

Instrumentation

Presented by: Khaled AlGhadhban

Business Opportunities Workshop

January 14th, 2025

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.

Introduction

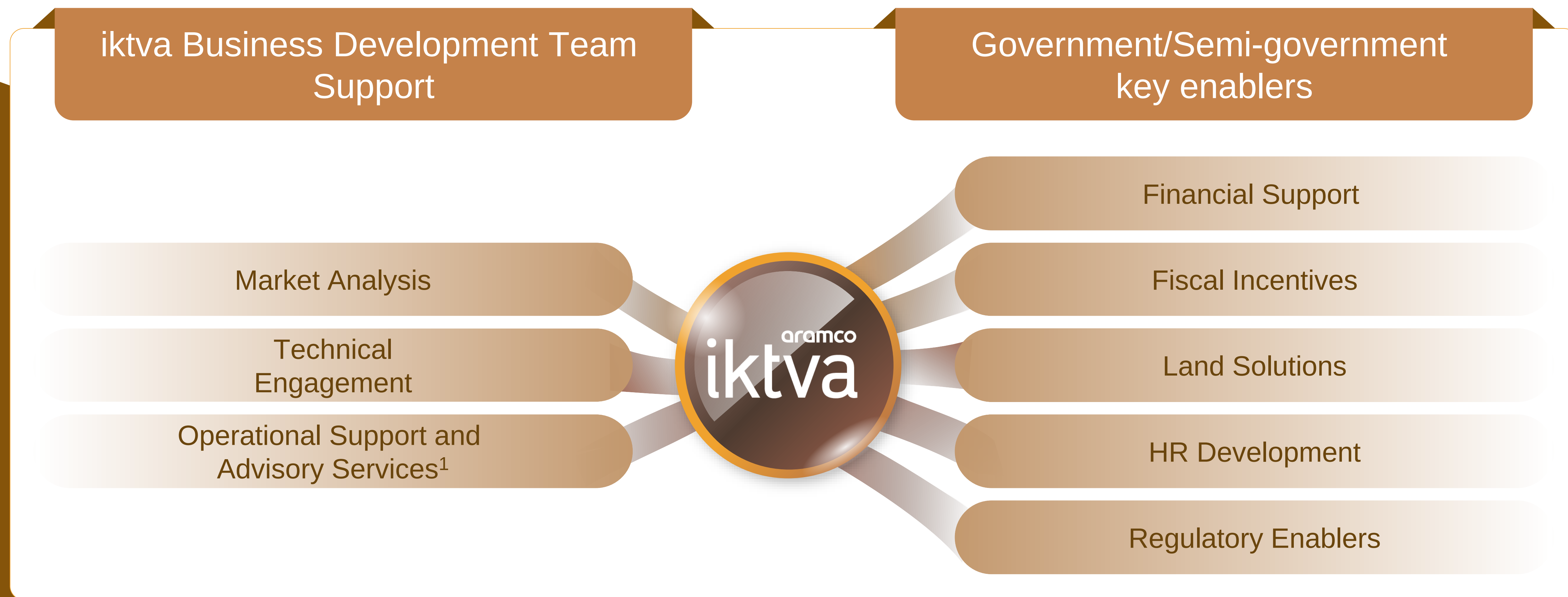
iktva Program Overview (1/2)

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



Catalyzing Supply Chains



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*

KSA and other GCC Instrumentation market size 2025, Million USD

625

KSA market size
for opportunities in
today's Instrumentation
workshop

2%

Forecasted
5-year CAGR

Ten opportunities to be discussed today

- ① Multiphase Flowmeter
- ② Leak Detection Systems
- ③ Gas Monitoring Equipment
- ④ Instrument Tubing, Fittings & Manifolds
- ⑤ Water Quality Analyzer
- ⑥ Level Measurement
- ⑦ Flow Measurement
- ⑧ Pressure Regulators & Valves actuators
- ⑨ Pressure Protection & Surge Relief Devices
- ⑩ Custody Measurement

Agenda – Business Opportunities Instrumentation

No.	Title of the Investment Opportunity	Presenter
	Introduction	Khaled AlGhadhban
1	Multiphase Flowmeter	Mohammed Aljawad
2	Leak Detection Systems	Motlaq Alotaibi
3	Gas Monitoring Equipment	Mohammad Albeaik
4	Instrument Tubing, Fittings & Manifolds	Mohammad Albeaik
5	Water Quality Analyzer	Mohammad Albeaik
6	Level Measurement	Abeer Alkaaki
7	Flow Measurement	Abeer Alkaaki
8	Pressure Regulators & Valves actuators	Abeer Alkaaki
9	Pressure Protection & Surge Relief Devices	Abeer Alkaaki
10	Custody Measurement	Fahad Alfouzan
	Closing Remarks	Khaled AlGhadhban

01

Multiphase Flowmeter

Presented by: Mohammed Aljawad

Multiphase Flowmeter (MPFM) Opportunity Profile

1

MPFMs present an attractive investment opportunity which is to establish manufacturing facilities to serve growing KSA & GCC demand

Types



Multiphase Flowmeters



Water Cut Meters

Applications

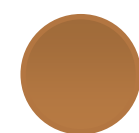
9com



Oil Applications



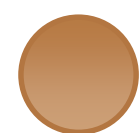
6000002917



Wet Gas Applications



6000014531



Water-Cut Applications



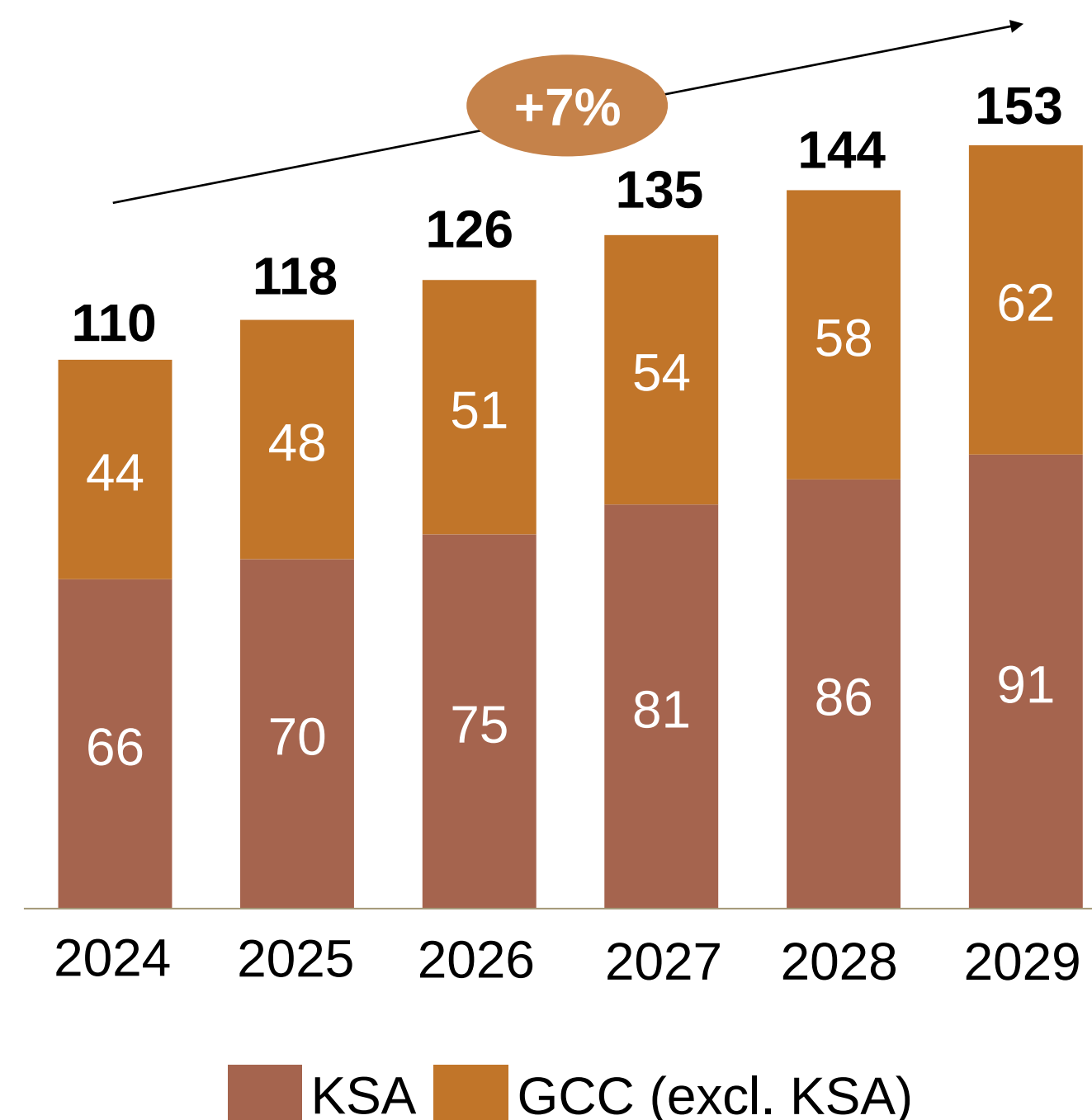
6000014530

Catalyzing Supply Chains

2

MPFMs is a growing market with KSA having the largest share in the region

GCC market forecast, (Million USD)



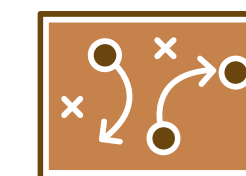
3

Attractive investment opportunities at most stages of Multiphase Flowmeters value chain

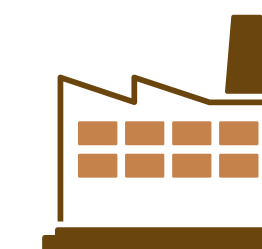
KSA value chain opportunities



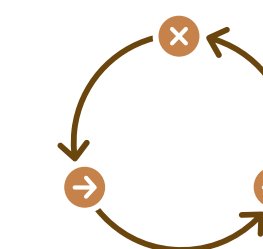
Raw material



Intermediate process



Manufacturing



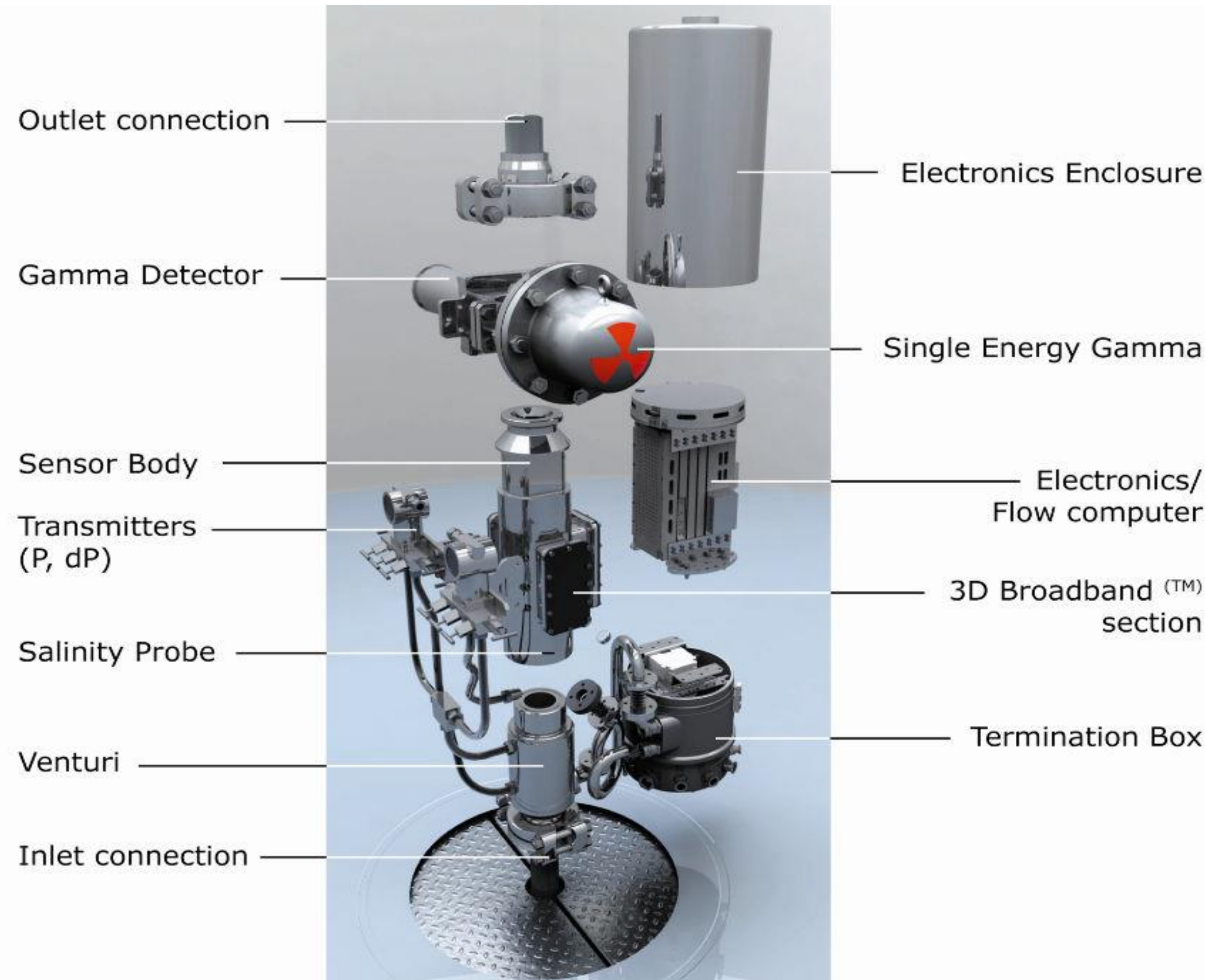
Lifecycle Mgmt.

KSA enablers

- Financial Incentives
- Land and infrastructure
- Technical enablers

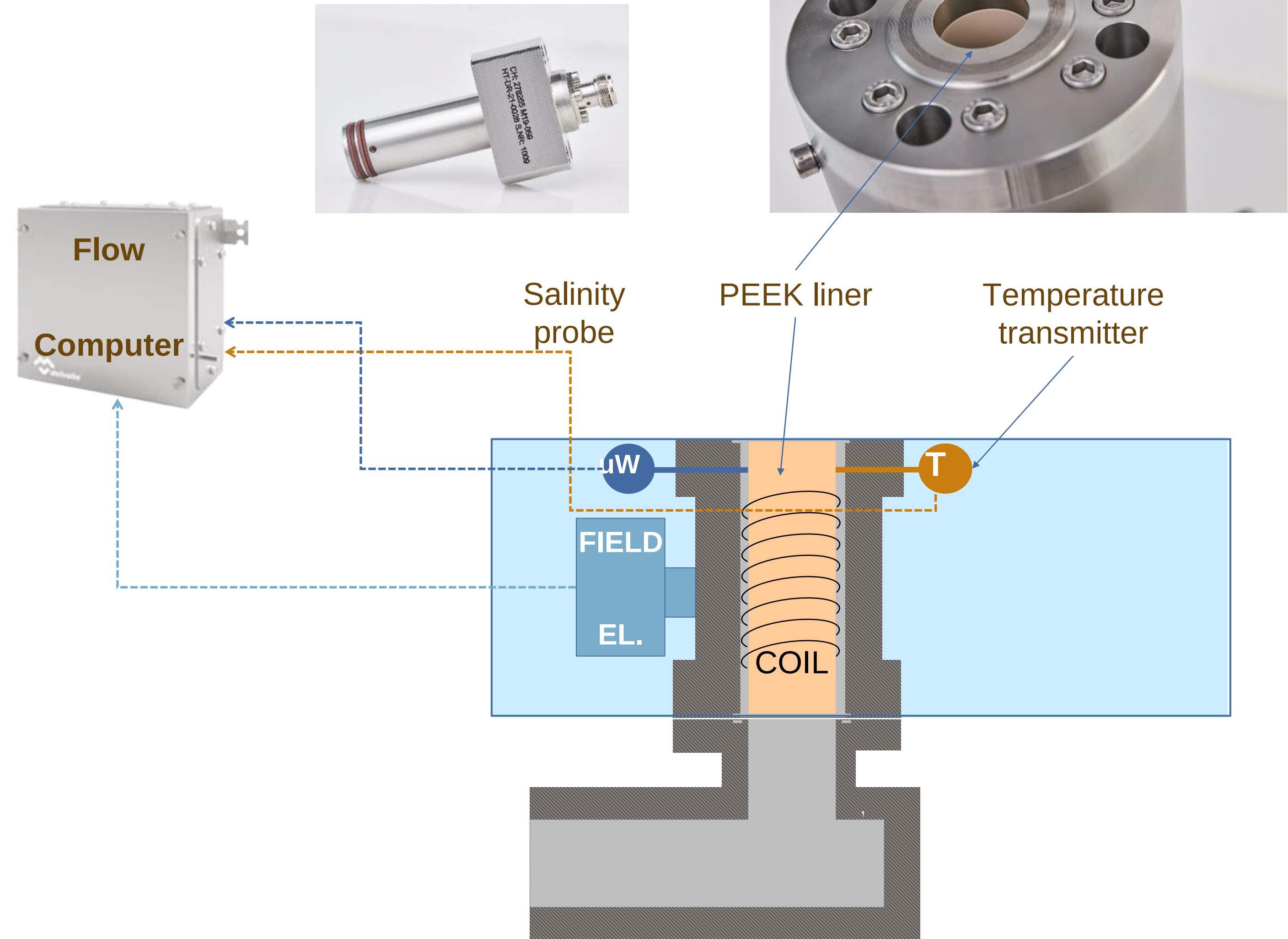
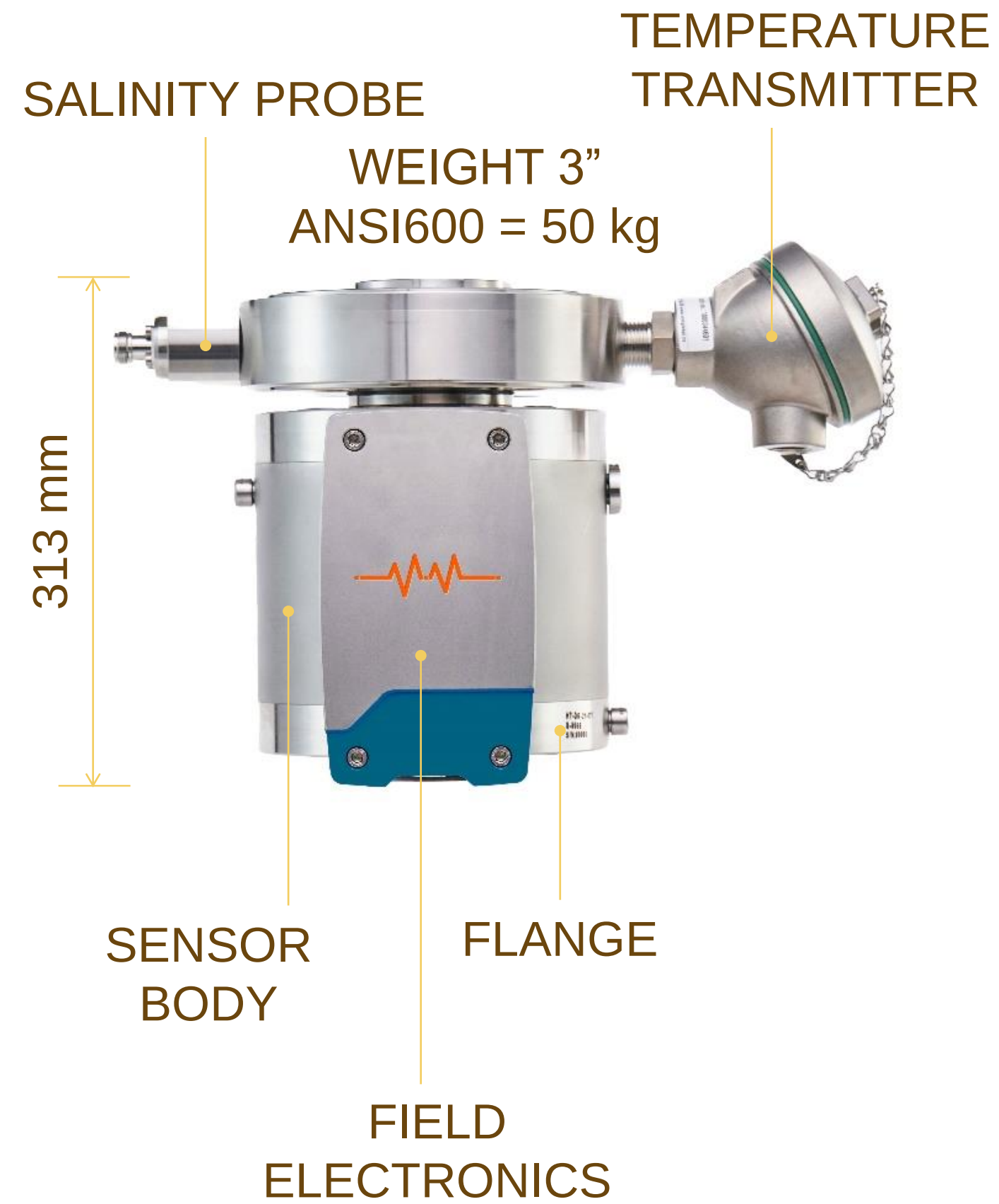
Multiphase Flowmeter (MPFM)

34-SAMSS-001 Multiphase Flow Meters & Wellhead Water Cut Meters



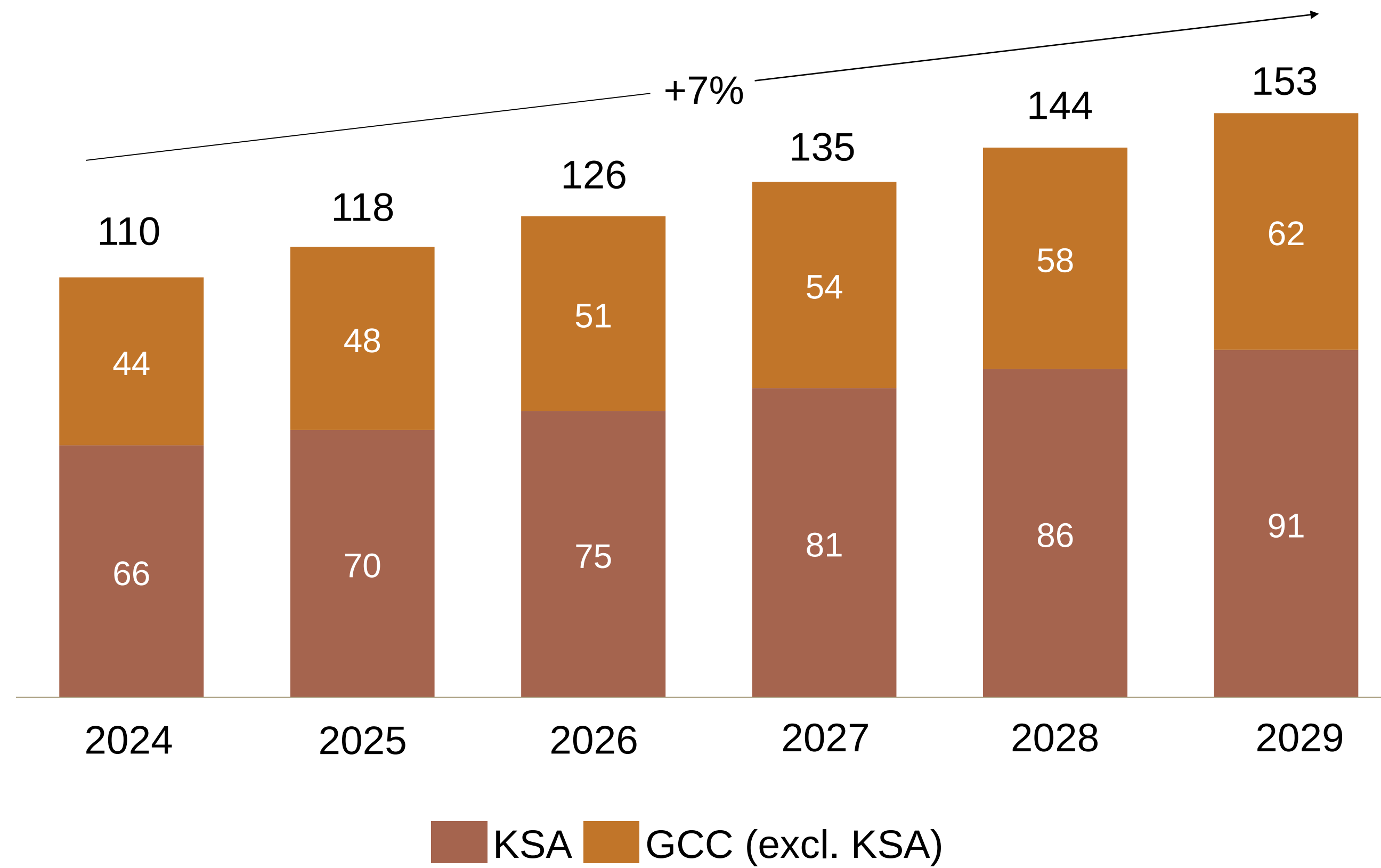
Water Cut Metering

34-SAMSS-001 Multiphase Flow Meters & Wellhead Water Cut Meters



Multiphase Flowmeter (MPFM) Demand, Customers & Drivers

Forecasted KSA and rest of GCC MPFM market 2024-2029 (Million USD)



Typical customers in KSA



Oil & Gas Companies (Upstream Sector)

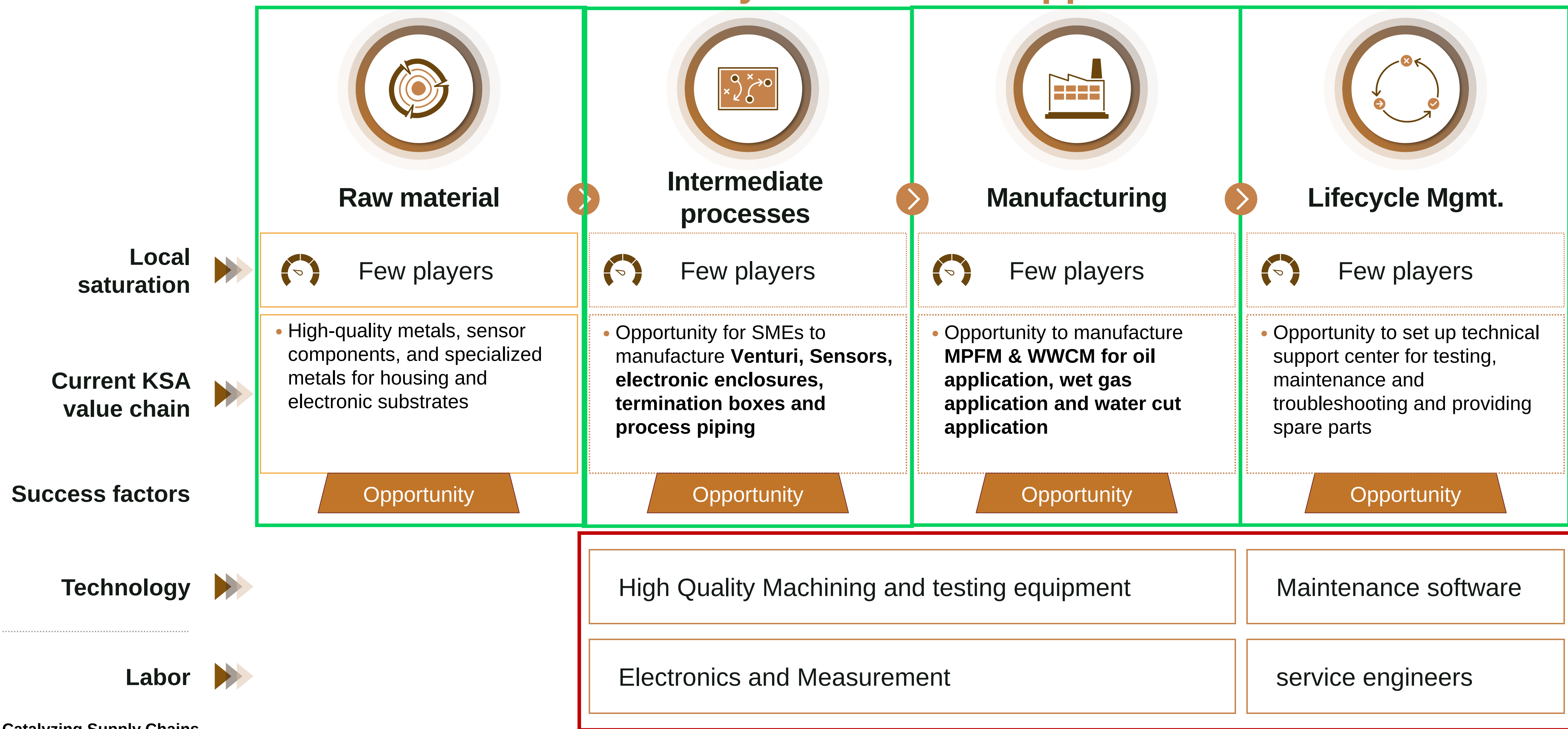
Key KSA demand drivers

- Increased Focus on Well Optimization
- Growing Importance of Water Management
- Enhanced Oil Recovery (EOR)
- Real-Time Production Monitoring

Catalyzing Supply Chains

Multiphase Flowmeter (MPFM)

Value Chain and Key Localization Opportunities



Catalyzing Supply Chains

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

Multiphase Flowmeter (MPFM) Investment Opportunity and Enablers

Key enablers in KSA to drive success¹



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



Economic & human capital enablers: National training centers such as NITI offering specialized training for MPFM and WCM and instrumentation in an industrial setting



Customs relief programs: Custom duty drawback to importers of raw materials processed for re-export

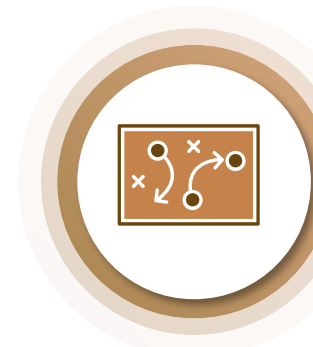


Tax incentives: MPFM and WCM manufacturing eligible for tax exemptions on earning from exports through Zakat, Tax & Customs Authority

Where is the opportunity



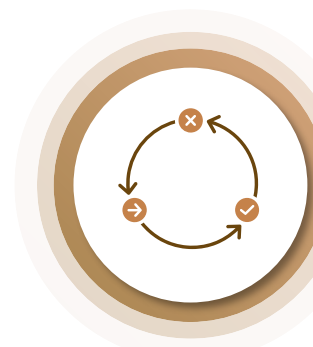
Raw material: Opportunity to provide high-quality metals, sensor components, and specialized metals for housing and electronic substrates



Intermediate processes: SME to manufacture venture meters, Sensors, electronic enclosures, termination boxes and process piping



Manufacturing: Opportunity to establish a factory for MPFM for oil application, wet gas application and water cut application



Lifecycle Mgmt.: Opportunity to set up technical support center for testing, maintenance and troubleshooting and providing spare parts

Catalyzing Supply Chains

Note: 1. Detailed list of all enablers in the backup; SIDF = Saudi Industrial Development Fund; NITI = National Industrial Training Institute
Source: Team analysis

02

Leak Detection Systems

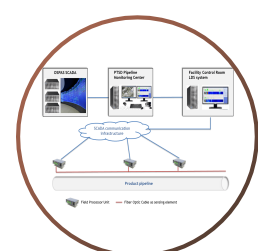
Presented by: Motlaq Alotaibi

Leak Detection System (LDS) Opportunity Profile

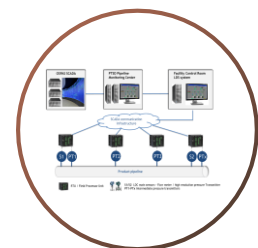
1

Leak Detection System presents an attractive investment opportunity

Types



Fiber Optic Sensing 9COM 6000014893



Real-Time Transient Model 9COM 6000014890

Applications

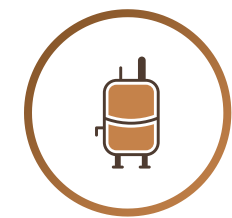
Example



Oil & gas refineries



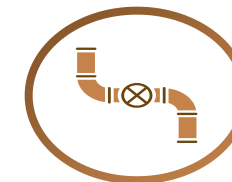
Gas pipelines



Chemical plants



Manufacturing pipelines



Utility & Wastewater



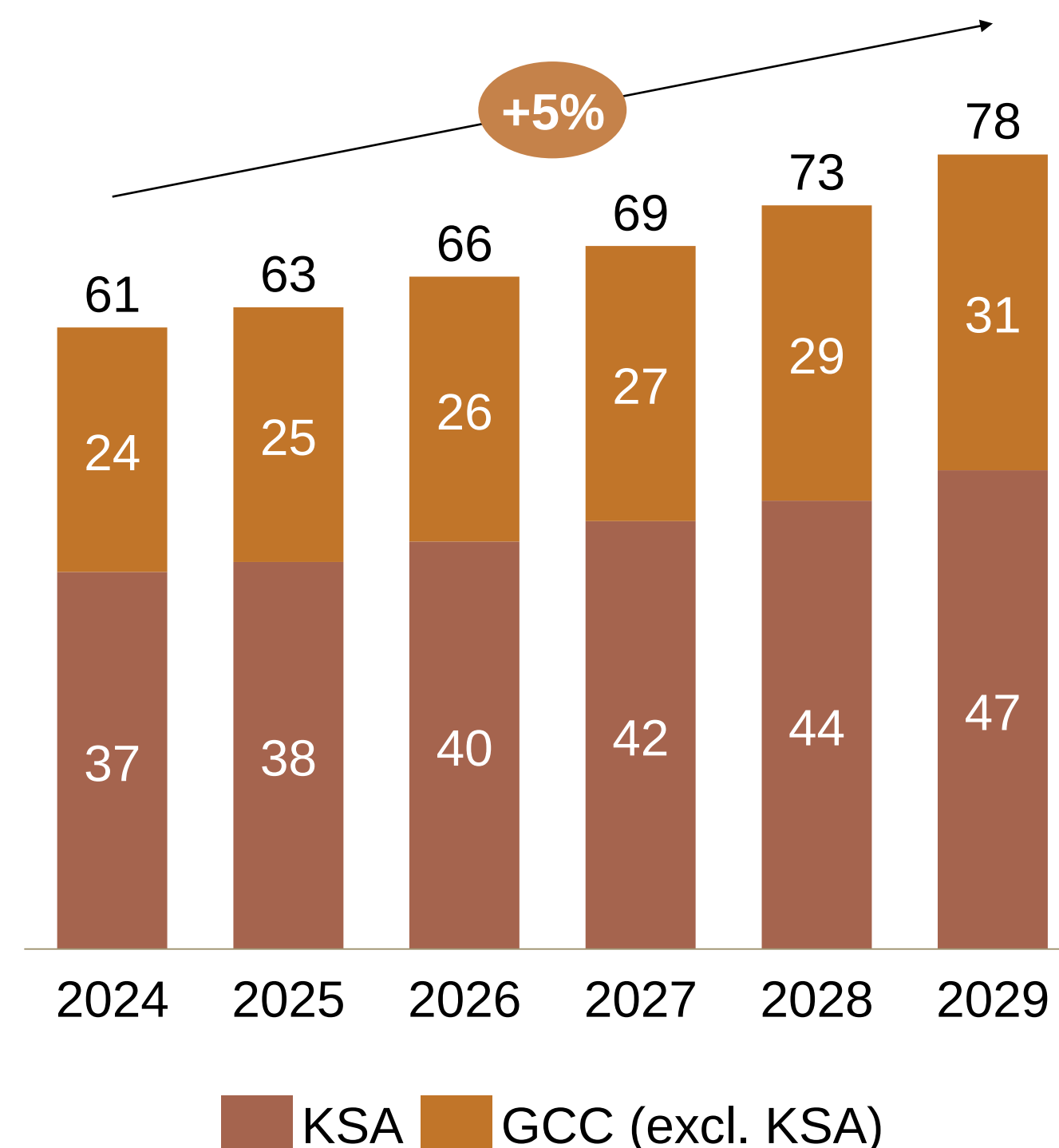
Water supply systems

Catalyzing Supply Chains

2

LDS is a growing market with KSA having the largest share in the region

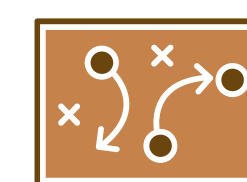
GCC market forecast, (Million USD)



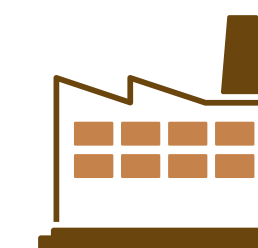
3

Attractive investment opportunities for the LDS value chain

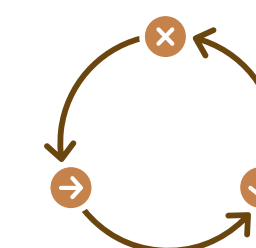
KSA value chain opportunities



Intermediate process



Manufacturing



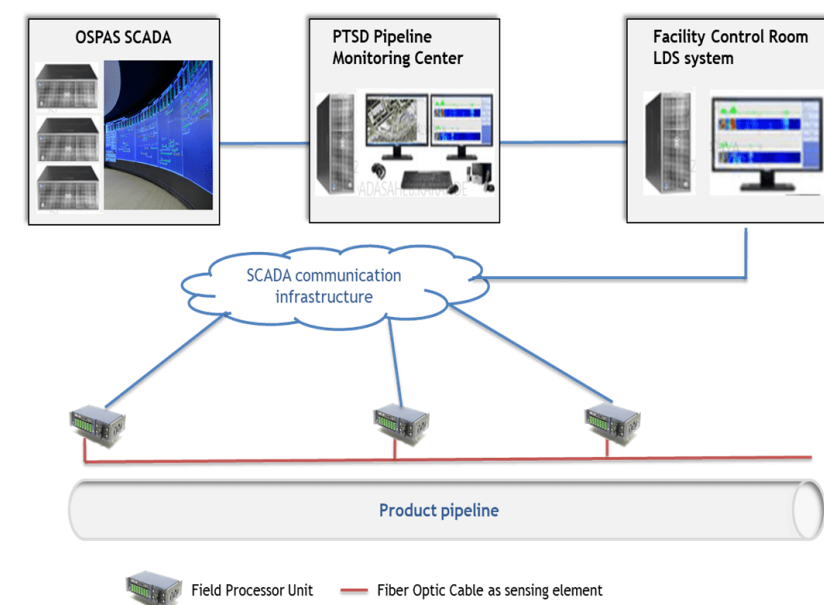
Lifecycle Mgmt.

KSA enablers

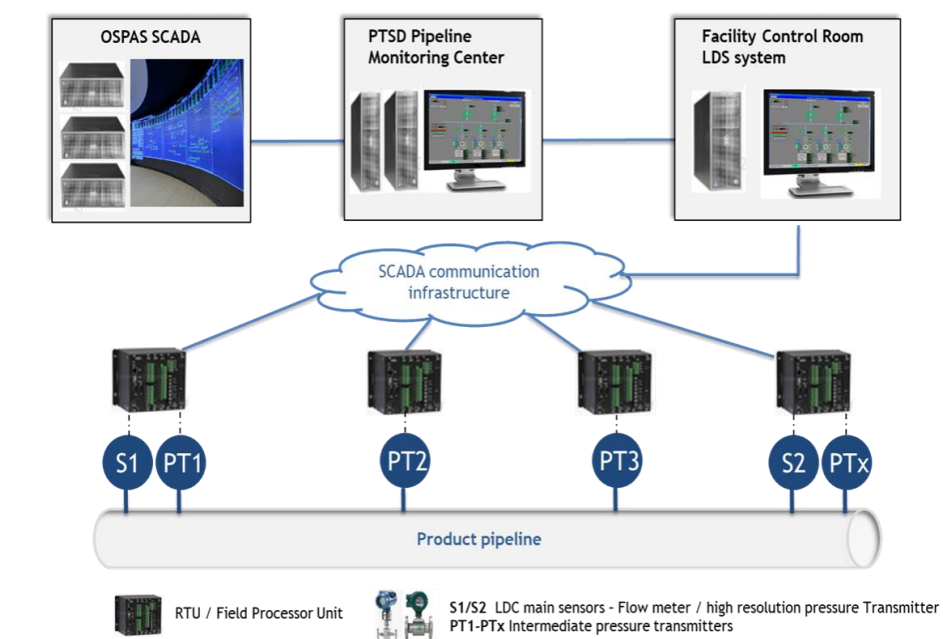
- Financial Incentives
- Land and infrastructure
- Technical enablers

Leak Detection System (LDS) Potential Localized Categories

Fiber optic sensing¹ 9COM 6000014893



Real-time transient model² 9COM 6000014890

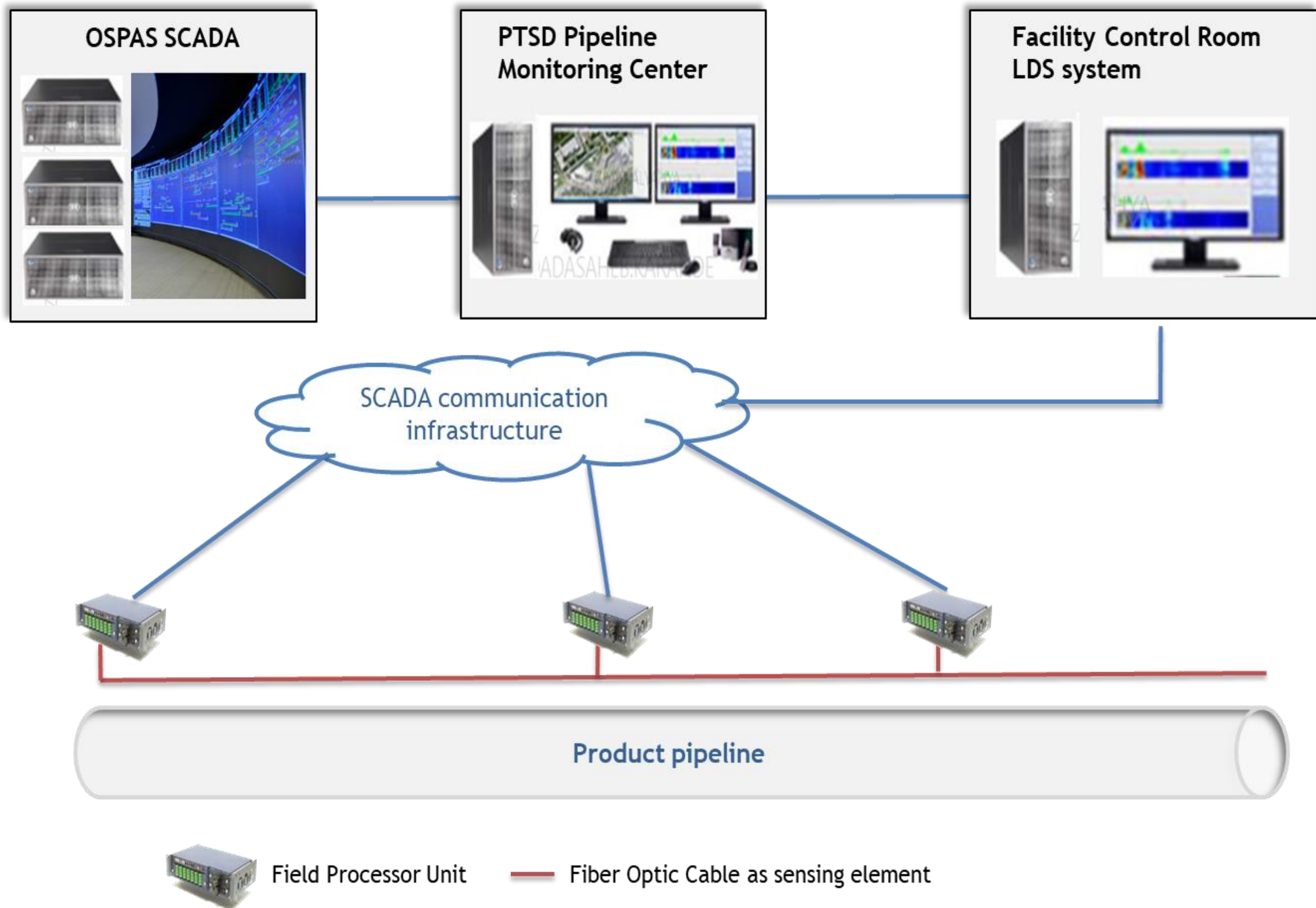


Applications

- Oil & gas pipelines
- Chemical pipelines
- Petrochemical plant pipelines
- Refinery facility pipelines
- Water systems pipelines

Aramco material numbers 1. FOLDS-6000014893 2. RTTM-6000014890
Saudi Aramco standard: SAES-Z-003

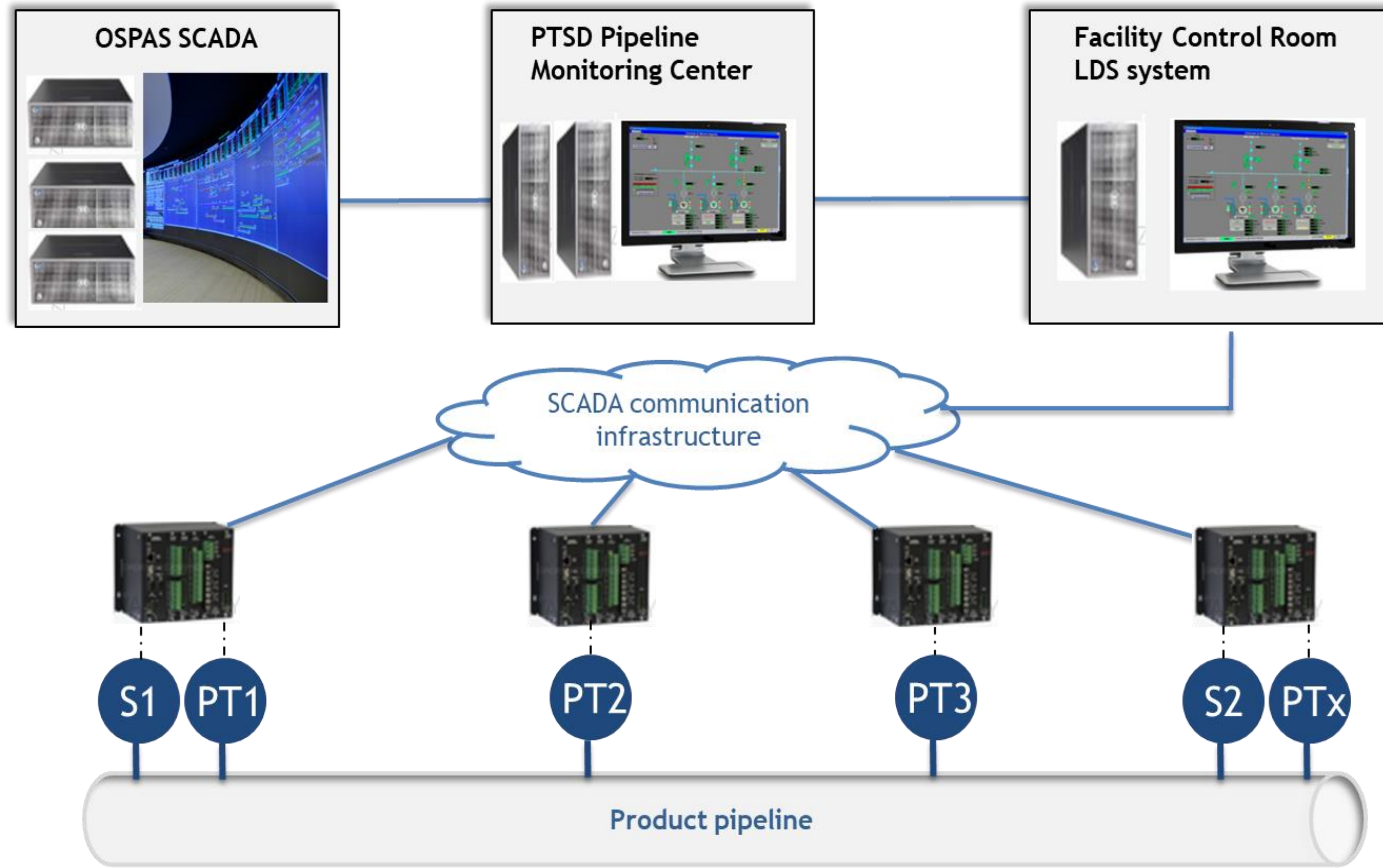
Leak Detection System (FOLDS- 6000014893)



Components of FOLDS Technology

- Field Processor Unit- Integrator
- LDS sensors - Fiber Optic cable
- Server and Operator workstation
- Application software
- Network components

Leak Detection Systems (RTTM-6000014890)



 RTU / Field Processor Unit
 Catalyzing Supply Chains

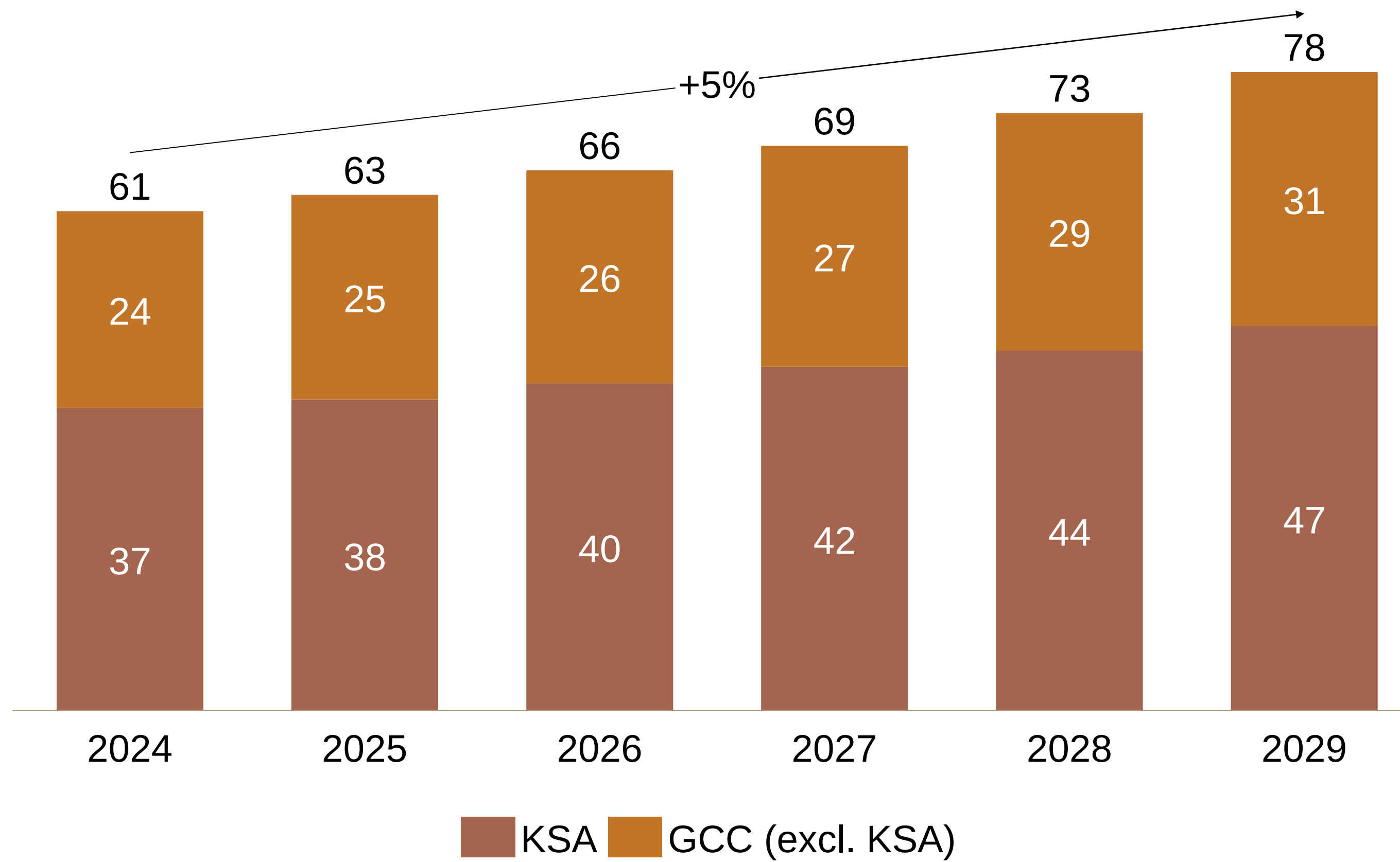
 S1/S2 LDC main sensors - Flow meter / high resolution pressure Transmitter
 PT1-PTx Intermediate pressure transmitters

Components of RTTM Technologies

- Field Processor Unit- RTU, CPU
- LDS sensors- Pressure sensors and/or Flow meters
- Server and Operator workstation
- Application software
- Network components

Leak Detection System (LDS) Demand, Customers & Drivers

Forecasted KSA and rest of GCC LDS market 2024-2029 (Million USD)



Typical customers in KSA



Petrochemical



Oil & gas



Water and wastewater utilities

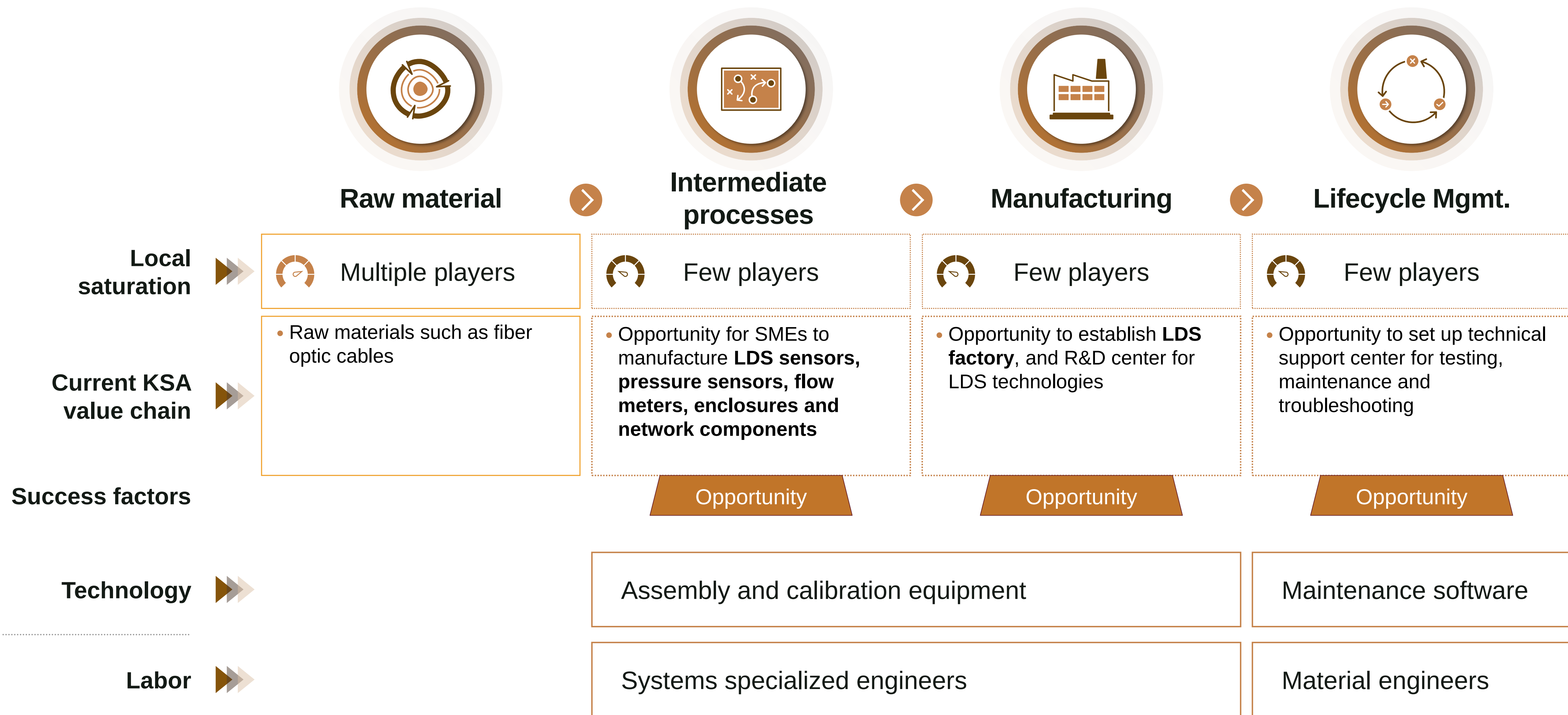
Key KSA demand drivers

- **Industry trends:** Focus on minimizing fugitive emissions in oil, gas, and chemicals necessitating advanced leak detection systems to meet targets
- **Sector expansion:** Expansion in industrial and energy sector in KSA drives demand for leak detection systems in new installations

Catalyzing Supply Chains

Leak Detection System (LDS)

Value Chain and Key Localization Opportunities



Catalyzing Supply Chains

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

Leak Detection System (LDS) Investment Opportunity and Enablers

Key enablers in KSA to drive success¹



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



Economic & human capital enablers: National training centers such as NITI offering specialized training for LDS and instrumentation in an industrial setting

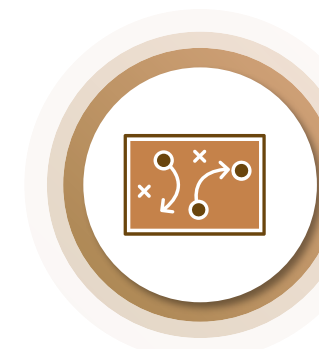


Customs relief programs: Custom duty drawback to importers of raw materials processed for re-export



Tax incentives: LDS manufacturing eligible for tax exemptions on earning from exports through Zakat, Tax & Customs Authority

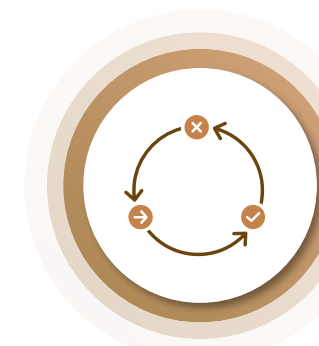
Where is the opportunity



Intermediate processes: SME to manufacture LDS sensors, pressure sensors, enclosures and network components



Manufacturing: Opportunity to establish LDS factory, and R&D center for LDS technology



Lifecycle Mgmt.: Opportunity to set up technical support center for testing, maintenance and troubleshooting

Catalyzing Supply Chains

Note: 1. Detailed list of all enablers in the backup; SIDF = Saudi Industrial Development Fund; NITI = National Industrial Training Institute
Source: Team analysis

03

Gas Monitoring Equipment

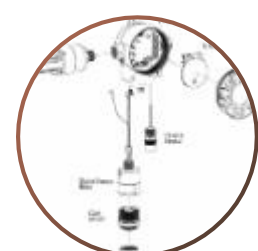
Presented by: Mohammad Albeaik

Gas Monitoring Equipment Opportunity Profile

1

Gas Monitoring Equipment present an attractive investment opportunity

Types



Gas combustible monitors



Hydrogen sulfide monitors



Gas combustible open path monitor



Calibration gas cylinders

Applications



Oil & gas Facilities



Gas extraction sites



Petrochemical facilities



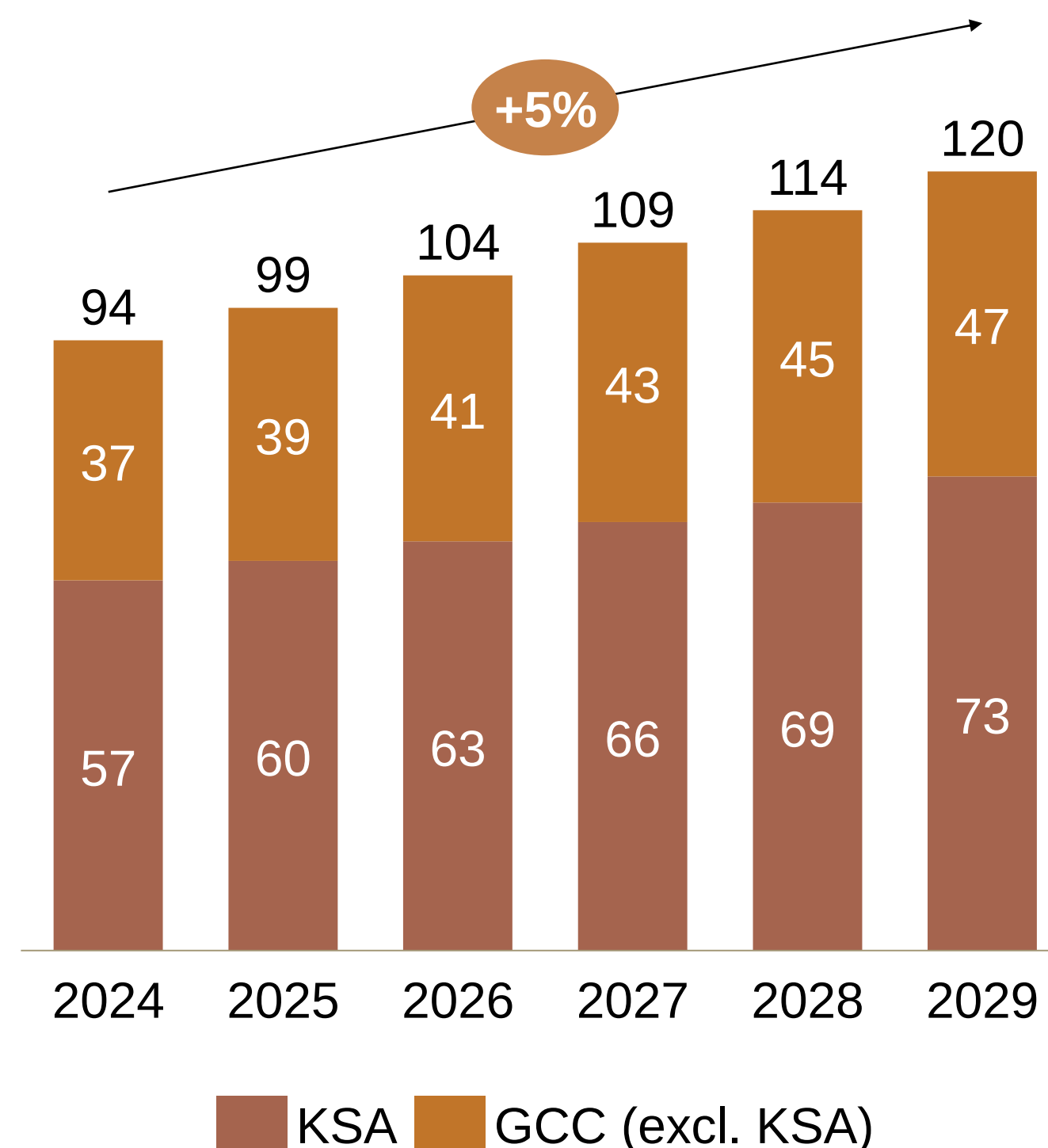
Chemical storage

Example

2

Gas monitoring market is sizeable with significant forecasted growth

GCC market forecast, (Million USD)



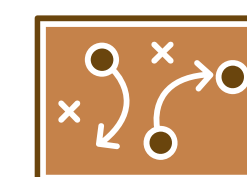
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Attractive investment opportunities in the value chain

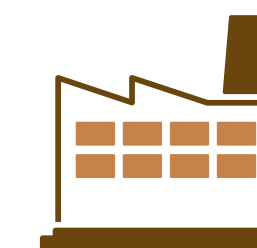
KSA value chain opportunities



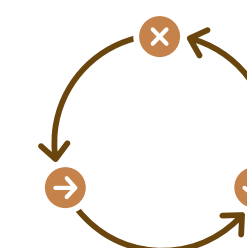
Raw material



Intermediate process



Mfg.



Lifecycle Mgmt.

KSA enablers

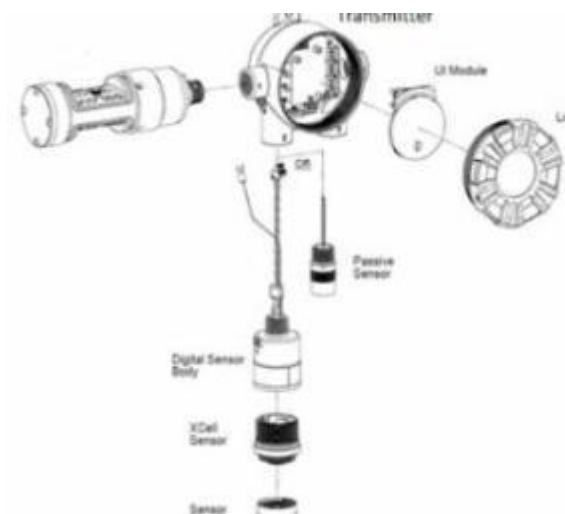
- Financial support
- Land and infrastructure
- Technical enablers

Catalyzing Supply Chains

Gas Monitoring Equipment

Potential Demand Localized Categories

Gas combustible monitors¹



9COM 6000002782

Hydrogen sulfide monitors²



9COM 6000002786

Gas combustible open path monitor³



9COM 6000002787

Calibration gas cylinder⁴



9COM 6000002689

Applications

- Oil & gas facilities
- Petrochemical production units
- Calibration research laboratories

Catalyzing Supply Chains

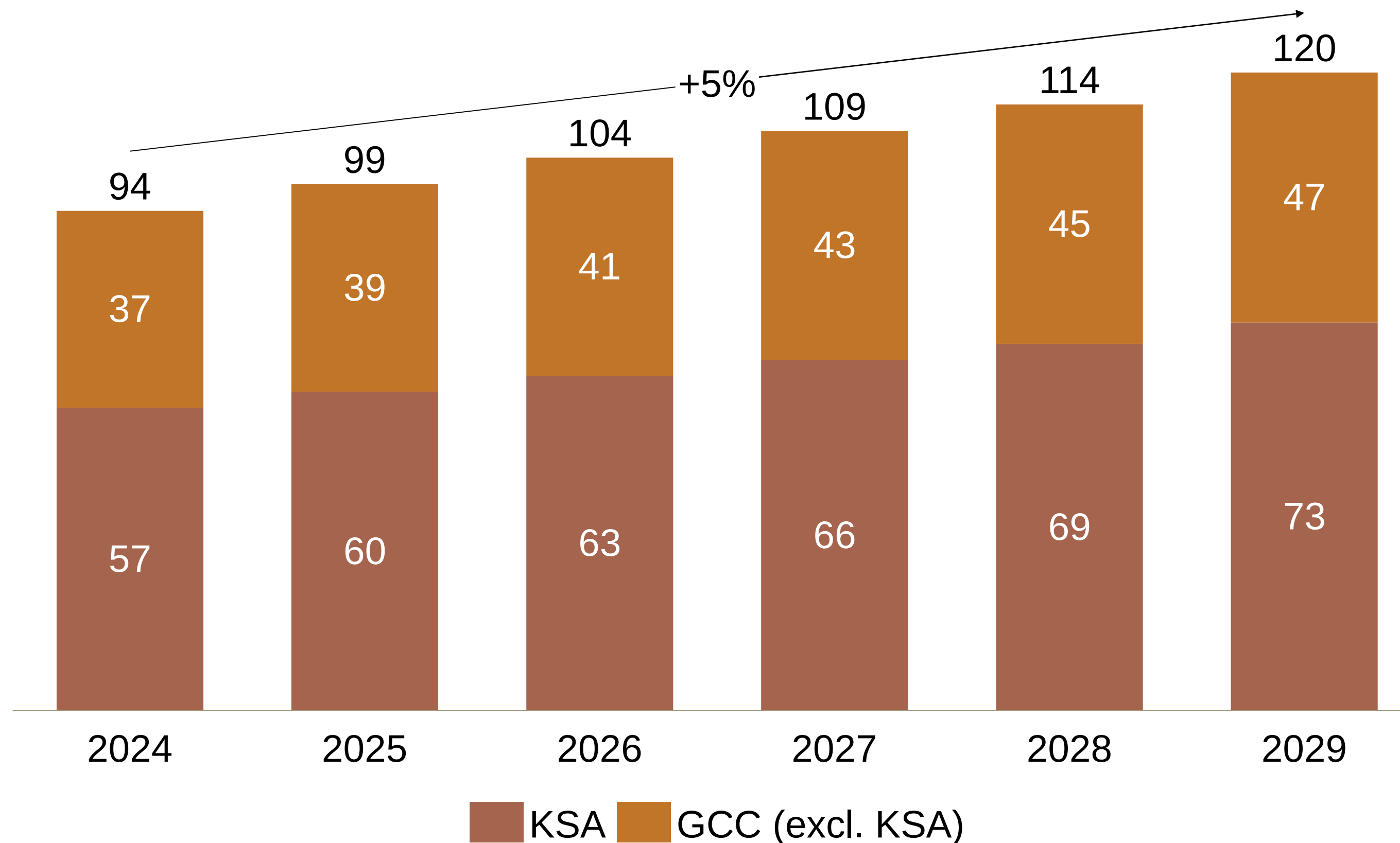
Aramco material numbers 1. 6000002782; 2. 6000002786; 3. 6000002787; 4. 6000002689;

Aramco standards: SAES-J-505; 34-SAMSS-514

Source: Team analysis

Gas Monitoring Equipment Demand, Customers & Drivers

Forecasted KSA and rest of GCC gas monitoring equipment demand market 2024-2029 (Million USD)



Typical customers in KSA



Petrochemical facilities



Oil and gas facilities



Calibration research laboratories

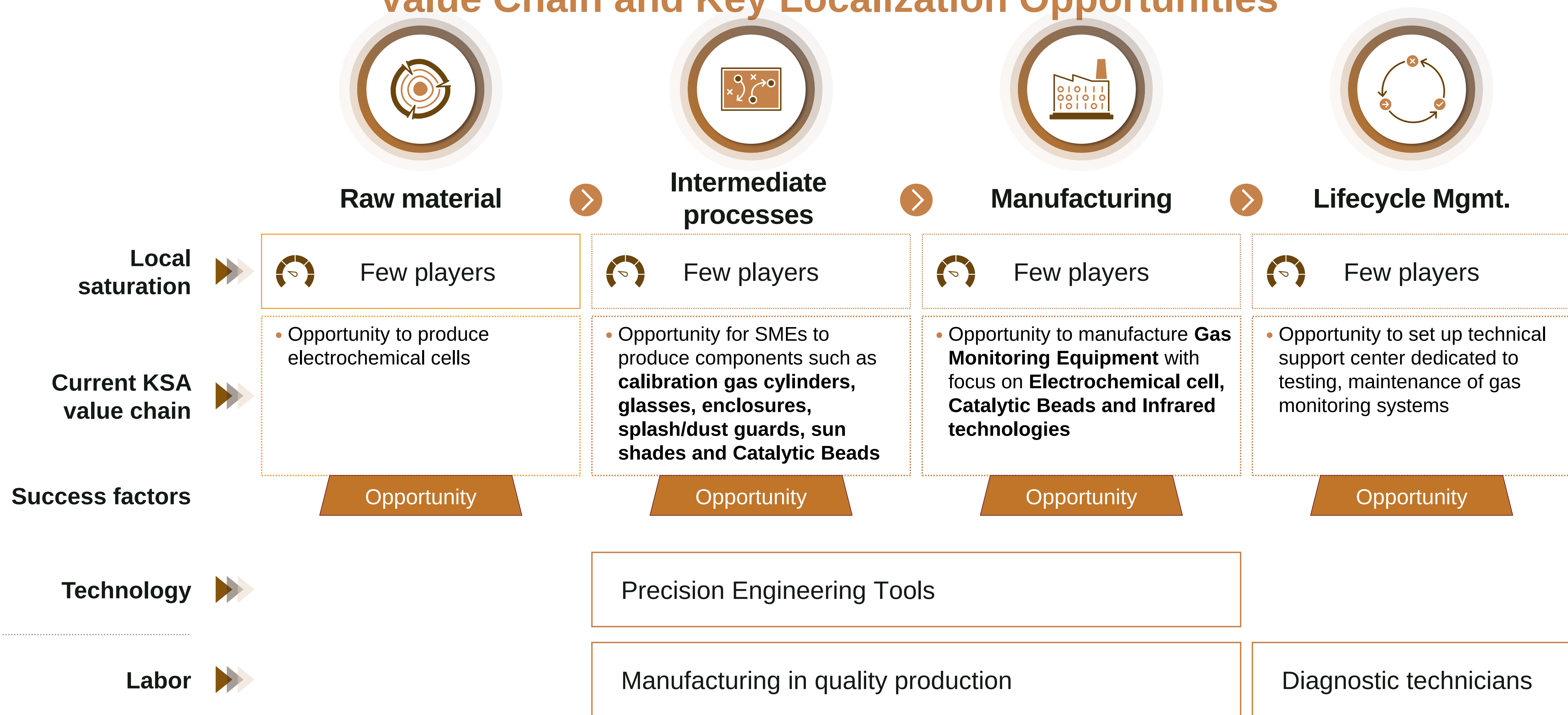
Key KSA demand drivers

- **Sector expansion:** Expansion in petrochemical, refining, industries boosts demand for gas monitoring systems to ensure safe and efficient operations
- **Technological advancements:** Adoption of real-time and wireless gas monitoring enhances accuracy to detect gas leaks

Catalyzing Supply Chains

Gas Monitoring Equipment

Value Chain and Key Localization Opportunities



Catalyzing Supply Chains

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

Gas Monitoring Equipment 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 factories

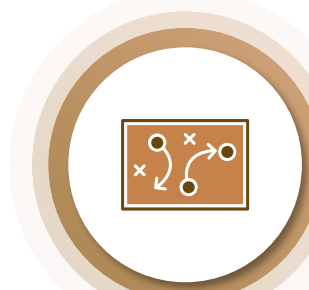
 **Economic & human capital enablers:** HRDF offers loans and grants on training and employment of Saudi nationals

 **Customs relief programs:** Custom duty drawback to importers of raw materials processed for re-export

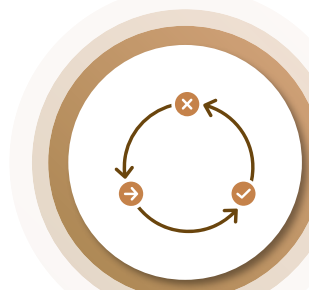
 **Tax incentives:** Gas monitoring systems are eligible for tax exemptions on earning from exports by Zakat, Tax and Customs Authority

Where is the opportunity

 **Raw material:** Opportunity to produce electrochemical cells, catalytic beads & gas calibration cylinders

 **Intermediate processes:** Opportunity for SMEs to produce components such as glasses, enclosures, & sun shades etc.

 **Manufacturing:** Opportunity to develop gas monitoring sensors like infrared, electrochemical cell and R&D centers

 **Lifecycle Mgmt.:** Opportunity to set up technical support center dedicated to testing, maintenance of gas monitoring systems

Catalyzing Supply Chains

Note: 1. Detailed list of all enablers in the backup; SIDF = Saudi Industrial Development Fund; NITI = National Industrial Training Institute; HRDF = Human Resource Development Fund
Source: Team analysis

04

Instrument Tubing, Fittings & Manifolds

Presented by: Mohammad Albeaik

Instrument Tubing, Fittings & Manifolds Opportunity Profile

1

Instrument Tubing, Fittings & Manifolds present an attractive investment opportunity

Types



Fittings



Manifolds



Tubing

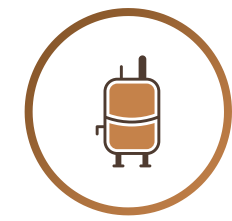
Applications



O&G refining



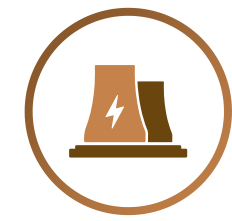
Pipelines



Petrochemical plants



Chemical transportation



Power generation



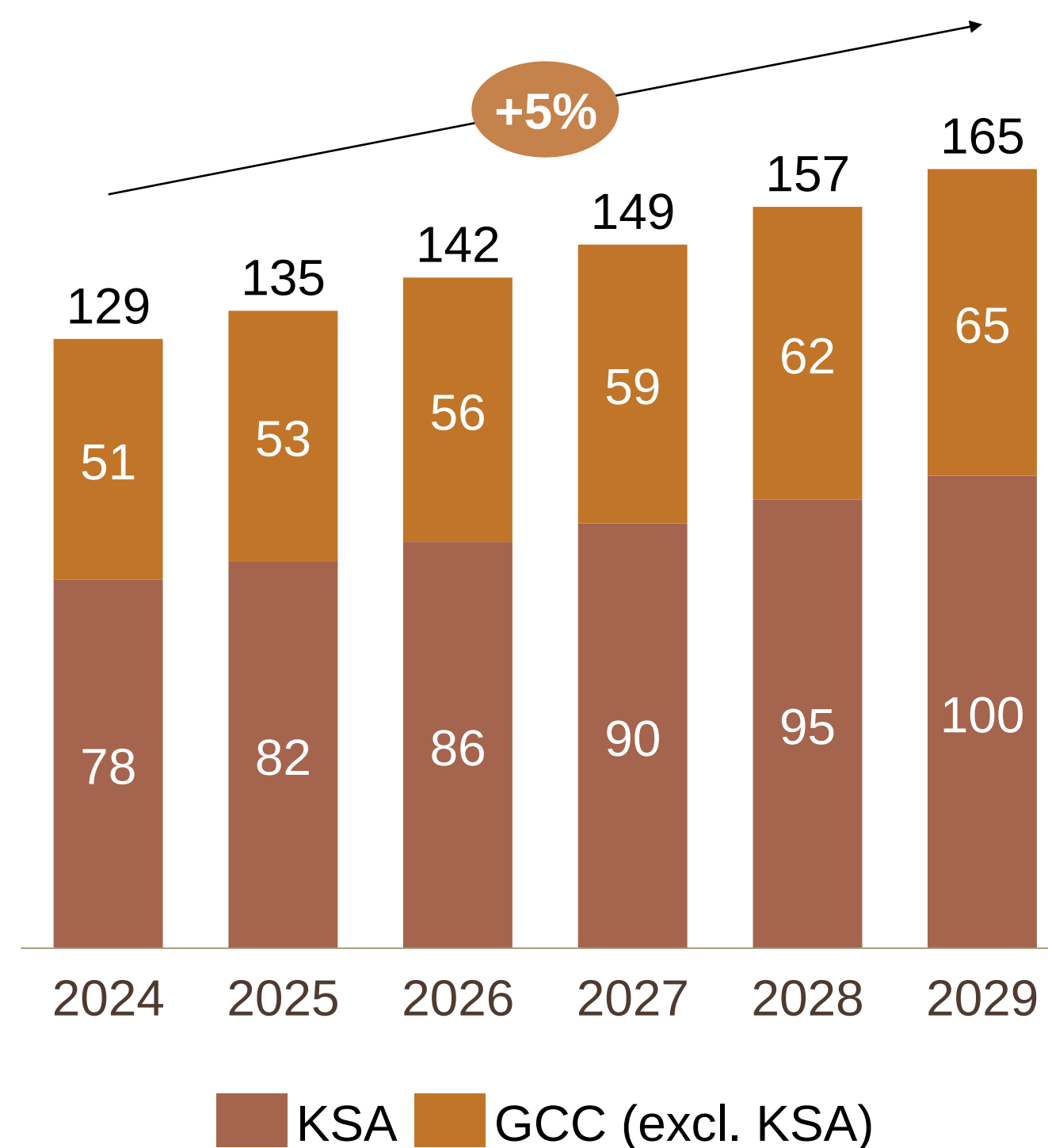
Pressure monitoring

Catalyzing Supply Chains

2

Tubing, fittings and manifolds is a growing market with KSA having largest share

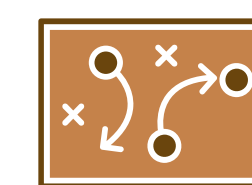
GCC market forecast, (Million USD)



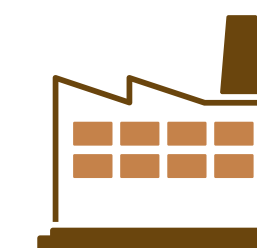
3

Attractive investment opportunities in instrument tubing & fittings value chain

KSA value chain opportunities



Intermediate process



Manufacturing

KSA enablers

- Financial support
- Land and infrastructure
- Technical enablers

Instrument Tubing, Fittings & Manifolds

Potential Localization Categories

Fittings



Examples

- Tubing fittings in stainless steel¹

Applications

- Oil & Gas facilities
- Chemical processing

Tubing



- Metallic instrumentation tubing²
- Heat traced & pre insulated tubes³

- Process Instrumentation
- Safety calibration & testing

Manifolds



- Instrument valve manifolds⁴
- Flowmeter manifolds⁵

9COM 6000000208

9COM 6000000221

9COM 6000014560

9COM 6000002768

9COM 6000002865

Catalyzing Supply Chains

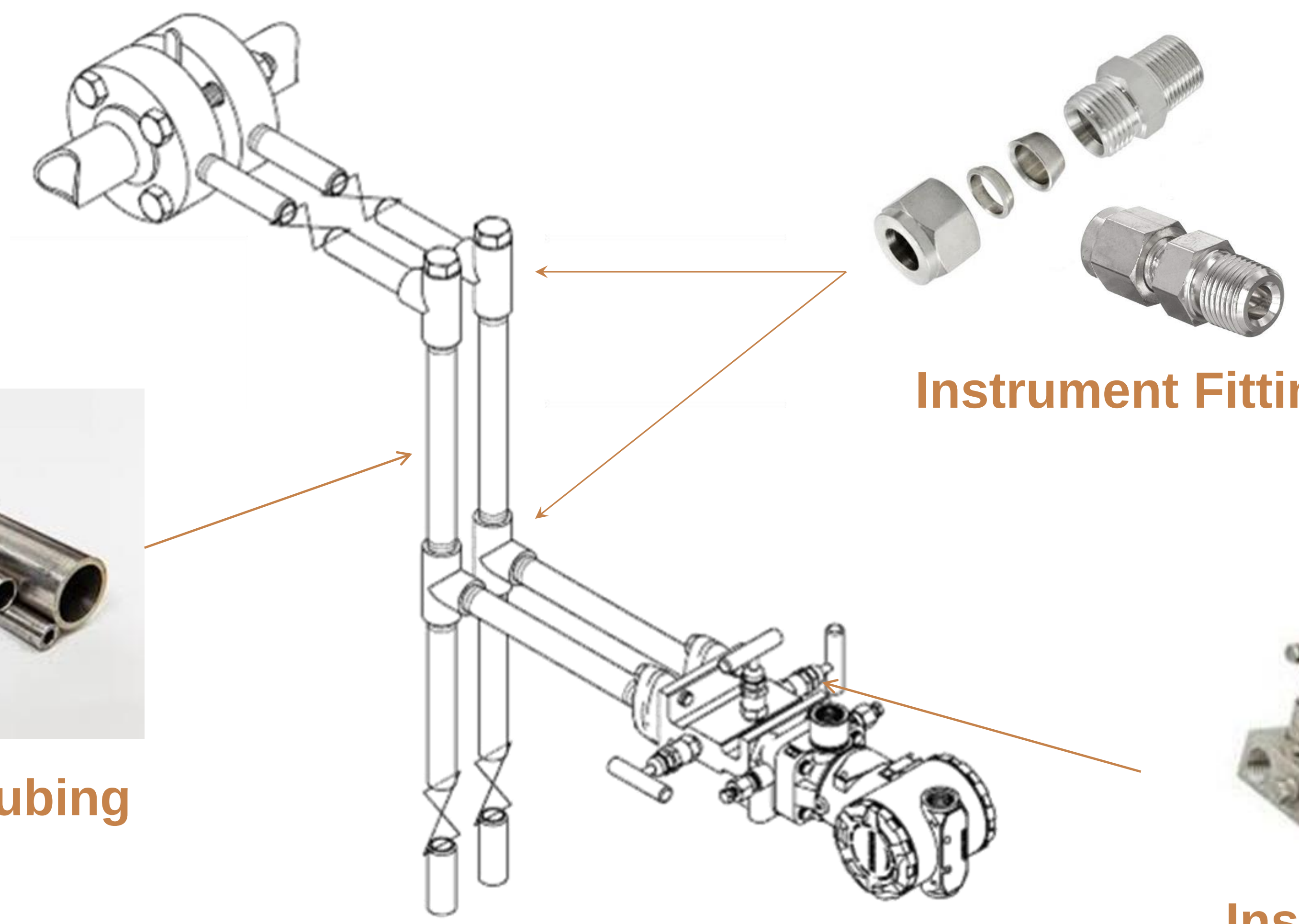
Saudi Aramco 9COM numbers 1. 6000000208; 2. 6000000221; 3. 6000014560; 4. 6000002768; 5. 6000002865

IOGP-S-716 (International Association of Oil & Gas Producers)

Source: Team analysis

Instrument Tubing, Fittings & Manifolds

Typical Components



Instrument Tubing

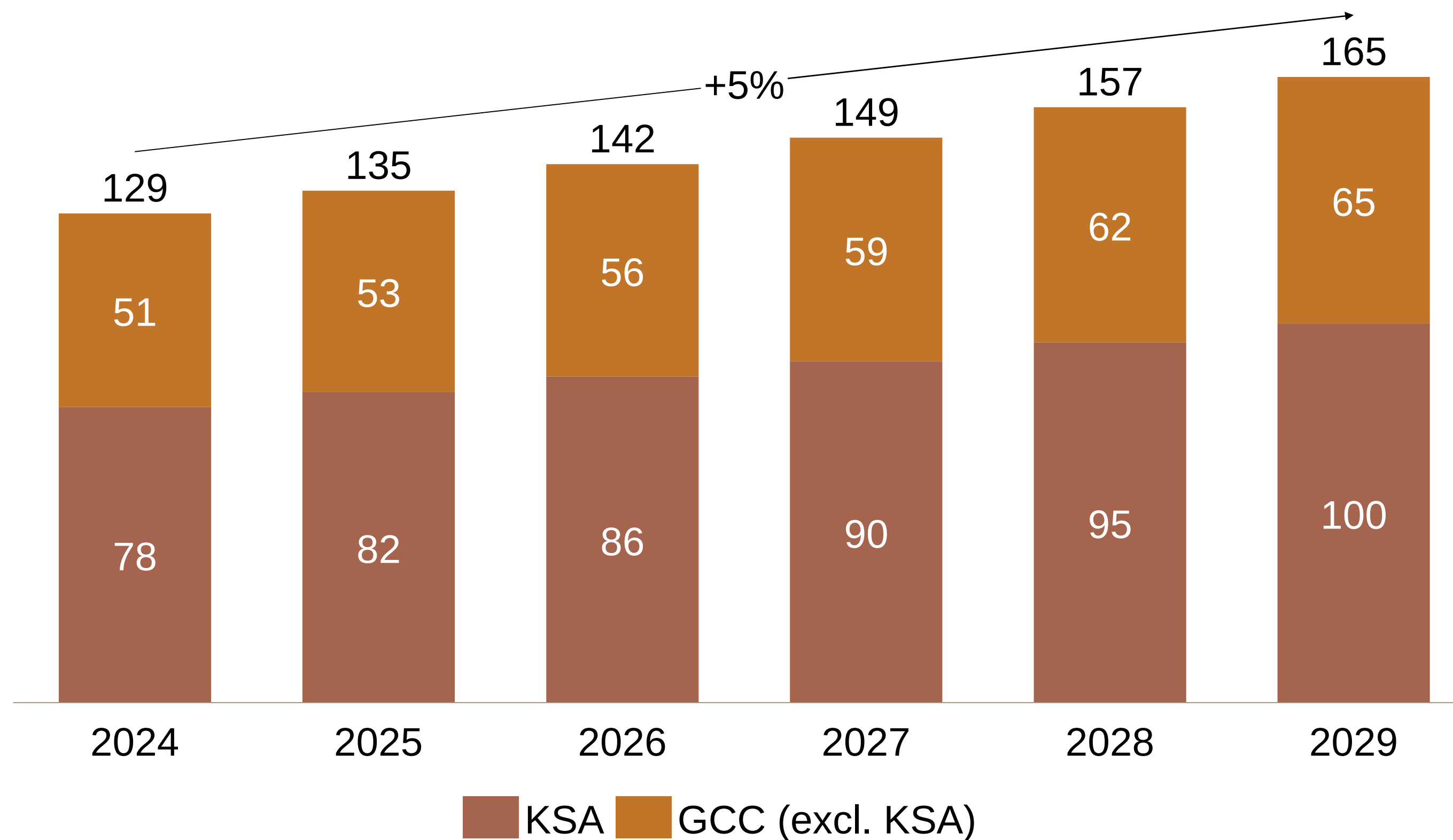
Instrument Fittings



Instrument Manifold

Instrument Tubing, Fittings & Manifolds Demand, Customers & Drivers

Forecasted KSA and rest of GCC Instrument tubing, fittings and manifolds market 2024-2029 (Million USD)



Typical customers in KSA

-  Oil & gas facilities
-  Petrochemical plants
-  Power generation and utilities

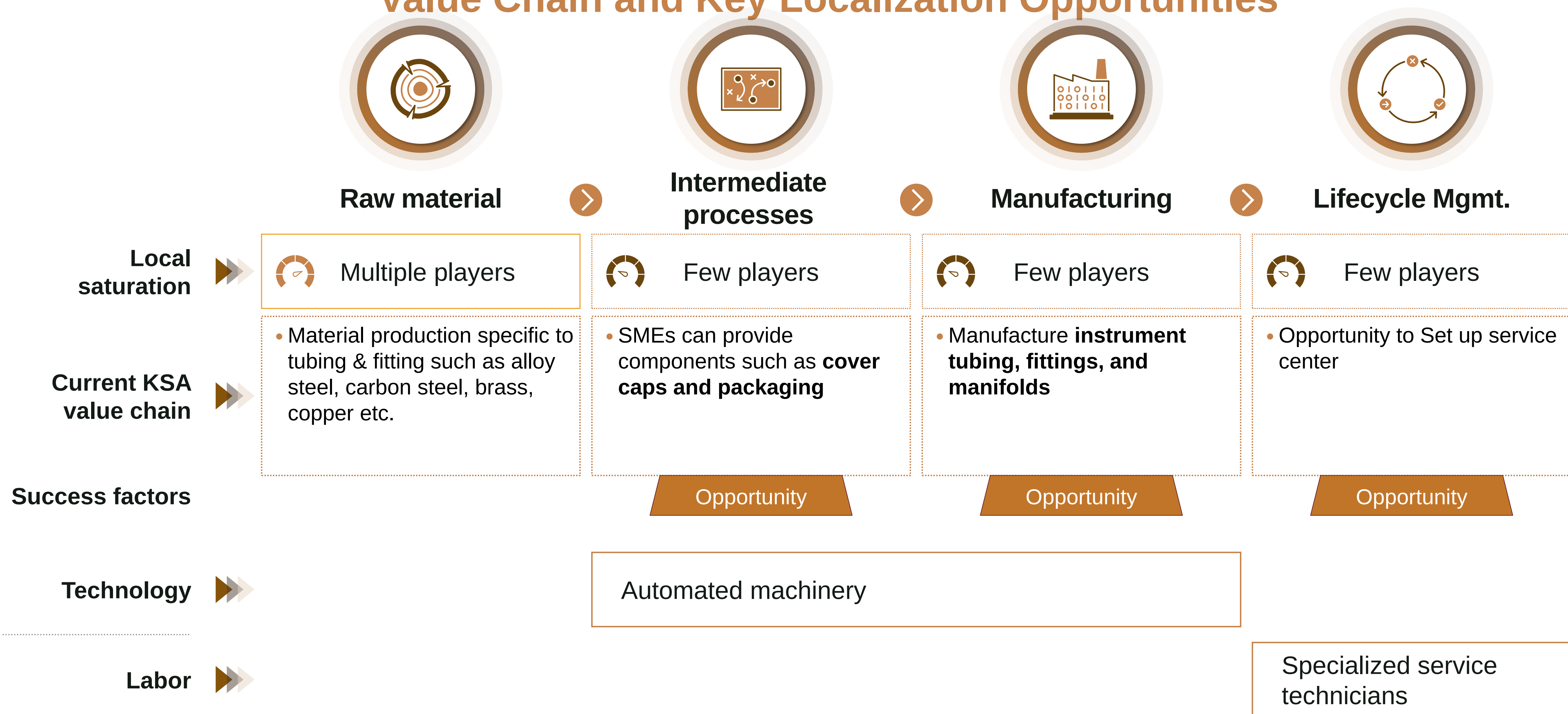
Key KSA demand drivers

- **Technological developments:** Demand for precision and reliability in automated systems boosts tubing and fittings requirements in critical industries
- **Infrastructure projects:** Mega projects like NEOM and industrial hubs demand robust instrument tubing and manifold systems to support complex installations

Catalyzing Supply Chains

Instrument Tubing, Fittings & Manifolds

Value Chain and Key Localization Opportunities



Catalyzing Supply Chains

Note: 1. Monitoring systems, pressure and flow sensors etc. Lifecycle management including all post-production services, including installation
Source: Team analysis

Instrument Tubing, Fittings & Manifolds

Investment Opportunity and Enablers

Key enablers in KSA to drive success¹



Financial programs: Access to financial support from Nusaned by SABIC for scale up production capabilities for items such as tubings and fittings

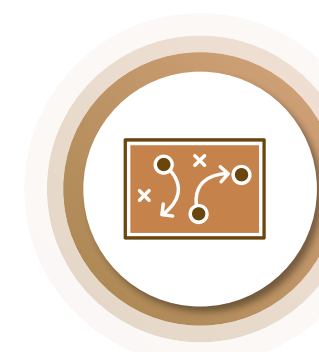


Economic & human capital enablers: National training centers such as NITI offering specialized training for tubing and fitting essentials



Customs relief programs: Custom duty drawback to importers of raw materials processed for re-export

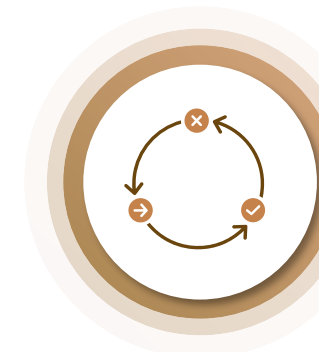
Where is the opportunity



Intermediate processes: SMEs can produce tubing, fittings, and additional support components such as cover caps and packaging



Manufacturing: Expand instrument tubing and fittings production and tailor design through established R&D centers



Lifecycle Mgmt.: Set up service center for technical consultation, testing and inspection, and spare parts

Catalyzing Supply Chains

Note: 1. Detailed list of all enablers in the backup; NITI = National Industrial Training Institute
Source: Team analysis

05

Water Quality Analyzer

Presented by: Mohammad Albeaik

Water Quality Analyzer Opportunity Profile

1

Water Quality Analyzer present an attractive investment opportunity

Components



Transmitters

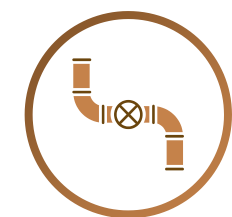


Probes

Applications



Wastewater treatment



Desalination plants

Example



pH monitoring

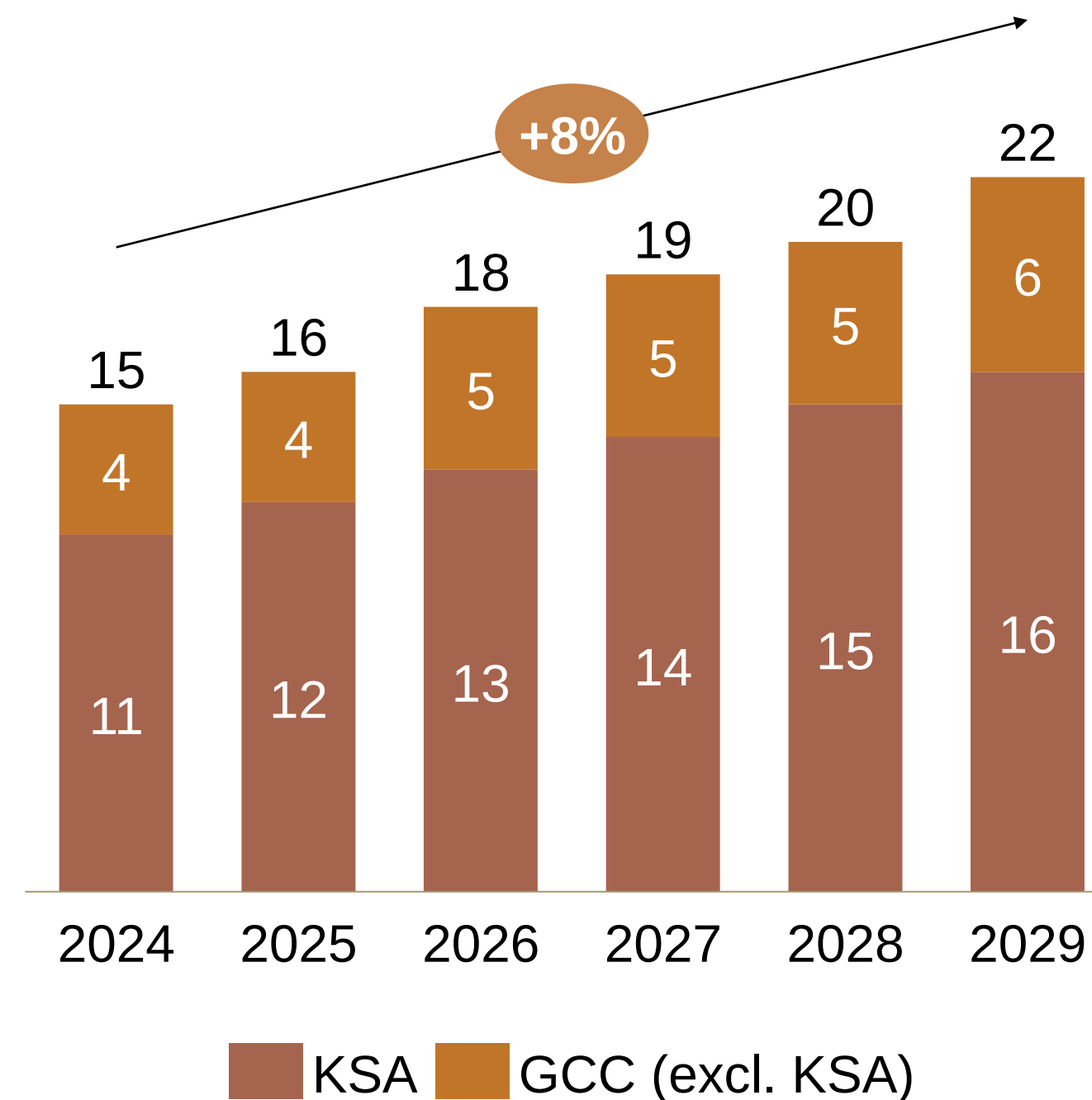


Saline measurement

2

Water quality analyzers market is sizeable with steady growth forecasted

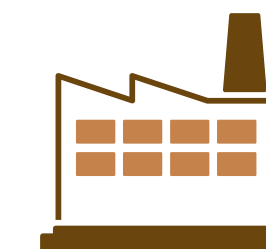
GCC market forecast, (Million USD)



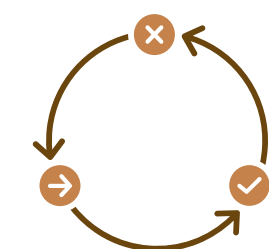
3

Attractive investment opportunities in water quality analyzers

KSA value chain opportunities



Manufacturing



Lifecycle Mgmt.

KSA enablers

- Financial support
- Land and infrastructure
- Technical enablers

Catalyzing Supply Chains

Water Quality Analyzer

Potential Localized Categories

Transmitters



Probes



9COM 6000002667

Applications

- Real-time monitoring of water quality
- Quality control in process water
- Saline measurement
- pH monitoring
- Chlorine monitoring

Catalyzing Supply Chains

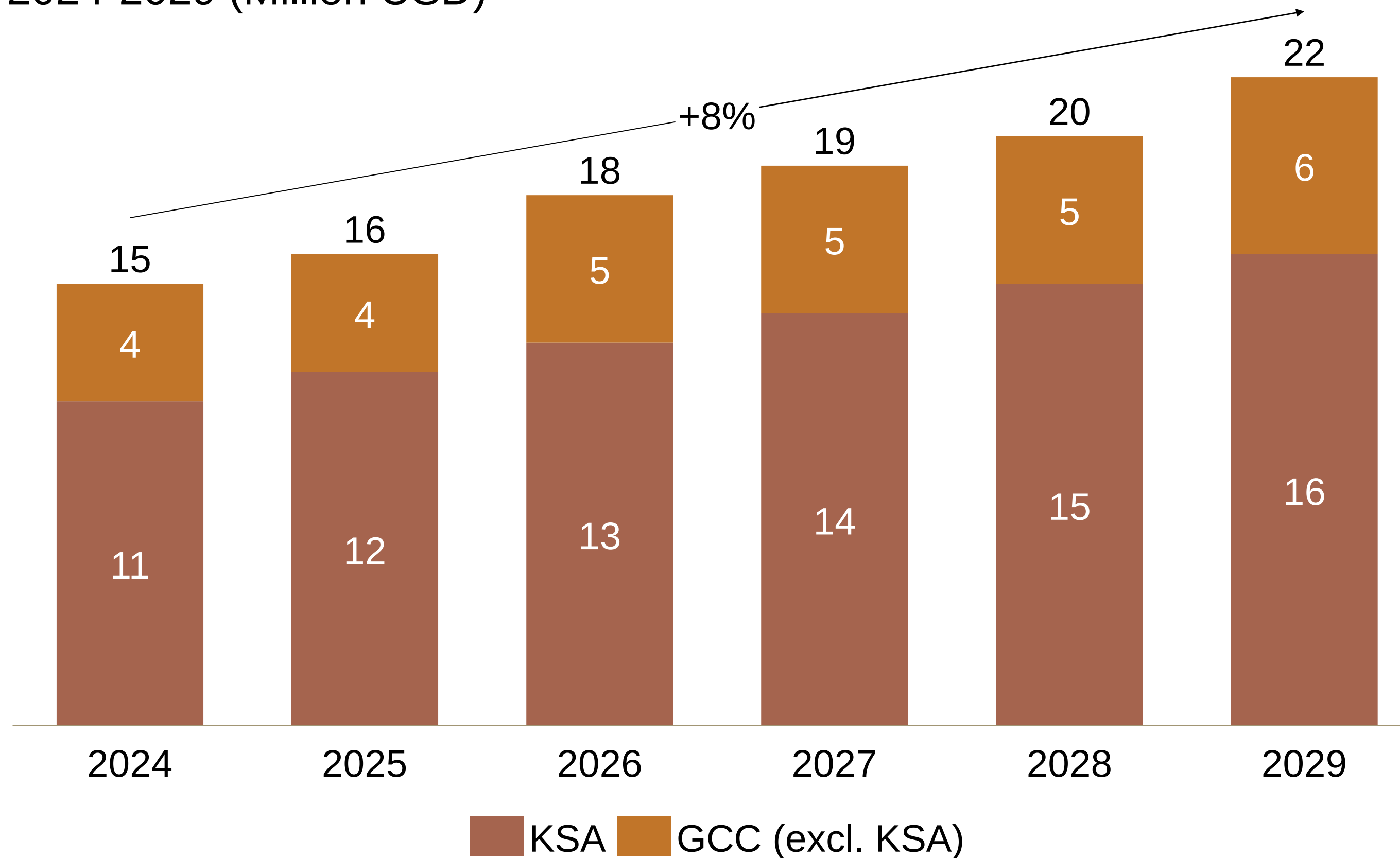
Saudi Aramco 9COM number: Water quality analyzer 6000002667

Saudi Aramco Material Specification (34-SAMSS-510) and Saudi Aramco Engineering Standards (SAES-J-510)

Source: Team analysis

Water Quality Analyzer Demand, Customers & Drivers

Forecasted KSA and rest of GCC water quality analyzers market
2024-2029 (Million USD)



Typical customers in KSA



Desalination plants



Municipal water treatment facilities



Power generation and utilities

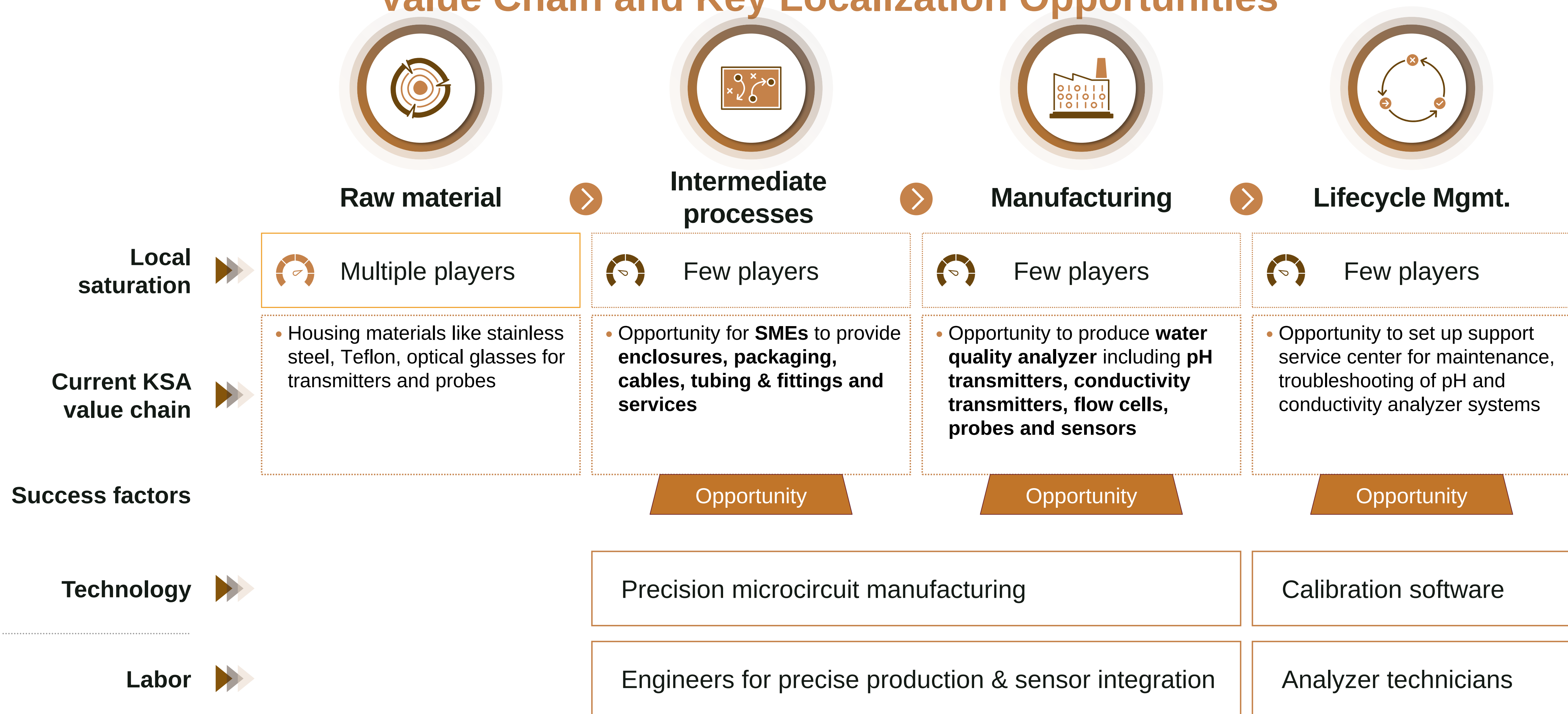
Key KSA demand drivers

- **Consumer industry:** Existing regulatory standards for water quality in Kingdom drives the demand from industry, power generating and utilities sectors for monitoring equipment
- **Economic and demographic factors:** Expanding urban centers, demand for clean water, leading to increased investment in water infrastructure and quality monitoring

Catalyzing Supply Chains

Water Quality Analyzer

Value Chain and Key Localization Opportunities



Catalyzing Supply Chains

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

Water Quality Analyzer

Investment Opportunity and Enablers

Key enablers in KSA to drive success¹

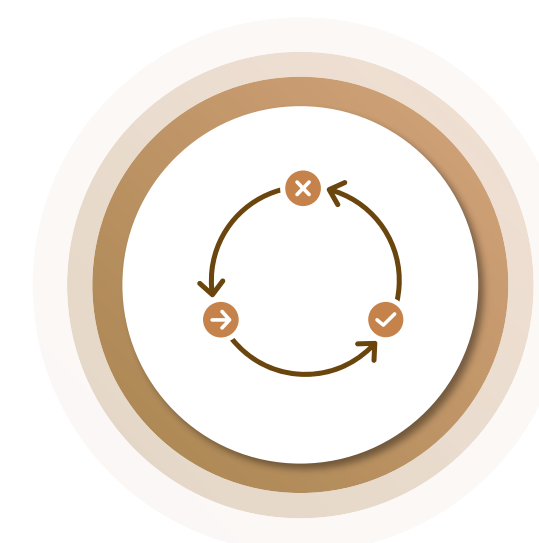
-  **Financial programs:** Access to financial loans from SIDF through programs e.g. Kafalah to establish factories
-  **Customs relief programs:** Custom duty drawback to importers of raw materials processed for re-export
-  **Tax incentives:** Water quality analyzer manufacturing eligible for tax exemptions on earnings from exports through Zakat, Tax and Customs Authority

Where is the opportunity



Manufacturing

Opportunity to produce pH and conductivity analyzers, including transmitters, flow cells etc.



Lifecycle Management

Opportunity to set up support service center for maintenance, troubleshooting of pH and conductivity analyzer systems

Catalyzing Supply Chains

Note: 1. Detailed list of all enablers in the backup; SIDF = Saudi Industrial Development Fund;
Source: Team analysis

06

Level Measurement

Presented by: Abeer Alkaaki

Level Measurement Opportunity Profile

1

Level Measurement present an attractive investment opportunity

Types



Magnetic level gauge



Glass level gauge

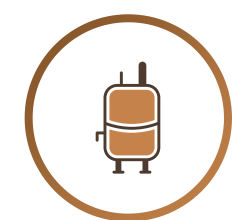


Guided wave radar



Calibration gas cylinders

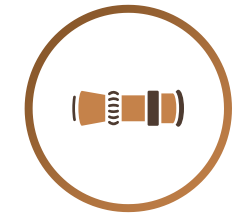
Applications



Petrochemical plants



O&G refineries



Water treatment facilities

Example



Petrochemical tanks



Oil storage tanks



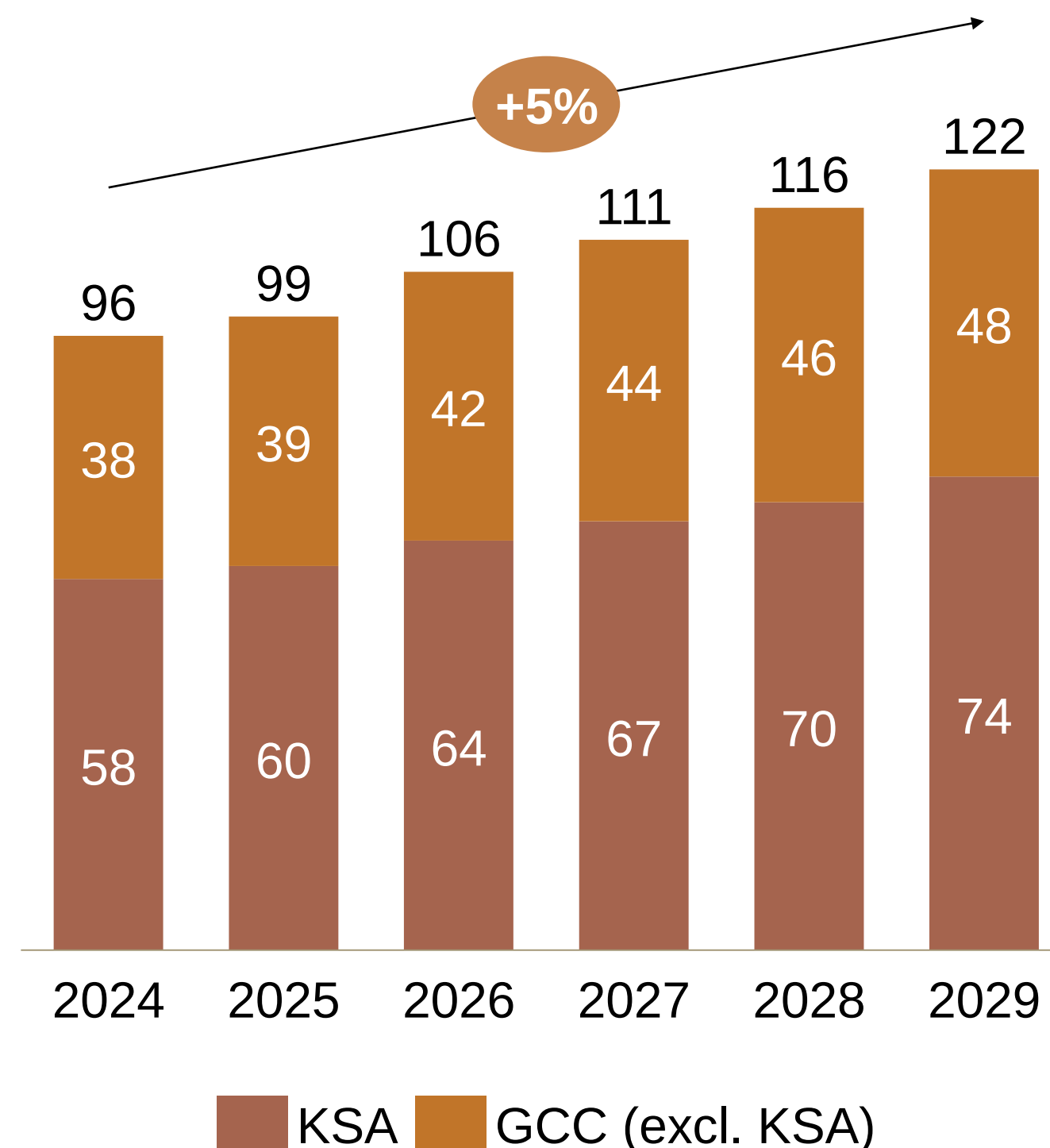
Water treatment clarifiers

Catalyzing Supply Chains

2

Level measurement market is sizeable with forecasted growth

GCC market forecast, (Million USD)



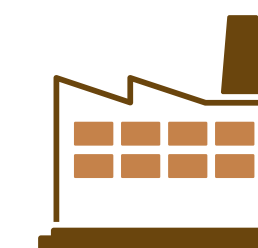
3

Attractive investment opportunities in for the Level measurement value chain

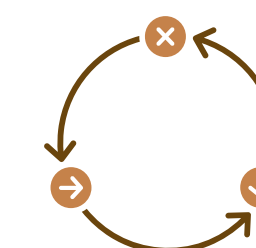
KSA value chain opportunities



Raw material



Manufacturing



Lifecycle Management

KSA enablers

- Financial support
- Land and infrastructure
- Technical enablers

Level Measurement Potential Localized Categories

**Magnetic level
gauge¹**



9COM 6000002765

**Glass level
gauge²**



9COM 6000002886

**Guided wave
radar³**



9COM 6000007390

**Differential
Pressure⁴**



9COM 6000002849

Applications

- Oil & Gas facilities
- Chemical storage tanks
- Boiler feedwater systems

- Refinery tanks
- Petrochemical mixing & storage tanks
- Water storage tanks

Catalyzing Supply Chains

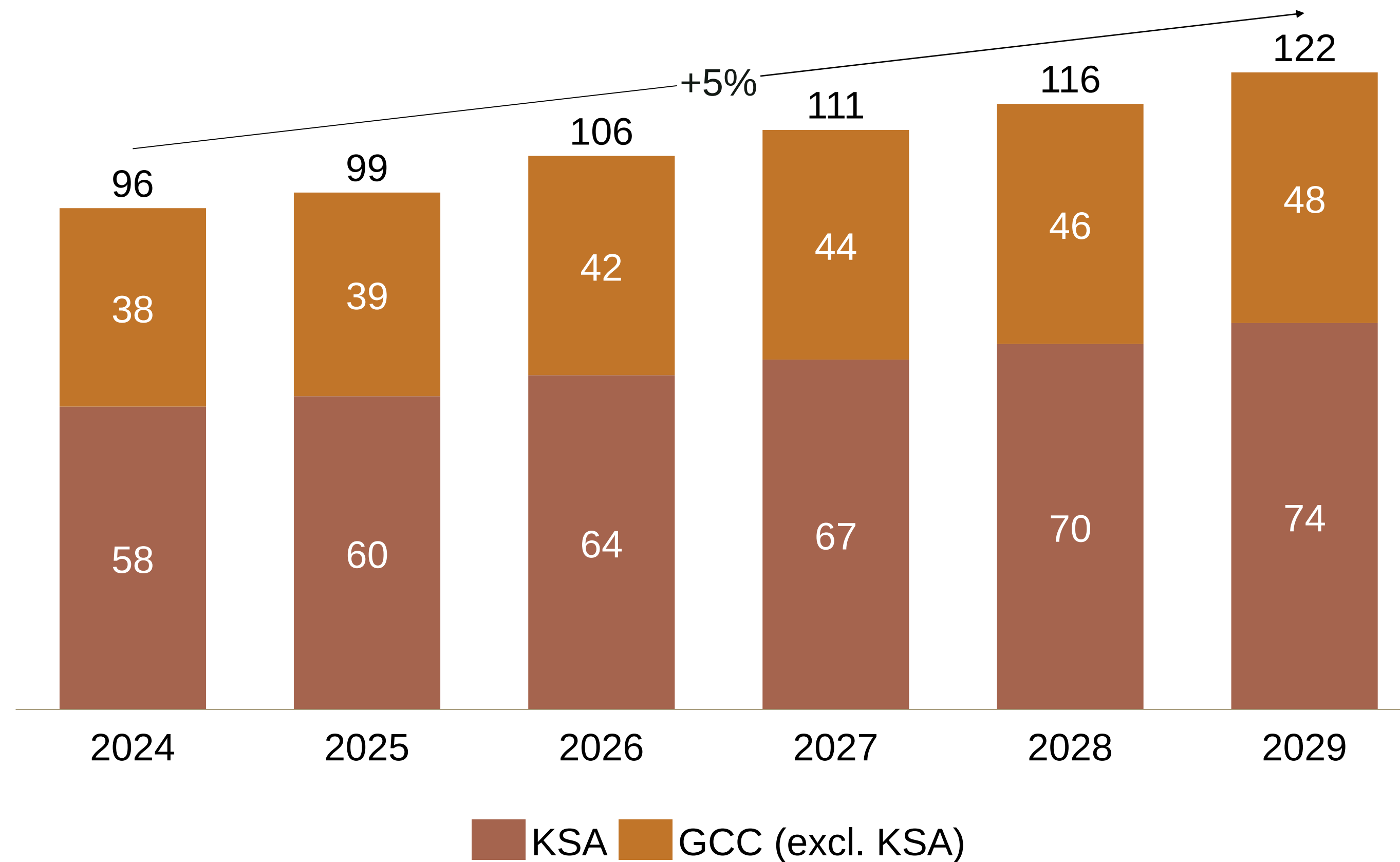
Aramco material numbers 1. 6000002765 2. 6000002886 3. 6000007390 4. 6000002849

Aramco standards: 34-SAMSS-010; IOGP-S-718

Source: Team analysis

Level Measurement Demand, Customers & Drivers

Forecasted KSA and rest GCC Level measurement demand market
2024-2029 (Million USD)



Typical customers in KSA



National water company



Chemical production plants



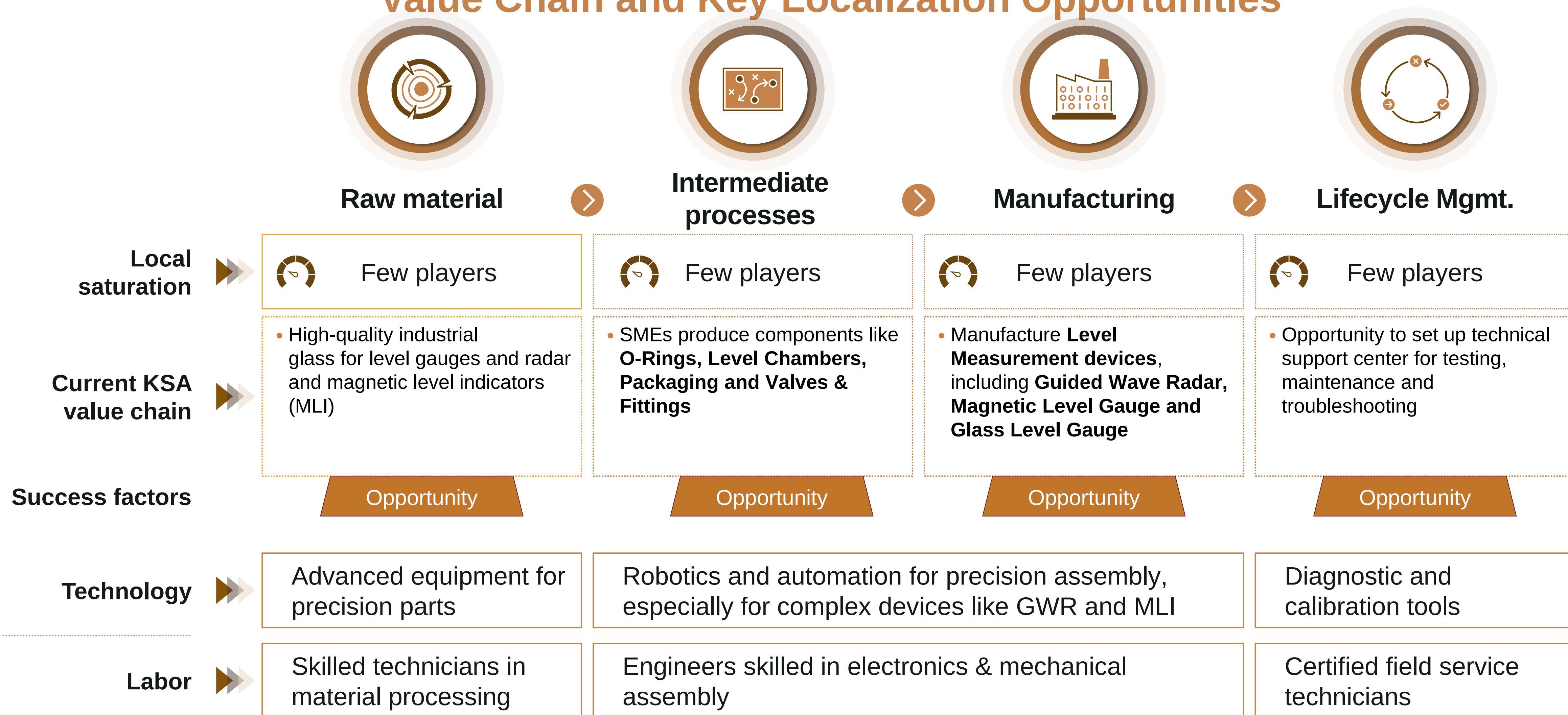
Industrial facilities

Key KSA demand drivers

- **Industry trends:** The expanding industrial base fuels the need for reliable level measurement systems to monitor storage tanks, silos, and processing units
- **Sector expansion:** Sectors like oil & gas and petrochemicals are expanding, leading to additional need for precise level measurement systems

Level Measurement

Value Chain and Key Localization Opportunities



Catalyzing Supply Chains

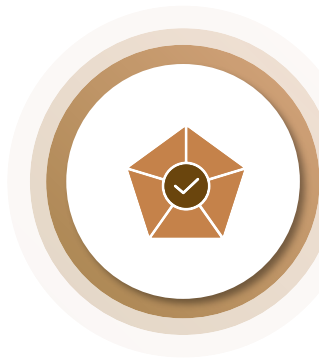
Note: Lifecycle management including all post-production services, including installation
Source: Team analysis

Level Measurement Investment Opportunity and Enablers

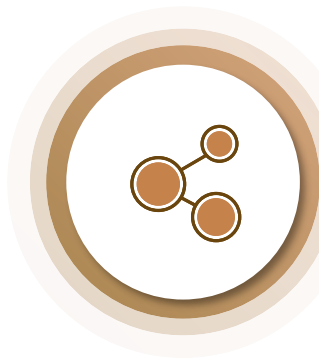
Key enablers in KSA to drive success



Subsidies and financial programs: Access to financial loans from SIDF through programs e.g. Kafalah to establish factories



Economic & human capital enablers: National training centers such as NITI offering specialized training for level measurement and instrumentation



Subsidized services: Guided programs for SMEs in level measurement components production to connect with other entrepreneurs and businesses

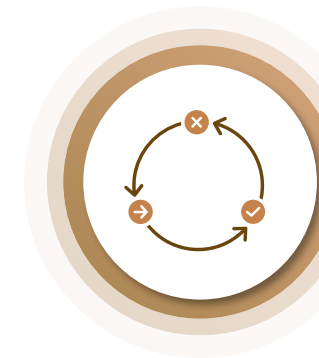
Where is the opportunity



Raw material: High-quality industrial glass and components



Manufacturing: Measurement devices, including guided wave radar (GWR), MLI, and level gauge glass



Lifecycle Mgmt.: Set up technical support center for testing, maintenance and troubleshooting

Catalyzing Supply Chains

Note: 1. Detailed list of all enablers in the backup; SIDF = Saudi Industrial Development Fund; NITI = National Industrial Training Institute
Source: Team analysis

07 Flow Measurement

Presented by: Abeer Alkaaki

Flow Measurement Opportunity Profile

1

Flow Measurement present an attractive investment opportunity

Types



Applications



Power generation



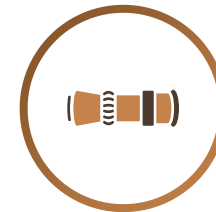
Chemical storage



Oil & gas refineries



Oil pipelines



Water treatment plants



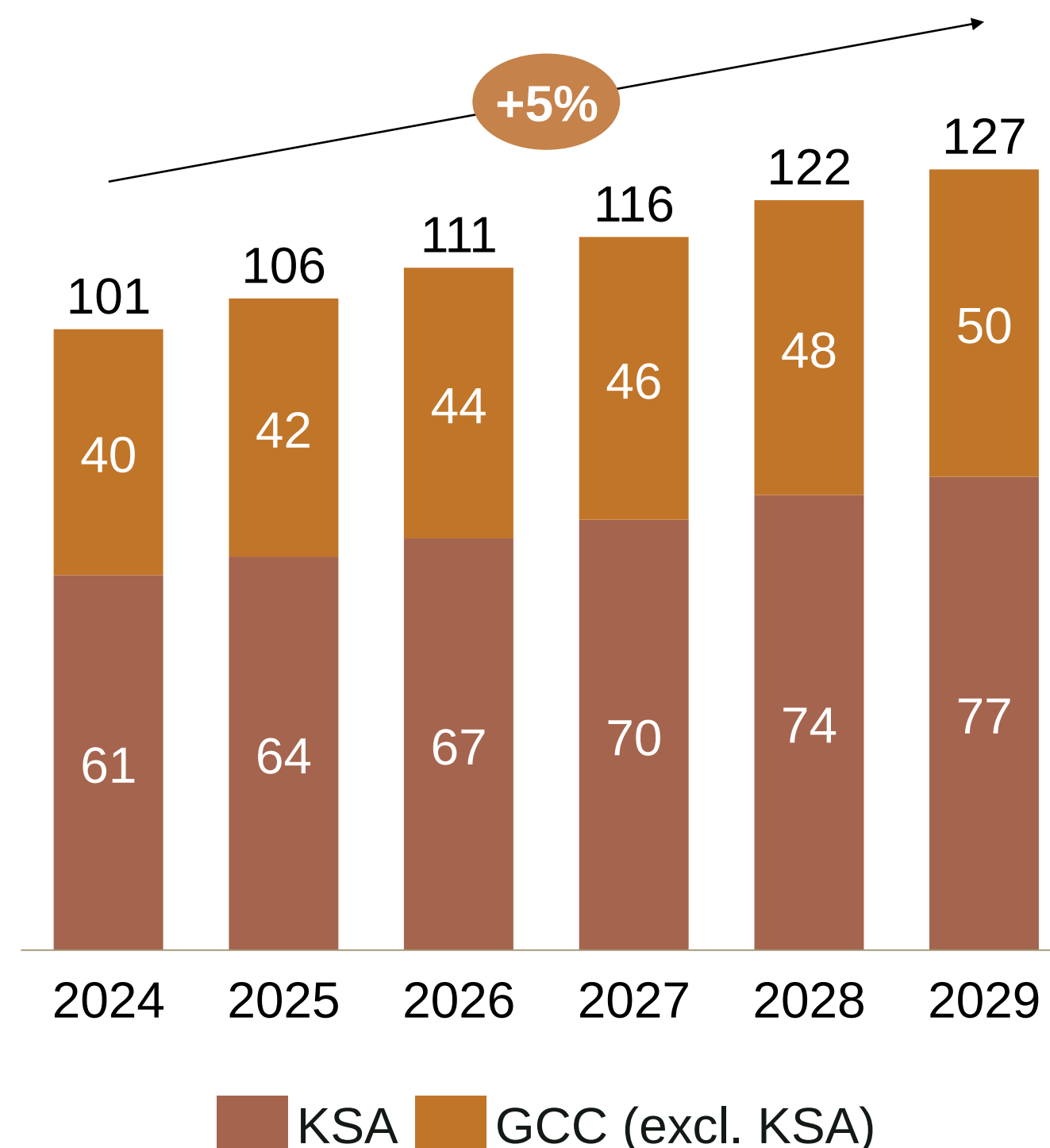
Flow Measurement pressure

Catalyzing Supply Chains

2

Flow measurement market is sizeable with steady forecasted growth

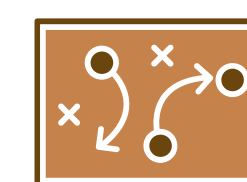
GCC market forecast, (Million USD)



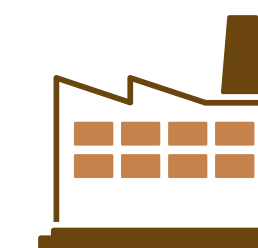
3

Attractive investment opportunities in for the flowmeters value chain

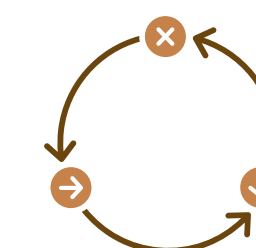
KSA value chain opportunities



Intermediate process



Manufacturing



Lifecycle Mgmt.

KSA enablers

- Financial support
- Land and infrastructure
- Technical enablers

Flow Measurement Potential Localized Categories

Magnetic flowmeter ¹	Venturi flowmeter ²	Coriolis flowmeter ³	Ultrasonic flowmeter ⁴	Orifice flowmeter ⁵
				
9COM 6000002735	9COM 6000002738	9COM 6000007215	9COM 6000002915	9COM 6000002792

Applications

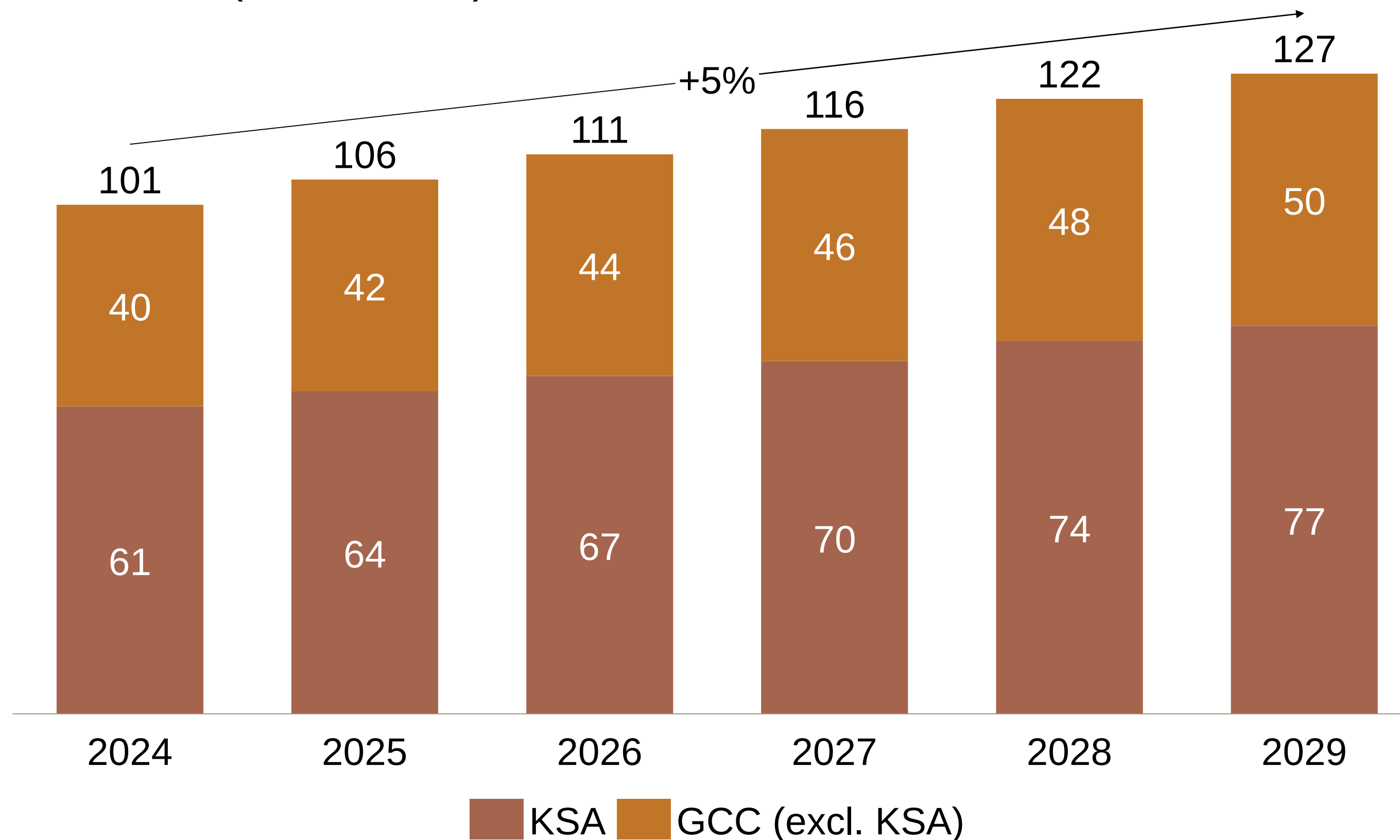
- Oil and Gas facilities
- Wastewater treatment systems
- Chemical process lines
- Desalination pipelines
- Power
- Petrochemical plants

Catalyzing Supply Chains

Aramco material numbers 1. 6000002735 2. 6000007215 3. 6000002915 4. 6000002738 5. 6000002792
Aramco standards: 34-SAMSS-010; IOGP-S-718
Source: Team analysis

Flow Measurement Demand, Customers & Drivers

Forecasted KSA and rest of GCC Flow Measurement demand market
2024-2029 (Million USD)



Typical customers in KSA



Oil & Gas facilities



Chemical production plants



Power generation plants

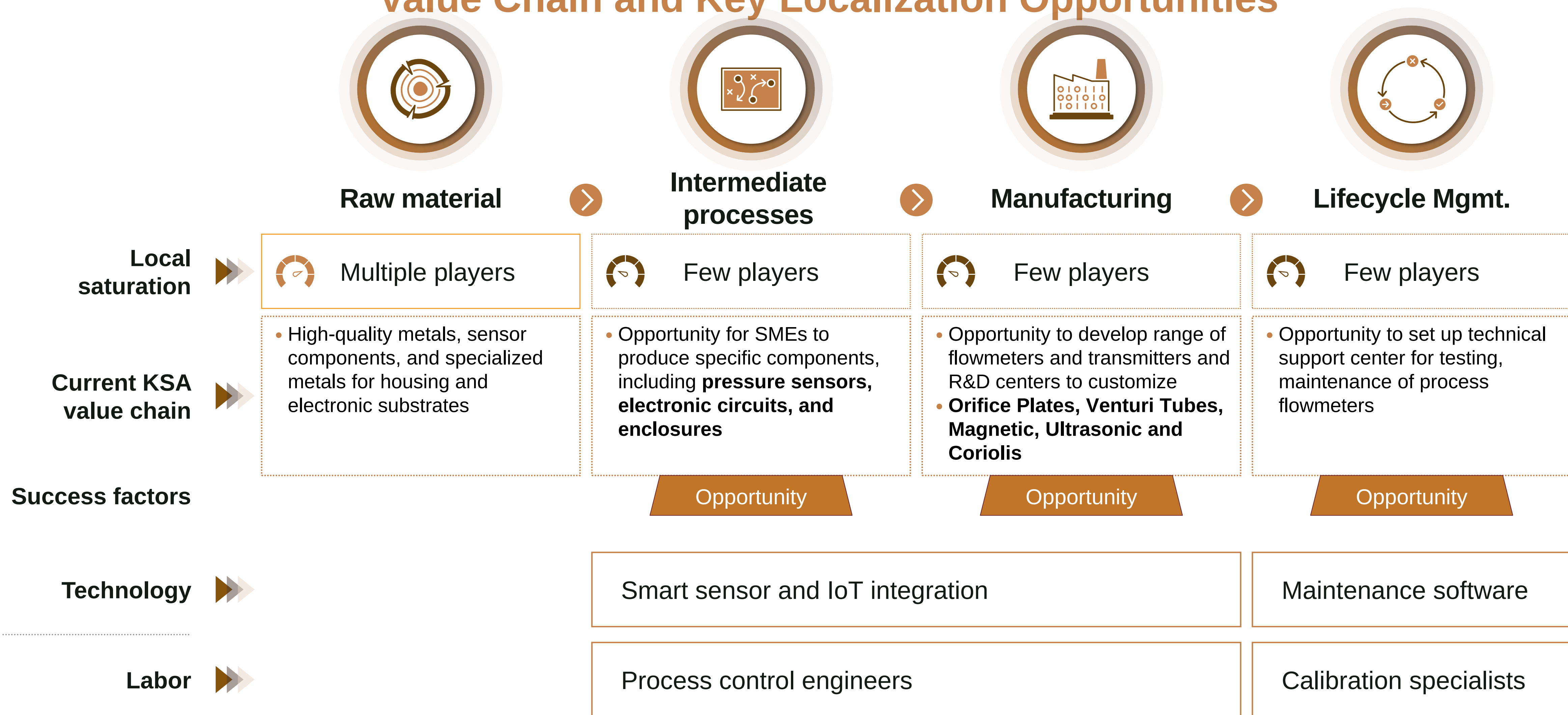
Key KSA demand drivers

- **Industry trends:** Focus on preventing leaks and minimizing emissions necessitate advanced and reliable flow measurement
- **Mega projects:** Infrastructure expansions in KSA megaprojects are leading to heightened requirements for flow measurement in new facilities

Catalyzing Supply Chains

Flow Measurement

Value Chain and Key Localization Opportunities



Catalyzing Supply Chains

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

Flow Measurement Investment Opportunity and Enablers

Key enablers in KSA to drive success



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

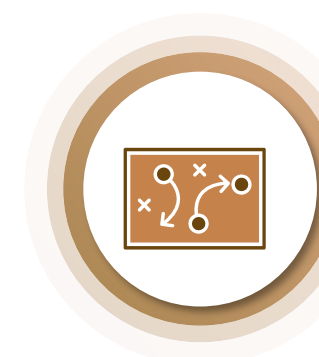


Market privileges: Procurement privileges by GPA for locally manufactured flowmeters and flow measurement to increase demand for local production



Tax incentives: Flow measurement systems manufacturing eligible for tax exemptions on earning from exports through Zakat, Tax and Customs Authority

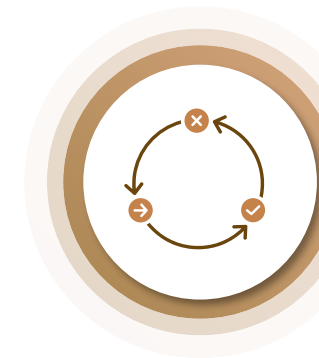
Where is the opportunity



Intermediate processes: Opportunity for SMEs to produce specific components, including pressure sensors, electronic circuits, and enclosures



Manufacturing: Opportunity to develop range of flowmeters and transmitters and R&D centers to customize



Lifecycle Mgmt.: Opportunity to set up technical support center for testing, maintenance of process flowmeters

Catalyzing Supply Chains

08

Pressure regulators and Valves actuators

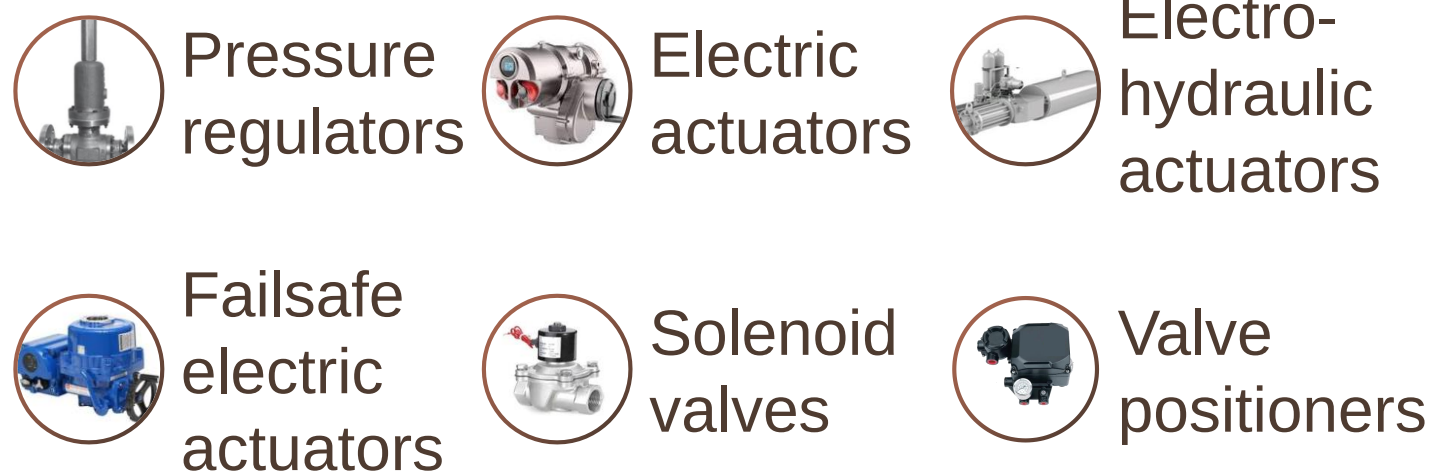
Presented by: Abeer Alkaaki

Pressure Regulators & Valves Actuators Opportunity Profile

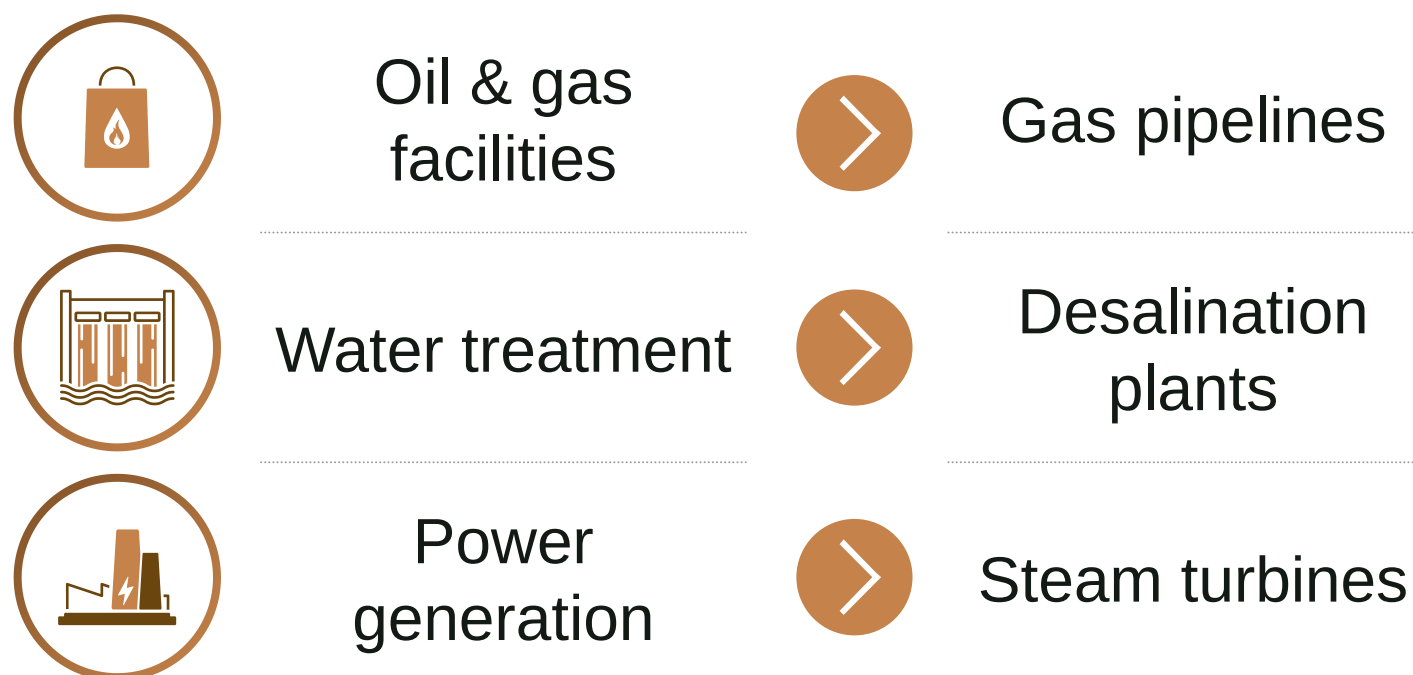
1

Pressure Regulators & Valves Actuators present an attractive investment opportunity

Types



Applications

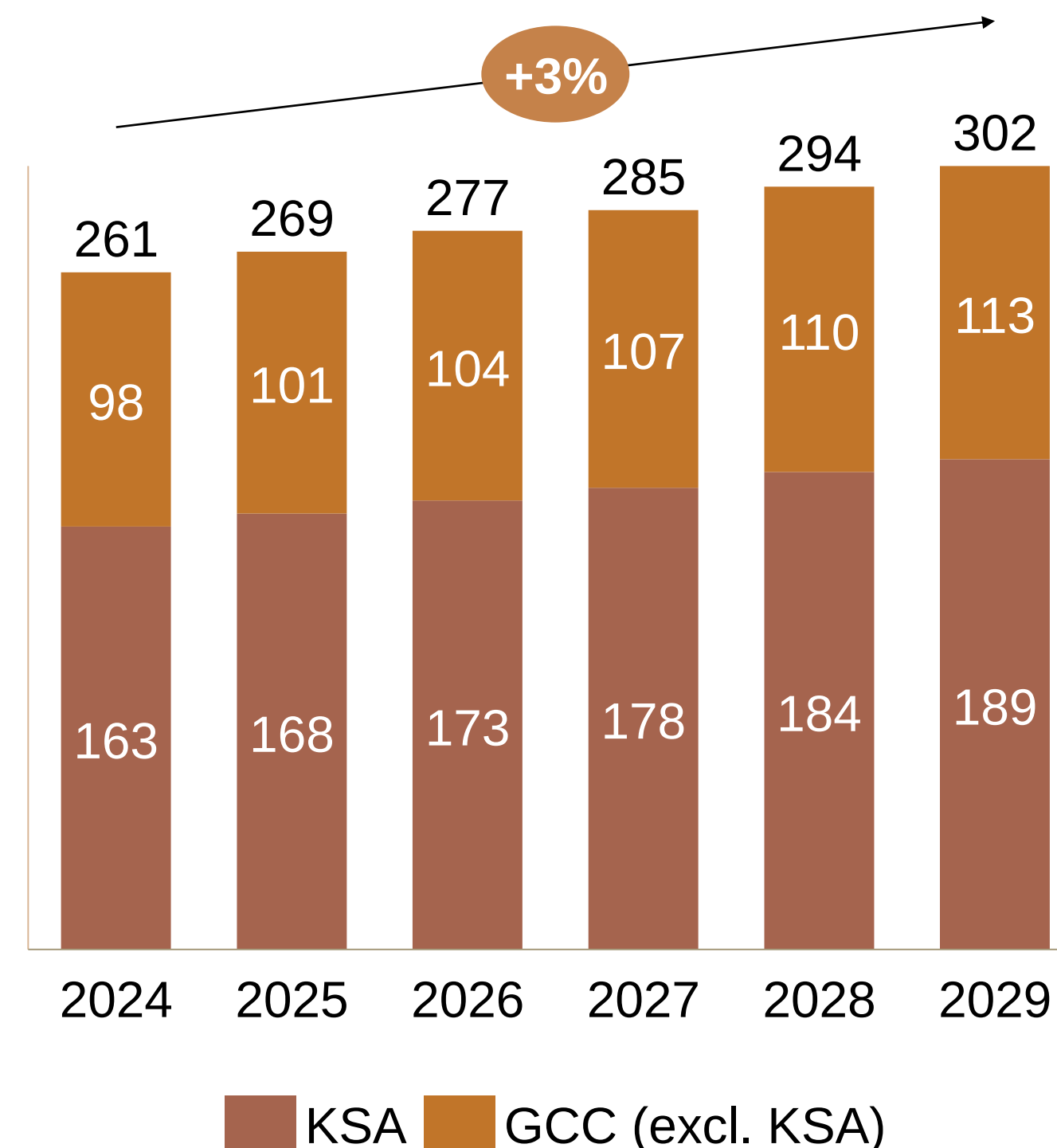


Catalyzing Supply Chains

2

KSA having largest market share in the region on a growing market

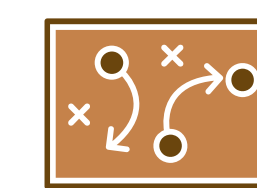
GCC market forecast, (Million USD)



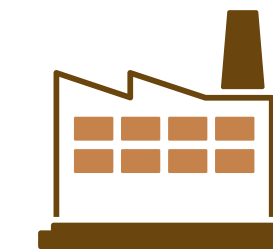
3

Attractive investment opportunities for regulators & valves actuators

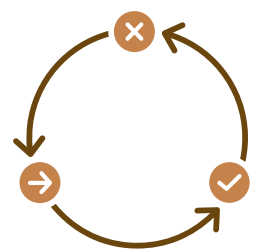
KSA value chain opportunities



Intermediate process



Manufacturing



Lifecycle Mgmt.

KSA enablers

- Financial support
- Land and infrastructure
- Technical enablers

Pressure Regulators & Valves Actuators

Potential Localized Categories

Pressure regulators ¹	Electric actuators ²	Electro-hydraulic actuators ³	Failsafe electric actuators ⁴	Solenoid valves ⁵	Valve positioners ⁶
					
9COM 6000002810	9COM 6000002901	9COM 6000002902	9COM 6000010821	9COM 6000002871	9COM 6000002797

Applications

- Oil & gas transmission pipelines
- Refinery process control
- Petrochemical pipelines
- Water treatment flow regulation
- HVAC systems
- Control systems

Catalyzing Supply Chains

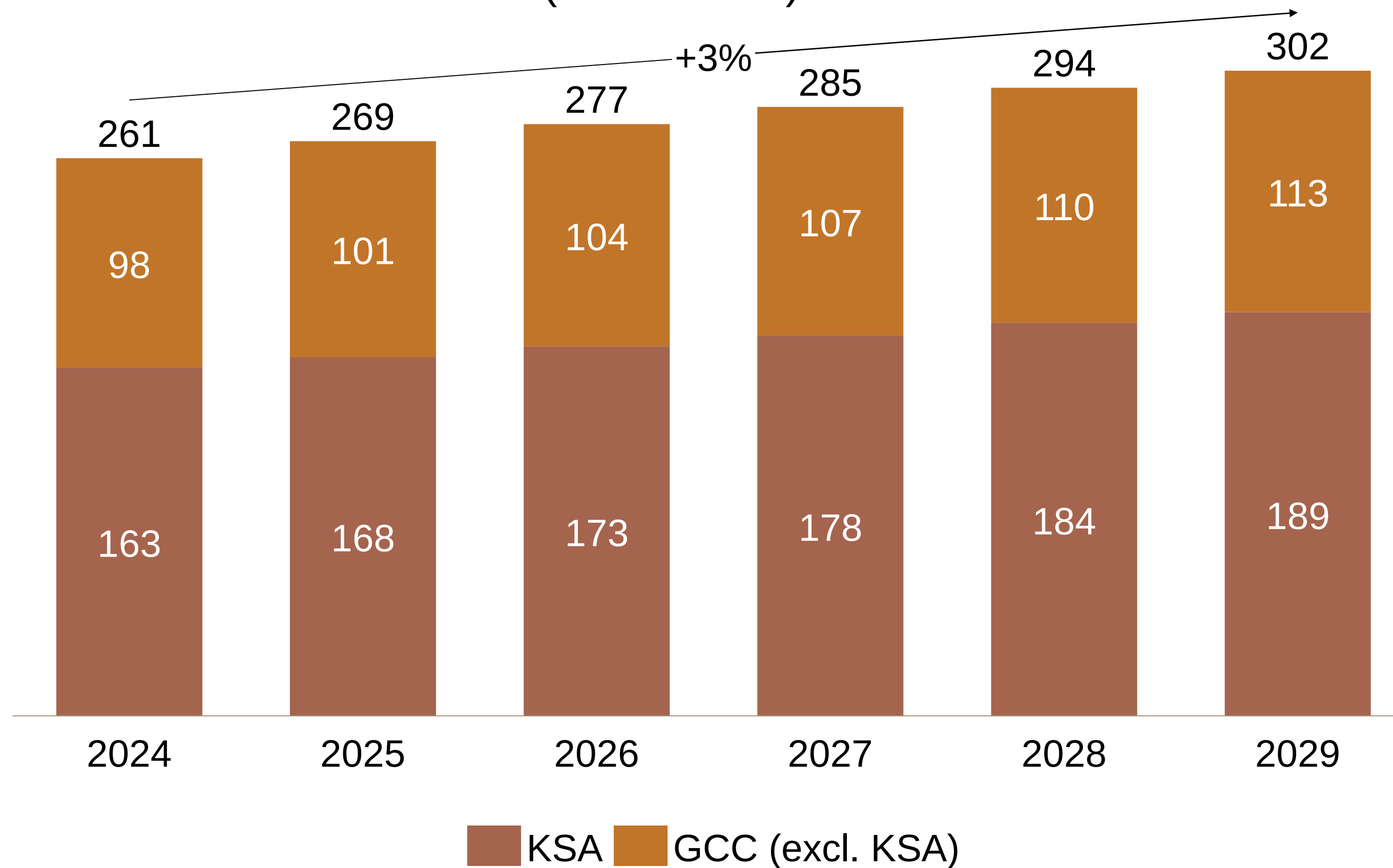
Saudi Aramco 9COM numbers 1. 6000002810; 2. 6000002901; 3. 6000002902; 4. 6000010821; 5. 6000002871; 6. 6000002797

Aramco standards: (34-SAMSS-711) - IOGP S-729, IOGP S-739; (34-SAMSS-716) - IOGP S-707

Source: Team analysis

Pressure Regulators & Valves Actuators Demand, Customers & Drivers

Forecasted KSA and rest of GCC pressure regulators & valve actuators demand market 2024-2029 (Million USD)



Typical customers in KSA



Oil & Gas facilities



Power generation plants



Wastewater treatment facilities

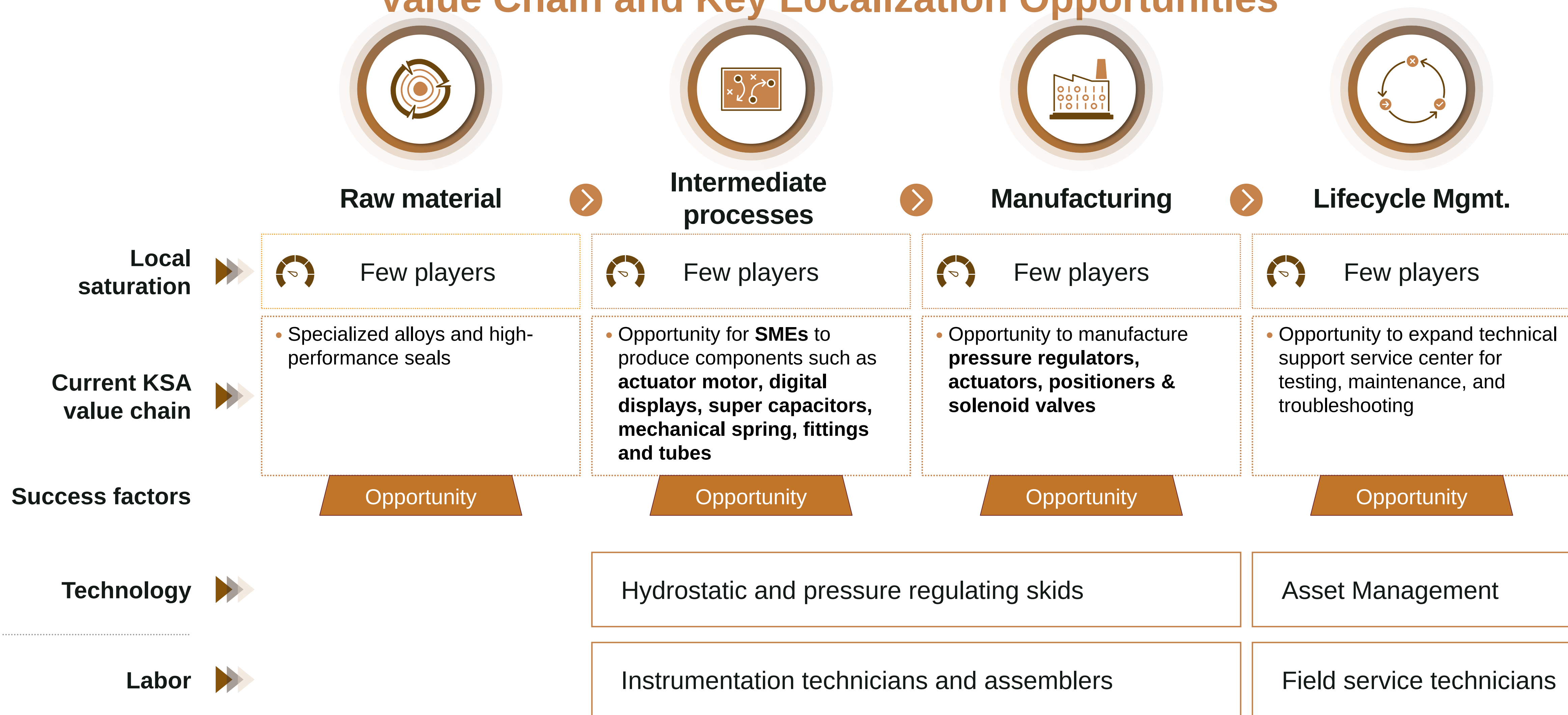
Key KSA demand drivers

- **Consumer industry:** Expansion of KSA's industrial sectors and launch of new facilities under Vision 2030 has increased demand for pressure control equipment
- **Technological advancements:** Integration of IoT, AI and smart sensors increases the need for automated pressure regulators and valve actuators

Catalyzing Supply Chains

Pressure Regulators & Valves Actuators

Value Chain and Key Localization Opportunities



Catalyzing Supply Chains

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

Pressure Regulators & Valves Actuators

Investment Opportunity and Enablers

Key enablers in KSA to drive success¹



Financial programs: Nusaned by SABIC provides loans for local production for industrial components like valves & actuators

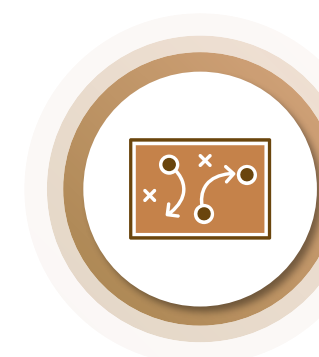


Economic & human capital enablers: National training centers such as NITI offering specialized trainings for technicians involved in the manufacturing and production of the instrumentations



Customs relief optimization: Custom duty drawback to importers of raw materials processed for re-export

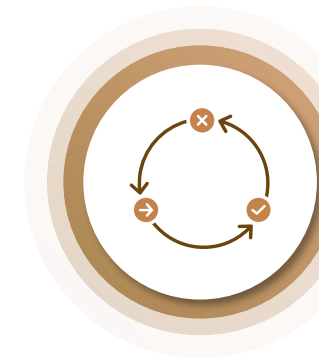
Where is the opportunity



Intermediate processes: SME opportunities includes producing mechanical spring, fittings and tubes essential for assembly



Manufacturing: Produce customized pressure regulators, actuators, & solenoid valves



Lifecycle Mgmt.: Expand technical support service center for testing, maintenance, and troubleshooting

Catalyzing Supply Chains

Note: 1. Detailed list of all enablers in the backup; NITI = National Industrial Training Institute
Source: Team analysis; Expert interviews

09

Pressure Protection & Surge Relief Devices

Presented by: Abeer Alkaaki

Pressure Protection and Surge Relief Devices Opportunity Profile

1

Pressure Protection and Surge Relief Devices present an attractive investment opportunity

Types



Non-reclosing pressure relief



Surge relief valves



Vent pressure vacuum valves



Relief valves surge gas loaded

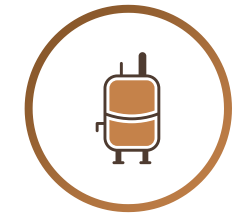
Applications



Oil & gas facilities



Water treatment



Petrochemical facilities



Gas pipelines



Water supply systems



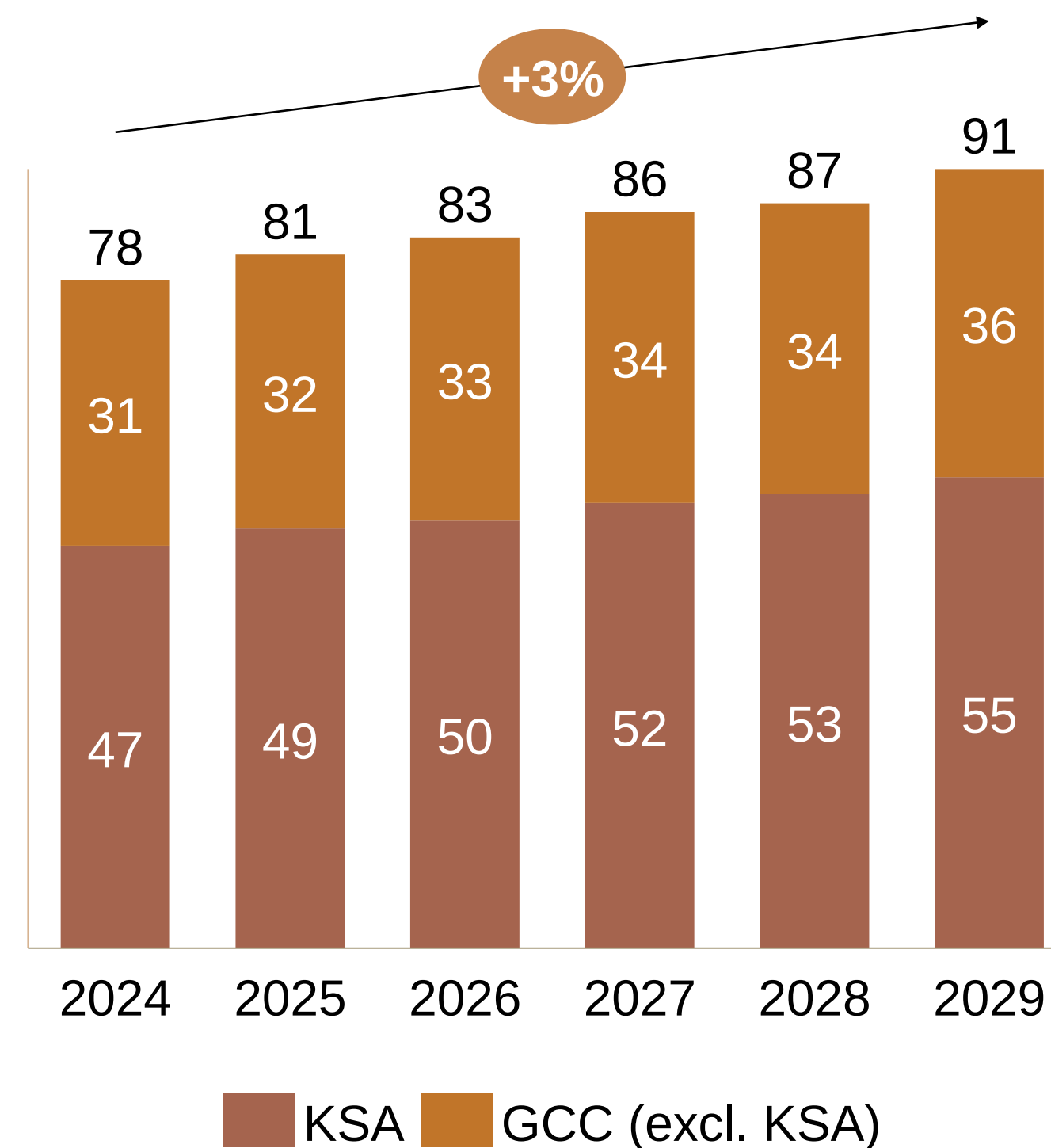
Chemical storage tanks

Catalyzing Supply Chains

2

KSA has largest market share in the region for pressure protection & surge relief valves

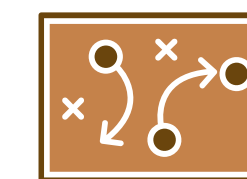
GCC market forecast, (Million USD)



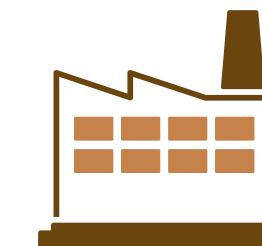
3

Attractive investment opportunities in the value chain

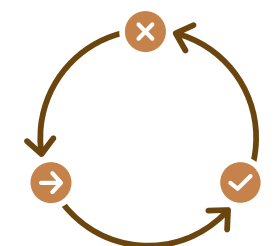
KSA value chain opportunities



Intermediate process



Manufacturing



Lifecycle Mgmt.

KSA enablers

- Financial support
- Land and infrastructure
- Technical enablers

Pressure Protection and Surge Relief Devices

Potential Localized Categories

Non-reclosing pressure relief¹



9COM 6000002549

Vent pressure vacuum valves²



9COM 6000002867

Surge relief valves³



9COM 6000002896

Relief valves surge gas loaded⁴



9COM 6000012803

Applications

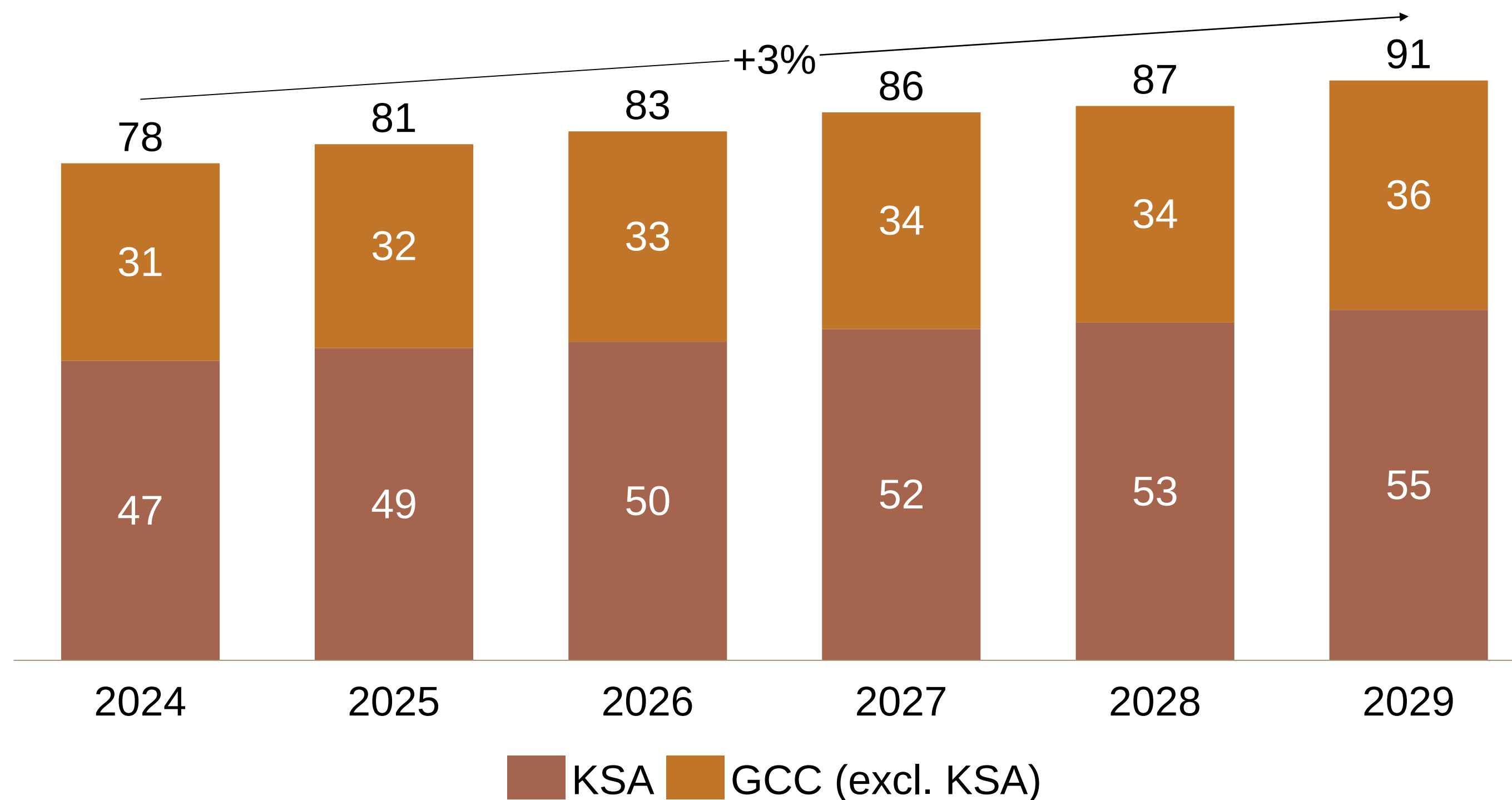
- Petrochemical reactors
- Boilers
- Oil & gas pipelines
- Chemical storage units
- Natural gas pipelines
- Hydraulic systems

Saudi Aramco 9COM numbers 1. 6000002549 2. 6000002867 3. 6000012803 4. 6000002896
34-SAMSS-611; Saudi Aramco Engineering Standards (SAES-J-605)

Catalyzing Supply Chains

Pressure Protection and Surge Relief Devices Demand, Customers & Drivers

Forecasted KSA and rest of GCC pressure protection and surge relief valves devices market 2024-2029 (Million USD)



Typical customers in KSA



Water treatment facilities



Petrochemical facilities



Oil and gas facilities

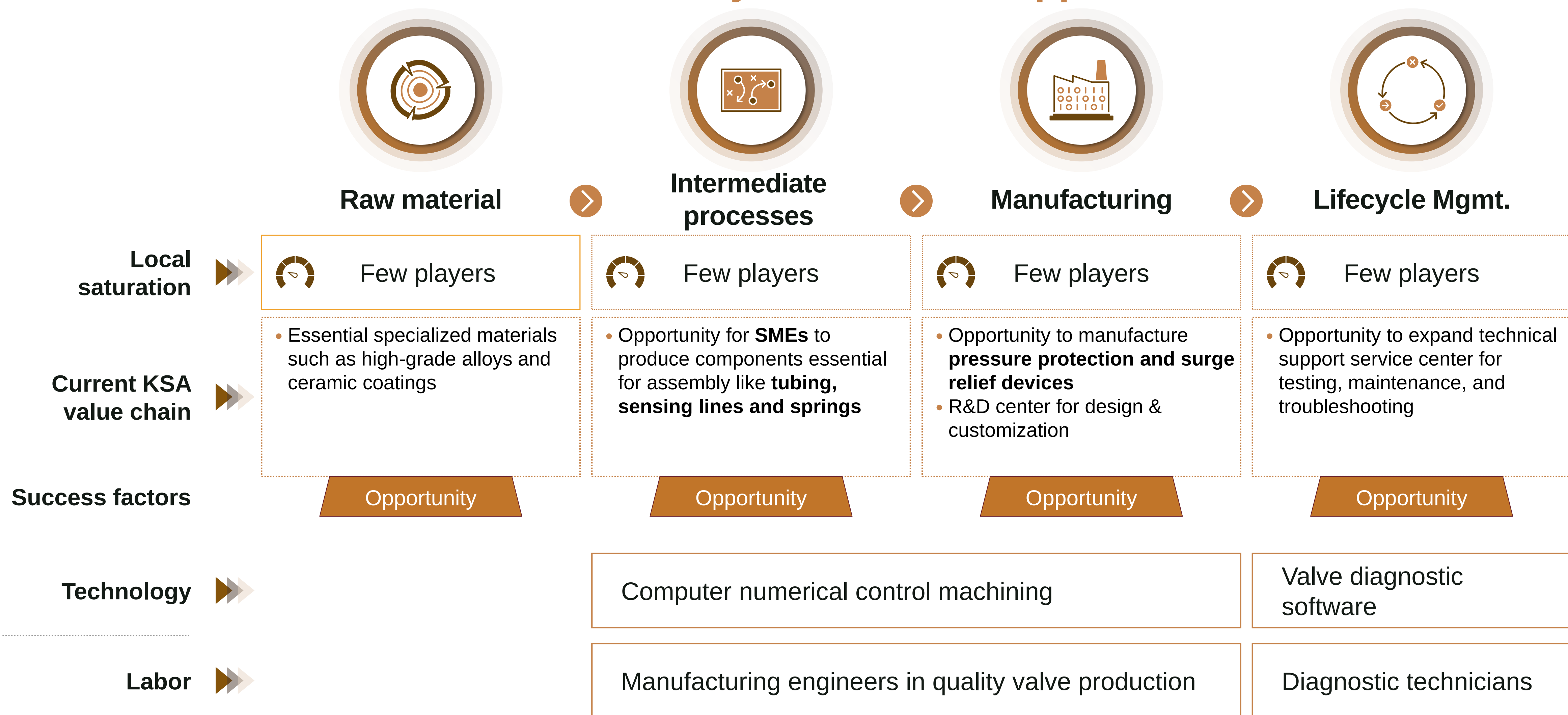
Key KSA demand drivers

- **Consumer industry:** Expansion of KSA's oil & gas, petrochemical, and industrial sectors under Vision 2030 has increased demand for pressure protection equipment
- **Environmental regulations:** Focus on minimizing fugitive emissions in oil, gas, and chemicals necessitate precise pressure protection

Catalyzing Supply Chains

Pressure Protection and Surge Relief Devices

Value Chain and Key Localization Opportunities



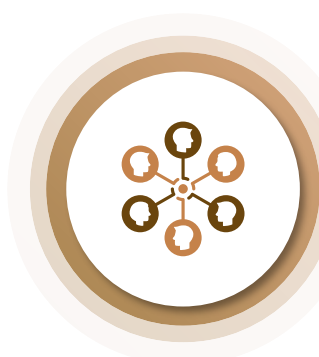
Catalyzing Supply Chains

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

Pressure Protection and Surge Relief Valves

Investment Opportunity and Enablers

Key enablers in KSA to drive success¹



Workforce development: Fully covered or subsidized monthly salaries by HRDF for Saudi employees

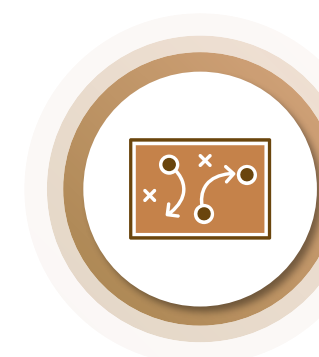


Financial incentives: Nusaned by SABIC provide financial support for local production for components like surge relief

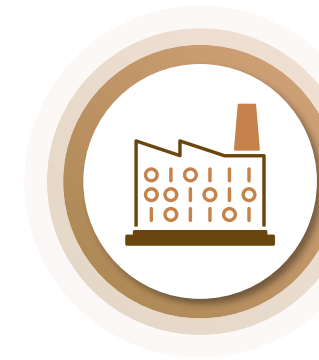


Customs relief programs: Custom duty drawback to importers of raw materials processed for re-export

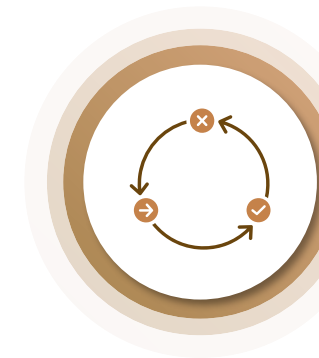
Where is the opportunity



Intermediate processes: SME opportunities includes producing components like tubing, sensing lines and springs essential for assembly



Manufacturing: Establish a dedicated factory for advanced pressure protection devices and R&D centers for customization



Lifecycle Mgmt.: Set up technical support center for testing, maintenance and troubleshooting

Catalyzing Supply Chains

Note: 1. Detailed list of all enablers in the backup; HRDF = Human resource development fund
Source: Team analysis

10 Custody Measurement

Presented by: Fahad Alfouzan

Custody Measurement Devices Opportunity Profile

1

Custody Measurement Devices present an attractive investment opportunity

Types



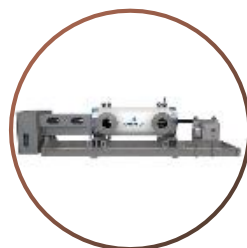
Flowmeter



Flow computer



Sampling systems



Small-volume prover

Applications



Oil & gas facilities



Oil pipelines



Petrochemical facilities



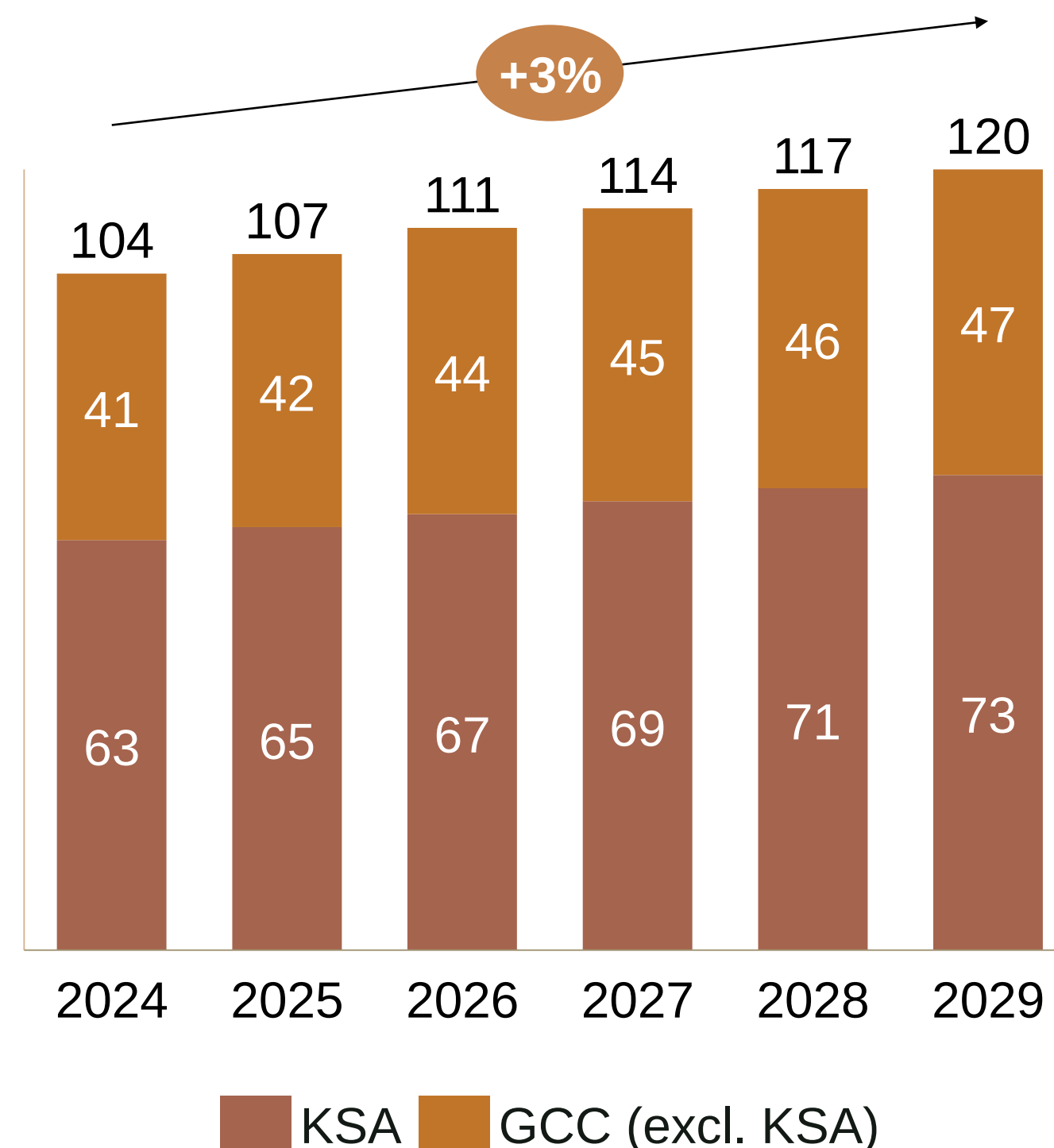
Chemical storage

Example

2

Custody measurement devices market is sizeable with steady forecasted growth

GCC market forecast, (Million USD)



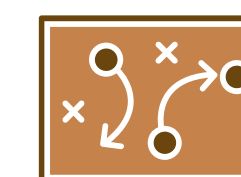
3

Attractive investment opportunities for the custody measurement devices

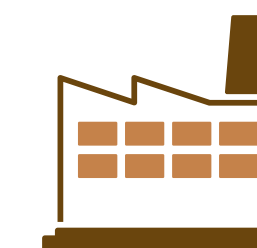
KSA value chain opportunities



Raw material



Intermediate process



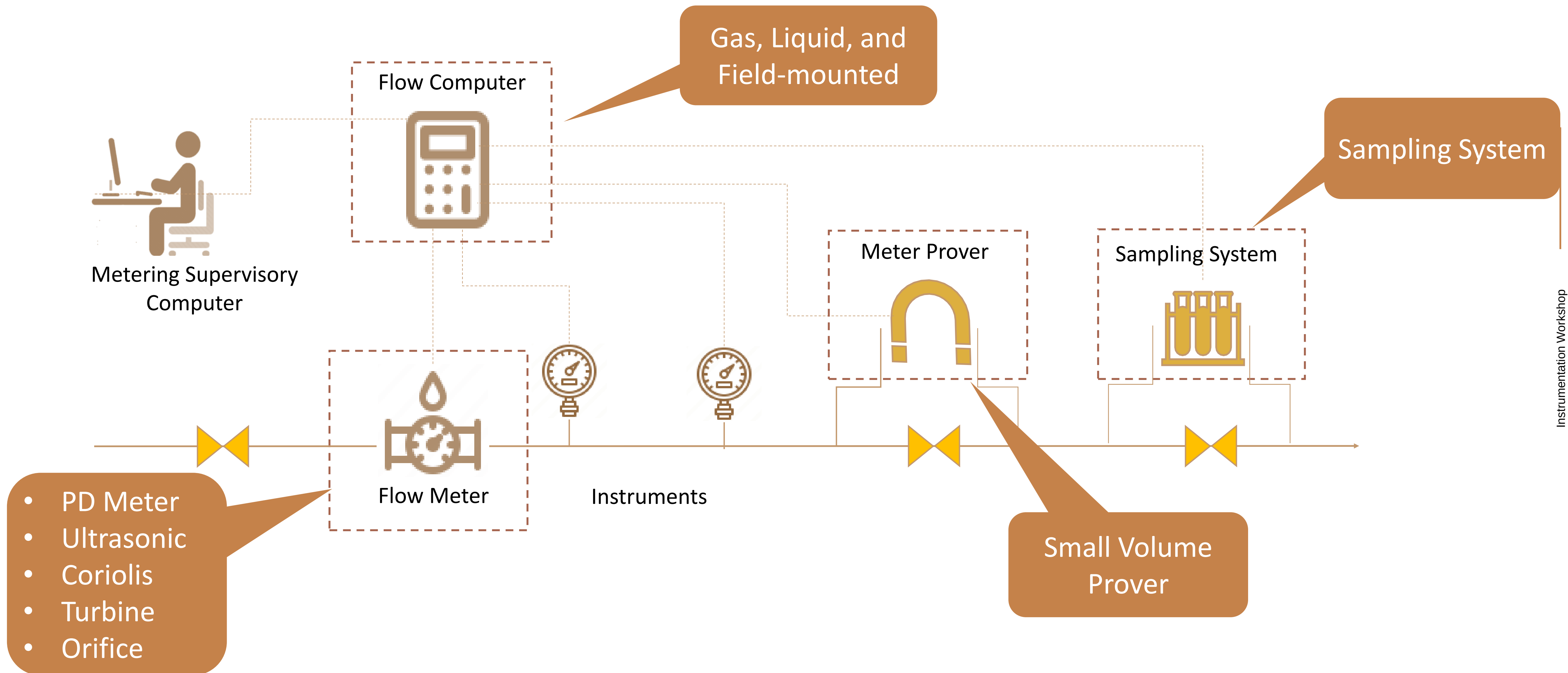
Manufacturing

KSA enablers

- Financial support
- Land and infrastructure
- Technical enablers

Catalyzing Supply Chains

Custody Measurement System



Custody Measurement Devices

Potential Localized Categories

Flow meter¹



Flow computer²



Sampling systems³



Small volume prover⁴



Applications

- | | | | |
|---|---|---|---|
| <ul style="list-style-type: none"> • Oil & gas transmission pipelines • Petrochemical pipelines • Fuel loading terminals | <ul style="list-style-type: none"> • Crude oil export terminals • Natural gas processing facilities • LNG storage and distribution | <ul style="list-style-type: none"> • Petrochemical storage facilities • Oil refineries sampling • Pipeline transfer points | <ul style="list-style-type: none"> • Oil refinery flow meter calibration • Bulk fuel storage facilities • Petroleum product distribution terminals |
|---|---|---|---|

Catalyzing Supply Chains

Note Saudi Aramco 9COM numbers and Technical Requirements on next slide

Custody Measurement Devices

Technical Requirements

Flow Meter Technical Specifications and Commodity Codes

- 34-SAMSS-112; Flow Meters for Gas Custody Measurement
- 34-SAMSS-117; Flow Meter for Liquid Custody/Royalty Measurement

- 6000009831 Turbine Meter, Liquid
- 6000009832 Positive Displacement Meter, Liquid
- 6000009833 Coriolis Meter, Liquid
- 6000009881 Ultrasonic Meter, Liquid
- 6000009882 Ultrasonic Meter, Gas
- 6000009883 Coriolis Gas
- 6000009886 Dual Chamber Orifice Meter, Gas
- 6000009887 Orifice Plate Orifice Meter, Gas

Flow Computer Technical Specifications and Commodity Codes

- 34-SAMSS-841; Flow Computer for Custody Transfer Measurement of Hydrocarbon Liquids
- 34-SAMSS-846; Flow Computer for Custody Transfer Measurement of Hydrocarbon Gases

- 6000009899 Panel-mounted Flow Computer, Liquid
- 6000009900 Panel-mounted Flow Computer, GAS
- 6000009901 Field-mounted Flow Computer, Liquid & Gas

Custody Measurement Devices

Technical Requirements

Sampling Systems Technical Specification and Commodity Code

- 34-SAMSS-525; Automatic Sampling Systems for Hydrocarbon Liquids

- 6000009893 Automatic Sampling System, Liquid

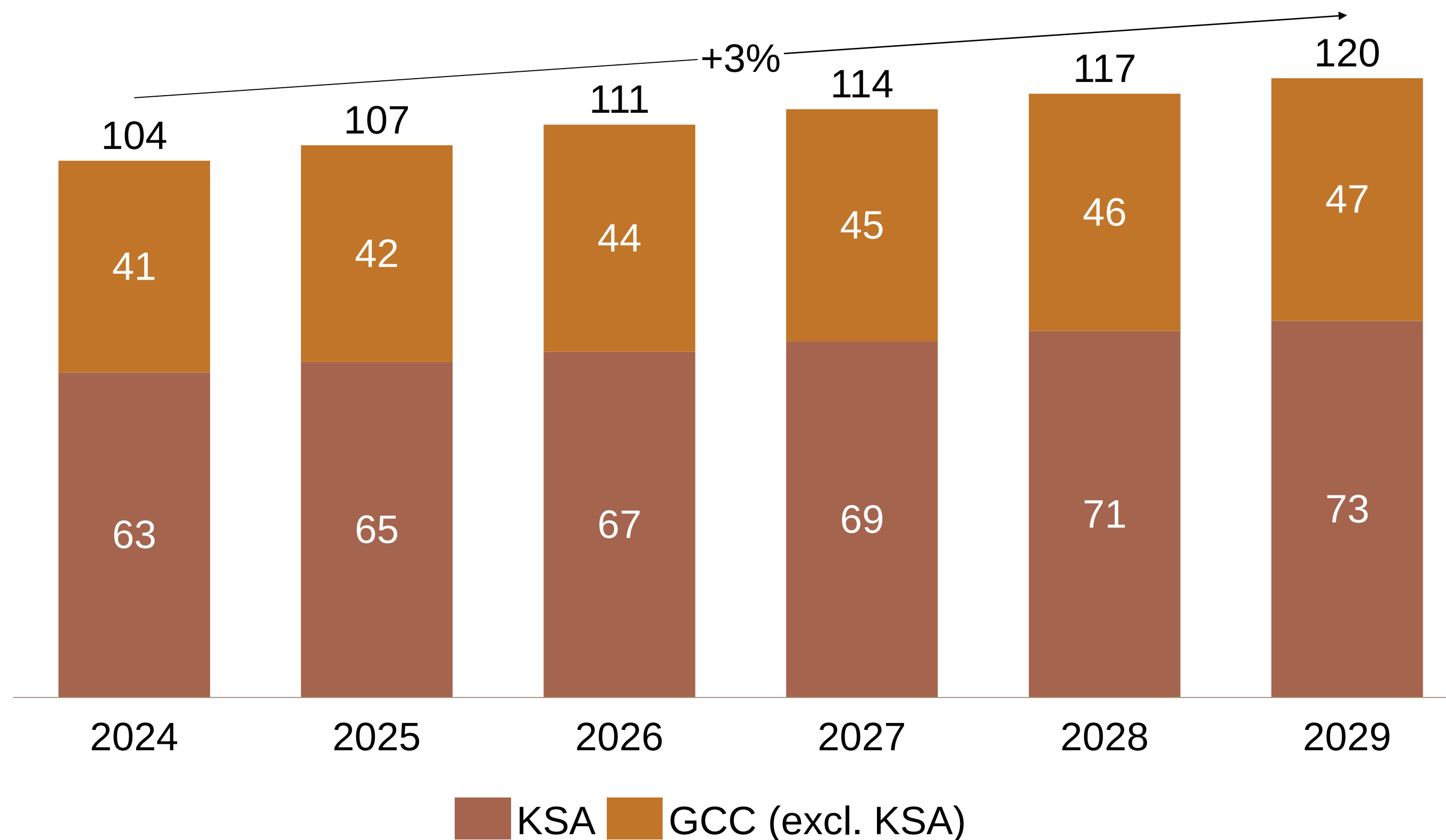
Small Volume Prover Technical Specification and Commodity Code

- 34-SAMSS-119; Liquid Meter Prover

- 6000009890 Small Volume Prover

Custody Measurement Devices Demand, Customers & Drivers

Forecasted KSA and rest of GCC custody measurement devices market 2024-2029 (Million USD)



Typical customers in KSA



Oil & gas facilities



Petrochemical facilities



Pipeline operators

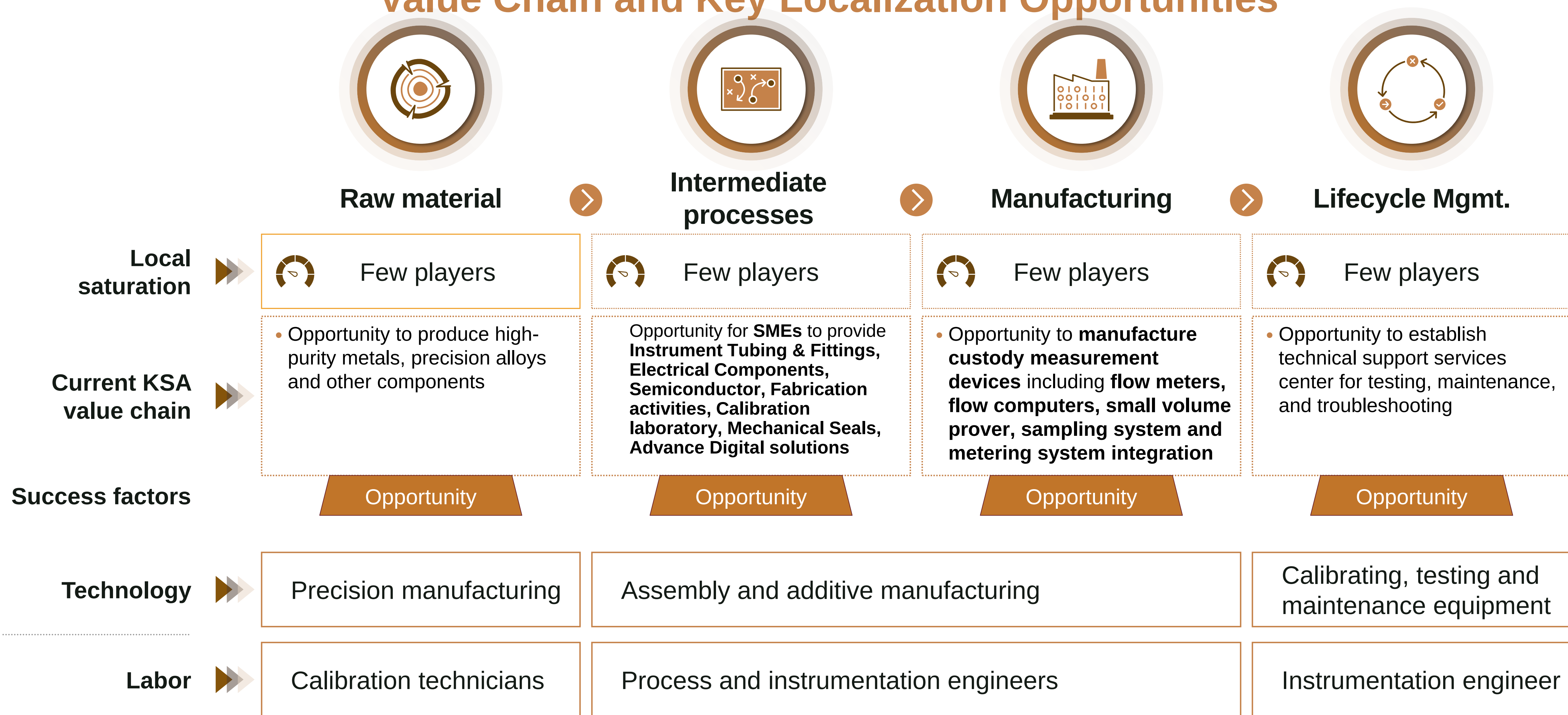
Key KSA demand drivers

- **Infrastructure development:** Rising investment in pipeline infrastructure drives need for custody measurement to monitor & control product flow accurately
- **Regulatory commitment:** Focus on maintaining high standards of accuracy and transparency in hydrocarbon transactions strengthens the need for advanced custody measurement

Catalyzing Supply Chains

Custody Measurement Devices

Value Chain and Key Localization Opportunities



Catalyzing Supply Chains

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

Custody Measurement Devices

Investment Opportunity and Enablers

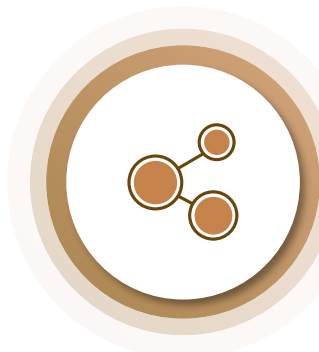
Key enablers in KSA to drive success¹



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



Local market support: Procurement support by LCGPA for locally manufactured custody measurement devices to increase demand for local production

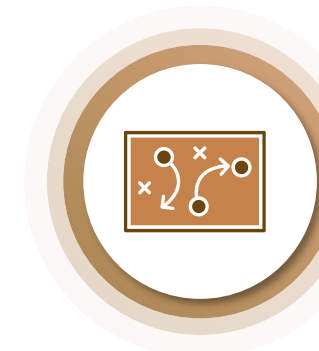


Subsidized services: Subsidized financial consulting services offered by Ministry of finance for sectors looking to localize production for custody measurement

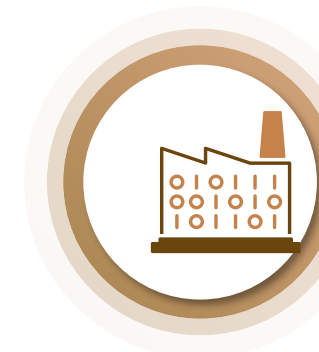
Where is the opportunity



Raw material: Opportunity to produce high-purity metals, precision alloys and other components



Intermediate processes: Opportunity for SMEs to support for calibration labs, electrical components, fabrication activities



Manufacturing: Opportunity to produce custody measurement devices and metering system integration unit for assembling and testing

Catalyzing Supply Chains

1. Detailed list of all enablers in the backup
Note: SIDF = Saudi Industrial Development Fund
Source: Team analysis

Please direct Business Opportunities inquiries below:



We invite you to engage with us and send us your Expression of Interest by scanning the QR code or visiting:

Website: <https://iktva.sa/english/opportunities/opportunity-submission-form>

Email: local-content@Aramco.com

**Thank
You**