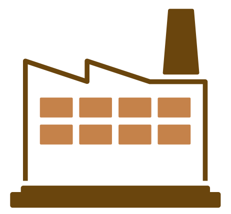
Typical compressor customers in KSA



Oil & gas sector



Construction companies



Industrial sector

Key KSA demand drivers

- Sector growth: KSA energy sector boosts demand for static and rotating as it remains core driver for economic growth
- Industrial growth: KSA efforts to diversify its economy under Vision 2030 have led to significant investments in manufacturing, construction, and other industrial sectors that rely on air compressors

Catalyzing Supply Chains

Source: EMIS; Grand View Research; Team analysis

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Value chain and key localization opportunities

	Raw material	Intermediate processes	Manufacturing and assembly	Lifecycle management
Local saturation	Multiple players	Few players	Few players	Multiple players
Current KSA value chain	• Raw materials such as stainless steel, cast iron, aluminum, and polymers supplied by out-of-Kingdom players	• Expand processes for pressure gauges, control systems, and motors	• Opportunity to grow number of producers of centrifugal air compressors	• Installation, maintenance, servicing and repairing provided by multiple players
		Opportunity	Opportunity	
Success factors				
Technology		Material processing tools, CNC/winding machining	CNC machining, balancing machines, and NDT tools	
Labor		Electrical, control system and mechanical engineers	Electrical and mechanical engineers	

Catalyzing Supply Chains

Note: Lifecycle management including all post-production services, including installation; CNC = Computer Numerical Control; NDT = Non-destructive testing
Source: Team analysis

Flanges

Abdulrahman Alotaibi

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Opportunity profile—flanges

1
KSA has a strong demand for flanges to support its oil and gas expansion

Types

Weld neck flanges | Blind flanges | Socket weld flanges

Applications	Example
Oil and gas infrastructure	Berri Field pipelines
Power generation	Turbine connection
Water treatment	ISTP pumps

2
The flanges market experiences a gradual increase in KSA and GCC

128 Estimated 2024 KSA market size. $MM

2% Forecasted 5-year CAGR

3
Attractive investment opportunities for the flanges value chain

KSA value chain opportunities

- Lifecycle management
- Manufacturing

KSA enablers

- CAPEX financing programs
- Tax credits on R&D investments
- Inspection training by ITQAN Institute

Catalyzing Supply Chains

Note: ISTP = Independent Sewage Treatment Plant
Source: EMIS; The Insight Partners; Team analysis

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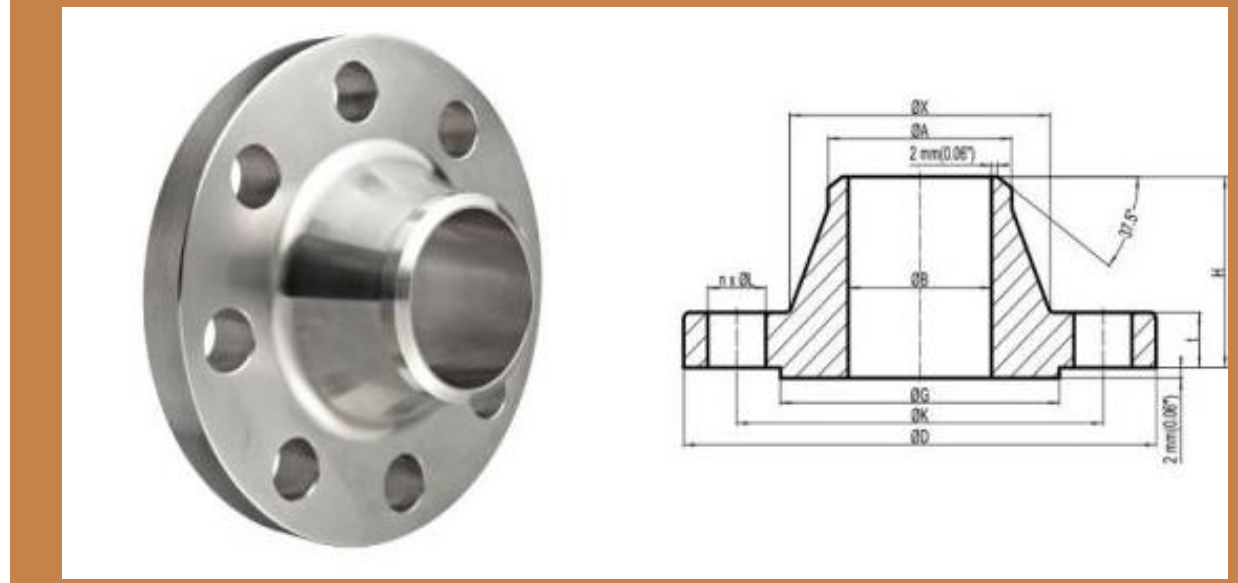
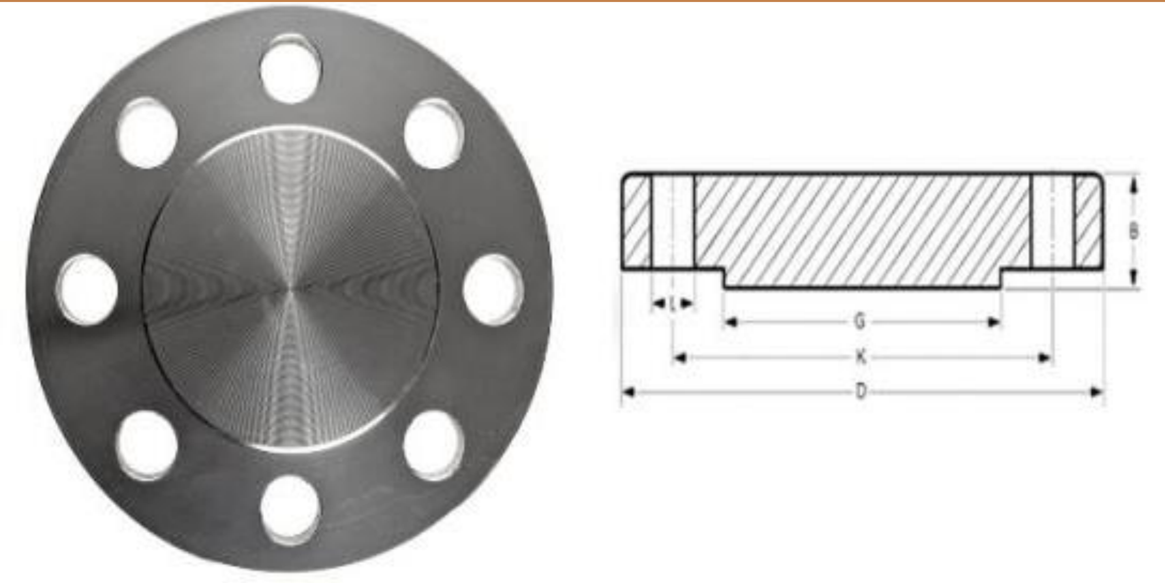
Potential flanges localized categories

Non-exhaustive

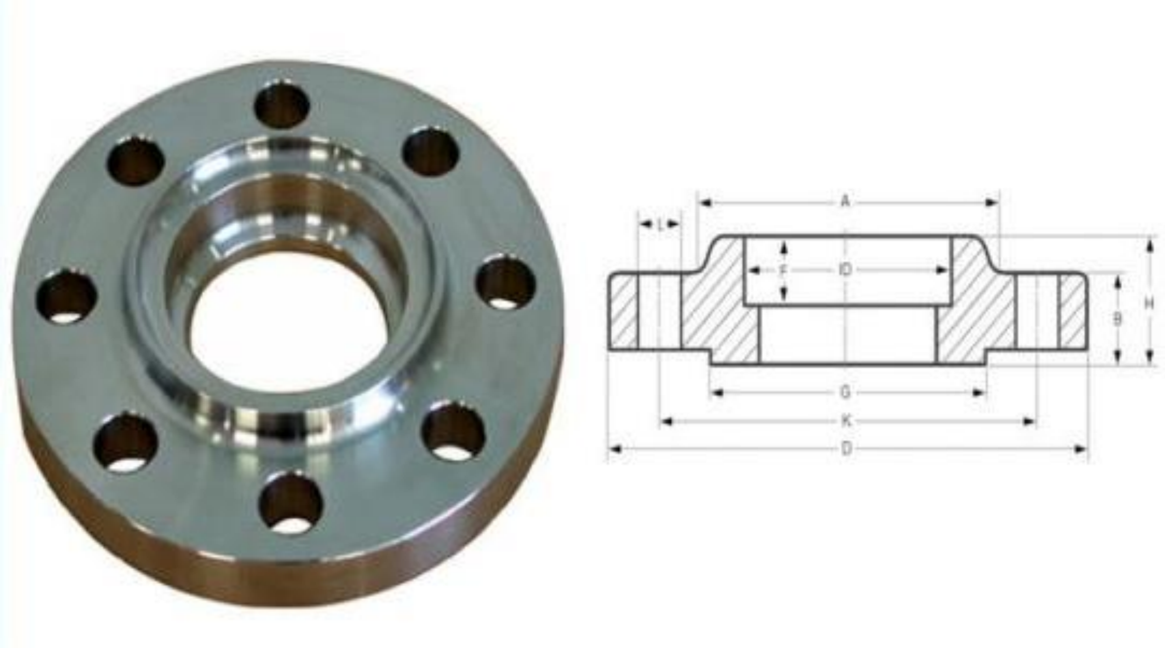
Weld neck flanges



Blind flanges



Socket weld flanges



	Weld neck flanges	Blind flanges	Socket weld flanges
Applications	• High-pressure applications • Welded to pipe to provide strength and reduce stress	• Closes the end of a pipe • Useful for maintenance and testing	• Suitable for small-diameter high-pressure pipelines

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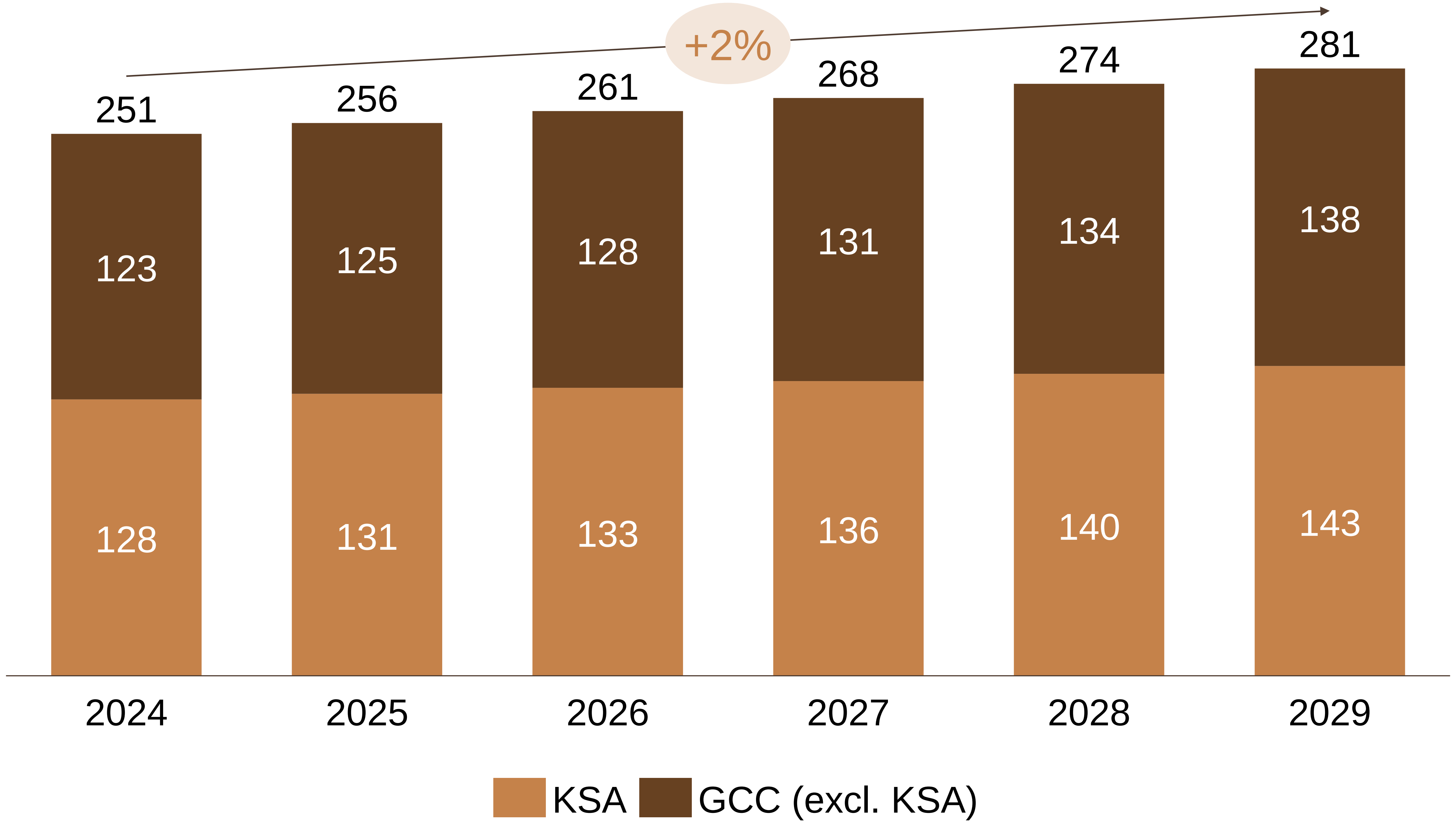
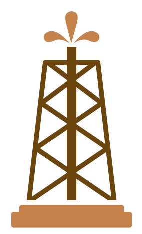
Source: Team analysis

Flanges demand, customers, and drivers

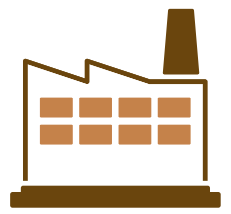
Forecasted KSA and rest of GCC flanges market 2024-2029 ($MM)



Typical flanges customers in KSA


Oil & gas sector


Petrochemical industry


Utility providers

Key KSA demand drivers

- Sector growth: KSA energy sector boosts demand for static and rotating as it remains core driver for economic growth
- Industrial trends: Demand for flanges for residential and commercial building utility pipelines is driven by construction sector growth at a 7.3% CAGR until 2032

Catalyzing Supply Chains

Source: EMIS; The Insight Partners; Team analysis

Value chain and key localization opportunities

	Raw material	Manufacturing and assembly	Lifecycle management
Local saturation	Multiple players	Few players	Few players
Current KSA value chain	• Raw materials such as carbon and stainless steel, copper, and nickel supplied by out-of-Kingdom players	• Opportunity to grow production of flanges made of stainless steel and steel alloys	• Opportunity to increase the number of providers for testing, inspection, and integrity management services
		Opportunity	Opportunity
Success factors			
Technology		Forging presses, induction furnace, lathes and milling machines	Ultrasonic testing devices
Labor		Forging and casting technicians, metallurgists	Inspection specialists with expertise in material sciences

Catalyzing Supply Chains

Note: Intermediate processes are completed by manufacturing companies as raw materials are directly processed to produce flanges
Source: Team analysis

Fittings

Abdulrahman Alotaibi

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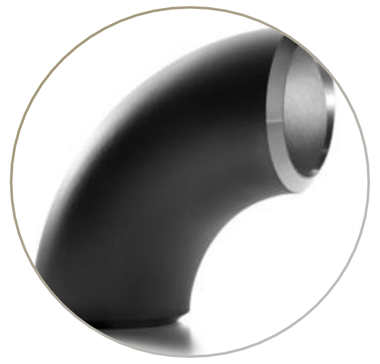
Opportunity profile—fittings

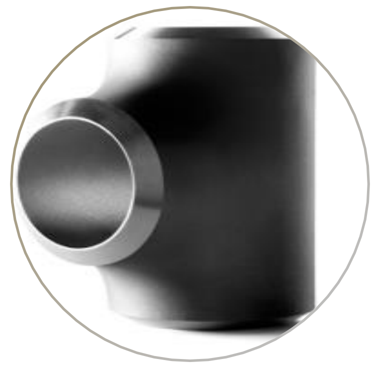
1

KSA in need of fittings for energy and water infrastructure projects

Types



Elbows



Tees

Expanders/ reducers

Applications	Example
Oil and gas infrastructure	Pipelines
Water supply systems	NEOM
Sewage systems	ISTPs

2

The market for fittings is growing at a moderate rate in KSA and GCC

257 Estimated 2024 KSA market size. $MM

3% Forecasted 5-year CAGR

3

Attractive investment opportunities for the fittings value chain

KSA value chain opportunities

- Lifecycle management
- Manufacturing

KSA enablers

- Subsidized loans for machinery
- Custom duty exemptions on exports
- Streamlined skilled expat visa

Catalyzing Supply Chains

Note: ISTP = Independent Sewage Treatment Plant
Source: EMIS; The Insight Partners; Team analysis

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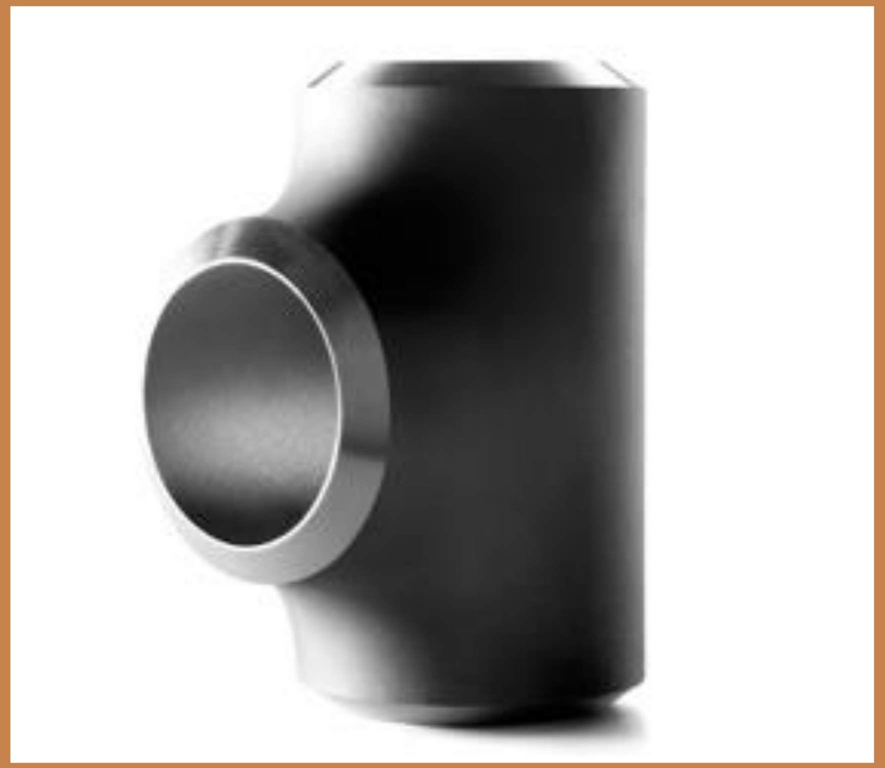
Potential fittings localized categories

Non-exhaustive

	Elbows	Tees	Expanders/Reducers
			
Applications	• Change direction of pipe flow (e.g., 45°, 90° angles)	• Split or combine flow from pipes into three directions	• Transition flow between pipes of different diameter

Catalyzing Supply Chains

Source: Team analysis

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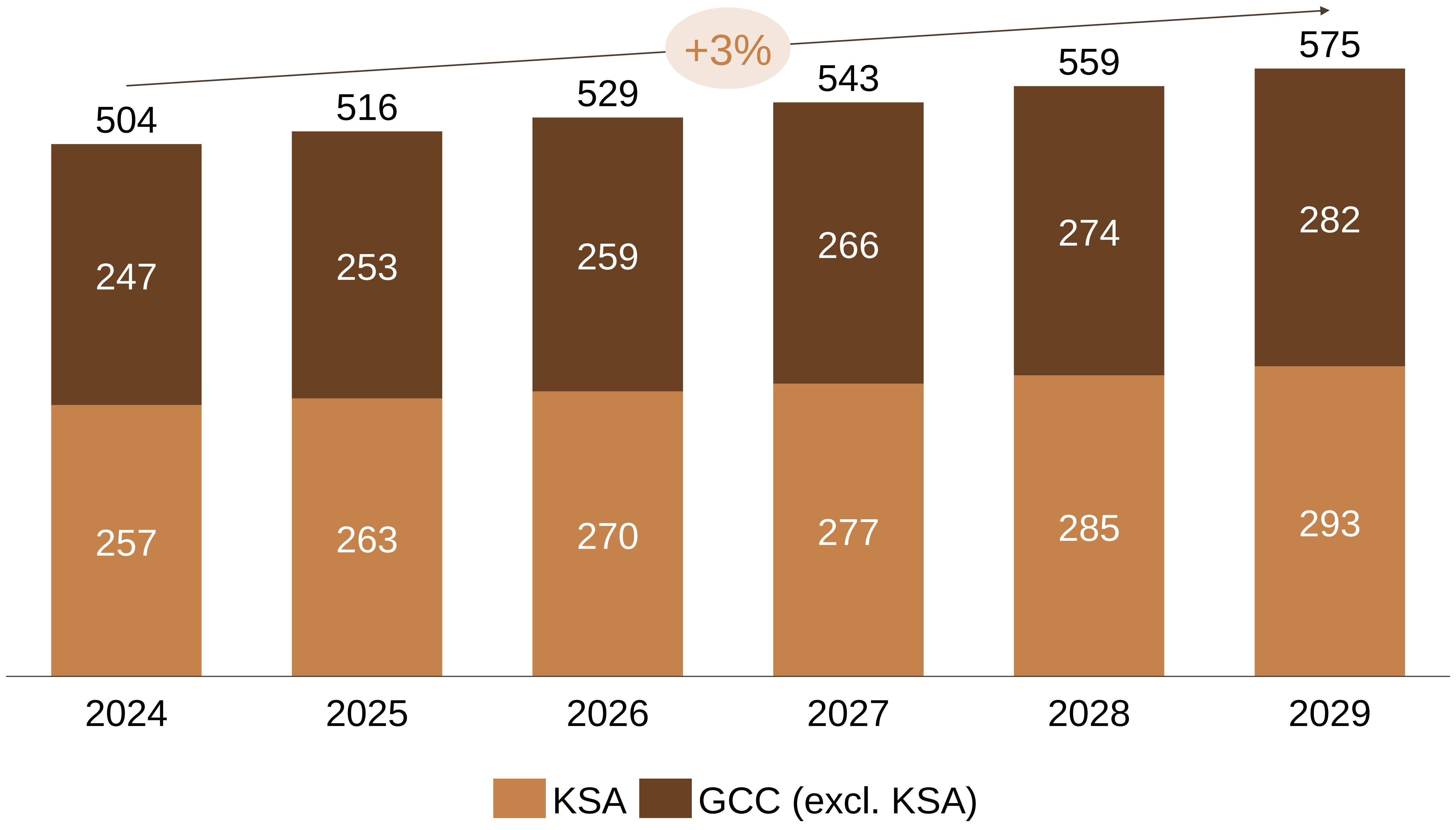
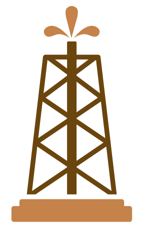
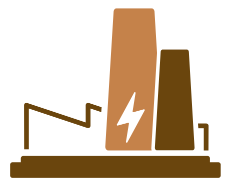
Fittings demand, customers, and drivers

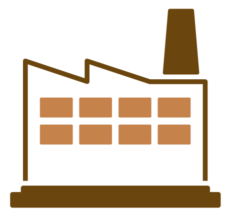
Forecasted KSA and rest of GCC fittings market 2024-2029 ($MM)



Typical pipe coatings customers in KSA


Oil & gas sector


Power generation companies


Utility providers

Key KSA demand drivers

- Sector growth: Energy investments remain the driving engine for KSA economic growth, boosting the demand for fittings
- Industrial trends: Fittings demand expected to grow due to their crucial role in upcoming KSA water system expansions such as water transmission lines and desalination plants

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Catalyzing Supply Chains

Source: EMIS; The Insight Partners; Team analysis

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Value chain and key localization opportunities

	Raw material	Manufacturing and assembly	Lifecycle management
Local saturation	Multiple players	Few players	Few players
Current KSA value chain	• Raw materials such as carbon and stainless steel, aluminum, copper, polypropylene, and polyethylene supplied by local and out-of-Kingdom players	• Opportunity to expand local production of high-grade fittings such as stainless-steel fittings	• Opportunity to increase the number of providers for inspection and integrity management services
		Opportunity	Opportunity
Success factors			
Technology		Forging presses, induction furnace, lathes and milling machines	Ultrasonic testing devices
Labor		Forging and casting technicians, metallurgists	Inspection specialists with expertise in material sciences

Catalyzing Supply Chains

Note: Intermediate processes are completed by manufacturing companies as raw materials are directly processed to produce fittings
Source: Team analysis

Cranes

Abdulrahman Alotaibi

Forum & Exhibition 2025

Opportunity profile—cranes

1

KSA has a strong demand for cranes to realize ongoing megaprojects

Types

Overhead

Pedestal

Tower

Applications	Example
Oil and gas	Offshore structures
Construction	NEOM
Manufacturing industry	Industrial cities

Catalyzing Supply Chains

2

The cranes market experiences a steady increase in KSA and GCC

485 Estimated 2024 KSA market size. $MM

6% Forecasted 5-year CAGR

3

Attractive investment opportunities for the cranes value chain

KSA value chain opportunities

- Intermediate processes
- Manufacturing
- Lifecycle management

KSA enablers

- Financial loans for manufacturing
- Land lease subsidies
- Subsidized training programs

Source: EMIS; PR Newswire; Arizton Advisory & Intelligence; Team analysis

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Potential cranes localized categories

Non-exhaustive

	Overhead crane	Pedestal crane	Tower crane
			
Applications	• Operate along a fixed path in factories or warehouses • Efficient for indoor lifting and repetitive tasks	• Used mainly for offshore • Used to transfer materials to or from marine vessels, barges and structures	• Used often in construction • Fixed to ground or building • Provide exceptional height and lifting capacity

Source: Team analysis

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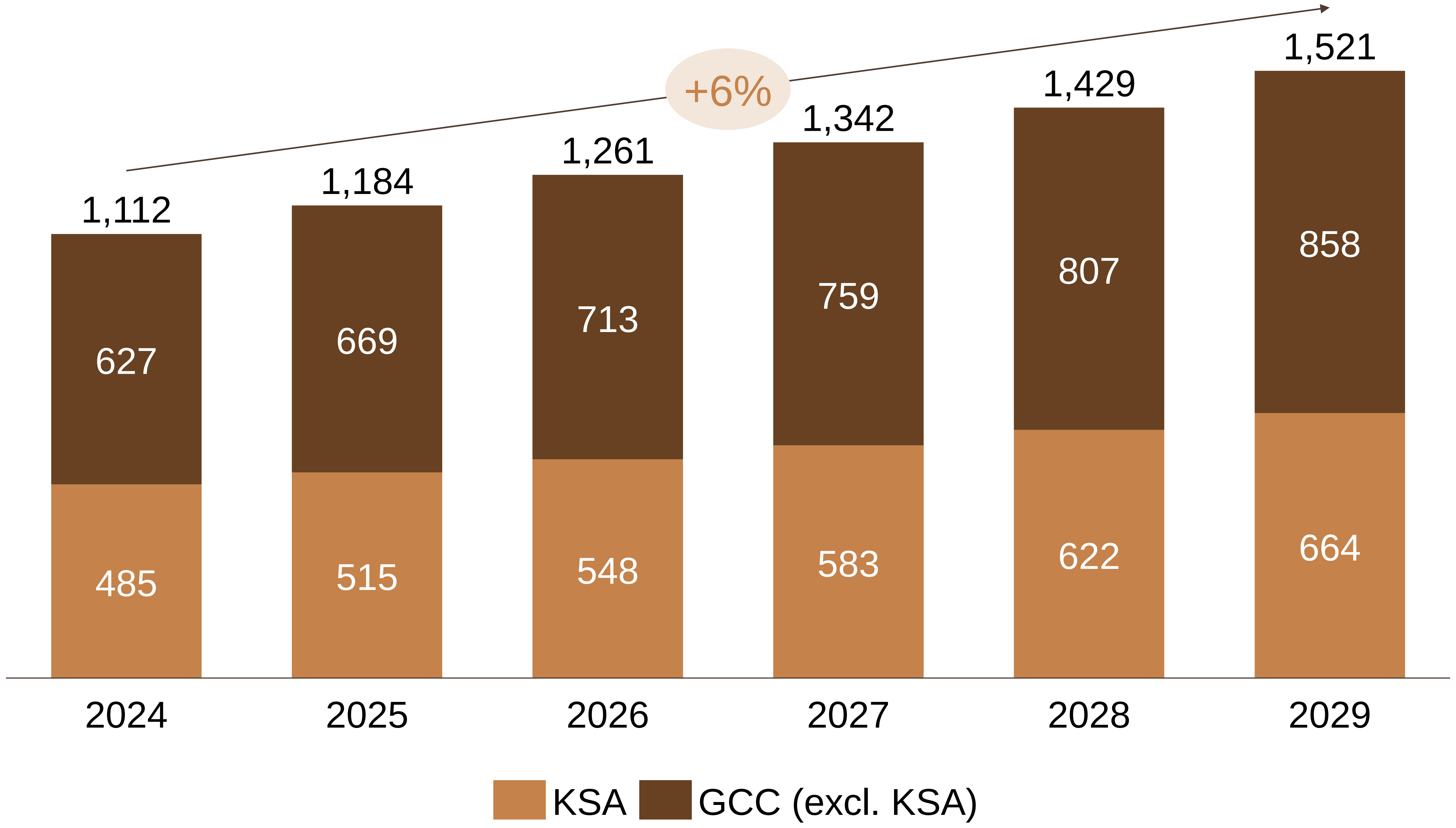
Cranes demand, customers, and drivers

Forecasted KSA and rest of GCC cranes market 2024-2029 ($MM)



Typical cranes customers in KSA

- Oil & gas sector
- Construction companies
- Manufacturing industry

Key KSA demand drivers

- Industry trends: Construction sector grows at a 7.3% CAGR until 2032, fueling the demand for cranes to realize major infrastructure projects
- Supply chain localization: Ambition of KSA to achieve 70% localization of all spending boosts the manufacturing industry that relies on crane systems

Source: EMIS; PR Newswire; Arizton Advisory & Intelligence; Team analysis

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Value chain and key localization opportunities

	Raw material	Intermediate processes	Manufacturing and assembly	Lifecycle management
Local saturation	Multiple players	Few players	Few players	Few players
Current KSA value chain	• Raw materials such as steel, aluminum, and high-strength alloys supplied by out-of-Kingdom players	• Expand the production of components such as hoists and winches, control systems and hydraulic systems	• Opportunity to grow the production of cranes to reduce high reliance on imports	• Establish technical support service centers to serve requirements of crane manufacturers
		Opportunity	Opportunity	Opportunity
Success factors				
Technology		CNC machining, welding tools, hydraulic presses	Overhead cranes, coating systems	Hydraulic lifting tools, diagnostic and NDT tools
Labor		Mechanical, electrical and hydraulic engineers	Mechanical, electrical and hydraulic engineers	Skilled technicians and mechanical engineers

Catalyzing Supply Chains

Note: Lifecycle management including all post-production services, including installation; NDT = Non-destructive testing
Source: Team analysis

Heat Exchanger

Abdulrahman Alotaibi

aramco iktva Forum & Exhibition 2025

Opportunity profile—heat exchangers

1

KSA requires heat exchangers for energy and infrastructure projects

Types


Shell & tube


Plate


Air-cooled

Applications	Example
Oil and gas	Process fluids
Power generation	Cool gas turbines
Buildings and infrastructure	HVAC systems

2

Heat exchanger market is sizeable with steady forecasted growth

404 Estimated 2024 KSA market size. $MM

6% Forecasted 5-year CAGR

3

Attractive investment opportunities for the heat exchanger value chain

KSA value chain opportunities

- Intermediate processes
- Manufacturing
- Lifecycle management

KSA enablers

- CAPEX financing programs
- Land and infrastructure subsidies
- Subsidized workforce training

Catalyzing Supply Chains

Note: HVAC = Heating, Ventilation, and Air Conditioning
Source: Markets and Markets; Markets and Data; Team analysis

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Potential heat exchangers localized categories

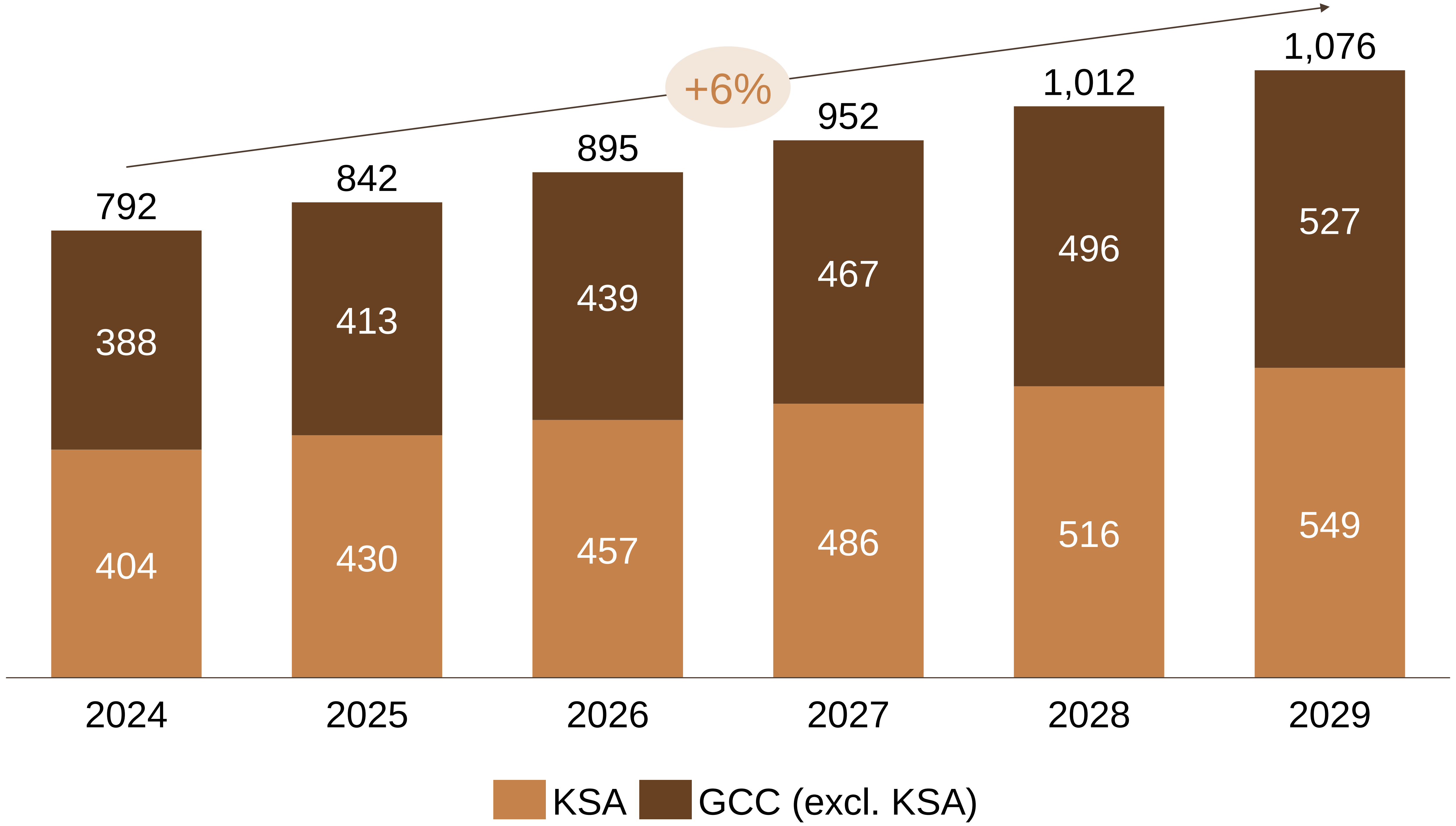
Non-exhaustive

	Shell and tube heat exchanger	Plate heat exchanger	Air-cooled heat exchanger
			
Applications	• Consist of tubes within a cylindrical shell • Common in oil refineries and chemical processing plants	• Use thin, flat plates with channels for fluid flow • Often used in HVAC systems and refrigeration	• Use fans to circulate air over a heat exchanger surface • Used in oil refineries, power plants, and petrochemical

Source: Team analysis

Heat exchangers demand, customers, and drivers

Forecasted KSA and rest of GCC heat exchanger market 2024-2029 ($MM)



Typical heat exchanger customers in KSA

Oil & gas sector

Power generation companies

Petrochemical plants

Key KSA demand drivers

- Industrial expansion: Growth in sectors like energy, petrochemical and power generation is boosting demand for heat exchangers
- Energy efficiency initiatives: Government policies promoting energy efficiency and sustainability are driving the adoption of advanced heat exchanger technologies

Source: Markets and Markets; Markets and Data; Team analysis

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Value chain and key localization opportunities

	Raw material	Intermediate processes	Manufacturing and assembly	Lifecycle management
Local saturation	Multiple players	Few players	Few players	Few players
Current KSA value chain	• Raw materials such as stainless steel, copper, and aluminum supplied by out-of-Kingdom players	• Establish facility to design and produce seamless tubes of different metal compositions	• Opportunity to expand production of shell and tube heat exchangers • Localize plate stacking	• Expand support and technical assistance services, incl. inspection, testing, maintenance, and repair
		Opportunity	Opportunity	Opportunity
Success factors				
Technology		Tube rolling mills and heat treatment furnaces	CNC machining and plate pressing machines	Leak and pressure testing equipment
Labor		Metallurgists and mechanical engineers	Mechanical engineers and welding specialists	Skilled technicians and mechanical engineers

Catalyzing Supply Chains

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

Boilers

Mohammed Alotaibi

aramco iktva Forum & Exhibition 2025

Opportunity profile—boilers

1

KSA requires boilers to realize its ongoing oil and gas expansion

Types

Fire-tube

Water-tube

Steam

Applications	Example
Oil and gas drilling	Drilling rig hot water
Power generation	Steam for turbines
Refining processes	Heat for oil refining

2

The boiler market is sizable and grows at a steady rate

274 Estimated 2024 KSA market size. $MM

4% Forecasted 5-year CAGR

3

Attractive investment opportunities for the boiler value chain

KSA value chain opportunities

- Intermediate processes
- Manufacturing
- Lifecycle management

KSA enablers

- Working capital financing
- Customs duty exemptions on exports
- Streamlined visa process by MHRSD to facilitate skilled expat hiring

Source: EMIS; Grand View Research; 6W Research; Team analysis

Potential boilers localized categories

Non-exhaustive

Fire-tube boilers

Water-tube boilers

Steam boilers

Applications

	Fire-tube boilers	Water-tube boilers	Steam boilers
Applications	• Feature hot gas pass through tubes surrounded by water • Suitable for low to medium pressure applications	• Contain water in tubes heated by external combustion gases • Ideal for high-pressure and high-temperature needs	• Produce steam for various uses, such as heating and power generation

Source: Team analysis

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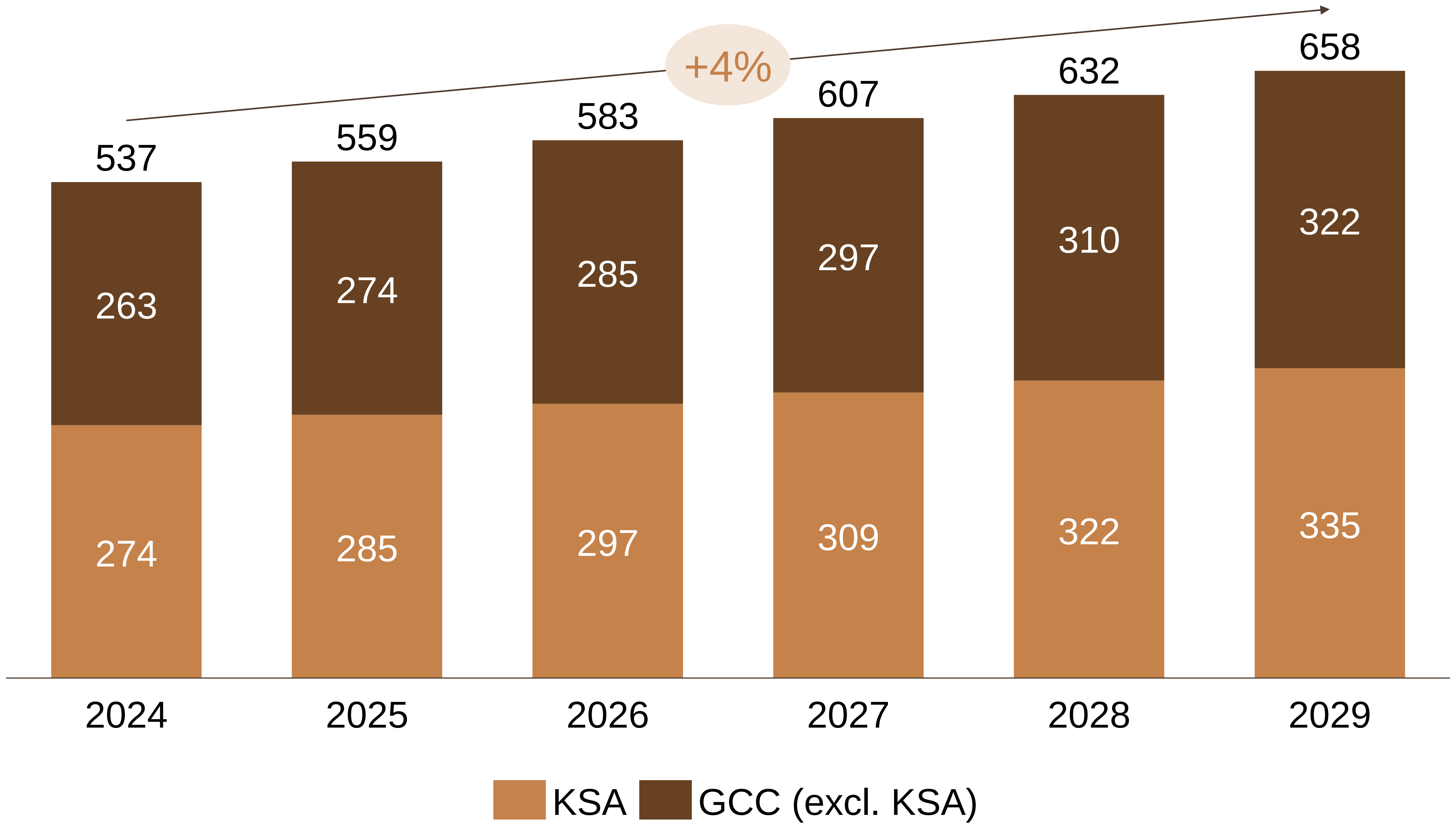
Boiler demand, customers, and drivers

Forecasted KSA and rest of GCC boiler market 2024-2029 ($MM)



Typical boiler customers in KSA

- Oil & gas sector
- Refineries
- Power generation companies

Key KSA demand drivers

- Industry trends: Growth of petrochemical requires boilers for steam generation and process heating, essential for operations like distillation and chemical reactions
- Infrastructure expansion: The development of urban infrastructure, including schools, hospitals, and commercial spaces, requires boilers for heating applications

Catalyzing Supply Chains

Source: EMIS; Grand View Research; 6W Research; Team analysis

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Value chain and key localization opportunities

	Raw material	Intermediate processes	Manufacturing and assembly	Lifecycle management
Local saturation	Multiple players	Few players	Few players	Few players
Current KSA value chain	• Raw materials such as stainless steel, alloys, refractory and insulation materials supplied by out-of-Kingdom players	• Establish facility to design and produce seamless tubes of different metal compositions	• Opportunity to increase local production of water-tube boilers	• Expand technical assistance services, incl. inspection, testing, maintenance, and repair
		Opportunity	Opportunity	Opportunity
Success factors				
Technology		Tube rolling mills and heat treatment furnaces	CNC machining and plate rolling machines	Diagnostic and testing equipment
Labor		Metallurgists and mechanical engineers	Mechanical engineers and welding specialists	Skilled technicians and mechanical engineers

Catalyzing Supply Chains

Note: Lifecycle management including all post-production services, including installation; CNC = Computer Numerical Control
Source: Team analysis

Bolts, Nuts & Rivets

Mohammed Alotaibi

Opportunity profile—fasteners

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1 KSA requires fasteners across many sectors of its growing economy

Types

Bolts and nuts

Rivets

Applications	Example
Oil and gas	Pipeline joints
Construction	Steel structures
Automotive	Car chassis

2 The fasteners market is sizeable with steady forecasted growth

787 Estimated 2024 KSA market size. $MM

5% Forecasted 5-year CAGR

3 Attractive investment opportunities for the fasteners value chain

KSA value chain opportunities

Manufacturing

KSA enablers

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

Catalyzing Supply Chains

Note: Fasteners refers to bolts, nuts, and rivets
Source: EMIS; Arizton Advisory & Intelligence; Team analysis

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Potential fasteners localized categories

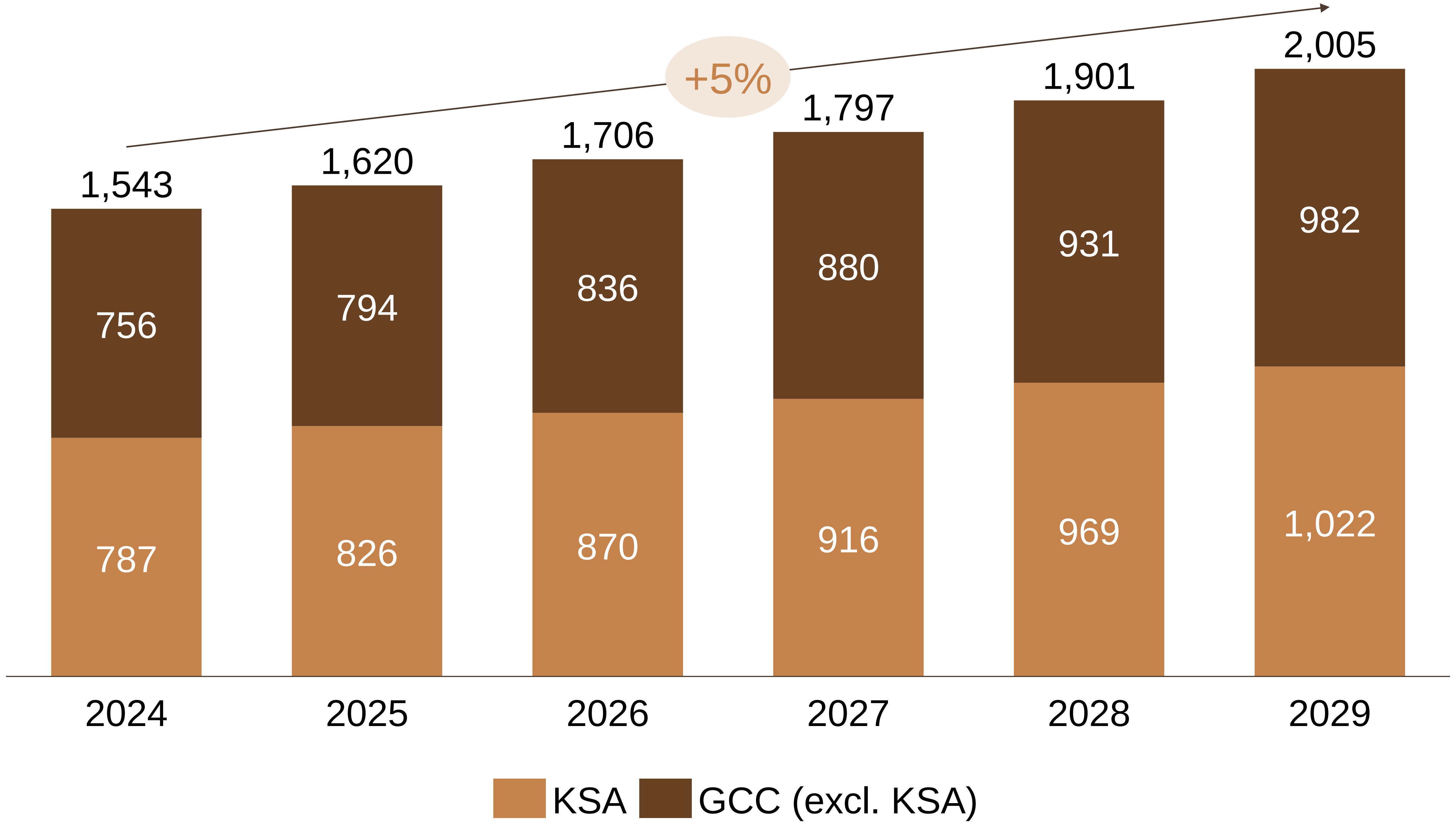
Non-exhaustive

	Bolts and nuts	Rivets
		
Applications	• Pipeline flange connections • Pressure vessels • Turbine tower foundations • Joints at buildings and bridges	• Storage tanks and silos • Permanent joints in offshore rigs • Aircrafts and marine vessels • Joints at buildings and bridges

Note: Fasteners refers to bolts, nuts, and rivets; Bolts and nuts are generally used in combination
Source: Team analysis

Fasteners demand, customers, and drivers

Forecasted KSA and rest of GCC fasteners market 2024-2029 ($MM)



Typical fasteners customers in KSA

- Oil & gas sector
- Construction companies
- Utility providers

Key KSA demand drivers

- Sector growth: Energy investments remain the core driving engine for KSA economic growth, boosting the demand for fasteners
- Industry trends: Construction sector grows at a CAGR of 7.3% until 2032, fueling the need for fasteners for buildings and bridges

Note: Fasteners refers to bolts, nuts, and rivets
Source: EMIS; Arizton Advisory & Intelligence; Team analysis

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Value chain and key localization opportunities

	Raw material	Manufacturing and assembly
Local saturation	Multiple players	Few players
Current KSA value chain	• Raw materials such as carbon steel, stainless steel and alloys provided by out-of-Kingdom suppliers	• Opportunity to grow the local production of bare carbon steel fasteners • Increase the local supply of coatings • Expand the number of local service providers for the application of coatings
		Opportunity
Success factors		
Technology		Wire drawing machines, heat treatment furnaces, cold heading and hot forging machines, coating machines
Labor		Heat treatment technicians, surface coating technicians, CNC machinists

Catalyzing Supply Chains

Note: Intermediate processes are generally conducted by companies that manufacture and assemble bolts, nuts and rivets; Lifecycle management not applicable as fasteners are not maintained or repaired but replaced with new fasteners
Source: Team analysis

Clamps

Mohammed Alotaibi

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Opportunity profile—clamps

1
KSA requires clamps to realize its ongoing oil and gas expansion

Types

Pipe clamps

Safety clamps

Repair clamps

Applications	Example
Oil and gas infrastructure	Pipeline systems
Mining	Drilling rigs
Buildings	HVAC and plumbing

Catalyzing Supply Chains

2
The clamps market experiences a moderate increase in KSA and GCC

38 Estimated 2024 KSA market size. $MM

4% Forecasted 5-year CAGR

3
Attractive investment opportunities for the clamps value chain

KSA value chain opportunities

- Intermediate processes
- Manufacturing

KSA enablers

- Customs duty exemption on machinery
- Subsidized land and infrastructure
- Streamlined regulatory procedures with online approval portals

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Source: EMIS; Arizton Advisory & Intelligence; Team analysis

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Potential clamps localized categories

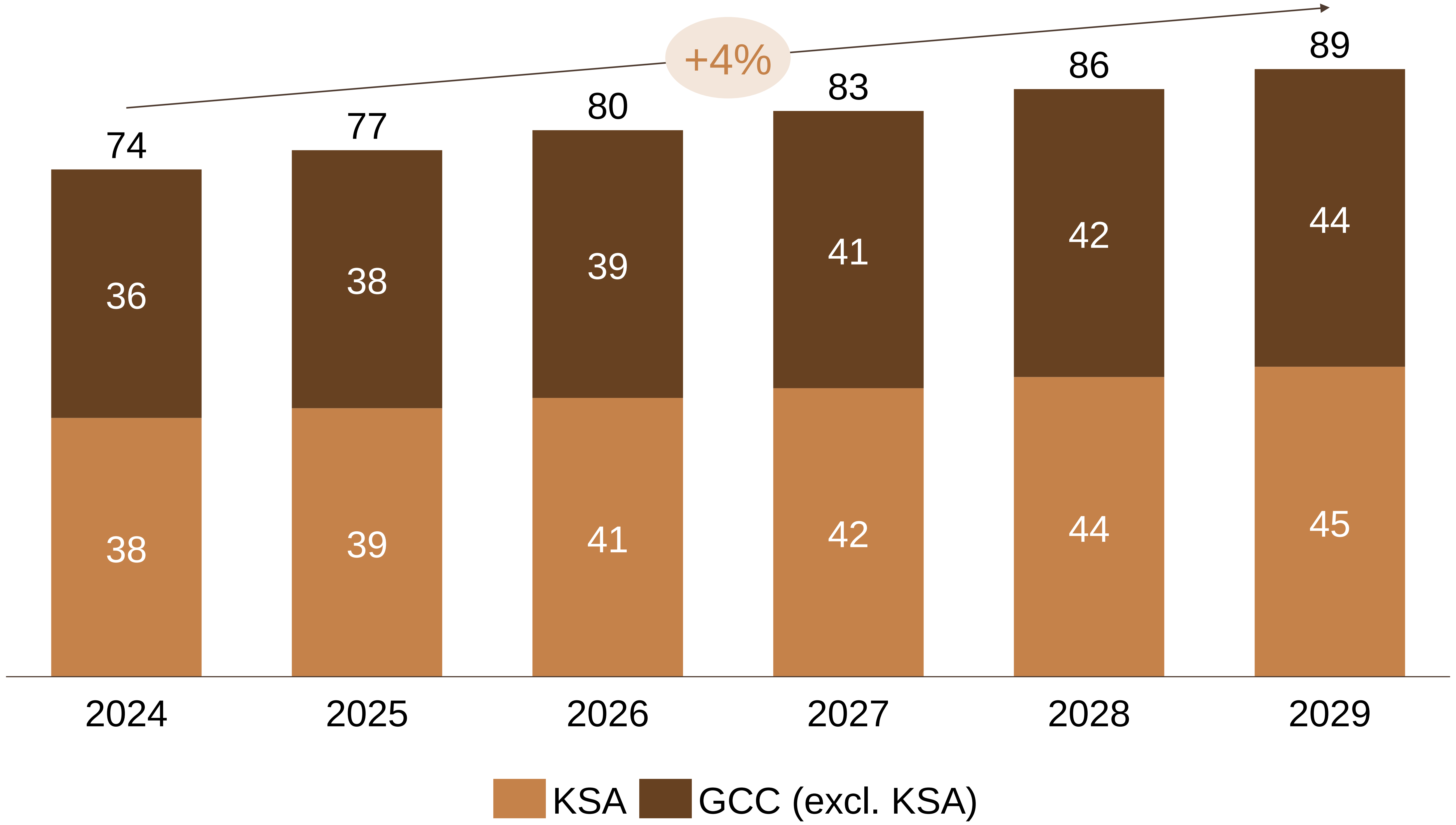
Non-exhaustive

	Pipe clamps	Safety clamps	Repair clamps
			
Applications	• Provide structural support to pipes in sectors like oil and gas, water treatment and construction	• Prevent drill pipes/casings from slipping during drilling • Secure heavy materials like pipes or rods during lifting	• Quickly seal leaks in pipes, preventing fluid loss and environmental damage

Source: Team analysis

Clamps demand, customers, and drivers

Forecasted KSA and rest of GCC clamps market 2024-2029 ($MM)



Typical clamps customers in KSA

- Oil & gas sector
- Construction companies
- Utility providers

Key KSA demand drivers

- Energy sector growth: KSA requires clamps for the new installation and maintenance of its extensive oil and gas pipeline networks
- Infrastructure development: Construction sector grows at a CAGR of 7.3% until 2032, fueling the need for clamps for building HVACs and plumbing

Catalyzing Supply Chains

Source: EMIS; Arizton Advisory & Intelligence; Team analysis

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Value chain and key localization opportunities

	Raw material	Intermediate processes	Manufacturing and assembly
Local saturation	Multiple players	Few players	Few players
Current KSA value chain	• Raw materials such as steel, aluminum, copper, rubber, and plastics supplied by local and out-of-Kingdom players	• Opportunity to expand local processing of sheet metals and rods for clamps	• Increase local manufacturing of clamps, and specifically of repair clamps to meet local demand
		Opportunity	Opportunity
Success factors			
Technology		Molding, casting and cold forming equipment	CNC machining, hydraulic presses, metal cutting machines
Labor		Mechanical engineers, material scientists and metallurgists	Mechanical engineers, material scientists and metallurgists

Catalyzing Supply Chains

Note: Lifecycle management not applicable as clamps are not maintained or repaired but replaced with new clamps; CNC = Computer Numerical Control
Source: Team analysis

Pipe Coatings

Mohammed Alotaibi

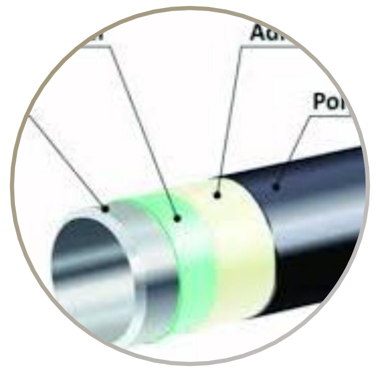
Static & Rotating Equipment Workshop

Opportunity profile—pipe coatings

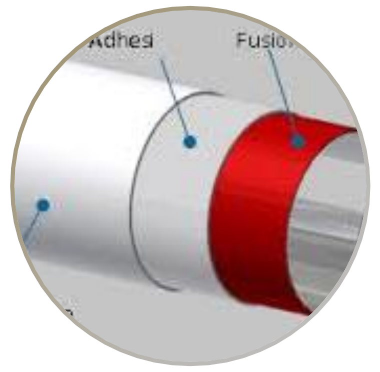
1
KSA requires pipe coatings to realize its ongoing oil and gas expansion

Types

Fusion bonded epoxy



Polyethylene



Polypropylene

Applications	Example
Offshore pipelines	Marjan Oil Field
Water and wastewater	NEOM
Petrochemical	Sadara

2
The pipe coatings market is sizeable and growing at a steady rate

115 Estimated 2024 KSA market size. $MM

5% Forecasted 5-year CAGR

3
Attractive investment opportunities for the pipe coatings value chain

KSA value chain opportunities

- Pre-service sourcing
- Service delivery
- Lifecycle management

KSA enablers

- Custom duty exemption on machinery
- Tax credits on R&D investments
- Technical consultation and support

Catalyzing Supply Chains

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Source: EMIS; Technavio; Team analysis

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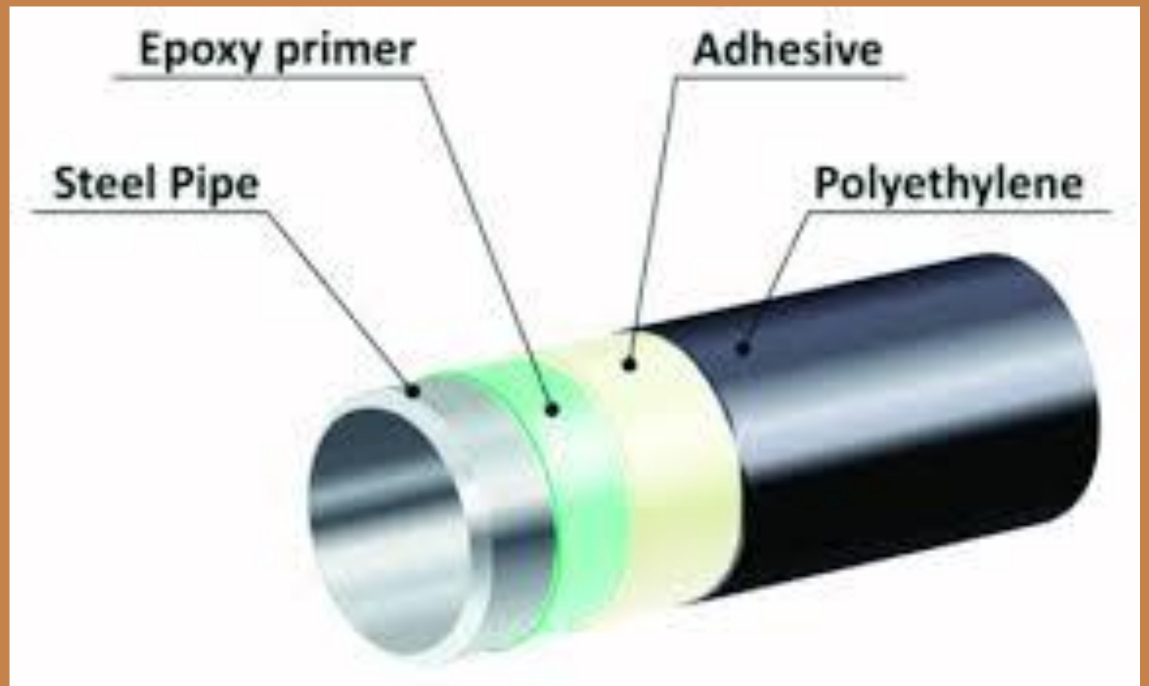
Potential pipe coatings localized categories

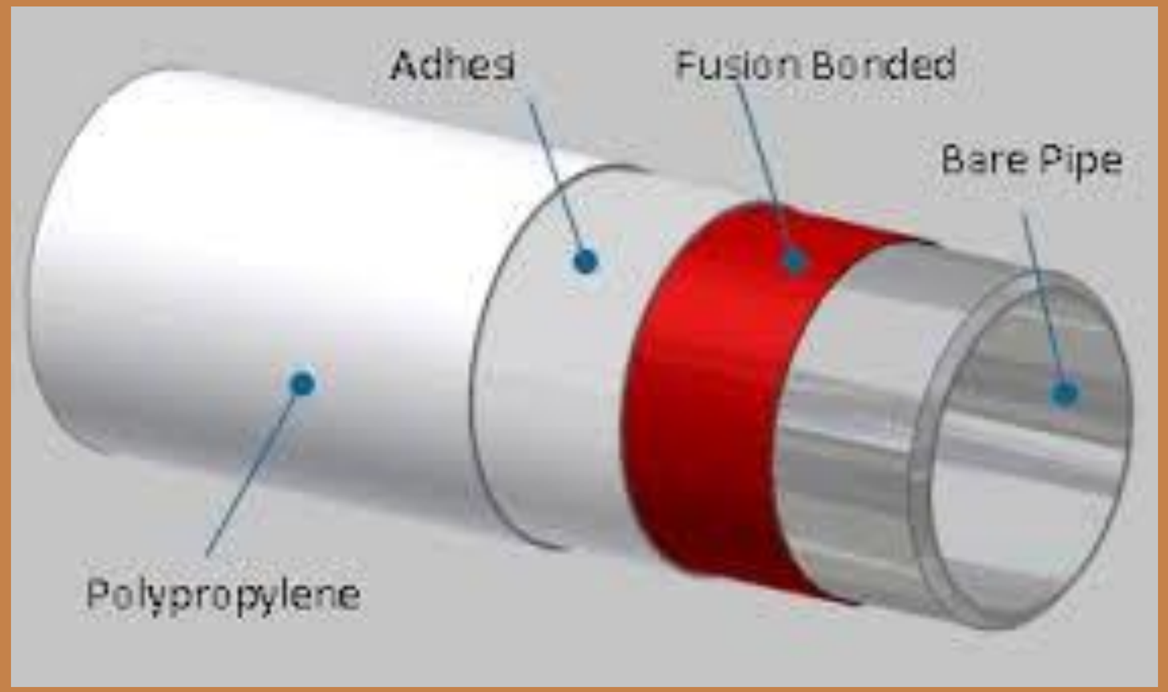
Non-exhaustive

FBE coating

Polyethylene coating



Polypropylene coating



Applications

Applications	FBE coating	Polyethylene coating	Polypropylene coating
	• Onshore and offshore • High-temperature • Water/wastewater • Irregular shape coatings	• Buried or submerged • Long-distance transmission • Mechanical stress zones	• High-temperature • Subsea • High-wear applications

Catalyzing Supply Chains

Note: FBE = Fusion bonded epoxy
Source: Team analysis

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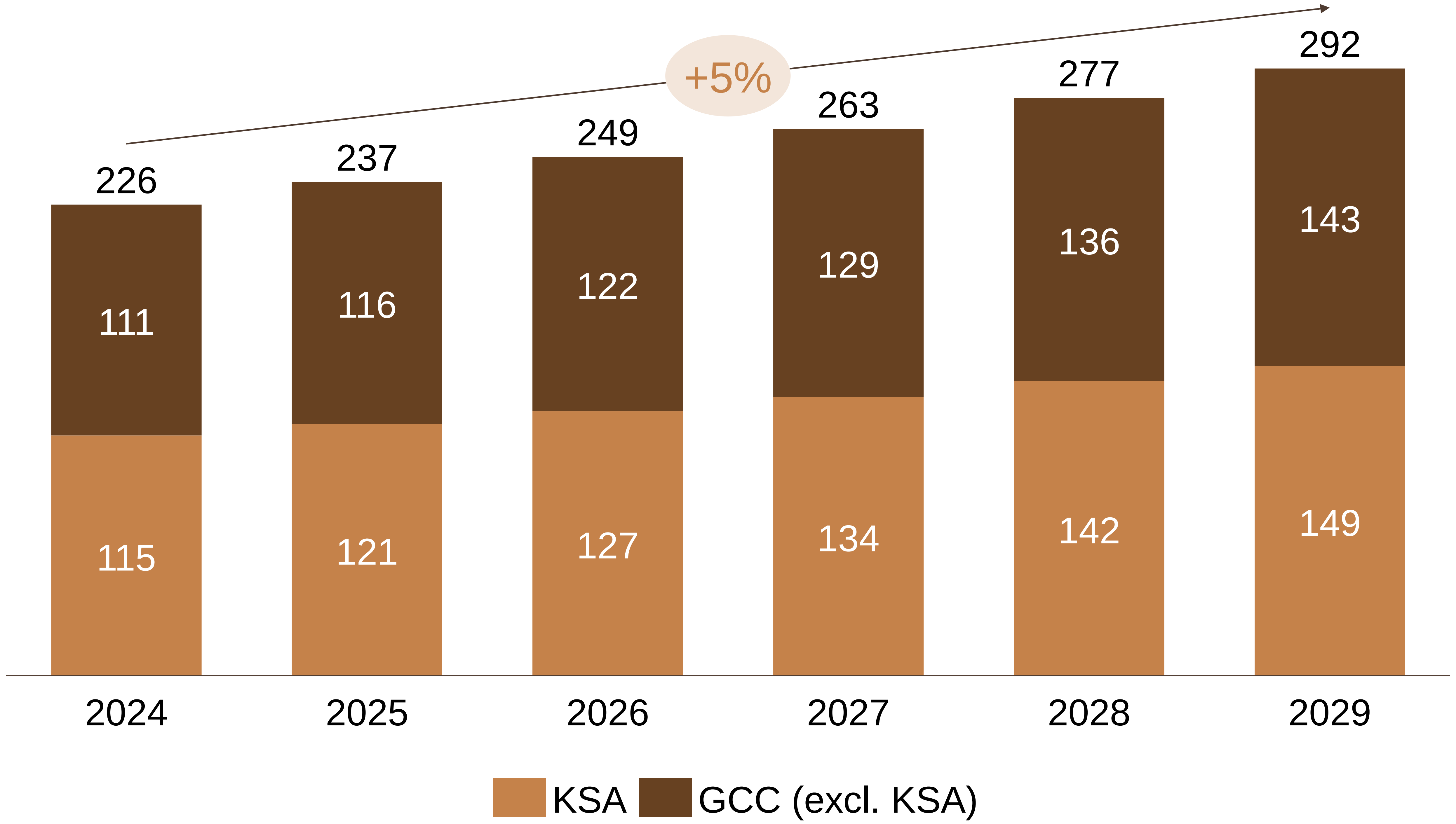
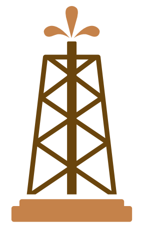
Pipe coatings demand, customers, and drivers

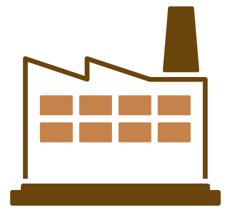
Forecasted KSA and rest of GCC pipe coatings market 2024-2029 ($MM)



Typical pipe coatings customers in KSA


Oil & gas sector


Petrochemical companies


Utility providers

Key KSA demand drivers

- Sector growth: KSA energy sector boosts demand for static and rotating as it remains core driver for economic growth
- Industry trends: Coatings demand expected to grow due to their crucial role in upcoming KSA water system expansions such as water transmission lines and desalination plants

Source: EMIS; Technavio; Team analysis

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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	• Opportunity to expand coating facilities to perform FBE coating • Establish R&D center to improve coatings for local requirements	• Establish technical support service center to serve the regional coating market
	Opportunity	Opportunity	Opportunity
Success factors			
Technology	Mixers, extruders, milling machines and vibrating sieves	FBE coating, extrusion coating, and spray coating systems	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

Diesel Engines

Mohammed Alotaibi

Static & Rotating Equipment Workshop

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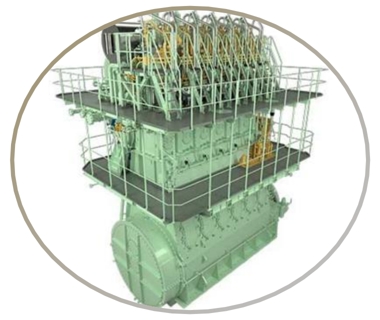
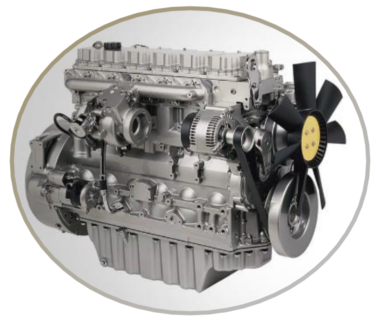
Opportunity profile—diesel engines

1

KSA requires diesel engines mainly for energy and construction sectors

Types





Larger Engines	Compact Designs
Applications	**Example**
Oil and gas	Emergency systems
Construction	Heavy machinery
Automotive	SNAM

2

The GCC diesel engines market experiences a moderate increase

497 — Estimated 2024 KSA market size. $MM

6% — Forecasted 5-year CAGR

3

Attractive investment opportunities for the diesel engines value chain

KSA value chain opportunities

- Intermediate processes
- Manufacturing

KSA enablers

- Regional land and loan programs
- Technical and commercial consultation
- Custom duty exemption on machinery

Catalyzing Supply Chains

Note: SNAM = Saudi National Automotive Manufacturing Company
Source: Perry Hope Partners; Team analysis

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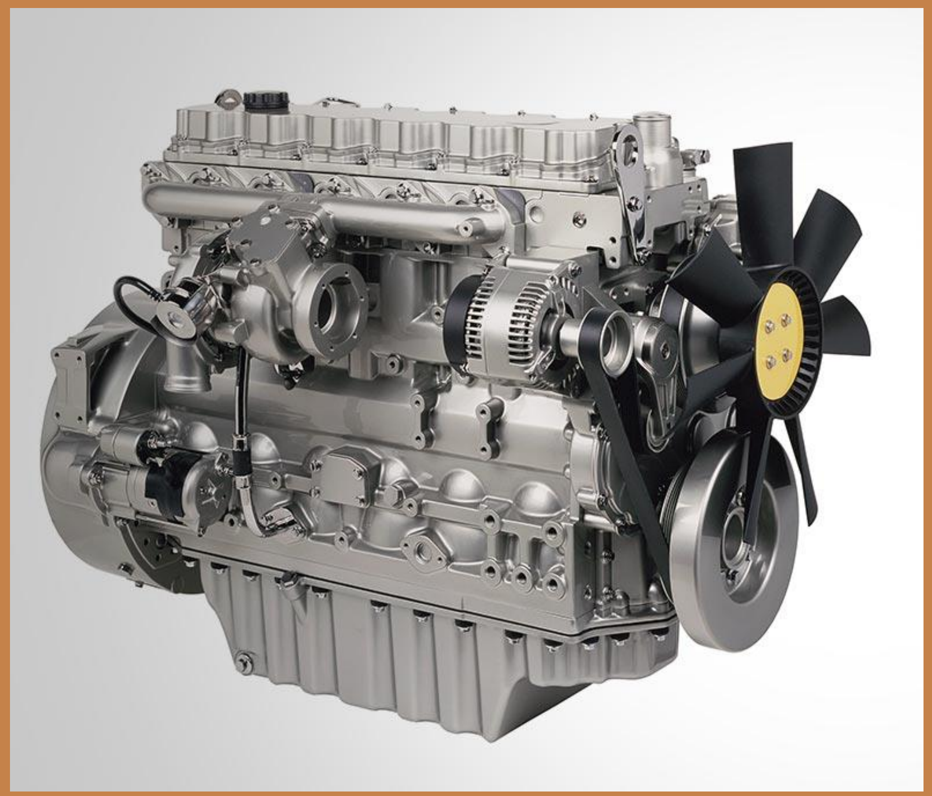
Potential diesel engines localized categories

Non-exhaustive

Larger Engines

- For industrial and marine use
- Ability to produce massive power

Compact Designs



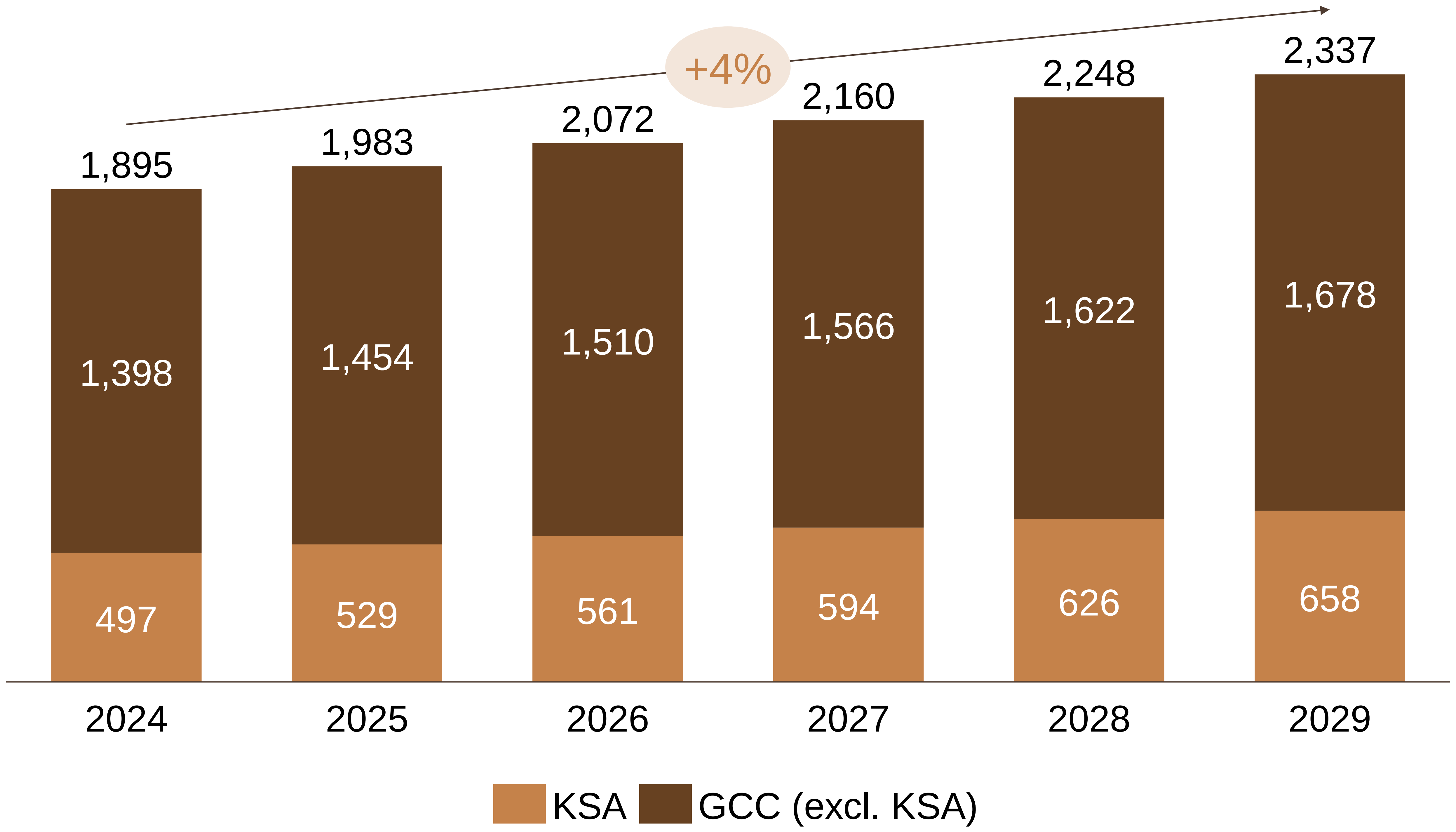
- For smaller vehicles and equipment, such as power generators and machinery
- Ability to operate more efficient

Applications

Source: Team analysis

Diesel engines demand, customers, and drivers

Forecasted KSA and rest of GCC diesel engine market 2024-2029 ($MM)



Typical diesel engine customers in KSA

- Oil & gas sector
- Construction companies
- Vehicle manufacturers

Key KSA demand drivers

- Sector growth: Energy investments remain driving engine for KSA economic growth, boosting the demand for diesel engines
- Industry trends: Construction sector grows at CAGR of 7.3% until 2032, driving the need for diesel engine-powered heavy machinery

Source: Perry Hope Partners; Team analysis

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Value chain and key localization opportunities

	Raw material	Intermediate processes	Manufacturing and assembly	Lifecycle management
Local saturation	Few players	Multiple players	Few players	Few players
Current KSA value chain	• Expand raw materials production for stainless steel, copper, aluminum	• Grow local production of flanges, metal castings, engine blocks and cylinder heads	• Opportunity to expand production of advanced diesel engines like direct injection diesel engines	• Opportunity to enrich local maintenance and repair providers for diesel engines
	Opportunity		Opportunity	Opportunity
Success factors				
Technology	Alloy production for engine parts (e.g., cylinder heads, crankshafts)		Fuel system calibration, precision fastening tools	Diagnostic Tools and predictive maintenance systems, Advanced repair methods
Labor	Metallurgists and foundry operators, recycling specialists		Mechanical engineers, calibration experts	Technicians, Software engineers, repair experts

Catalyzing Supply Chains

Note: Lifecycle management including all post-production services, including installation; CNC = Computer Numerical Control
Source: Team analysis

Vessel Internals

Mohammed Alotaibi

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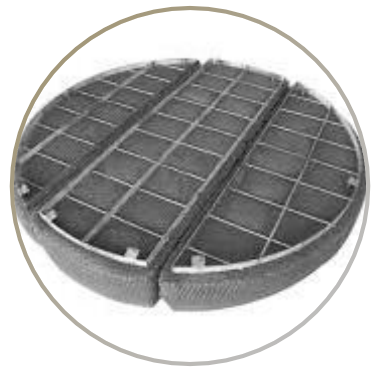
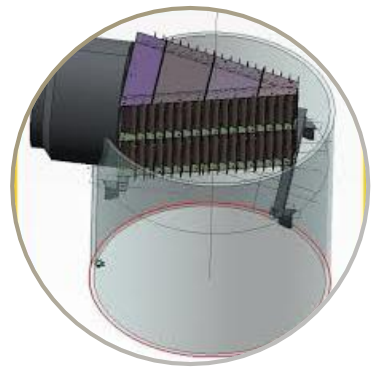
Opportunity profile—vessel internals

1 KSA requires vessel internals to realize its oil and gas expansion

Types


Separation


Reaction and mixing


Flow control

Applications	Example
Oil and gas	GOSPs
Petrochemical	Sadara
Water treatment	Filtration units

2 Vessel internals market is sizable and growing at a steady rate

185 Estimated 2024 KSA market size. $MM

4% Forecasted 5-year CAGR

3 Attractive investment opportunities for the vessel internals value chain

KSA value chain opportunities

- Manufacturing
- Lifecycle management

KSA enablers

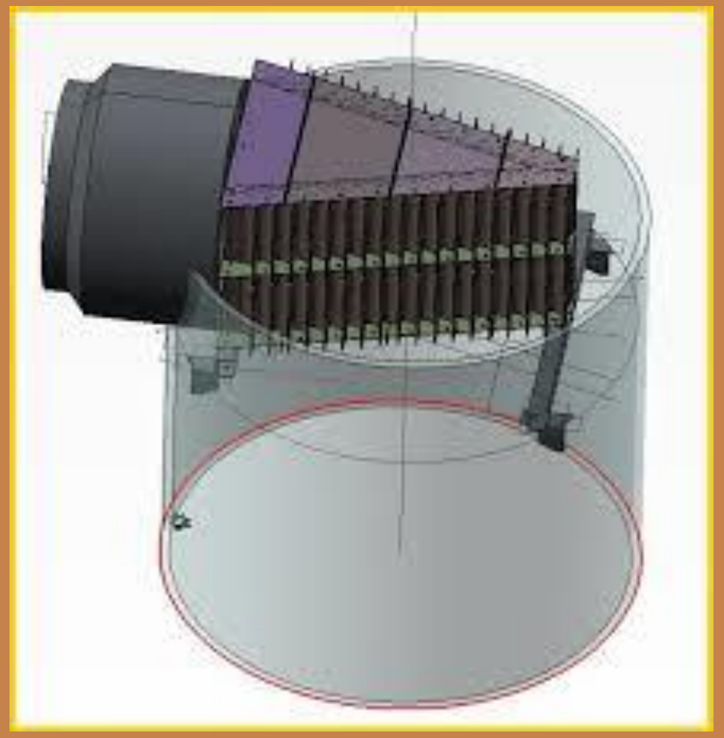
- CAPEX financing programs
- Tax exemptions on exports
- Subsidized workforce trainings

Catalyzing Supply Chains

Note: GOSP = Gas-oil separation plant
Source: Team analysis

Potential vessel internals localized categories

Non-exhaustive

	Separation internals	Reaction and mixing internals	Flow control internals
			
Applications	• Used for phase separation into gas, liquid, or solid • Remove entrained liquid droplets from gas streams	• Control flow patterns and enhance turbulence • Ensure even distribution of gases or liquid inside vessel	• Disperse incoming fluids to reduce turbulence • Manage fluid dynamics to optimize operations

Source: Team analysis

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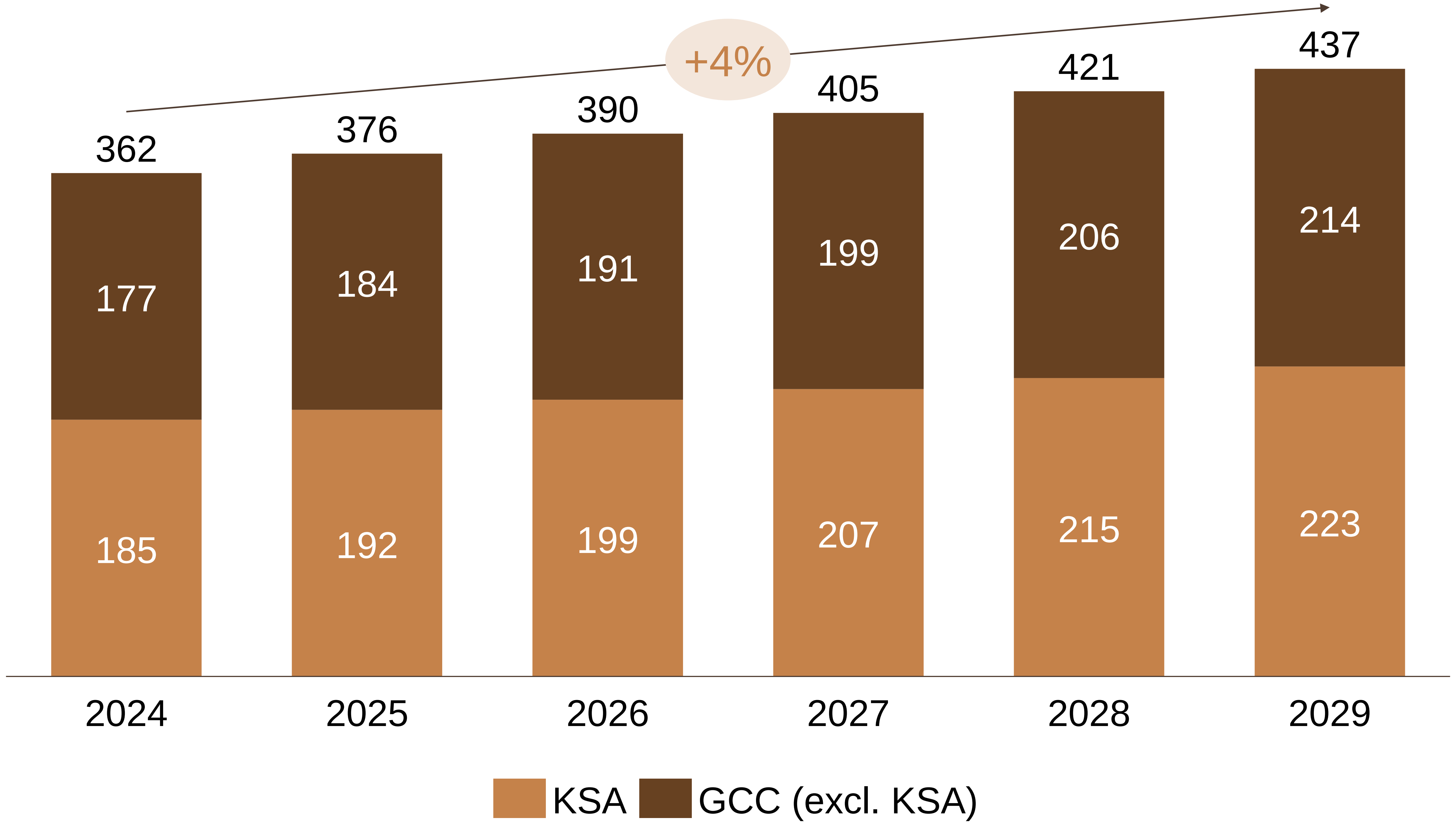
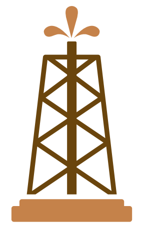
Vessel internals demand, customers, and drivers

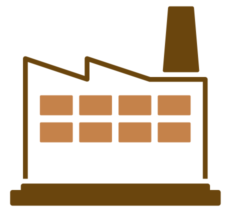
Forecasted KSA and rest of GCC vessel internals market 2024-2029 ($MM)



Typical vessel internals customers in KSA


Oil & gas sector


Petrochemical companies


Utility providers

Key KSA demand drivers

- Sector growth: KSA energy sector boosts demand for vessel internals as it remains core driver for economic growth
- Technology advancements: Digital twins and automation enhance operational efficiency, thereby driving the need for advanced vessel internals systems

Catalyzing Supply Chains

Source: Team analysis

Value chain and key localization opportunities

	Raw material	Intermediate processes	Manufacturing and assembly	Lifecycle management
Local saturation	Multiple players	Multiple players	Few players	Few players
Current KSA value chain	• Raw materials such as steel and polypropylene supplied by local and out-of-Kingdom players	• Metal processing and treatment, polymer extrusion and coating	• Opportunity to localize manufacturing of separation, mixing, flow control, and heat transfer internals	• Opportunity to expand local installation, maintenance, and repair services for vessels
			Opportunity	Opportunity
Success factors				
Technology			Cutting and shaping, CAD software, stamping press	Non-destructive testing equipment, RVI tools
Labor			Mechanical engineers, metal fabricators	Corrosion engineers, metal fabricators

Note: Lifecycle management including all post-production services, including installation; RVI = Remote visual inspection
Source: Team analysis

Flare

Khalid Alotaibi

Opportunity profile—flare

1 Flares are mainly needed to realize ongoing oil and gas expansion

Types

Unassisted flares

Smokeless flares

Ground/ enclosed flares

Applications	Example
Oil and gas extraction	Marjan Oil Field
Petrochemical waste gas	Amiral Complex
Natural gas processing	Fadhili Gas Plant

Catalyzing Supply Chains

2 The flare market experiences a substantial increase in KSA and GCC

66 Estimated 2024 KSA market size. $MM

8% Forecasted 5-year CAGR

3 Attractive investment opportunities for the flare value chain

KSA value chain opportunities

Intermediate processes

KSA enablers

- Land and infrastructure subsidies
- Local market trends advice
- Specialized training programs

Source: World Bank; Verified Market Reports; Team analysis

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Potential flare localized categories

Non-exhaustive

Unassisted flares

Smokeless flares

Ground/enclosed flares

Applications

Unassisted flares	Smokeless flares	Ground/enclosed flares
• Used in uncomplex setups • Smokeless burning achieved without external steam, air or pressure assistance	• Used in high-flow situations • Minimize visible smoke • Use assist systems (e.g., air or steam injection)	• Used in crowded plant area near other equipment • Combustion inside chamber • Use assist systems

Source: Team analysis

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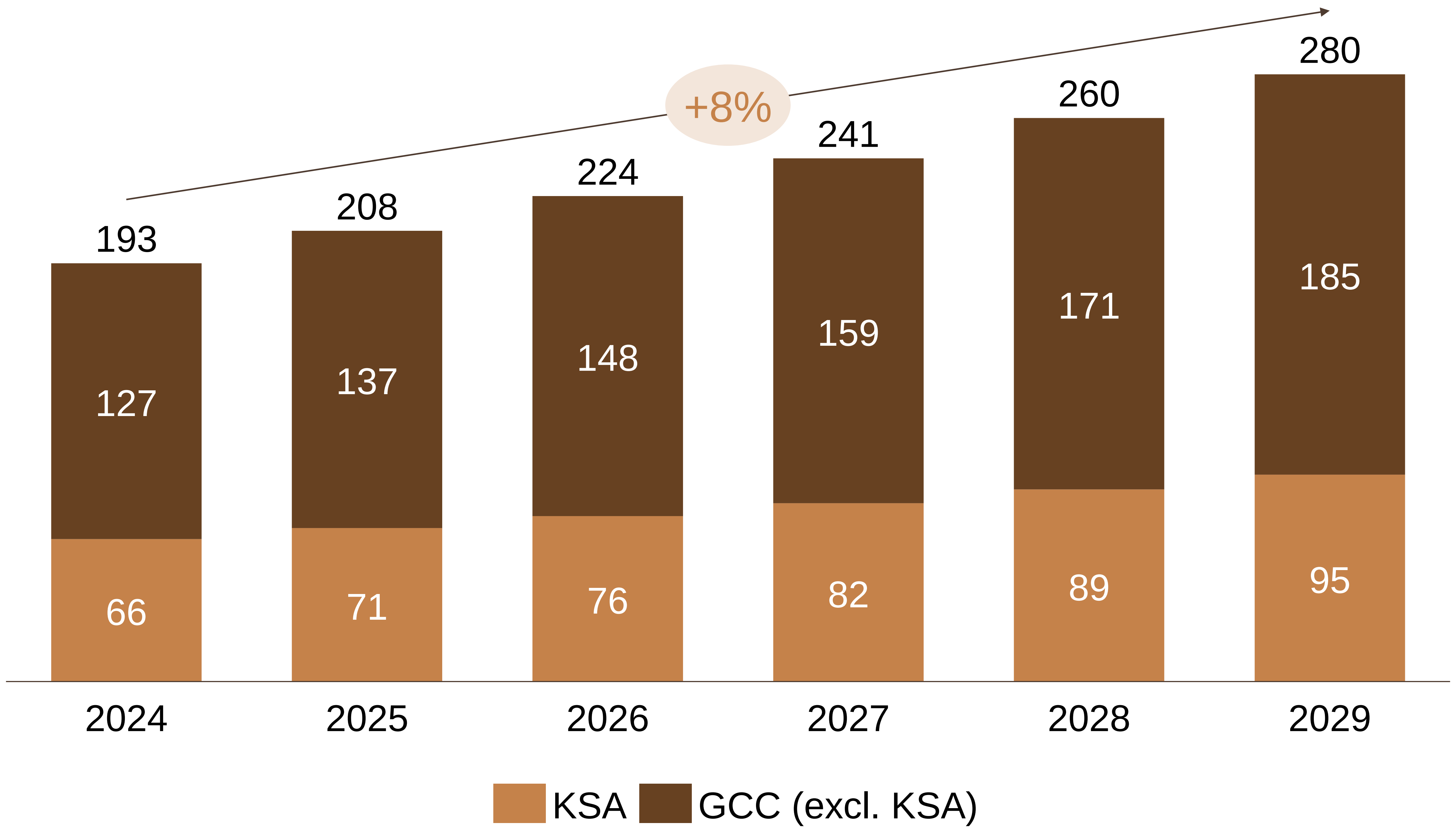
Flare demand, customers, and drivers

Forecasted KSA and rest of GCC flare market 2024-2029 ($MM)



Typical flare customers in KSA

- Oil & gas extraction
- Refineries
- Petrochemical plants

Key KSA demand drivers

- Sector growth: Increasing exploration of oil and gas fields in KSA requires flares for the combustion of excess hydrocarbons
- Environmental regulations: Saudi Aramco pledge to achieve net zero Scope 1&2 GHG emissions drives demand for efficient flare installations such as enclosed flare systems

Static & Rotating Equipment Workshop

Catalyzing Supply Chains

Source: World Bank; Verified Market Reports; Team analysis

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Value chain and key localization opportunities

	Raw material	Intermediate processes	Manufacturing and assembly	Lifecycle management
Local saturation	Multiple players	Few players	Multiple players	Multiple players
Current KSA value chain	• Raw materials such as carbon steel supplied by local players	• Grow local fabrication of flare components such as burners, pilots, and flare tips	• Ongoing establishment of flare factories by international players meets the demand	• Installation, maintenance, and repair service provided by multiple players
		Opportunity		
Success factors				
Technology		Licensing of technologies, heat treatment, and NDT		
Labor		Mechanical engineers, metallurgists		

Catalyzing Supply Chains

Note: Lifecycle management including all post-production services, including installation; NDT = Non-destructive testing
Source: Team analysis

Pipe Cladding

Khalid Alotaibi

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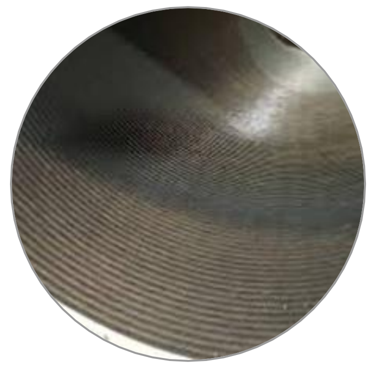
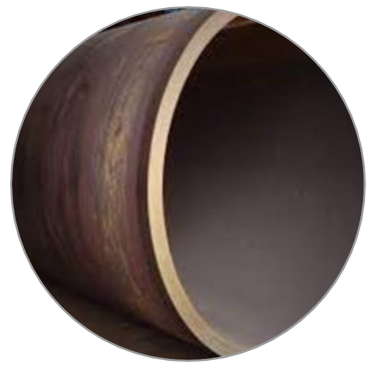
Opportunity profile—pipe cladding

1 KSA requires pipe cladding for its extensive pipeline networks

Types


Weld overlay cladding


Explosion bonding


Roll bonding

Applications	Example
Oil and gas infrastructure	Subsea pipelines
Petrochemical	Chemical protection
Mining industry	Slurry transport

Catalyzing Supply Chains

2 Pipe cladding services are growing at a steady rate in KSA and GCC

37 Estimated 2024 KSA market size. $MM

4% Forecasted 5-year CAGR

3 Attractive investment opportunities for the pipe cladding value chain

KSA value chain opportunities

- Service delivery
- Lifecycle management

KSA enablers

- CAPEX financing programs
- Streamlined visa process by MHRSD to facilitate skilled expat hiring
- Customs duty exemption by MoCI

Source: Future Market Insights; Grand View Research; Team analysis

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Potential pipe cladding localized categories

Non-exhaustive

Weld overlay cladding

Explosion bonding

Roll bonding

Applications

Weld overlay cladding	Explosion bonding	Roll bonding
• CRA material welded onto base material, creating a strong metallurgical bond • Used for chemical and oil pipes	• Explosives are used to bond the CRA layer to the base metal under high pressure • Used for large clad pipes	• CRA and base material are heated and passed via rollers to form composite structure • Used for long, seamless pipes

Note: CRA = Corrosion Resistant Alloy
Source: Team analysis

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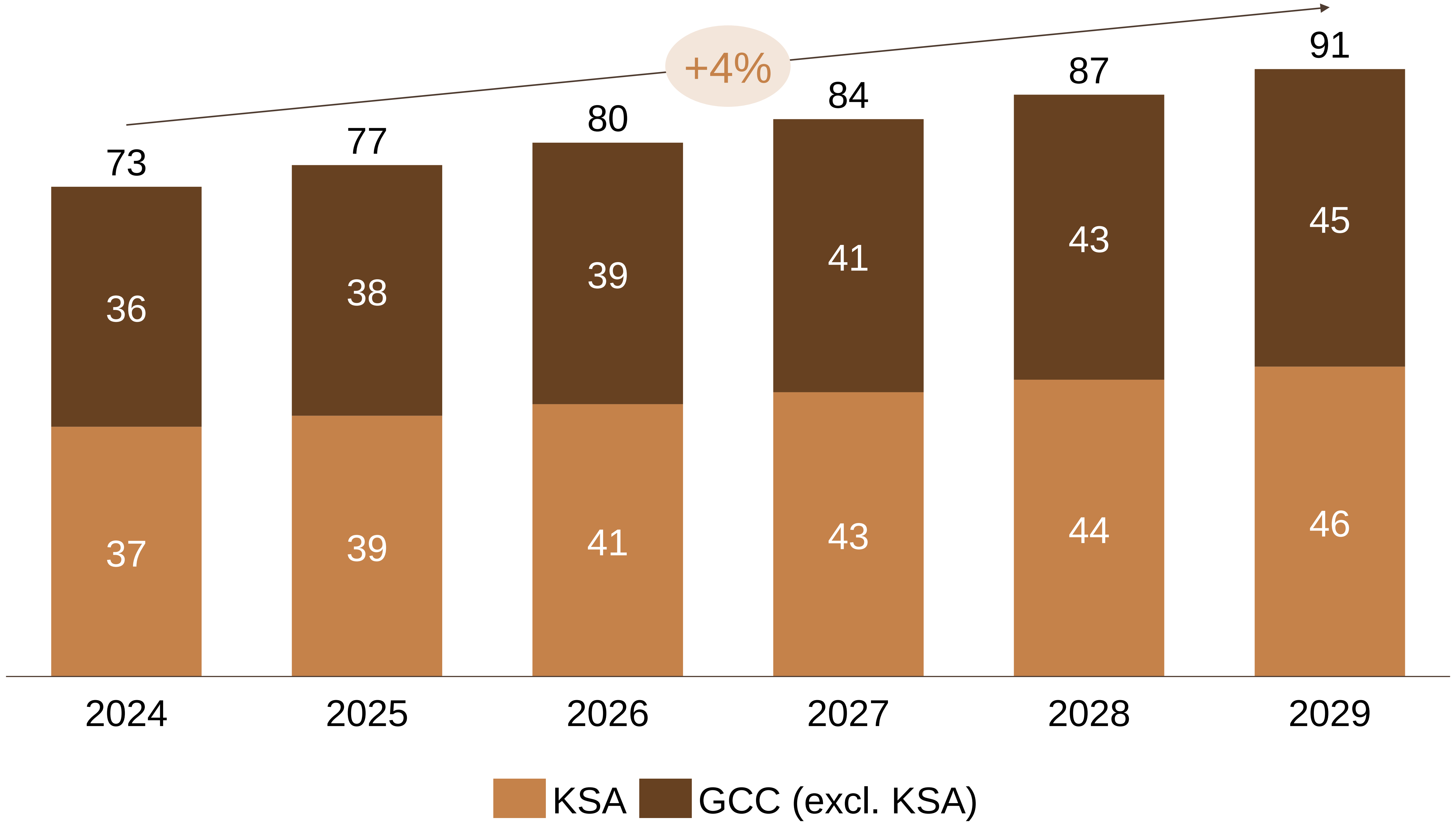
Pipe cladding demand, customers, and drivers

Forecasted KSA and rest of GCC pipe cladding market 2024-2029 ($MM)



Typical pipe cladding customers in KSA

- Oil & gas extraction
- Mining industry
- Infrastructure developers

Key KSA demand drivers

- Sector growth: Energy investments remain the driving engine for KSA economic growth, boosting the demand for pipelines networks that require cladding
- Infrastructure trends: Initiatives like NEOM, the Red Sea Project, and Qiddiya involve large infrastructure, driving the need for cladded pipes in construction and utilities

Source: Future Market Insights; Grand View Research; Team analysis

Value chain and key localization opportunities

	Raw material	Service delivery	Lifecycle management
Local saturation	Multiple players	Few players	Few players
Current KSA value chain	• Materials needed for pipe cladding, such as stainless steel, nickel alloys, and copper alloys supplied by out-of-Kingdom providers	• Opportunity to expand local pipe cladding services, specifically for weld overlay cladding	• Opportunity to increase the number of local providers of testing, inspection, and integrity management services for pipelines
		Opportunity	Opportunity
Success factors			
Technology		TIG welding machines, cladding heads/torches, rotating equipment	Ultrasonic testing and radiographic testing devices
Labor		Welding technicians, cladding process engineers	Inspection specialists with expertise in material sciences

Catalyzing Supply Chains

Source: Team analysis

Rotary Pumps

Khalid Alotaibi

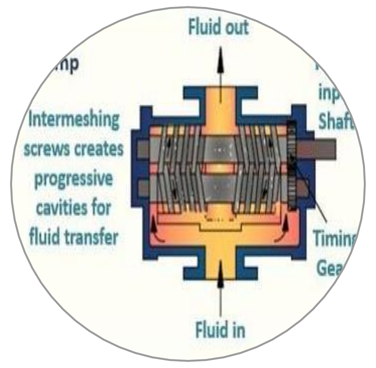
Static & Rotating Equipment Workshop

Opportunity profile—rotary pumps

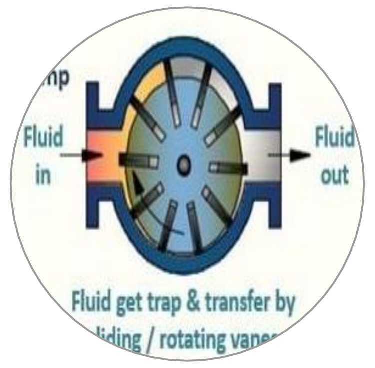
1
KSA needs rotary pumps for transport of liquids in its large pipeline network

Types

Gear pump



Screw pump



Vane pump

Applications	Example
Oil transfer	Aramco oil fields
Petrochemical transport	Sadana
Wastewater treatment	ISTPs

2
The rotary pumps market experiences a steady increase in KSA and GCC

136 Estimated 2024 KSA market size. $MM

5% Forecasted 5-year CAGR

3
Attractive investment opportunities for the rotary pumps value chain

KSA value chain opportunities

- Intermediate processes
- Manufacturing

KSA enablers

- Regional land and loan programs
- Technical and commercial consultation
- Customs duty exemptions on exports

Catalyzing Supply Chains

Note: ISTP = Independent Sewage Treatment Plant
Source: EMIS; Arizton Advisory & Intelligence; Team analysis

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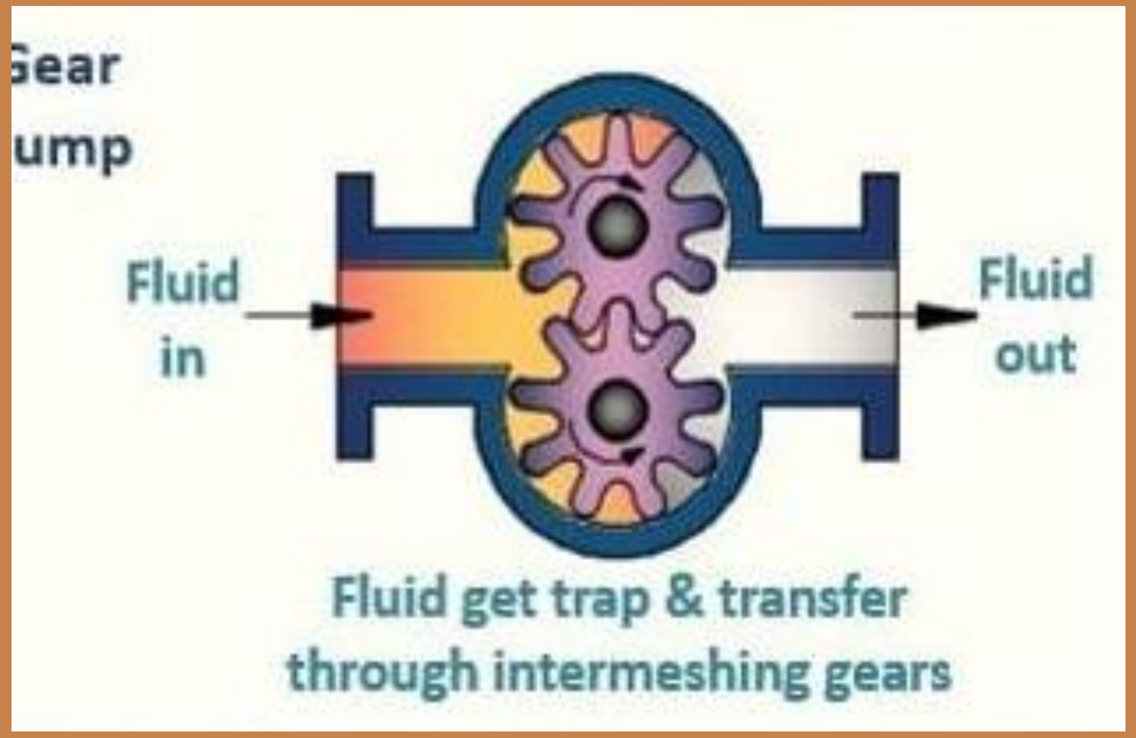
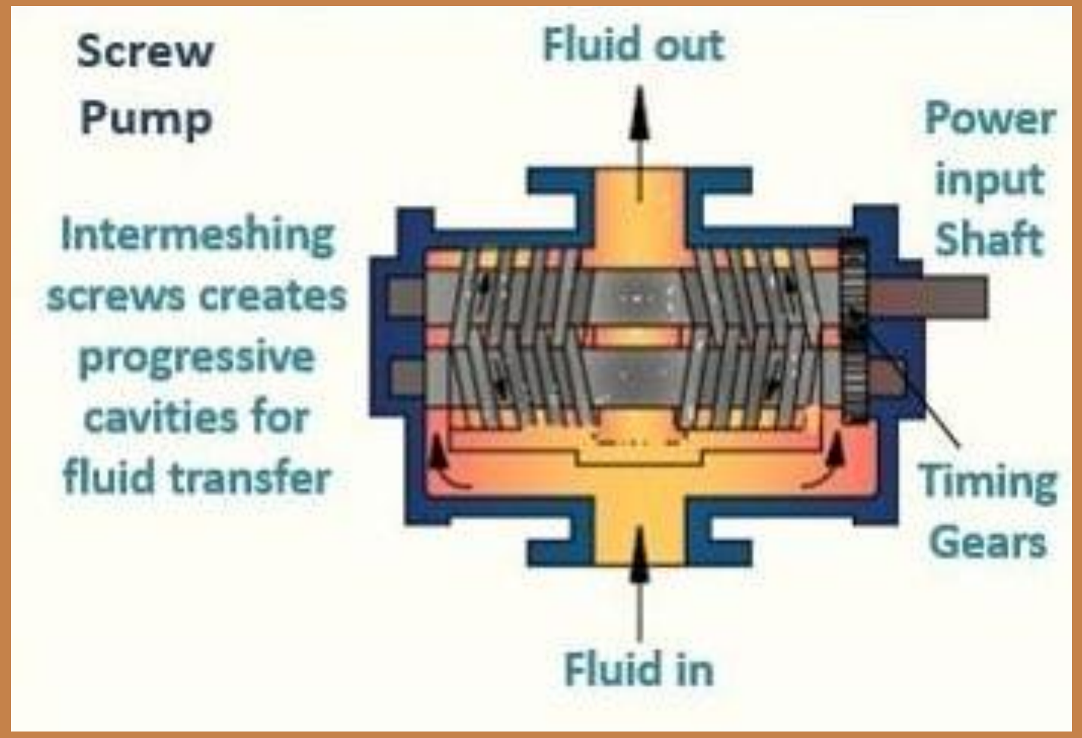
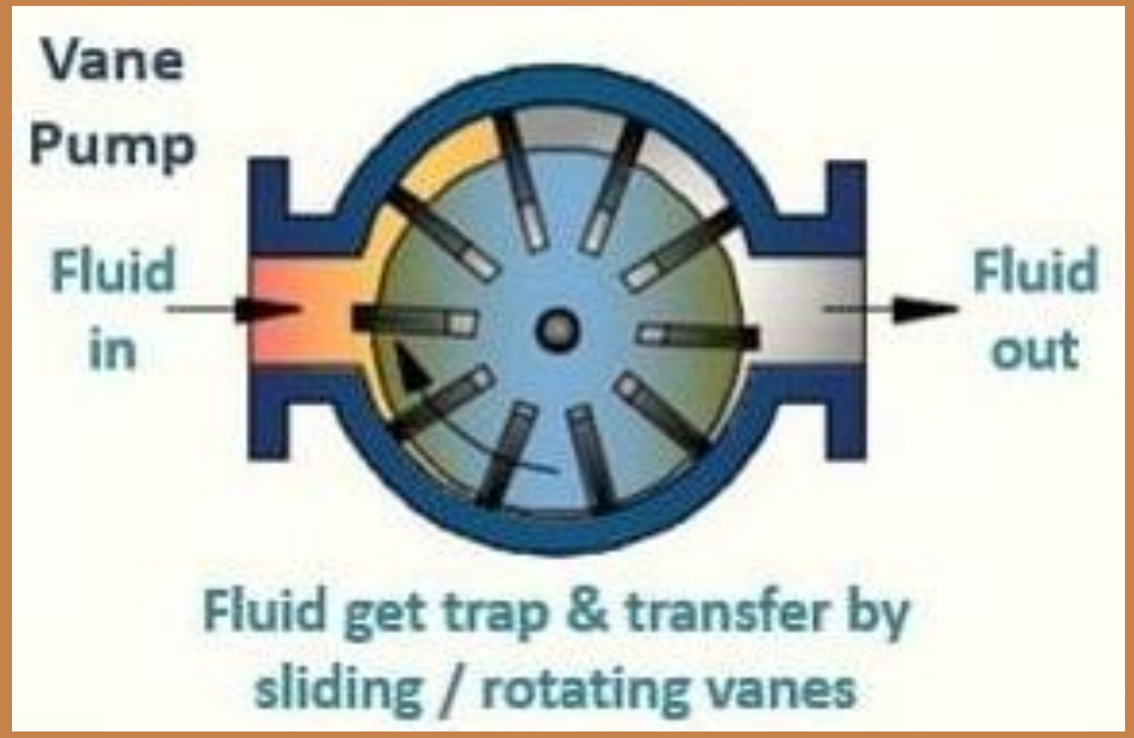
Potential rotary pumps localized categories

Non-exhaustive

	Gear pump	Screw pump	Vane pump
			
Applications	• Handling of viscous liquids • Hydraulic systems, fuel transfer, oil processing, and chemical transport	• Handling of viscous liquids • Oil transfer and wastewater treatment	• Handling of thin liquids • Automotive systems, fuel transfer, and refrigeration

Source: Team analysis

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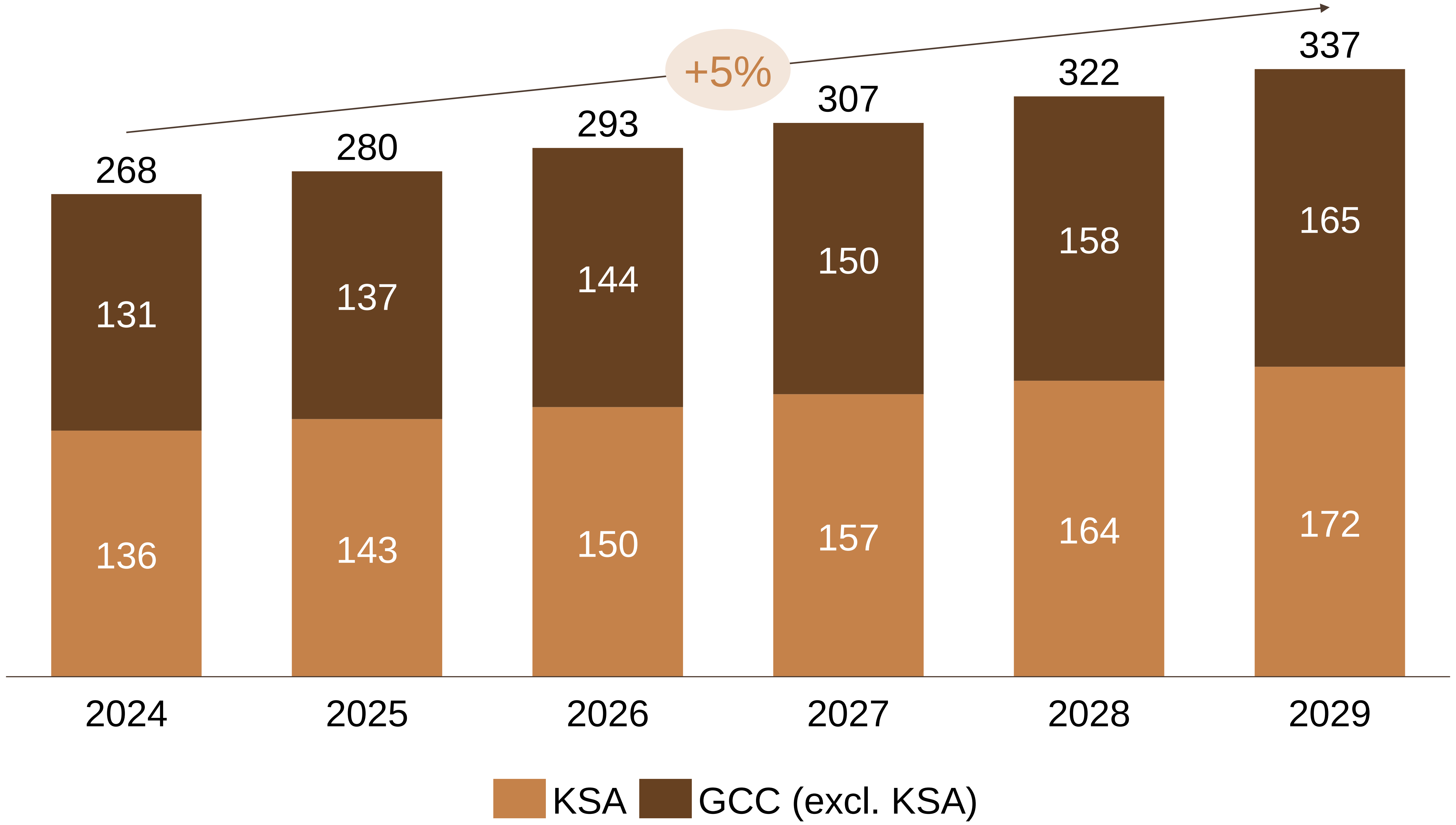
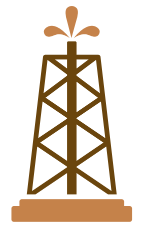
Rotary pumps demand, customers, and drivers

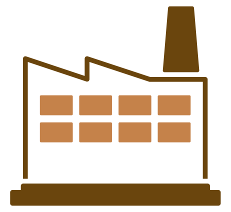
Forecasted KSA and rest of GCC rotary pumps market 2024-2029 ($MM)



Typical rotary pumps customers in KSA


Oil & gas sector


Petrochemical plants


Utility companies

Key KSA demand drivers

- Energy sector priority: Expansion of energy projects drives the demand for rotary pumps, as the oil transfer through pipeline systems depends on rotary pumps
- Industry trends: Rotary pumps demand expected to grow due to their crucial role in KSA water system expansions such as water transmission lines and desalination plants

Catalyzing Supply Chains

Static & Rotating Equipment Workshop

Source: EMIS; Arizton Advisory & Intelligence; Team analysis

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Value chain and key localization opportunities

	Raw material	Intermediate processes	Manufacturing and assembly	Lifecycle management
Local saturation	Multiple players	Few players	Few players	Multiple players
Current KSA value chain	• Raw materials such as stainless steel, elastomer material and cast iron supplied by out-of-Kingdom players	• Opportunity to grow production of motors, rotor and vane components	• Grow local production of rotary pumps • Establish R&D center to innovate and adapt pump technology	• General pump repair and maintenance services are available via multiple providers
		Opportunity	Opportunity	
Success factors				
Technology		CNC machining, casting and forging	Computational fluid dynamics simulations	
Labor		Casting, forging, welding, precision machine experts	Mechanical and electrical engineers	

Catalyzing Supply Chains

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

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Gas Turbines

Khalid Alotaibi

Static & Rotating Equipment Workshop

Catalyzing Supply Chains

Opportunity profile—gas turbines

1 KSA requires gas turbines to realize energy and power generation projects

Types


Industrial gas turbine


Aeroderivative


Mechanical drive

Applications	Example
Oil and gas transport	Pump engine
Power generation	Grid stability
Industrial manufacturing	Heat generation

Catalyzing Supply Chains

2 The gas turbines market experiences a steady increase in KSA and GCC

376 Estimated 2024 KSA market size. $MM

6% Forecasted 5-year CAGR

3 Attractive investment opportunities for the gas turbines value chain

KSA value chain opportunities

- Manufacturing
- Lifecycle management

KSA enablers

- CAPEX financing programs
- Streamlined visa process by MHRSD to facilitate skilled expat hiring
- Trade facilitation support by SEDA to ease procedures for exports

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Potential gas turbines localized categories

Non-exhaustive

	Industrial gas turbine	Aeroderivative gas turbine	Mechanical drive gas turbine
			
Applications	• Drive large compressors to maintain pressure in pipes • Conduct power generation for on-site electricity	• Drive applications where rapid start-up and load changes are required	• Drive compressors for gas injection and extraction • Operate pumps for oil and gas pipeline transports

Source: Team analysis

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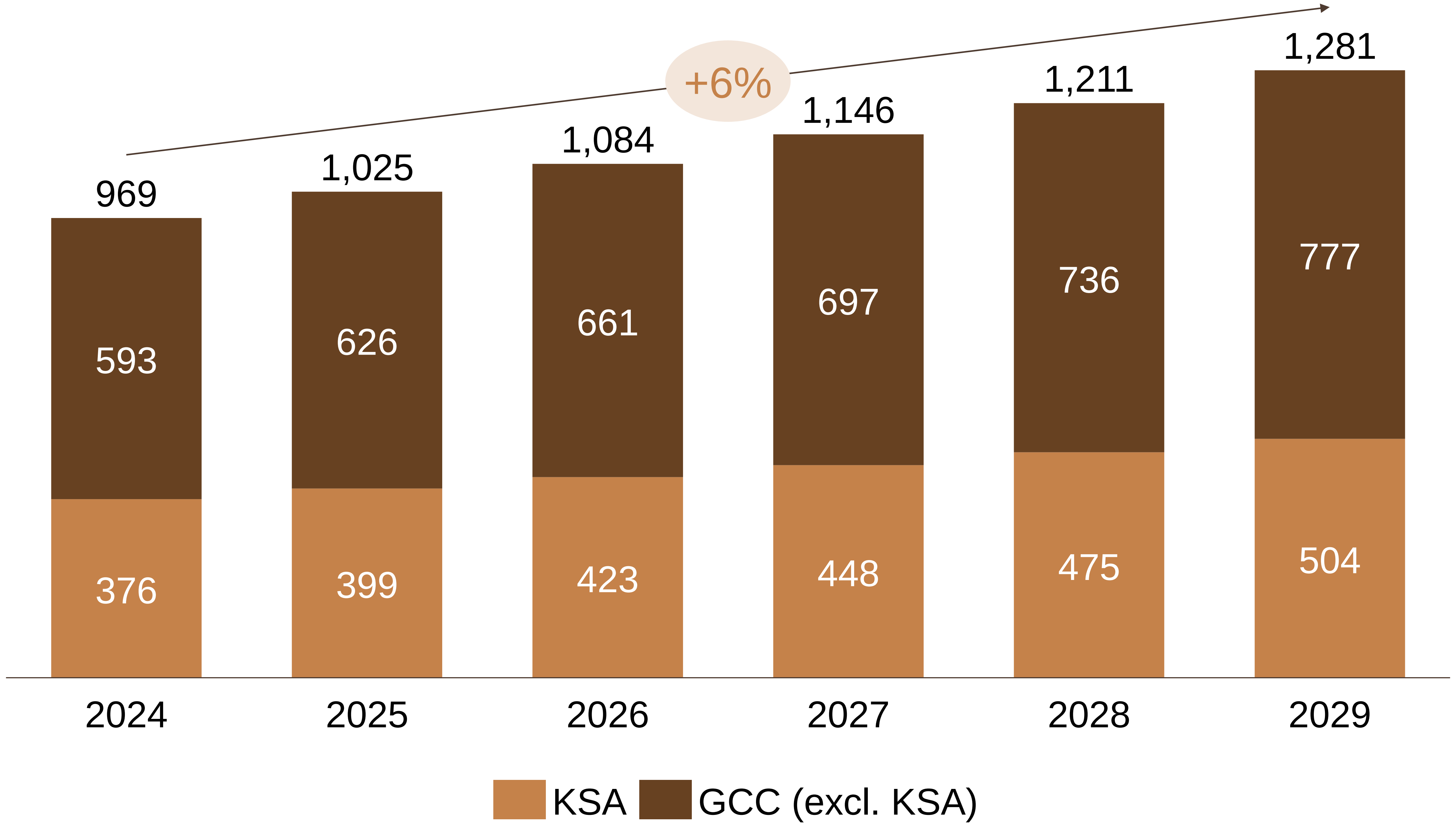
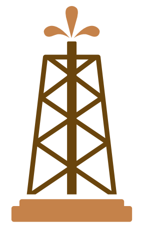
Gas turbines demand, customers, and drivers

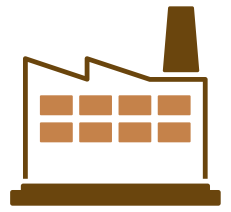
Forecasted KSA and rest of GCC gas turbines market 2024-2029 ($MM)



Typical gas turbine customers in KSA


Oil & gas sector


Industrial manufacturing companies


Utility providers

Key KSA demand drivers

- Industry trends: Large-scale oil and gas projects need gas turbines to provide power and drive applications on offshore platforms
- Electricity demand: Rapid population growth and urbanization are driving higher electricity consumption, necessitating increased power generation capacity

Catalyzing Supply Chains

Source: Market Data Forecast; Grand View Research; Team analysis

Value chain and key localization opportunities

	Raw material	Intermediate processes	Manufacturing and assembly	Lifecycle management
Local saturation	Multiple players	Multiple players	Few players	Few players
Current KSA value chain	• Raw materials steel, nickel, chromium, iron, titanium supplied by out-of-Kingdom players	• Availability of companies involved in manufacturing of components and the coating of engineered components	• Opportunity to localize production facilities for gas turbines	• Opportunity to increase installation, maintenance and repair services
			Opportunity	Opportunity
Success factors				
Technology			CAD and CFD tools, CNC and milling machines	NDT tools, gas flow testing facilities
Labor			Mechanical, airflow and combustion specialists	Mechanical and electrical technicians, NDT experts

Catalyzing Supply Chains

Note: Lifecycle management including all post-production services, including installation; CAD = Computer-Aided Design; CFD = Computational Fluid Dynamics; CNC = Computer numerical control; NDT = Non-destructive testing

Source: Team analysis

Spectacle Plates

Khalid Alotaibi

Opportunity profile—spectacle plates

1
KSA in need of spectacle plates for pipeline expansion and maintenance

Types

Eight-shaped spectacle plates

Applications	Example
Oil and gas infrastructure	Pipeline isolation
Chemical processing	Sadana
Water treatment	ISTPs

2
The spectacle plates market experiences a moderate increase

12
Estimated 2024 KSA market size. $MM

4%
Forecasted 5-year CAGR

3
Attractive investment opportunities for the spectacle plates value chain

KSA value chain opportunities

- Manufacturing
- Lifecycle management

KSA enablers

- Working capital financing programs
- Custom duty exemptions by MoCI
- Subsidized training programs by HRDF

Note: ISTP = Independent Sewage Treatment Plant
Source: EMIS; Technavio; Team analysis

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Potential spectacle plates localized categories

Eight-shaped spectacle plates

Applications

- Used in piping systems to block or allow flow during maintenance, testing, or operational adjustments
- Ensures safe isolation of pipeline sections to prevent accidents during repairs or inspections
- Assists in pressure testing and system integrity verification
- Widely employed in oil and gas, petrochemicals, power plants, and water treatment facilities

Source: Team analysis

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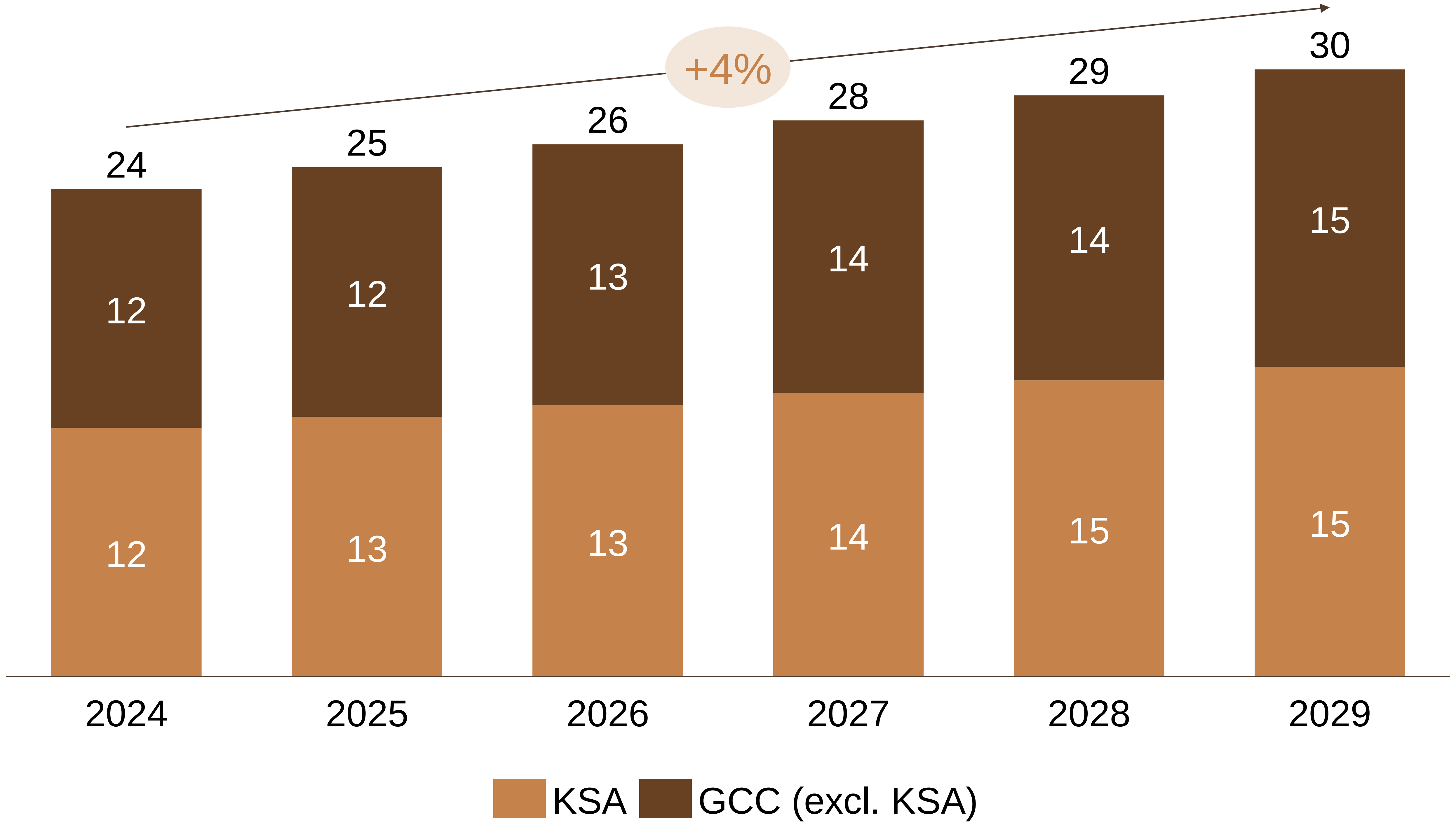
Spectacle plates demand, customers, and drivers

Forecasted KSA and rest of GCC spectacle plates market 2024-2029 ($MM)



Typical spectacle plates customers in KSA

- Oil & gas sector
- Petrochemical plants
- Utility companies

Key KSA demand drivers

- Energy sector growth: KSA needs spectacle plates for the expansion and maintenance of its growing oil and gas pipeline network
- Industry trends: KSA annual chemical production capacity of 118 million tonnes drives the demand for spectacle plates in critical industrial piping systems

Static & Rotating Equipment Workshop

Catalyzing Supply Chains

Source: EMIS; Technavio; Team analysis

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Value chain and key localization opportunities

	Raw material	Manufacturing and assembly	Lifecycle management
Local saturation	Multiple players	Few players	Few players
Current KSA value chain	• Raw materials such as carbon and stainless steel, steel alloys and nickel alloys supplied by out-of-Kingdom players	• Opportunity to increase local production of spectacle plates	• Opportunity to grow the number of providers for testing, inspection, and integrity management services of pipeline systems
		Opportunity	Opportunity
Success factors			
Technology		Cutting, forging, drilling and milling machinery, NDT tools	Ultrasonic testing devices
Labor		Mechanical engineers, forging technicians, metallurgists	Inspection specialists with expertise in material sciences

Catalyzing Supply Chains

Note: Intermediate processes are completed by manufacturing companies as raw materials are directly processed to produce spectacle plates;
NDT = Non-destructive testing
Source: Team analysis

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Plug Valve

Khalid Alotaibi

Static & Rotating Equipment Workshop

Catalyzing Supply Chains

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Opportunity profile—plug valves

1

KSA requires plug valves to realize its oil and gas expansion

Types


Lubricated


Non-lubricated


Multiport

Applications	Example
Oil and gas infrastructure	Pipe flow control
Chemical processing	Reactor inflow
Water treatment	ISTPs

2

The plug valves market experiences a steady increase in KSA and GCC

35 Estimated 2024 KSA market size. $MM

5% Forecasted 5-year CAGR

3

Attractive investment opportunities for the plug valves value chain

KSA value chain opportunities

- Manufacturing
- Lifecycle management

KSA enablers

- Access to financial loans from SIDF
- Custom duty exemptions for the import of machinery and equipment
- Inspection training by ITQAN Institute

Catalyzing Supply Chains

Note: ISTP = Independent Sewage Treatment Plant
Source: Verified Market Research; Grand View Research; imarc; Team analysis

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Potential plug valves localized categories

Non-exhaustive

	Lubricated plug valves	Non-lubricated plug valves	Multiport plug valves
			
Applications	• Ideal to handle high-pressure systems and gases • Applied for critical operation in oil and gas pipelines	• Used in systems where maintenance needs to be minimized, such as chemical processing within refineries	• Used in complex pipeline networks to control direction of flow, facilitating switching between processing streams

Source: Team analysis

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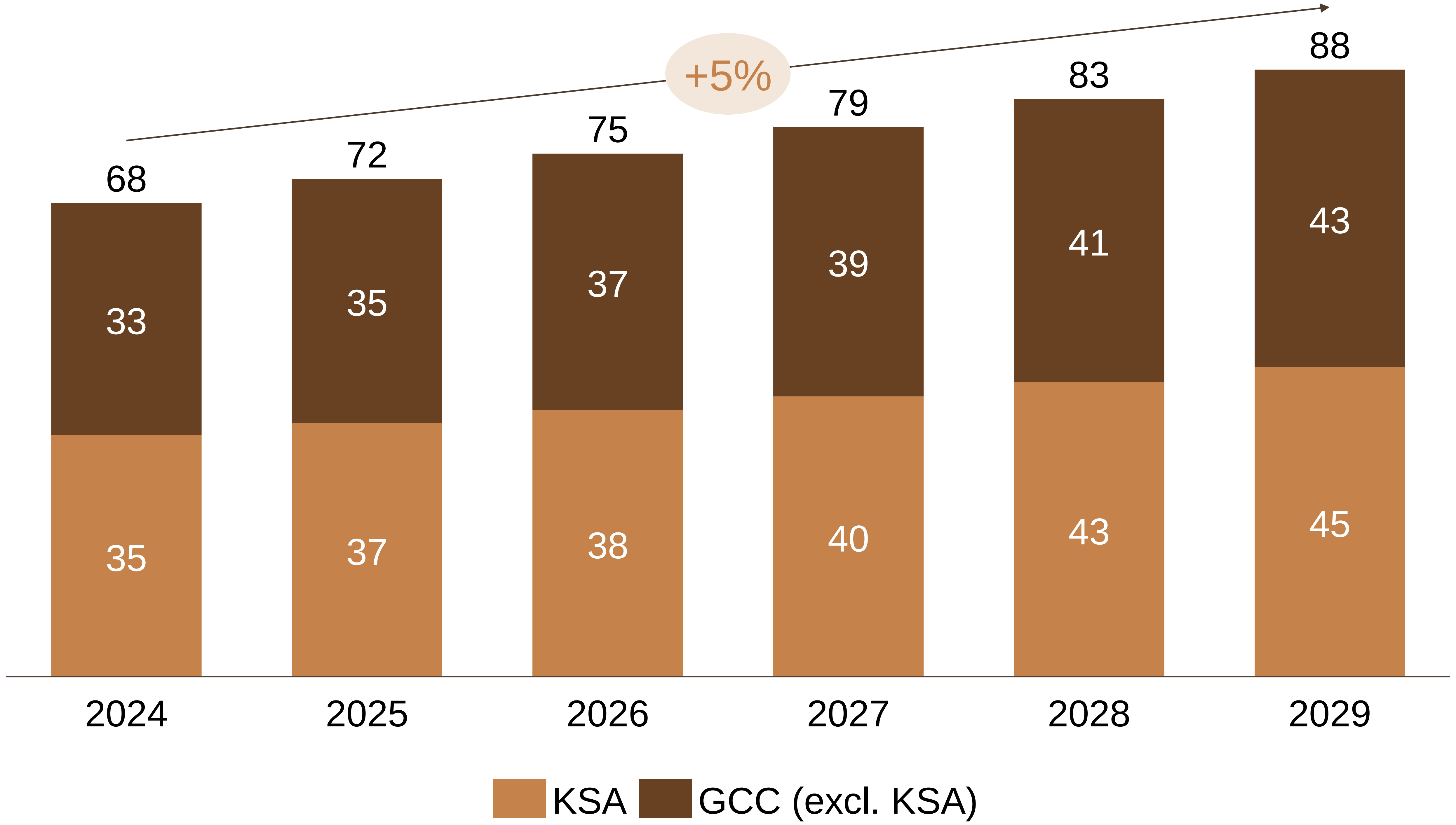
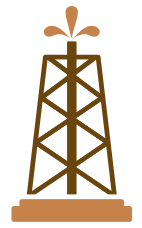
Plug valves demand, customers, and drivers

Forecasted KSA and rest of GCC plug valves market 2024-2029 ($MM)

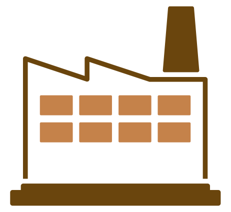


Typical plug valves customers in KSA



Oil & gas sector

Petrochemical plants



Utility providers

Key KSA demand drivers

- Energy sector growth: KSA needs plug valves for the flow control in its growing oil and gas pipeline network
- Industry trends: Development of desalination and wastewater treatment plants to meet growing water demand increases the need for reliable plug valves

Source: Verified Market Research; Grand View Research; imarc; Team analysis

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Value chain and key localization opportunities

	Raw material	Manufacturing and assembly	Lifecycle management
Local saturation	Multiple players	Few players	Few players
Current KSA value chain	• Raw materials such as steel, steek alloys, elastomer material, brass, and bronze supplied by multiple out-of-Kingdom players	• Opportunity to expand local manufacturing of plug valves	• Opportunity to grow the number of providers for testing, inspection, repair, and integrity management services of valves
		Opportunity	Opportunity
Success factors			
Technology		Cutting, forging, drilling and milling machinery, NDT tools	Ultrasonic testing devices
Labor		Mechanical engineers, forging technicians, metallurgists	Inspection specialists with expertise in material sciences

Catalyzing Supply Chains

Note: Intermediate processes are completed by manufacturing companies as raw materials are directly processed to produce valve plugs
Source: Team analysis

Steel Pipe Bending

Laila Alramadan

Static & Rotating Equipment Workshop

Opportunity profile—steel pipe bending

1 KSA has demand for pipe bending to support its oil and gas expansion

Types

Steel pipe bending

Applications	Example
Oil and gas infrastructure	Pipe fluid dynamics
Power generation	Cooling systems
Petrochemical plants	Pressure fluids

Catalyzing Supply Chains

2 The steel pipe bending market experiences a steady increase

476 Estimated 2024 KSA market size. $MM

6% Forecasted 5-year CAGR

3 Attractive investment opportunities in steel pipe bending value chain

KSA value chain opportunities

Service delivery

KSA enablers

- CAPEX financing programs from SIDF
- Customs duty exemption from MoCI
- Subsidized infrastructure, land, and utilities in dedicated zones

Source: WGR; Research Nester; PS Market Research; Team analysis

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Potential steel pipe bending localized categories

Steel pipe bending

Applications

3D+ steel pipe bending as a focus area as it is:

- Suitable for high-pressure, high-flow systems
- Used in oil and gas for pipeline routes where smooth directional changes are needed to maintain fluid dynamics
- Used in petrochemical plants for handling high-pressure fluids without turbulence or energy loss

Source: Team analysis

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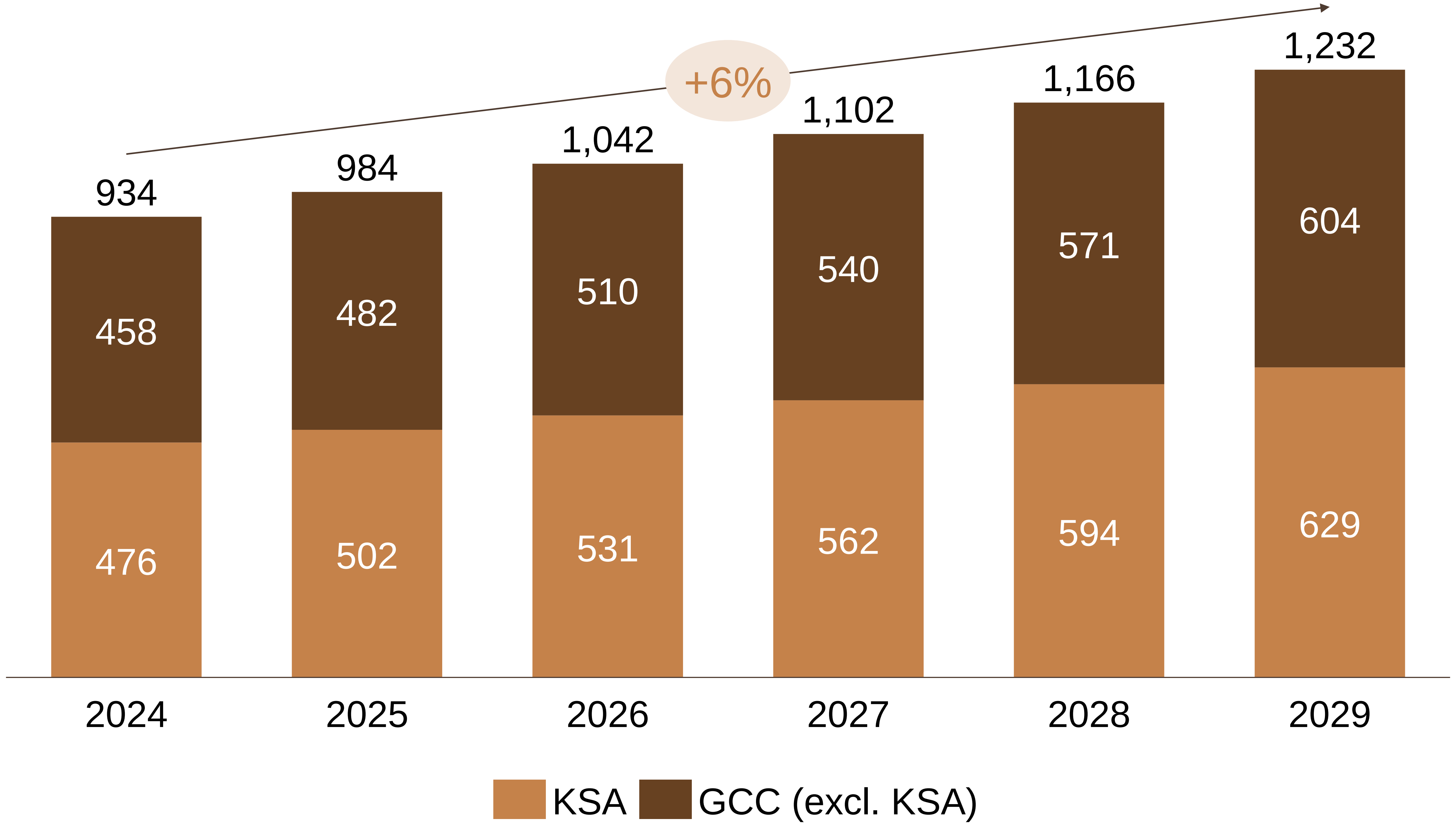
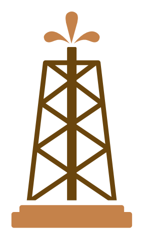
Steel pipe bending demand, customers, and drivers

Forecasted KSA and rest of GCC steel pipe bending market 2024-2029 ($MM)



Typical pipe bending customers in KSA



Oil & gas sector

Petrochemical plants

Key KSA demand drivers

- Infrastructure projects: Demand for pipe bending is growing as construction of cities like NEOM involves complex piping systems for water, energy, and waste management
- Sector expansion: KSA expands its oil and gas projects, requiring extensive pipeline networks with pipe bends for fluid transport

Static & Rotating Equipment Workshop

Catalyzing Supply Chains

Source: WGR; Research Nester; PS Market Research; Team analysis

Value chain and key localization opportunities

	Pre-service material sourcing	Service delivery
Local saturation	Multiple players	Few players
Current KSA value chain	• Availability of steel pipes that are supplied by multiple local manufacturers	• Opportunity to increase the number of local providers for 3D+ steel pipe bending services
		Opportunity
Success factors		
Technology		Multi-axis CNC pipe benders, hot induction or mandrel bending machinery, non-destructive testing techniques
Labor		Mechanical engineers and metallurgists

Catalyzing Supply Chains

Note: CNC = Computer numerical control
Source: Team analysis

AGT Servicing and Overhaul

Laila Alramadan

Opportunity profile—AGT servicing and overhaul

1

KSA has a strong demand for AGT servicing for its energy infrastructure

Services

Routine servicing | Major overhaul | Technology upgrades

Applications	Example
Oil and gas	Offshore platforms
Power generation	Peak-load stations
Industrial manufacturing	CHP generation

2

AGT servicing and overhaul market experiences a substantial increase

29 Estimated 2024 KSA market size. $MM

7% Forecasted 5-year CAGR

3

Attractive investment opportunities for AGT servicing value chain

KSA value chain opportunities

- Pre-service sourcing
- Service delivery

KSA enablers

- Inspection training programs by ITQAN
- Customs duty exemption on equipment
- Facilitated visa processing for experts

Note: AGT = Aeroderivative gas turbine; CHP = Combined heat and power
Source: EMIS; Market Research Future; Team analysis

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Potential AGT servicing & overhaul localized categories

Non-exhaustive

	Routine servicing	Major overhaul	Technology upgrades
	Regular maintenance of components like compressors, turbines, and combustors	Full disassembly, inspection, repair, and modernization of turbine systems	Retrofitting with modern tech for efficiency or emission compliance
Applications	• Prevents breakdowns • Ensures efficiency	• Extends turbine life • Upgrades performance	• Enhances performance • Ensures environmental compliance

Note: AGT = Aeroderivative gas turbine
Source: Team analysis

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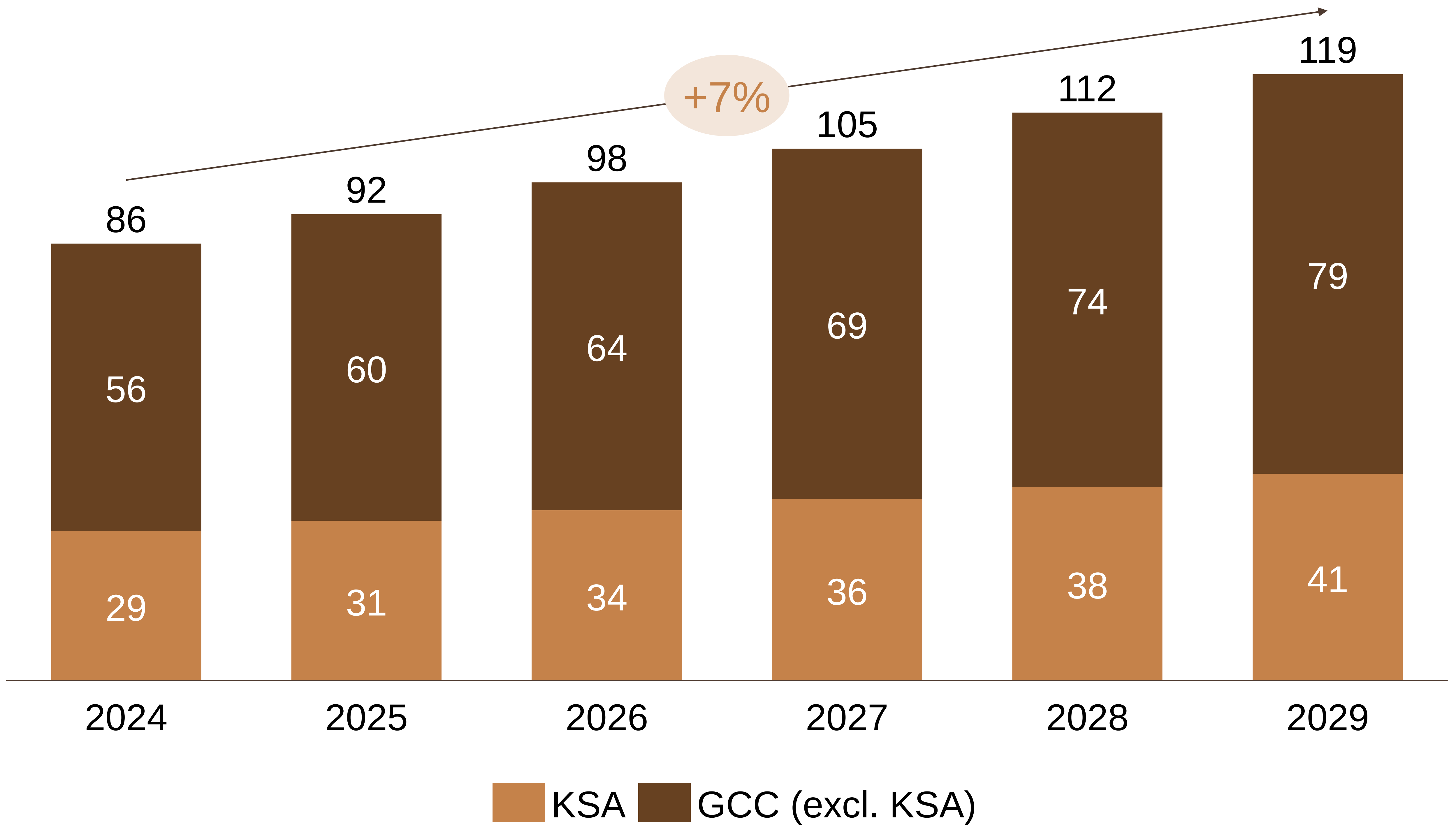
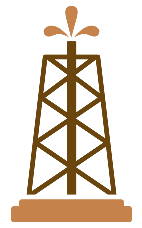
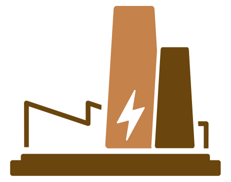
AGT servicing and overhaul demand, customers, and drivers

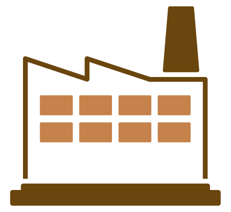
Forecasted KSA and rest of GCC AGT servicing market 2024-2029 ($MM)



Typical AGT servicing customers in KSA


Oil & gas sector


Power generation providers


Industrial manufacturing companies

Key KSA demand drivers

- Industry expansion: Projects like Master Gas System Phase 3 require reliable AGTs to enhance gas distribution across KSA, driving the need for frequent servicing and overhaul
- Energy efficiency initiatives: Government policies promoting energy efficiency and sustainability are driving the adoption of frequent AGT servicing and overhaul

Catalyzing Supply Chains

Note: AGT = Aeroderivative gas turbine
Source: EMIS; Market Research Future; Team analysis

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Value chain and key localization opportunities

	Pre-service equipment sourcing	Service delivery	Post service follow-up
Local saturation	Few players	Few players	Multiple players
Current KSA value chain	• Opportunity to grow number of local suppliers and distributors for equipment required for AGT servicing and overhaul, such as borescopes and flow meters	• Opportunity to grow number of local providers for AGT servicing and overhaul	• Availability of companies involved in providing post-service follow-up like predictive maintenance and complete life assessment of AGTs
	Opportunity	Opportunity	
Success factors			
Technology	CNC machining, optical components, sensors	Borescopes, vibration analysis tools, pressure and flow meters	
Labor	Mechanical engineers and material scientists	Mechanical and electrical engineers, gas turbine specialists	

Catalyzing Supply Chains

Note: AGT = Aeroderivative gas turbine
Source: Team analysis

Gas Turbine Spare Parts

Laila Alramadan

Opportunity profile—gas turbine spare parts

1 KSA has demand for GT spare parts mainly for its power generation plants

Types

Filters

Combustion system

Turbine blades

Applications	Example
Oil and gas	Pump engine
Power generation	Grid stability
Industrial manufacturing	Heat generation

2 GT spare parts market is sizeable and experiences a steady increase

472 Estimated 2024 KSA market size. $MM

7% Forecasted 5-year CAGR

3 Attractive investment opportunities for GT spare parts value chain

KSA value chain opportunities

- Manufacturing
- Lifecycle management

KSA enablers

- CAPEX financing programs
- Land subsidies for plant setup
- Trade facilitation support by SEDA to ease procedures for exports

Note: GT = Gas turbine
Source: EMIS; Market Research Future; Team analysis

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Potential gas turbine spare parts localized categories

Non-exhaustive

Filters	Combustion system	Turbine blades
		

Applications

Filters
- Air intake and lube oil filters
- Replaced regularly to prevent debris or contaminants from entering the system

Combustion system
- Fuel nozzles, igniters, and combustion liners
- Inspected regularly to ensure proper fuel combustion

Turbine blades
- Inspected regularly to prevent fouling or erosion, which can lead to reduced efficiency or even failure

Source: Team analysis

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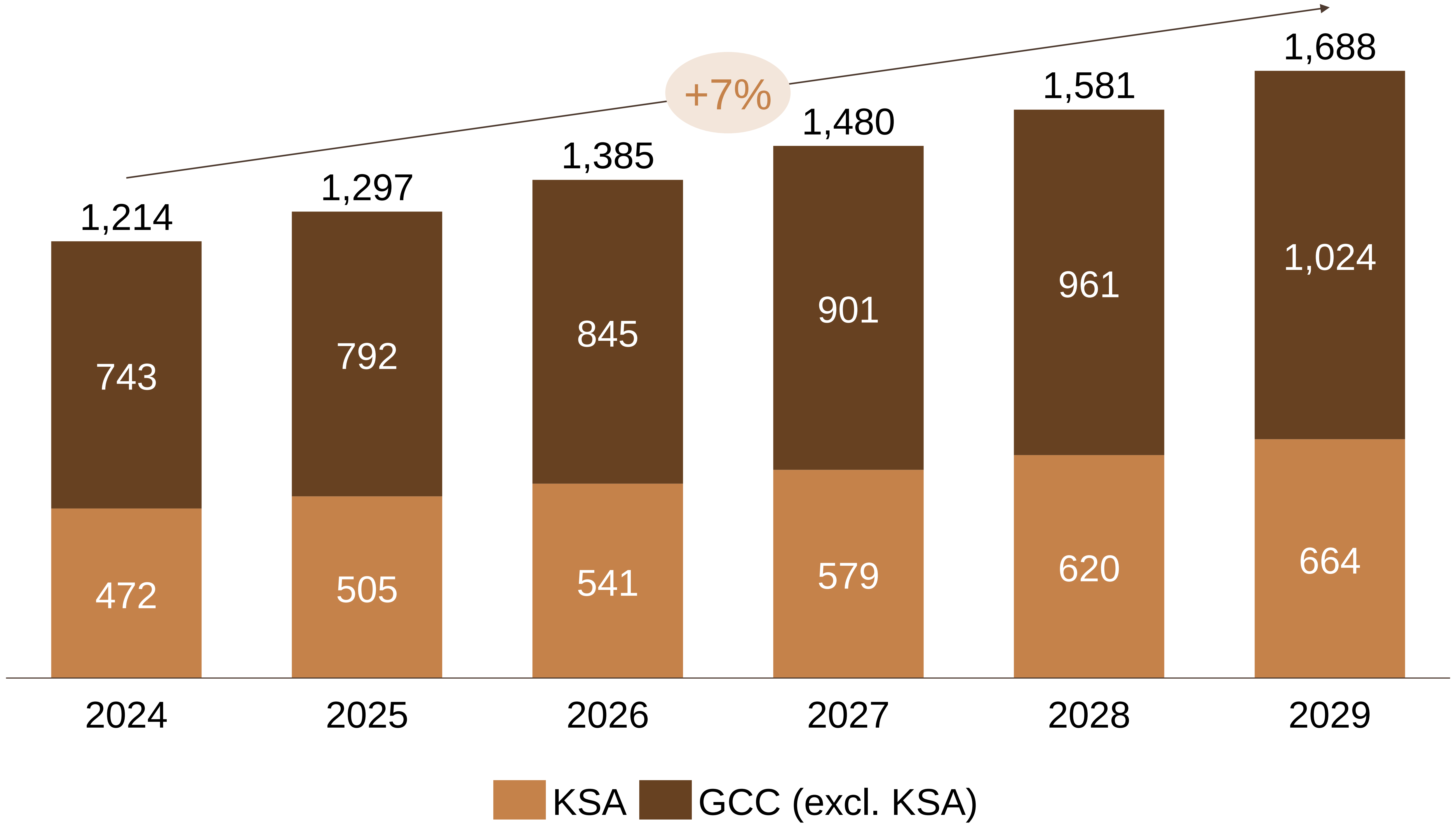
Gas turbine spare parts demand, customers, and drivers

Forecasted KSA and rest of GCC gas turbine spare parts market 2024-2029 ($MM)



Typical GT spare parts customers in KSA

- Oil & gas sector
- Power generation providers
- Industrial manufacturing companies

Key KSA demand drivers

- Industry expansion: Projects like Master Gas System Phase 3 need reliable gas turbines to ensure gas distribution across KSA, driving the need for retrofitting
- Electricity demand: Increased power generation capacities incl. gas turbines are required to cater for the higher electricity consumption driven by population growth and rapid industrialization

Catalyzing Supply Chains

Note: GT = Gas turbine
Source: EMIS; Market Research Future; Team analysis

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Value chain and key localization opportunities

	Raw material	Intermediate processes	Manufacturing and assembly	Lifecycle management
Local saturation	Multiple players	Multiple players	Few players	Few players
Current KSA value chain	• Raw materials steel, nickel, chromium, iron, titanium supplied by out-of-Kingdom players	• Availability of companies involved in shaping raw materials into preforms and for heat treatment	• Opportunity to expand production facilities for gas turbine spare parts	• Opportunity to increase local servicing and overhaul for gas turbines
			Opportunity	Opportunity
Success factors				
Technology			CAD tools, CNC, milling, and coating machines	NDT tools, borescopes, pressure and flow meters
Labor			Mechanical, airflow and combustion specialists	Mechanical and electrical engineers, NDT experts

Catalyzing Supply Chains

Note: Lifecycle management including all post-production services, including installation; CAD = Computer-Aided Design; CNC = Computer numerical control; NDT = Non-destructive testing
Source: Team analysis

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