

The Linde Group 2017. Compelling perspectives.

Leading.



THE LINDE GROUP

April 2018



Forward-looking Statements

This presentation may contain forward-looking statements about Linde and its lines of business, including statements concerning its strategies, the future growth potential of markets and products, its profitability in specific areas, its future product portfolio, the development of and competition in economies and markets where Linde operates, as well as statements concerning the proposed merger between Linde and Praxair.

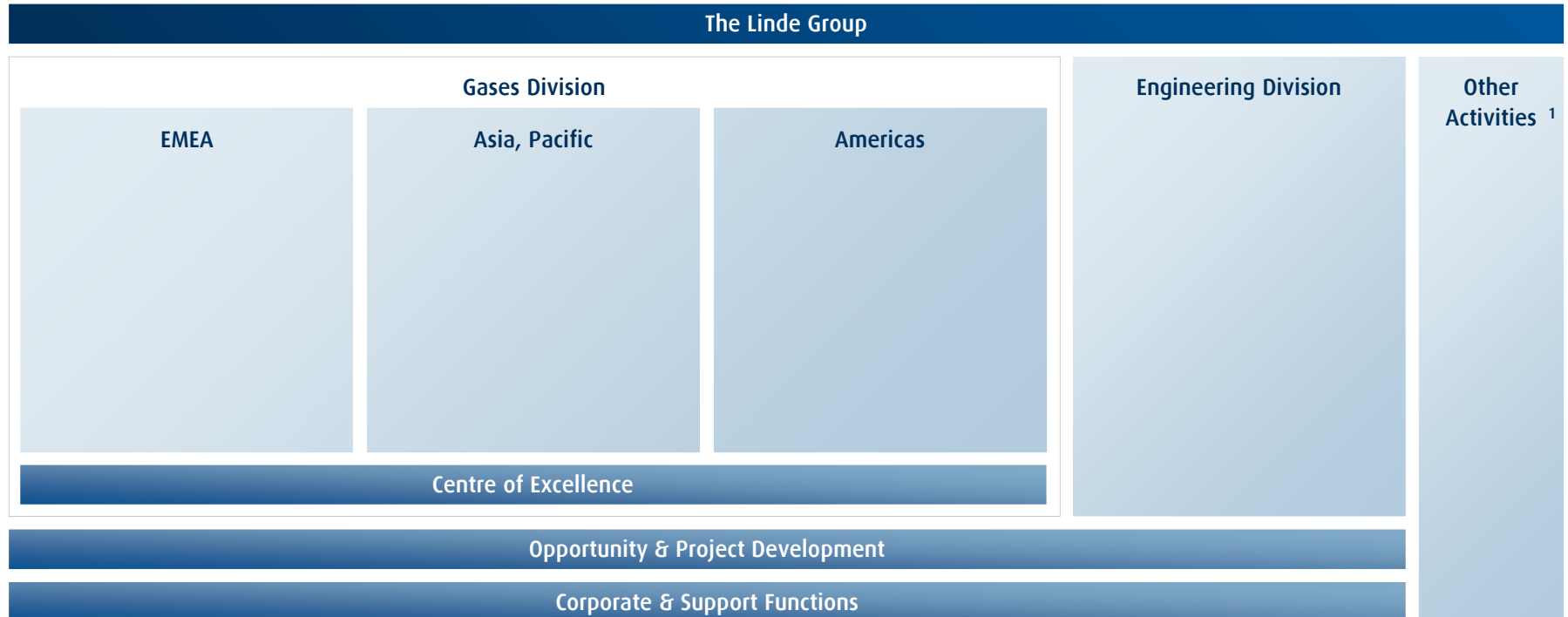
Any such forward-looking statements involve known and unknown risks which may cause actual results to differ significantly from any future results expressed or implied. While we believe that the assumptions made and the expectations reflected in today's discussion are reasonable, no assurance can be given that such assumptions or expectations will prove to have been correct. We undertake no obligation to update or revise the forward-looking statements in today's discussion.

The Linde Group profile

Organisational structure



Organisation of The Linde Group

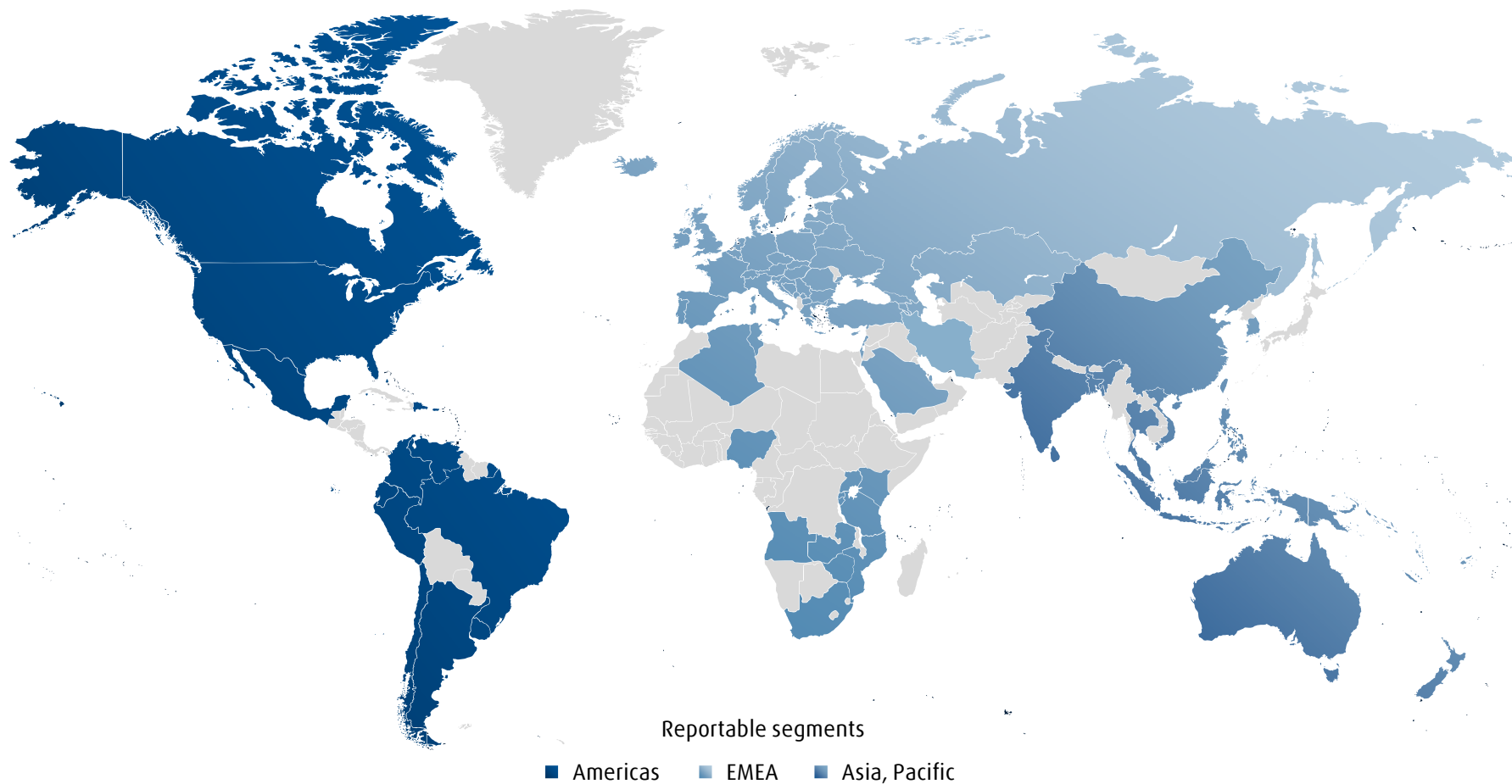


The Group is divided into two divisions, Gases and Engineering. The Healthcare division is part of the Gases Division, which is divided into three reportable segments: EMEA (Europe, Middle East and Africa), Asia, Pacific and Americas. A centrally managed Centre of Excellence operates across the regions for the Gases Division. The Opportunity & Project Development function is active throughout the Group to make even better use of business opportunities.

¹ Gist (discontinued operation)

The Linde Group worldwide

Global presence in more than 100 countries



Countries home to operational companies in which Linde holds a direct or indirect shareholding and which belong to The Linde Group.

The Linde Group

Financial highlights



<i>Financial highlights</i>		<i>2016</i>	<i>2017</i>	<i>Change</i>
Revenue	<i>in EUR m</i>	16,948	17,113	1.0%
Operating profit ¹	<i>in EUR m</i>	4,098	4,213	2.8%
Operating margin	%	24.2	24.6	+40 bp ²
EBIT (before non-recurring items)	<i>in EUR m</i>	2,201	2,317	5.3%
Profit for the year	<i>in EUR m</i>	1,327	1,536	15.7%
Number of employees as at 31/12		59,715	57,605	-3.5%

¹ EBIT (before non-recurring items) adjusted for amortisation of intangible assets and depreciation of tangible assets

² Basis points

The Linde Group

Divisions

- Gases Division
- Engineering Division

Linde Corporate Heritage

2017 business review

Growth targets achieved, sales and earnings increased



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- Group revenue EUR 17.1 bn
- Group operating profit EUR 4.2 bn
- Operating cash flow EUR 3.5 bn

Financial highlights by division

Operating margin increased in both divisions



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Gases Division

		2016	2017	Change
Revenue	<i>in EUR m</i>	14,892	14,988	0.6%
Operating profit ¹	<i>in EUR m</i>	4,210	4,268	1.4%
Operating margin	%	28.3	28.5	+20 bp ²
Number of employees as at 31/12		52,907	51,138	- 3.5%

Engineering Division

		2016	2017	Change
Revenue	<i>in EUR m</i>	2,351	2,388	1.6%
Operating profit ¹	<i>in EUR m</i>	196	220	12.2%
Operating margin	%	8.3	9.2	+90 bp ²
Number of employees as at 31/12		6,432	6,144	- 4.5%

¹ EBIT (before non-recurring items) adjusted for amortisation of intangible assets and depreciation of tangible assets

² Basis points

Gases and Engineering

Selected highlights of the 2017 financial year



Germany

Linde Gas Germany and TOTAL Raffinerie Mitteldeutschland, headquartered in Leuna, Germany, have extended their existing collaboration by 15 years. The new agreement is worth around EUR 1 billion in total. Linde supplies the refinery with hydrogen, oxygen and nitrogen. The agreement covers the operation of a gas separation plant at the refinery site.



Russia

Linde has brought an ammonia plant on stream in Tolyatti, Russia, as part of a joint venture with JSC KuibyshevAzot. Under a long-term supply agreement, the Linde plant will give the chemicals company a daily ammonia production capacity of 1,340 tonnes. The plant was constructed by Linde's Engineering Division under a contract worth EUR 275 million.



China

Linde has founded Ningbo Linde-ZRCC Gases Company Ltd. (Linde-ZRCC) in collaboration with SINOPEC Zhenhai Refining & Chemical Company (ZRCC). The joint venture is investing EUR 145 million to strategically position itself in the Ningbo cluster. Under the agreement, Linde-ZRCC will acquire two existing air separation plants from ZRCC and also build a new unit.



China

The China-based electronic gases specialist Linde LienHwa is investing over EUR 110 million in the rapid expansion of its reach in China. In conjunction with this move, Linde will be building new on-site gas production plants for selected key customers in major production clusters specialised in semiconductors and flat screens in the eastern and central provinces of China.



Tatarstan

Linde's Engineering Division has been awarded a major contract by PJSC Nizhnekamskneftekhim (NKNK) to supply an olefin plant in Nizhnekamsk in the Republic of Tatarstan (Russian Federation). Linde is responsible for licensing, planning, procurement and technical construction consultation. The new olefin complex will initially have the capacity to produce 600,000 tonnes of ethylene and more than 600,000 tonnes of other chemical products per year.



Oman

The Linde Engineering Division has been tasked by SNC Lavalin International Inc. to supply key components for the construction of an ammonia plant. The contract is worth around EUR 41 million and includes the provision and construction of an air separation unit and adsorption plant. SNC Lavalin is the general contractor for an ammonia plant currently being built in Salalah (Oman) for end customer Salalah Methanol Company.

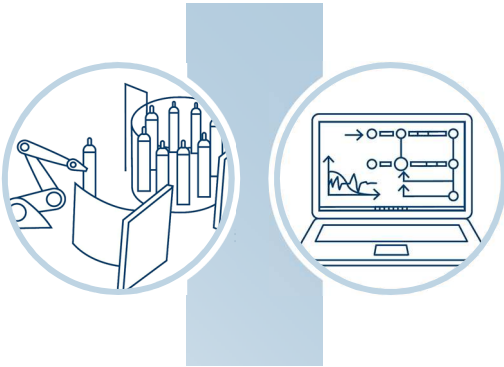
Compelling perspectives

Innovation drives efficiency and opens up new markets



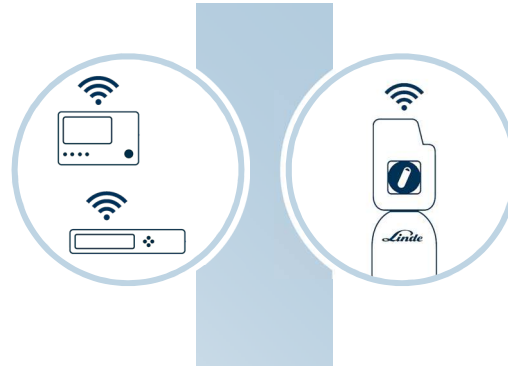
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Automating filling plants



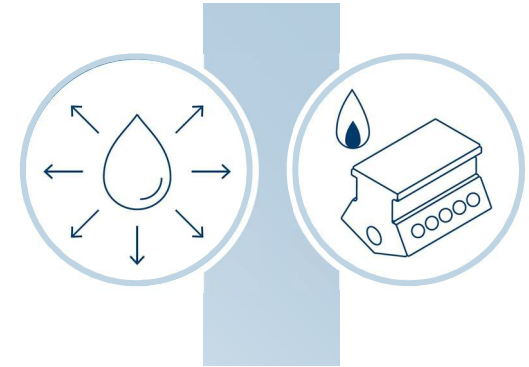
It's full speed ahead for Linde on the journey to automate its gas filling plants – a move motivated both by financial considerations and by the key trends of our time. This carefully engineered technology transformation journey will ultimately benefit both employees and customers.

Digitalisation



Digitalisation is not just revolutionising our lifestyles, it is also transforming and disrupting industry as it opens up previously inconceivable opportunities. Framed by an evolutionary strategy, Linde is gradually turning big data into smart data – to the benefit of both Linde and its customers.

Low-sulfur marine fuel



For decades, emissions from maritime shipping have far exceeded those of road transport. Now that is about to change. From 2020 onwards, the sulfur content of marine fuel will be subject to a much lower threshold. Operators are already looking for cleaner alternatives. Liquefied natural gas and hydrogen are set to play a key role in this new seascape.

Today's headlines are a steady drumbeat of the global challenges of our time – digitalisation, demographic shifts, climate change ... Whether these bring opportunities or risks ultimately depends on each stakeholder's sense of empowerment. Since Linde was founded in 1879, the company has intuitively anticipated and actively shaped the major developments of the day. Because a company can only offer its customers, employees and investors compelling perspectives for the future if it can identify megatrends, channel them into evolutionary technologies and bring concrete solutions to market.

Integrated Gases and Engineering model

Synergies built on strong engineering foundation



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Gases
Division

Engineering
Division

2017 revenue:
EUR 15.0 bn

Optimised CAPEX and
OPEX for own assets

Strong competitive
position

Solution partner
for customers

Risk balancing

Capture business through plant sales or outsourcing contracts
Capitalization on decaptivation opportunities

Customers

Early identification of new projects
Strong customer relationships

Synergies

Operations

Long and successful track record in the execution of industrial-scale projects
Competitive costs and energy efficiency

Innovation

Ongoing optimisation of application technologies and solutions
Detailed insights into customer processes

2017 revenue:
EUR 2.4 bn

Technology leadership built on synergies, channelling engineering expertise into gases business

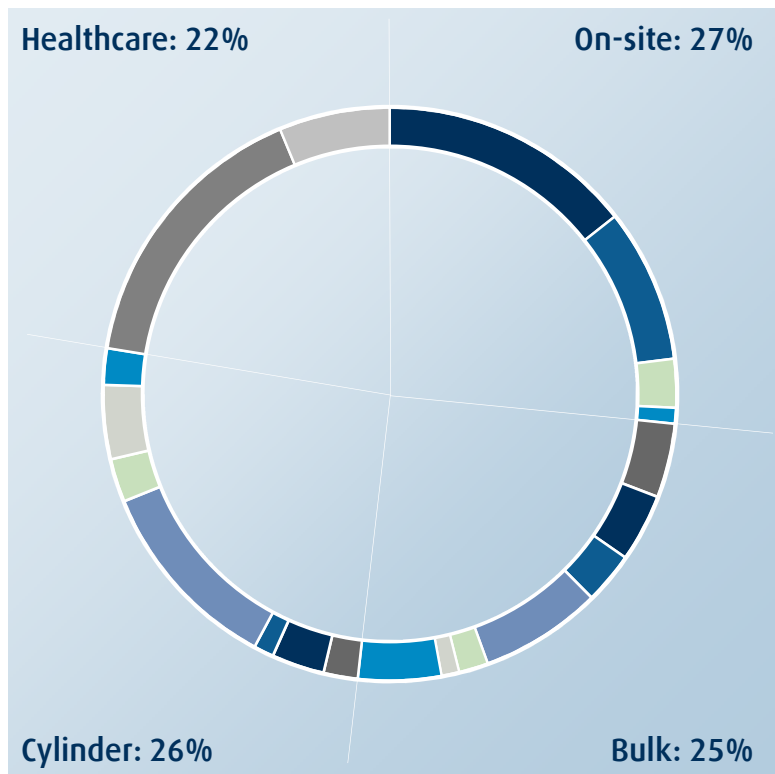
Four technology fields (air separation, hydrogen & syngas, natural gas, petrochemicals)

Sustainable gases business model

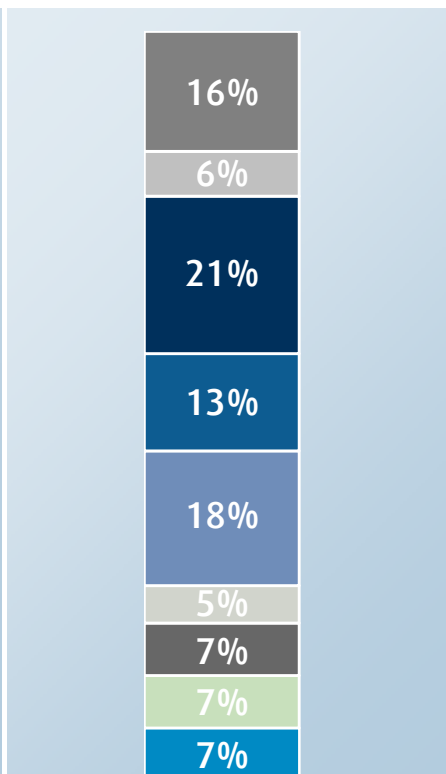
Highly diversified customer base with contracted business



Revenue split by line of business and industry



Revenue split by industry



- Hospital care
- Homecare
- Chemicals & energy
- Metallurgy & glass
- Manufacturing
- Retail
- Food & beverages
- Electronics
- Others

Healthcare

Primary industries

Secondary industries



Healthcare

- Hospital care, intermediate care, homecare
- Structural growth from growing and ageing population



On-site

- 15-year take-or-pay contracts with base facility fees
- Indexation and pass-through of energy and feedstock costs
- Strong customer portfolio



Bulk

- Multi-year contracts
- Tank rentals
- Driven by application know-how



Cylinder

- Includes specialty gases
- Cylinder rentals
- Driven by application know-how

Strategic focus on performance

Ahead of schedule in delivering efficiency gains



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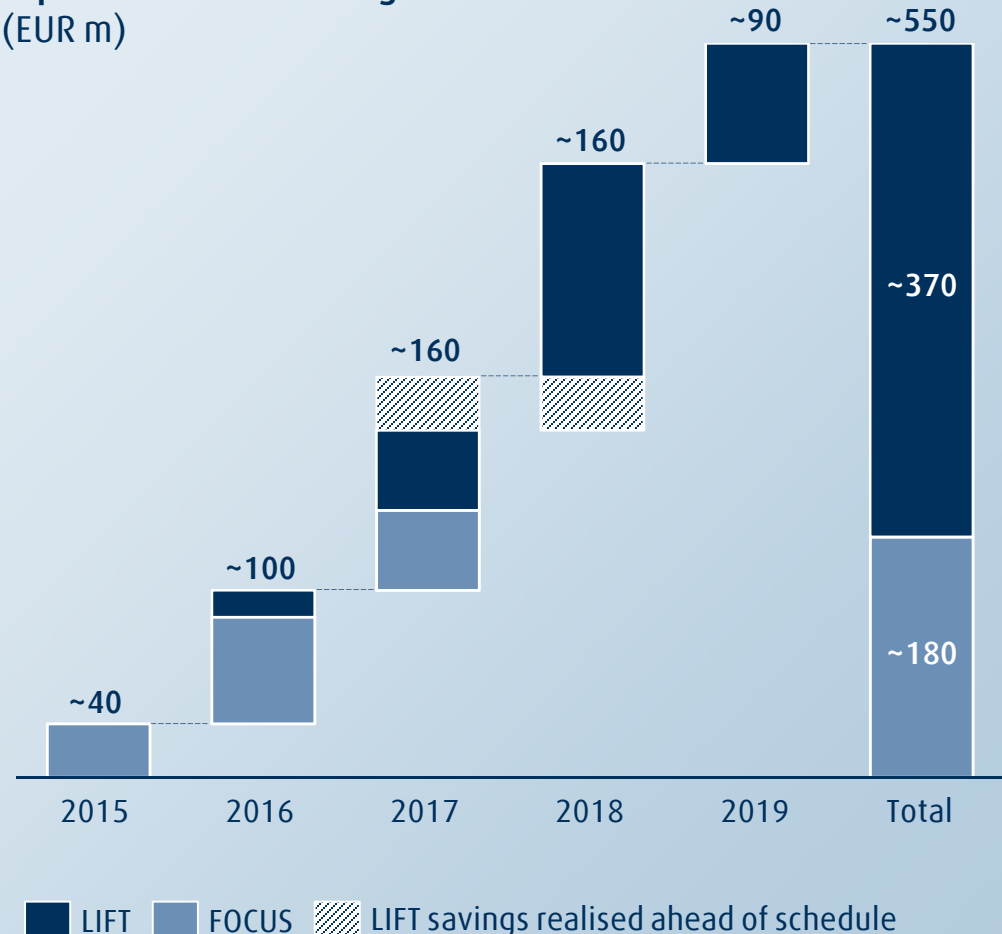
LIFT (2016-2019)

- Implementation of LIFT measures ahead of schedule: savings of EUR 40m planned for 2018 actually realised in 2017
- SG&A expenditures before special items down year on year, by 7.4% in FY 2017
- Number of employees reduced by 2,110 versus year-end 2016
- Total restructuring costs of EUR 396m during 2016-2017 in line with expectations

FOCUS (2015-2017)

- Achieved targeted cost savings of EUR ~180m by end of 2017

Expected net cost savings (EUR m)



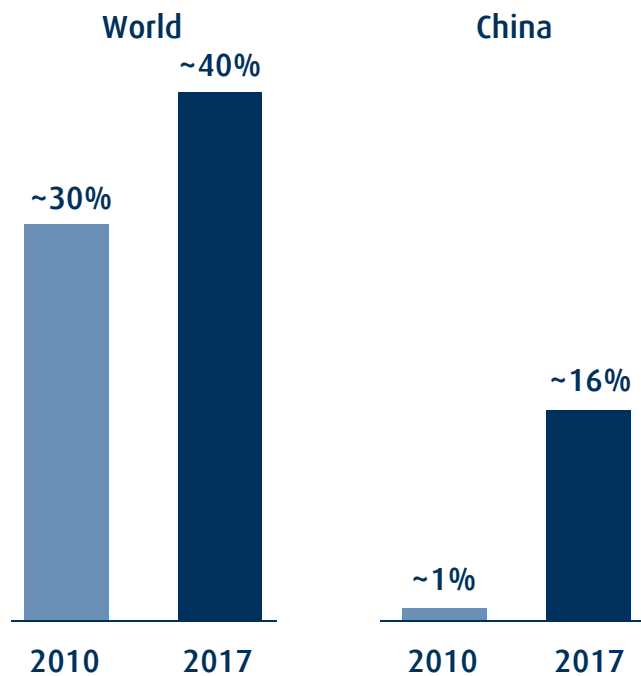
Quality growth

Applications gaining in importance in merchant business



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Share of merchant revenue driven by tailored applications and solutions



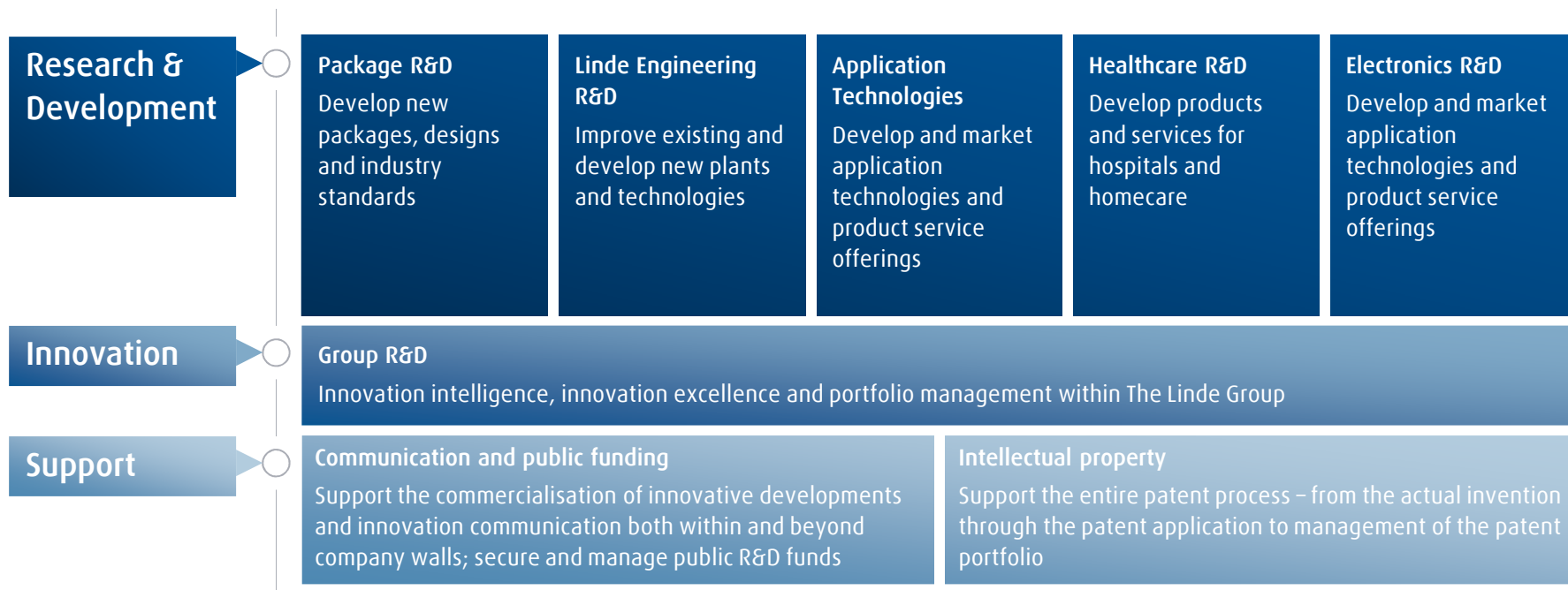
Industries	Example applications
Healthcare	PLASTINUM® Gas Injection Moulding <ul style="list-style-type: none">Gas or water injection moulding is used to build hollow plastic partsCO₂ enables significant productivity and process reliability gains
Chemicals & energy	
Metallurgy & glass	REBOX® <ul style="list-style-type: none">Oxygen technology to maximise efficiency and flexibility in steel reheating furnacesIncreased productivity, reduced fuel consumption and up to 30% less NOx emissions
Manufacturing	
Retail	LINDOFLAMM® <ul style="list-style-type: none">Pre- & post-heating welding technology with pioneering special burner systemIncreased productivity, lower costs and improved quality standards
Food & beverages	
Electronics	CRYOLINE® <ul style="list-style-type: none">Product family of cryogenic freezersBest-in-class proprietary technology with hygienic designGlobal rental programme available
Others	

Advantages of application and solution focus

- Solving customer application challenges creates higher value than simply supplying gas molecules
- Building stronger customer loyalty
- Transferring solutions and know-how across industries and geographies

Holistic and integrated technology and innovation approach

Corporate and support function is grouped in three areas



Corporate & support function: Technology and Innovation

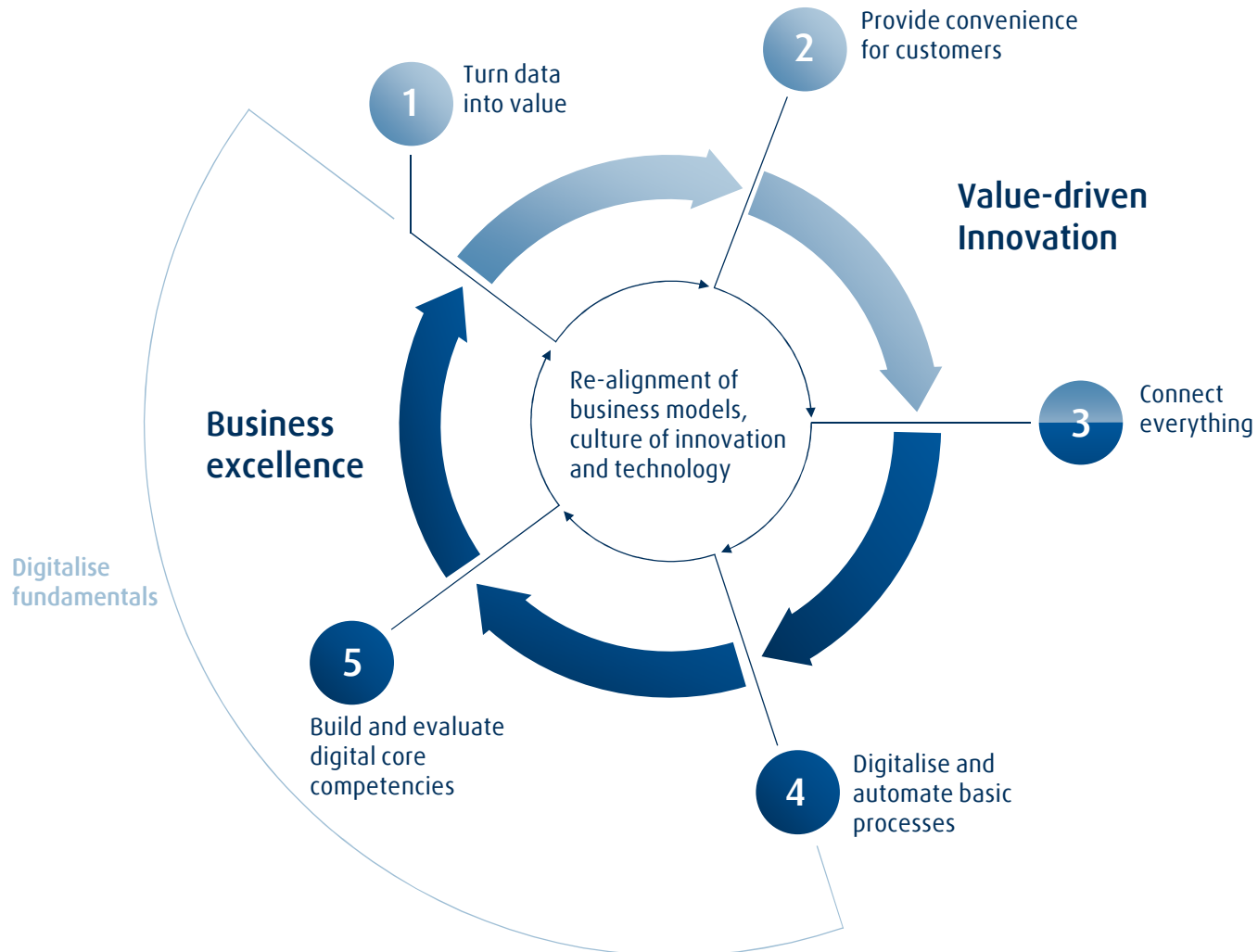
- 350 employees
- 30 nationalities

Digitalisation strategy

Holistic approach to embed change throughout the company



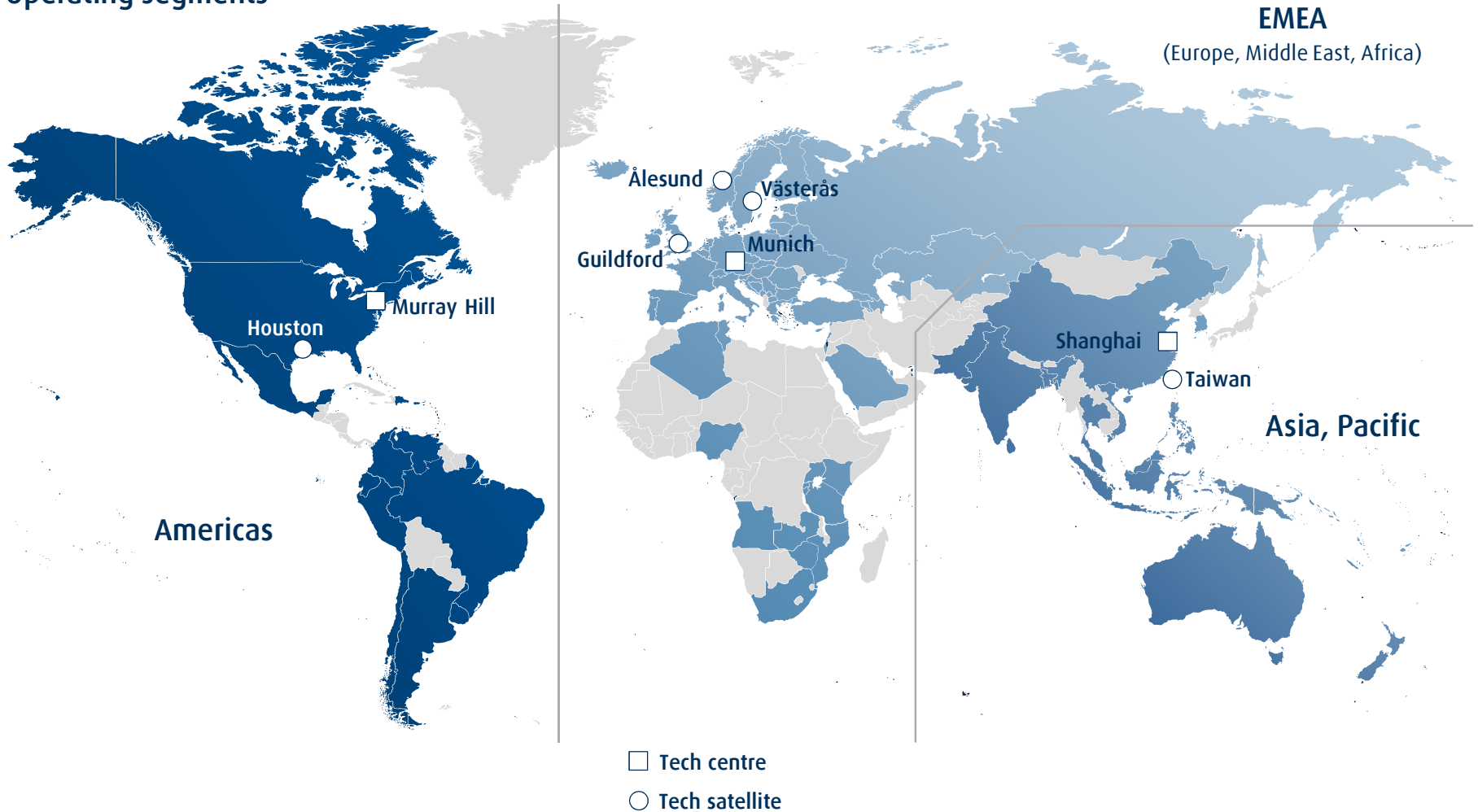
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Three global Technology and Innovation hubs

Tech centres and adjacent satellites in each segment

Operating segments



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Divisions

- Gases Division
- Engineering Division

Linde Corporate Heritage

Gases Division


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Gases Division

Wide range of products, services and applications

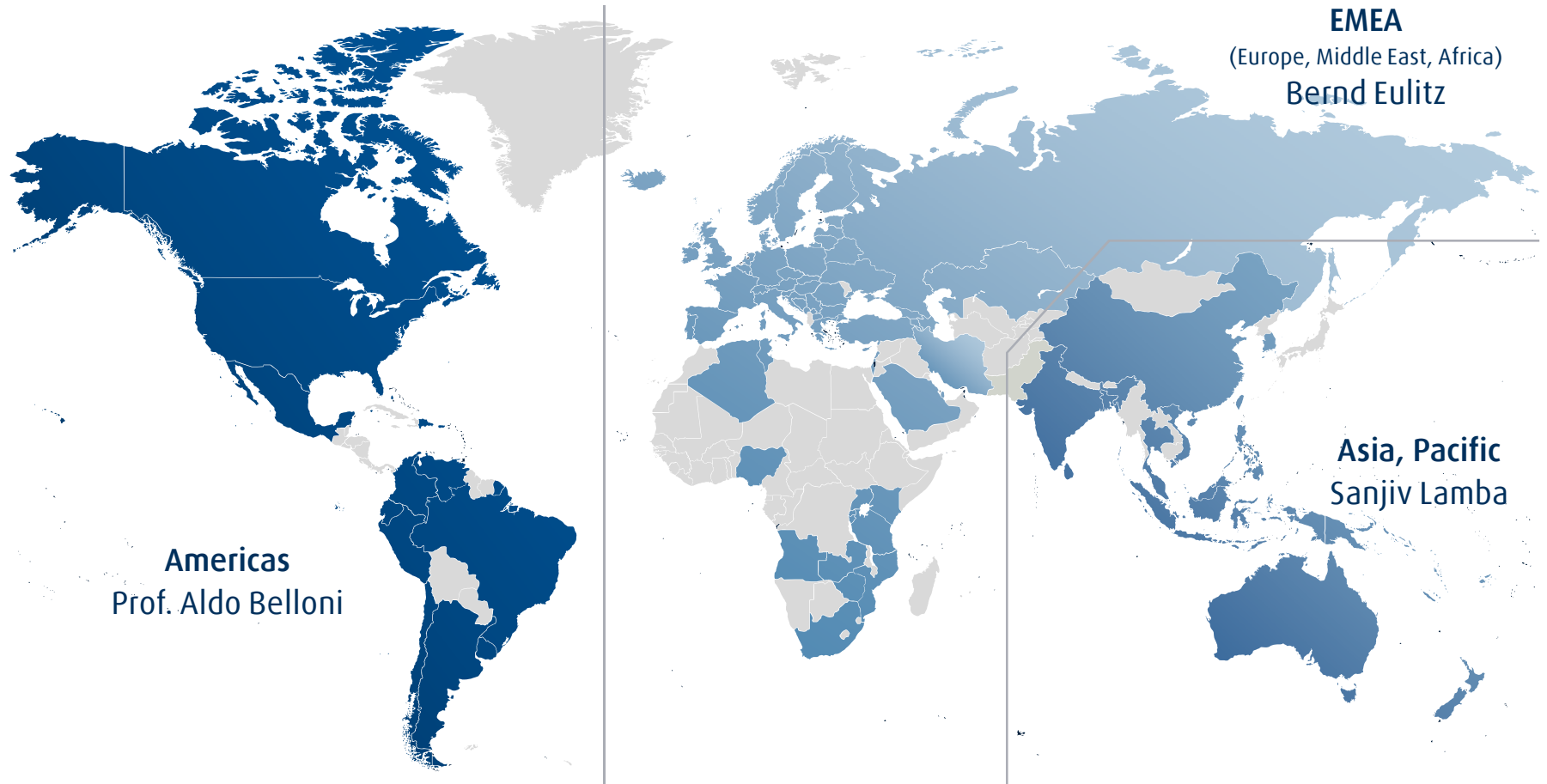


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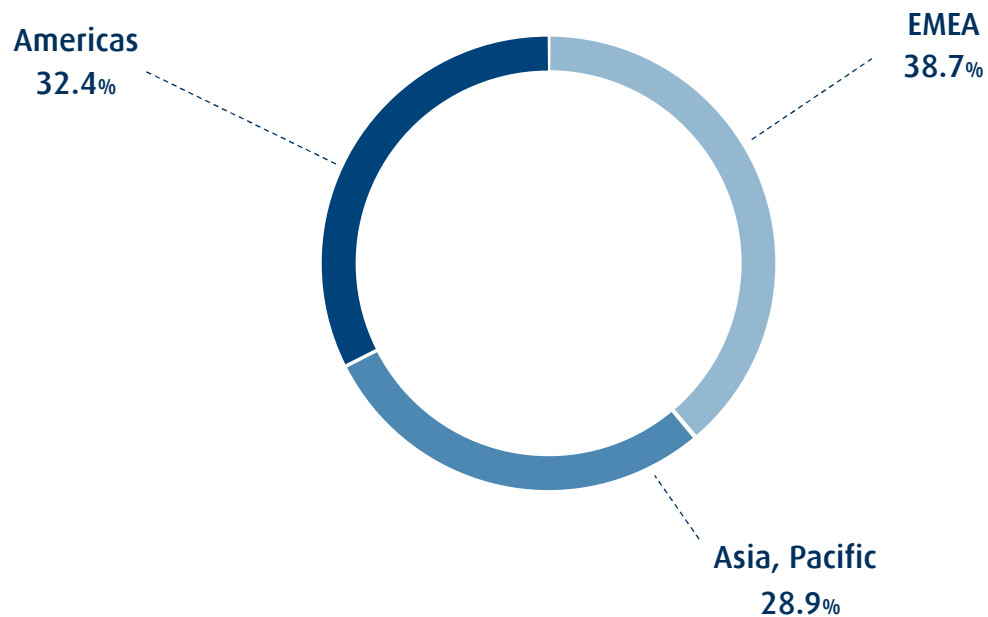
Gases Division

Regional set-up and responsibilities



Gases Division

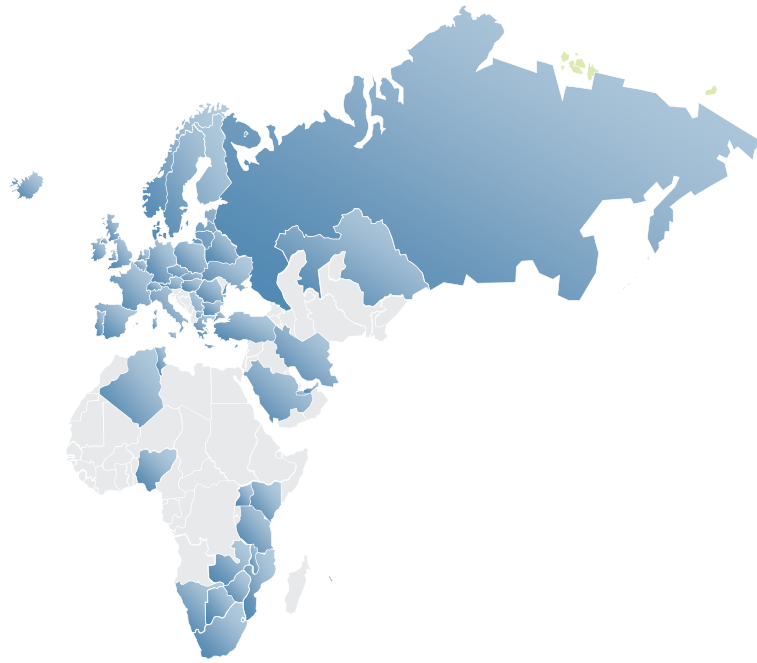
2017 revenue by reportable segment



<i>Revenue by reportable segment in EUR m</i>	<i>2016</i>	<i>2017</i>
EMEA	5,736 (38.0%)	5,876 (38.7%)
Asia, Pacific	4,109 (27.3%)	4,378 (28.9%)
Americas	5,232 (34.7%)	4,908 (32.4%)

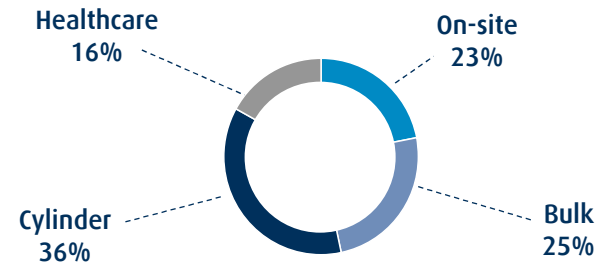
Gases Division

EMEA operating segment

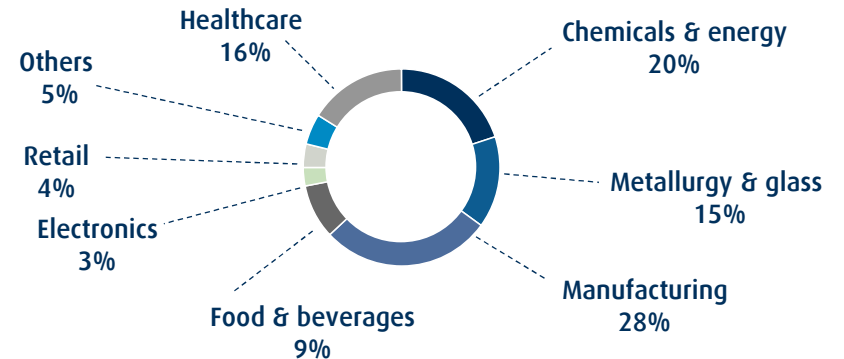


■ Linde presence ■ No Linde presence

Revenue split by line of business



Revenue split by industry



- Established clusters in Northern Europe, Central Europe and the UK
- Growing presence in Middle East & Eastern Europe and long-standing leading position in Africa

Source: Linde data for the year 2017

Gases Division

Asia, Pacific operating segment

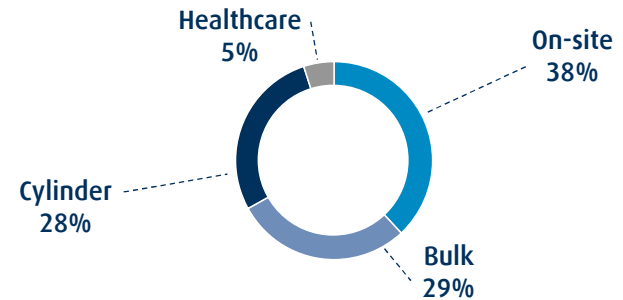


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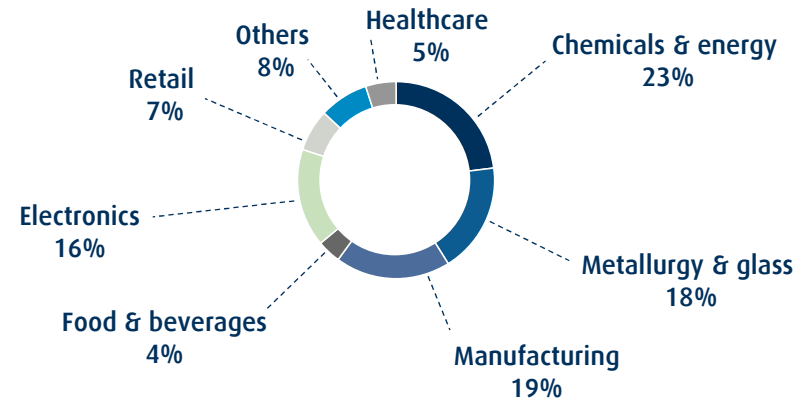


■ Linde presence ■ No Linde presence

Revenue split by line of business



Revenue split by industry



- Strong position in major industrial clusters in Asia, Pacific
- Solid track record of revenue growth built on a diverse portfolio of leading customers

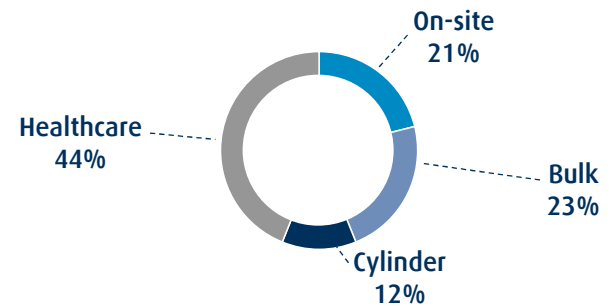
Source: Linde data for the year 2017

Gases Division

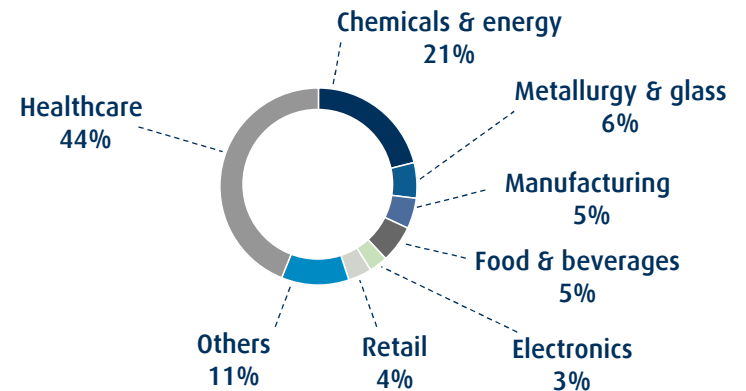
Americas operating segment



Revenue split by line of business



Revenue split by industry



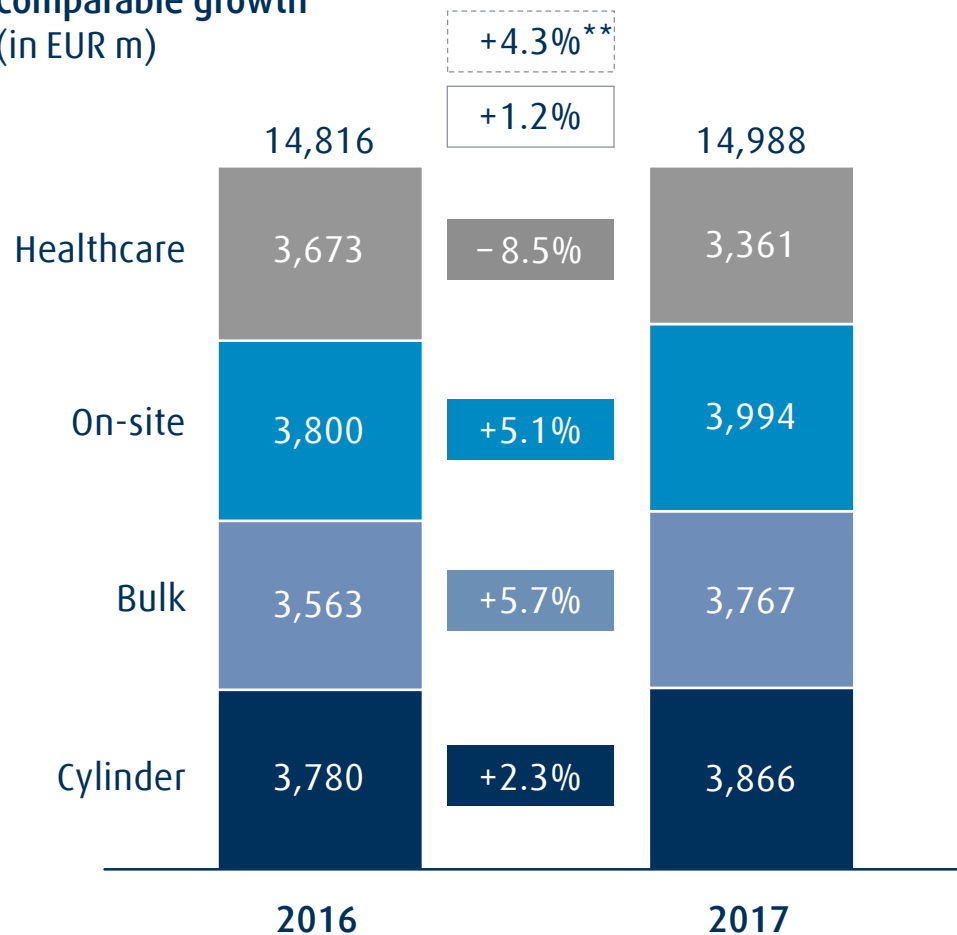
- Established footprint in major industrial clusters in North and South America
- Leader in US respiratory homecare market

Source: Linde data for the year 2017

Gases Division

Revenue by line of business

Comparable growth*
(in EUR m)



Comments / additional effects



Healthcare

Development impacted by competitive bidding and divestment of Specialty Pharma; -5.7% excluding consolidation effects



On-site

Solid growth from start-ups and ramp-ups in all operating segments



Bulk

Positive growth development in all geographies, most notably in Asia



Cylinder

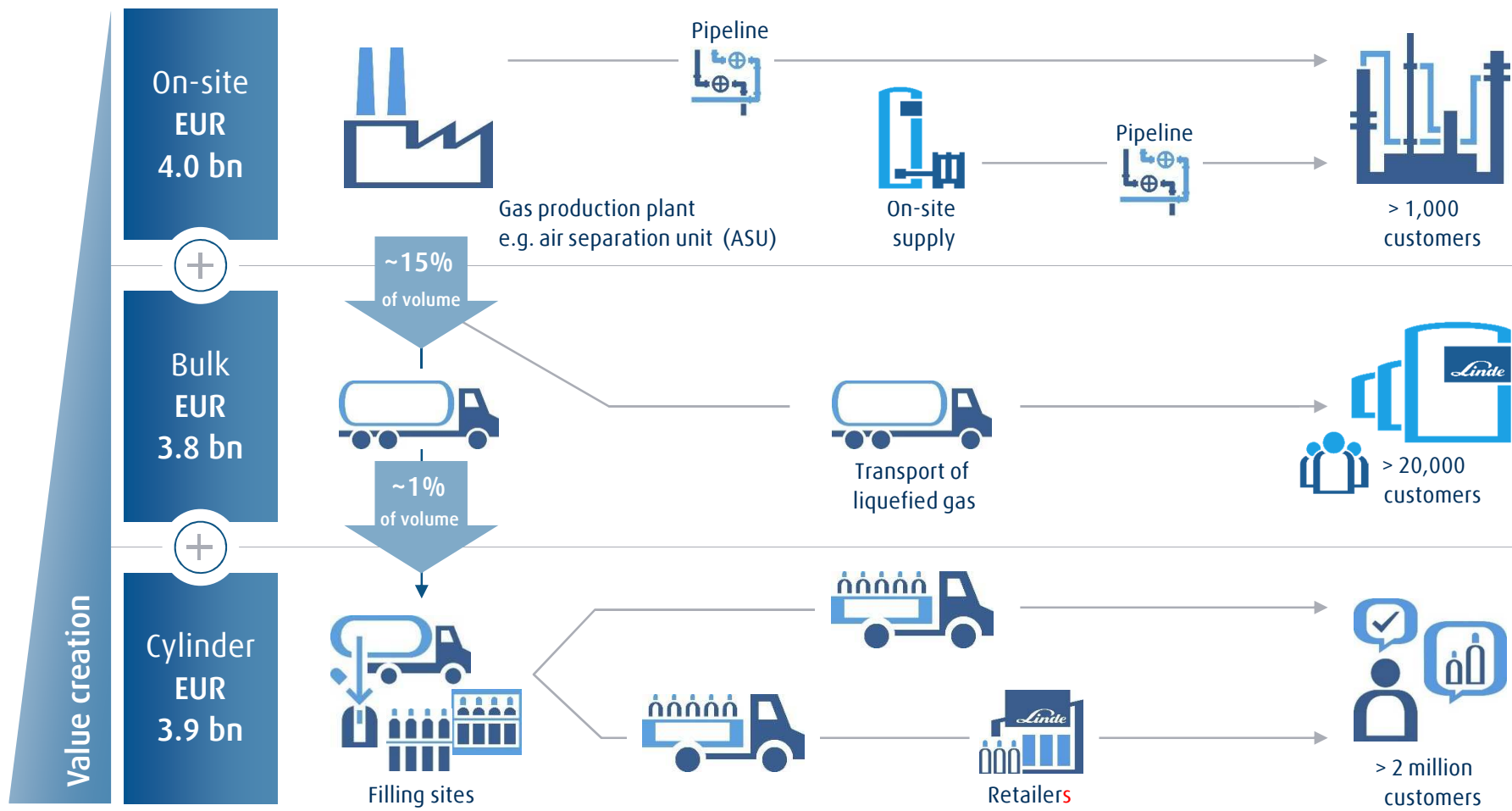
Positive growth momentum in EMEA and Asia

* Excludes currency and natural gas price effects

** Comparable growth excluding Healthcare

Gases Division

Integrated gases model



Based on 2017 revenues



Plant engineering

- Air separation units
- LNG and natural gas processing plants
- Petrochemical plants
- Hydrogen and synthesis gas plants
- Adsorption plants
- Cryogenic plants
- Carbon capture and utilisation plants
- Furnaces, fired heaters, incinerators

Component manufacturing

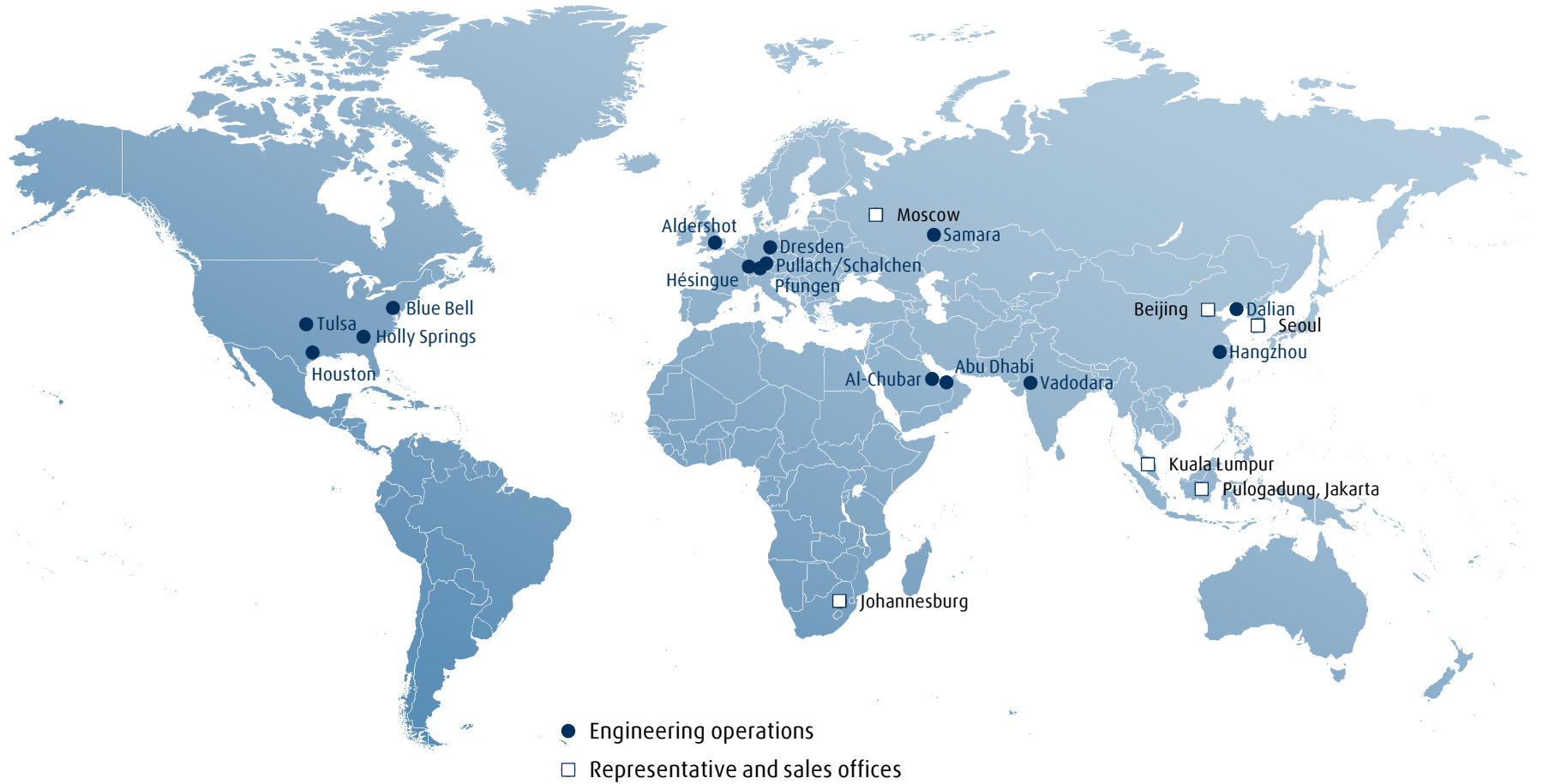
- Coldboxes and modules
- Coil-wound heat exchangers
- Plate-fin heat exchangers
- Cryogenic columns
- Cryogenic storage tanks
- Liquefied helium tanks and containers
- Air-heated vaporisers
- Water bath vaporisers
- Spiral-welded aluminium pipes

Services

- Revamps and plant modifications
- Plant relocations
- Spare parts
- Operational support, troubleshooting and immediate repairs
- Long-term service contracts
- Expert reviews for plants, operations and spare parts inventory
- Operator training

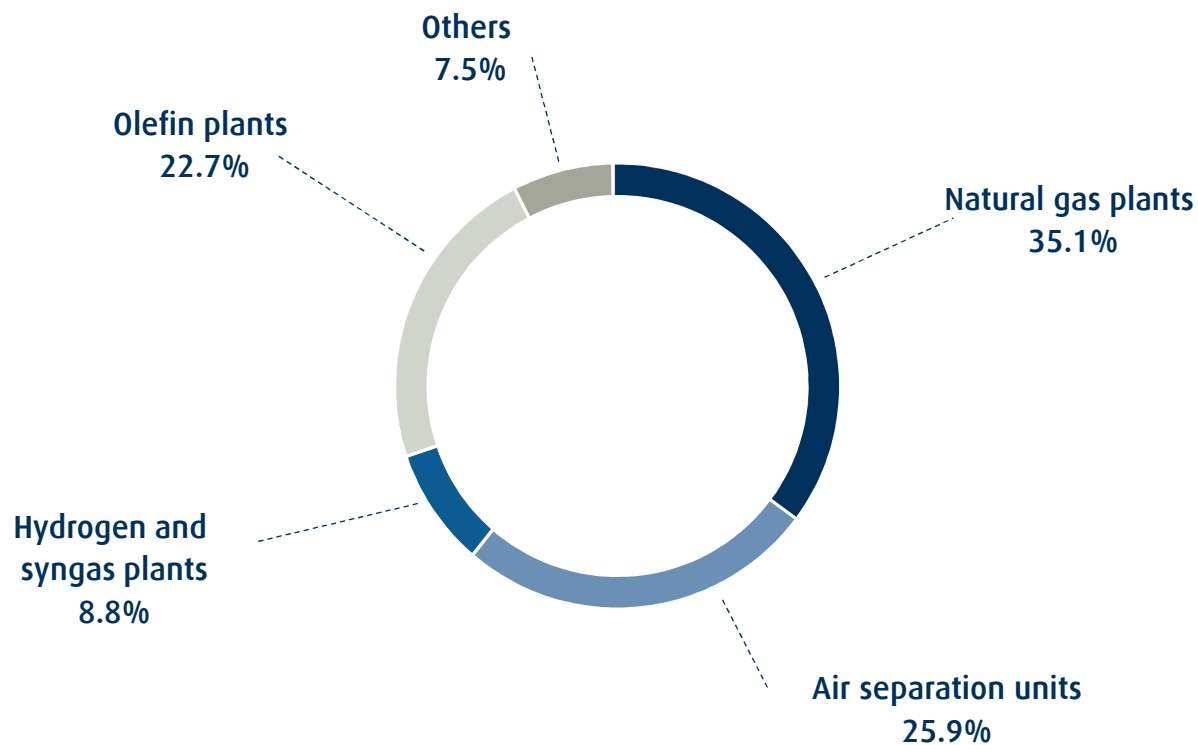
Engineering Division

Operations and sales offices



Engineering Division

2017 order intake by plant type



Order intake by plant type (in EUR m)

	2016	2017		2016	2017
Natural gas plants	796 (35.3%)	839 (35.1%)	Olefin plants	374 (16.6%)	543 (22.7%)
Air separation units	651 (28.8%)	619 (25.9%)	Others	152 (6.7%)	179 (7.5%)
Hydrogen and syngas plants	284 (12.6%)	210 (8.8%)	Total	2,257	2,390

Engineering Division

Core competence: Gas processing

6,144 employees *

3,000 engineers

1,000 process engineering patents

4,000 plants built

Expertise & experience

Feedstock

Air
Natural gas
Hydrocarbons

Flue gases /off-gases
Tail gases

Liquefaction

Separation

Thermal cracking

Products

Hydrogen
Oxygen
Noble gases
Nitrogen

Carbon monoxide
Carbon dioxide
Synthesis gas
Olefins

Plant components

Standardised plants

EPC plants

Services



Air separation units



Hydrogen and syngas plants



Petrochemical plants



Natural gas plants

For Linde Gas & third-party customers

For the chemical & energy-related industries

* As of: 31/12/2017

The Linde Group

Divisions

- Gases Division
- Engineering Division

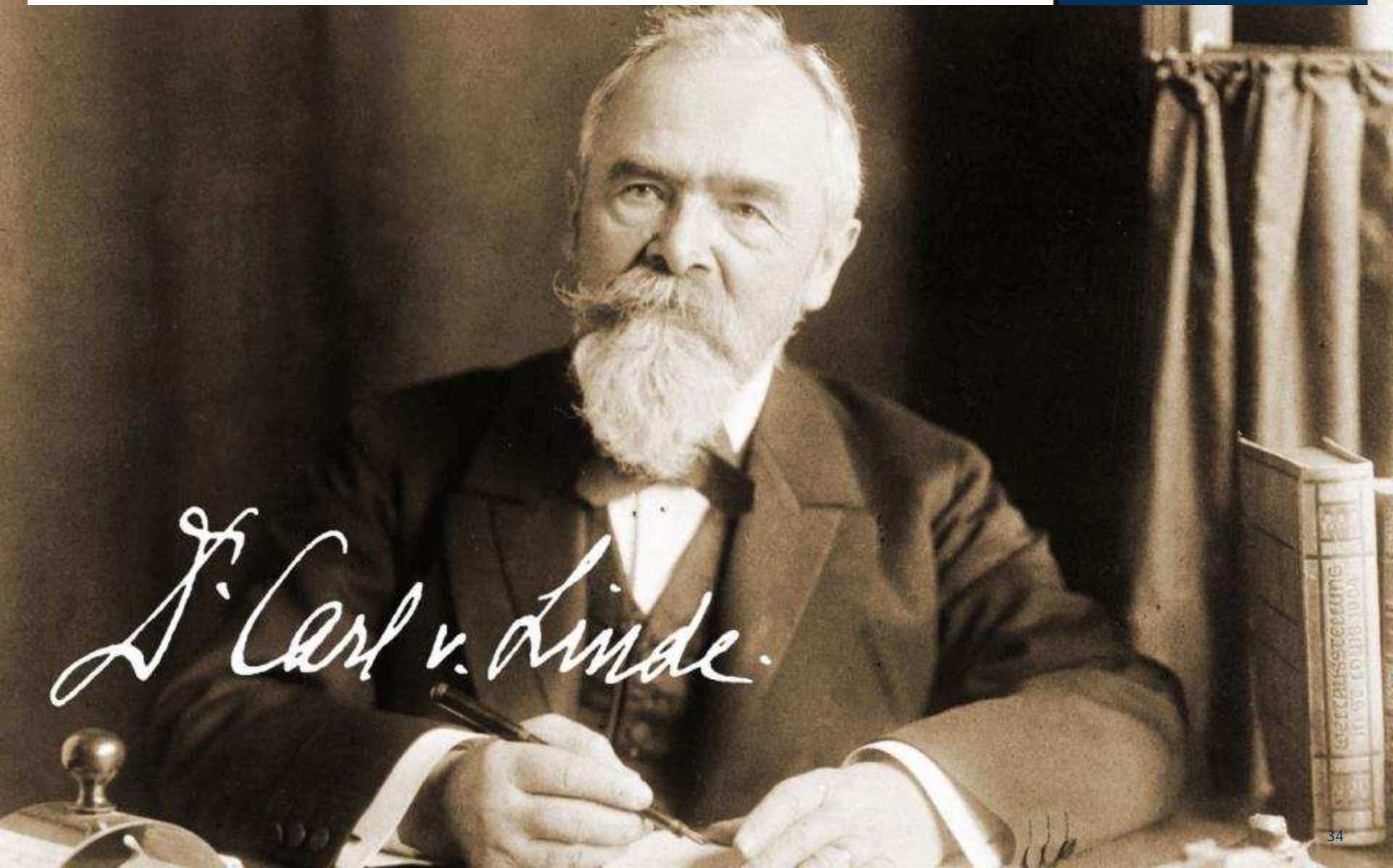
Linde Corporate Heritage

Linde Corporate Heritage

Historical timeline



THE LINDE GROUP



Carl von Linde

Linde Corporate Heritage

Historical timeline 1879-1920



The roots of the industrial gases industry are closely tied to the history of oxygen, extending from the scientific discovery of this gas to the establishment of a commercially viable production process. BOC, AGA and Linde played a major role in shaping both the underlying technologies and the gases business.

	1880	1890	1900	1910	1920
BOC		1886 Foundation of Brin's Oxygen Company Ltd.		1906 Linde and Brin's Oxygen Co. agree that Brin's may use Linde patents. Linde becomes shareholder at Brin's. Carl von Linde joins the management team and Brin's is renamed "The British Oxygen Company Ltd." (BOC).	1914 BOC runs high-purity gas plants in six major British cities.
AGA				1904 Foundation of Gasaccumulatorn AB.	1912 Gustaf Dalén, founder of AGA, receives the Nobel Prize in Physics. 1918 Manufacturing of oxy-acetylene gas lamps for film projectors.
Linde	1879 Foundation of Gesellschaft für Linde's Eismaschinen AG in Wiesbaden, Germany.		1895 Carl Linde obtains a patent for his "Process for the liquefaction of atmospheric air or other gases".	1902 Patent for air separation process. 1907 Foundation of Linde Air Products in the United States; the company later becomes Praxair (1991).	1913 Production of specialty gases begins in Höllriegelskreuth near Munich.

Linde Corporate Heritage

Historical timeline 1920-1970



Depression, war and realignment. New target applications enabled by emerging technologies created enormous opportunities for all three companies. Joint ventures brought BOC and Linde closer together.

	1930	1940	1950	1960	1970
BOC		<p>1935 With the purchase of a controlling interest in the African Oxygen company in South Africa (now AFROX), BOC becomes the leading gases company in Africa.</p>			<p>1965 1965 The discovery of oil and gas in the North Sea results in a huge market for large ships, storage tanks and pipelines. BOC benefits from the high sales volumes.</p> <p>1969 Foundation of joint venture between Linde and BOC for refrigeration solutions.</p>
AGA		<p>1936 Production of nitrous oxide and carbogen for medical applications.</p>	<p>1951 Construction of the first AGA production plant for liquid oxygen.</p>		
Linde	<p>1929 Takeover of Guldner-Motoren-Gesellschaft (diesel engines and tractors) by Linde; forerunner of subsequent forklift business.</p>	<p>1937 Launch of ELLIRA welding technique for automated welding in shipbuilding.</p>		<p>1954 Foundation of BOL Ltd., a joint venture between Linde and BOC, with the purpose of coordinating the technical design and sale of air separation facilities.</p>	<p>1965 First order for the construction of a complete industrial-scale petrochemical plant for ethylene production.</p>

Linde Corporate Heritage

Historical timeline 1970-2016



Concentration and consolidation. BOC, AGA and Linde look back on a history spanning more than 100 years – a history shaped by technology excellence and innovation. Today they stand together, one of the world’s leading industrial gases companies.

	1980	1990	2000	2010	2020
BOC	1980 BOC enters the Chinese market.		2002 Foundation of US engineering joint venture Linde BOC Process Plants LLC, head-quartered in Tulsa, Oklahoma	2006 Linde acquires BOC; together the companies form The Linde Group.	2016 Prof. Aldo Belloni returns from retirement to take the position of CEO.
AGA	1983 AGA concentrates on industrial gases for the chemicals industry and sells off several other lines of business.		1999 Linde acquires the Swedish gases company AGA.	2012 Linde acquires the US homecare medical gases company Lincare Holdings Inc. for USD 4.6 billion.	
Linde	1975 Gradual acquisition of Selas-Kirchner GmbH. Rise to global market leader in the field of olefin plants.	1984 Linde finalises acquisition of France’s largest forklift producer, Fenwick.	1990 Construction of Linde’s largest gases complex in Leuna, Germany.	2000 Statoil places order with Linde for Europe’s largest LNG plant (operational from 2007).	2006 Linde sells the Material Handling division (forklifts).

Thank you for your attention.

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