umicore
materials for a better life

Umicore

Investor Presentation

May 2019

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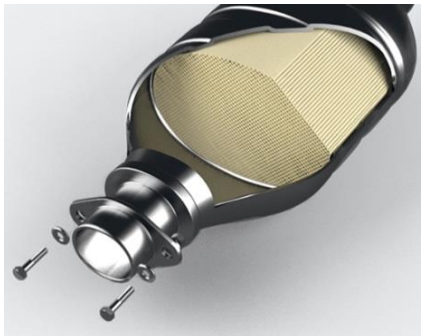
materials for a better life

Introduction to Umicore

Who we are

A global materials technology and recycling group



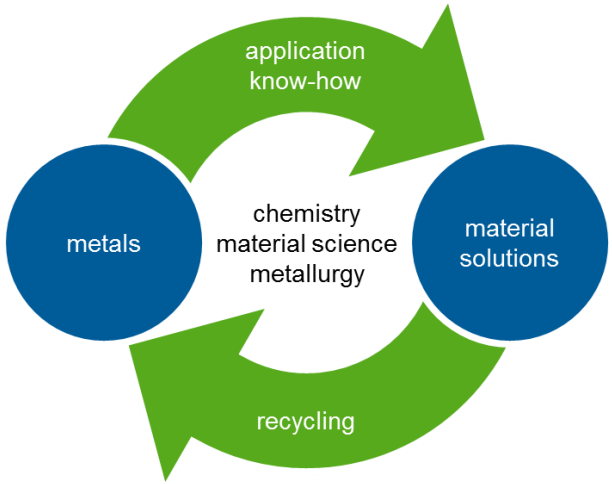
One of three global leaders in emission control catalysts for light-duty and heavy-duty vehicles and for all fuel types

A leading supplier of key materials for rechargeable batteries used in electrified transportation and portable electronics

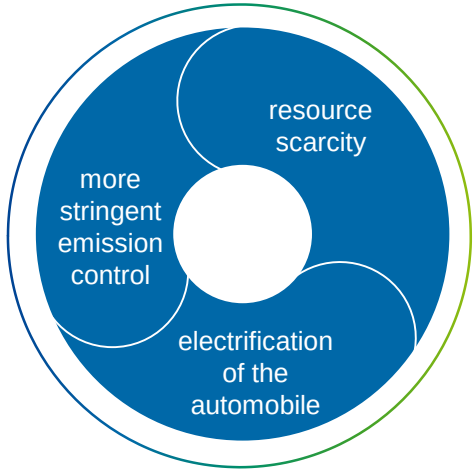
The world's leading recycler of complex waste streams containing precious and other valuable metals

Our foundations

Unique business model



Supportive megatrends & legislation



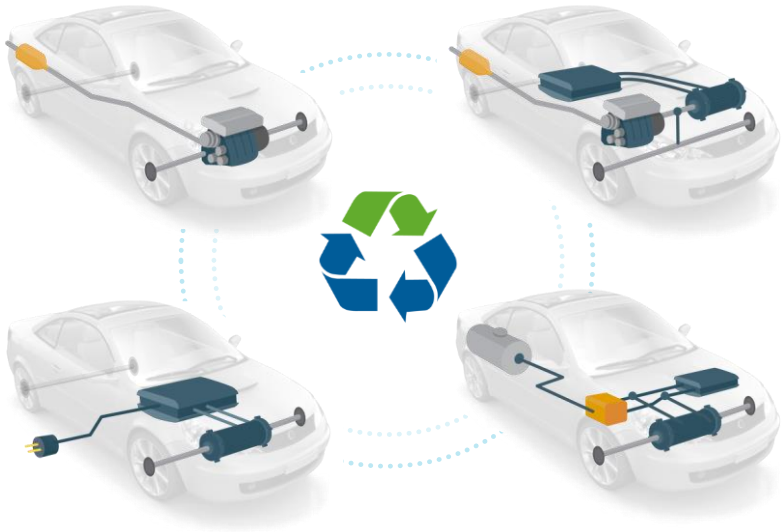
Industry leader in sustainability

Unique position in clean mobility materials and recycling

Present across all drive trains and offering sustainable closed-loop services

Internal Combustion Engine
Umicore provides:
Emission control catalysts

Full Electric Vehicle
Umicore provides:
Battery cathode materials

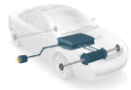


Plug-In Hybrid Electric Vehicle
Umicore provides:
Battery cathode materials and emission control catalysts

Fuel cells
Umicore provides:
Electro-catalyst and battery cathode materials

Unique position in clean mobility materials

Full service offering vs competitors

✓✓✓ Incumbent ✓ Early stage	Automotive catalysts 	Battery materials 	Fuel cell catalysts 	Refining & recycling services 
Umicore	✓✓✓	✓✓✓	✓	✓✓✓
Automotive catalyst competitors	✓✓✓	✓	✓	✓ (incumbent in spent automotive catalysts)
Battery material competitors		✓✓✓	✓	
Fuel cell catalyst competitors	✓✓✓		✓	✓

Unique position in recycling

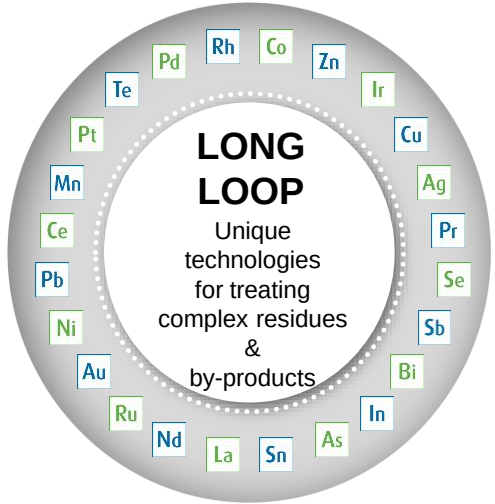
Metallurgical leadership and closed loop offering

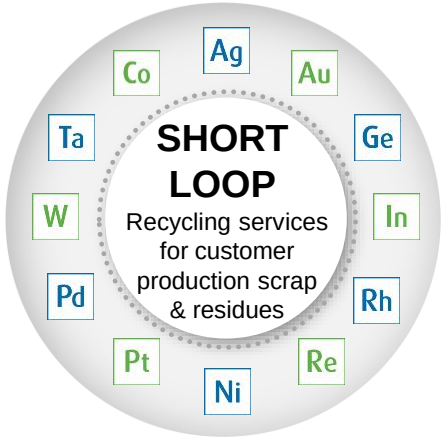
Unique technologies in Hoboken for treating complex residues and by-products

Closing the loop in product businesses by offering recycling services

Over 200 input streams

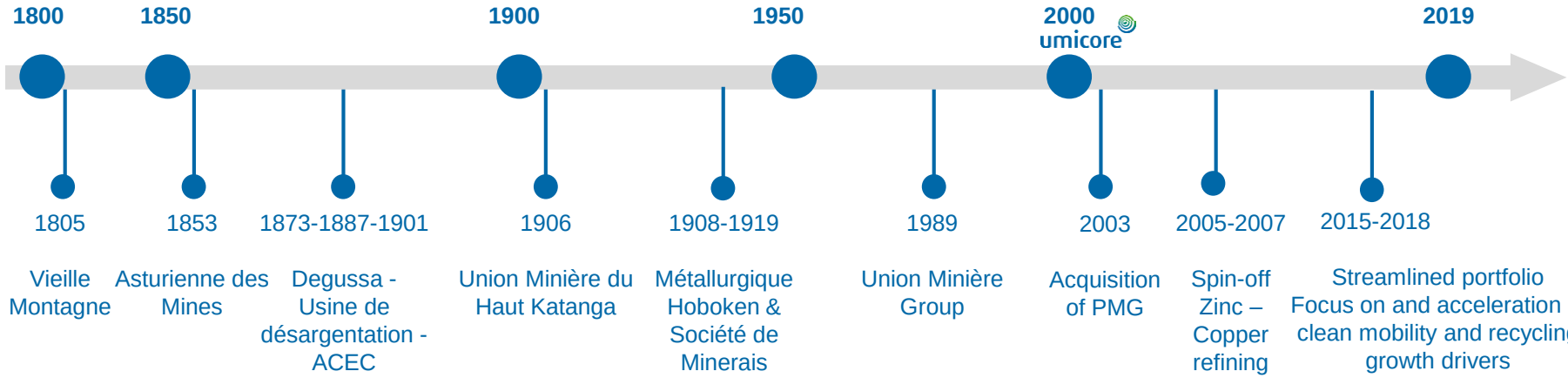
Recovery of **20 metals**





Where we come from

Two centuries' transformation away from mining & base metals



Where it all began

- Several mining and smelting companies coming together

Crossing borders

- Acquisition of Union Minière du Haut Katanga (UMHK), producer of copper and other metals

Pieces of the puzzle

- Merger in 1989 of UMHK with mining and smelting subsidiaries resulting in an integrated industrial group "Union Minière"
- Gradual sale of mining activities; focus on precious metals, zinc products and advanced materials illustrated by name change to Umicore in 2001

A defining decade

- Acquisition of PMG in 2003 adding presence in automotive catalyst sector
- In 2005, spin-off of copper business to Cumerio, later Aurubis
- In 2007, spin-off of zinc refining and alloy business, resulting in Nyrstar

Today

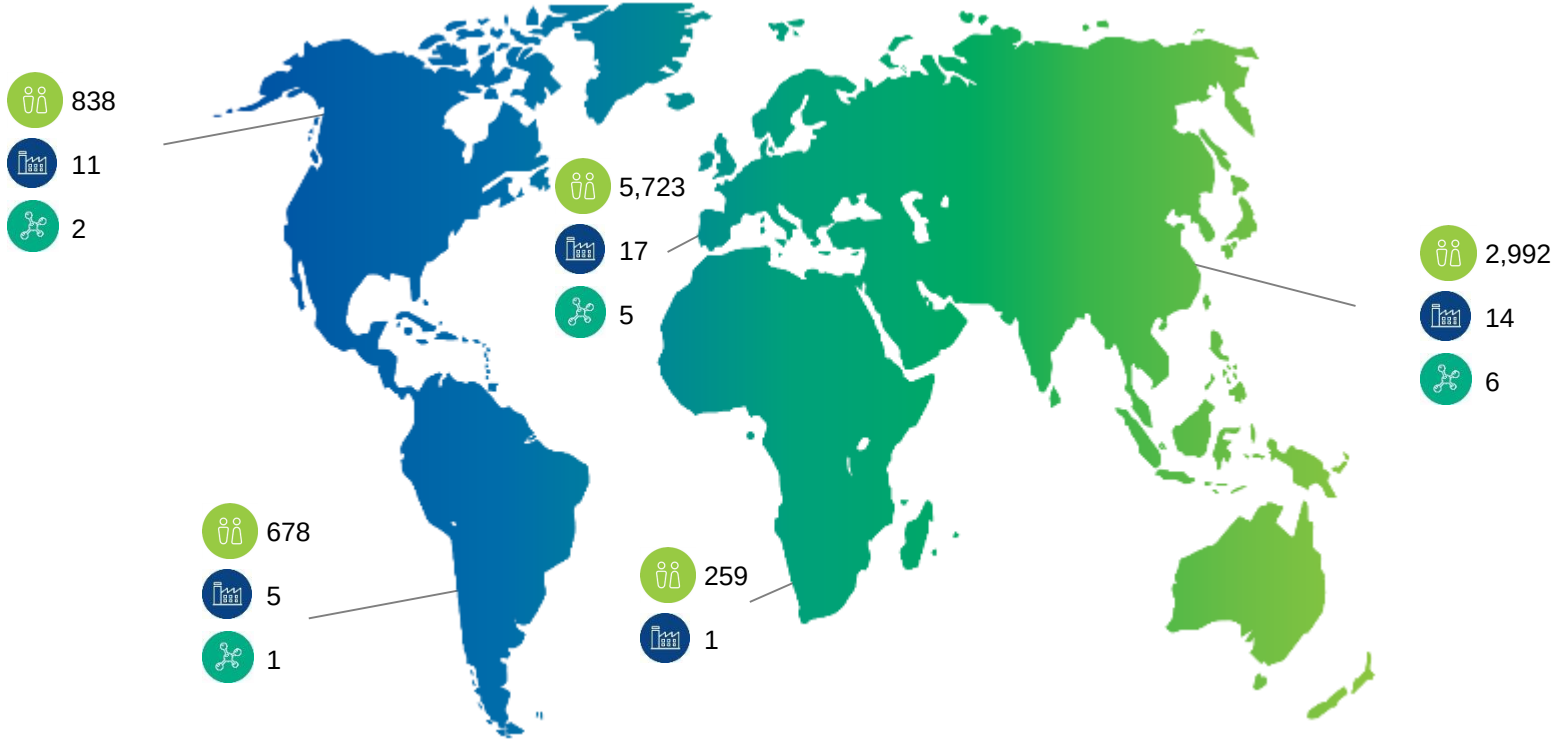
- Since 2015, increased focus on accelerating clean mobility and recycling ("Horizon 2020")
- Divested four non-strategic units and acquired Haldor Topsoe's heavy duty diesel and stationary catalyst business in 2017.
- Ongoing €1.1bn capacity expansion in battery materials in China, Korea and Poland
- Today Umicore is a global materials technology and recycling group, with more than 10,000 employees and revenues (excl. metals) of € 3.3 billion

Global presence

COLLEAGUES
10,419

PRODUCTION SITES
48

R&D / TECHNOLOGY CENTERS
14



Our Group structure : focused and balanced

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CATALYSIS

Automotive Catalysts

Precious Metals Chemistry

ENERGY & SURFACE TECHNOLOGIES

Rechargeable Battery Materials

Cobalt & Specialty Materials

Electroplating

Electro-Optic Materials

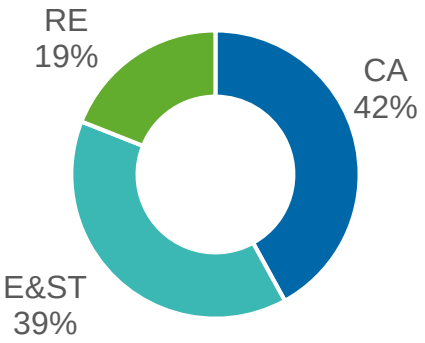
RECYCLING

Precious Metals Refining

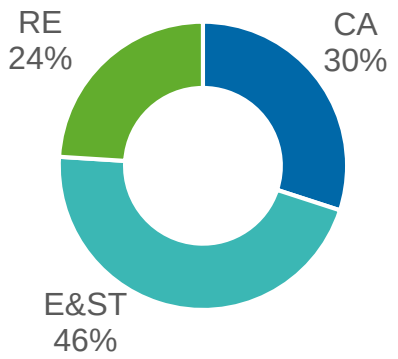
Jewelry & Industrial Metals

Precious Metals Management

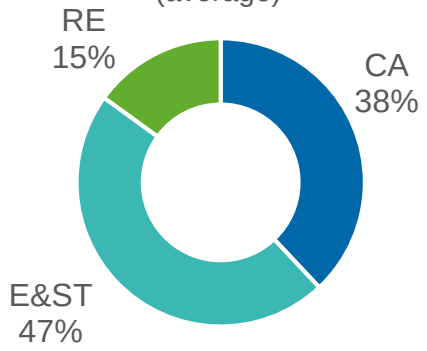
Revenues
(excluding metal)



EBIT
(recurring)



Capital employed
(average)



CA = Catalysis, E&ST = Energy & Surface Technologies, RE = Recycling; Corporate not included

Our Horizon 2020 strategy

Clear leadership in clean mobility materials and recycling

Doubled the size of the business in terms of earnings

Rebalanced the portfolio & earnings contributions

Turned sustainability into a greater competitive edge

In 2018, we made significant progress towards the 2020 ambitions

Record results in 2018

Strategic choices and recent investments paying off

REVENUES
€3.3bn +17%*

REBIT
€514m +29%*

REBITDA
€720m +23%*

ROCE
15.4%

REC NET PROFIT
€326m +22%

Capex
€478m

R&D
€196m

*Excluding discontinued operations

Consistent execution of the strategy

Main investment projects

Catalysis

- Capacity expansion in **Europe, China and India following major business wins**
- Initial investment in **fuel cell catalyst capacity expansion in Korea**

Energy & Surface Technologies

- Completion of **€ 460 million** investment program in **China and Korea** on an accelerated schedule
- **€ 660 million** greenfield investments in **China and Poland** ongoing

Recycling

- Completion of environmental investments **in Hoboken** resulting in significant reduction in emissions.

Consistent execution of the strategy

Technology innovation drives our business

R&D

- Up 12% to € 196 million
- 6% of Umicore's revenues

CATALYSIS

- New product developments for upcoming emission regulations in Europe and China; fuel cell technology
- State of the art process technologies

ENERGY & SURFACE TECHNOLOGIES

- Innovation roadmap spanning the next 20 years for rechargeable battery materials
- Developing new process technologies
- Battery recycling

Business Group Overview

Catalysis

Catalysis

Automotive Catalysts	A world leader in emission control catalysts for light-duty and heavy-duty vehicles and for all fuel types. Complemented by smaller stationary catalyst applications (marine, power generation, …).	Pt Pd Rh
Precious Metals Chemistry	Develops and produces metal-based catalysts used in chemistry, life sciences and pharmaceutical applications. Also has a complete portfolio of catalyst technologies for fuel cells.	Pt Pd Ru Rh Ag Ir Au Co Ga

Automotive Catalysts: business model

We develop technologies which allow our customers to meet automotive emission legislation at the lowest Total Cost of Ownership

Complete catalyst systems to reduce exhaust gas emissions

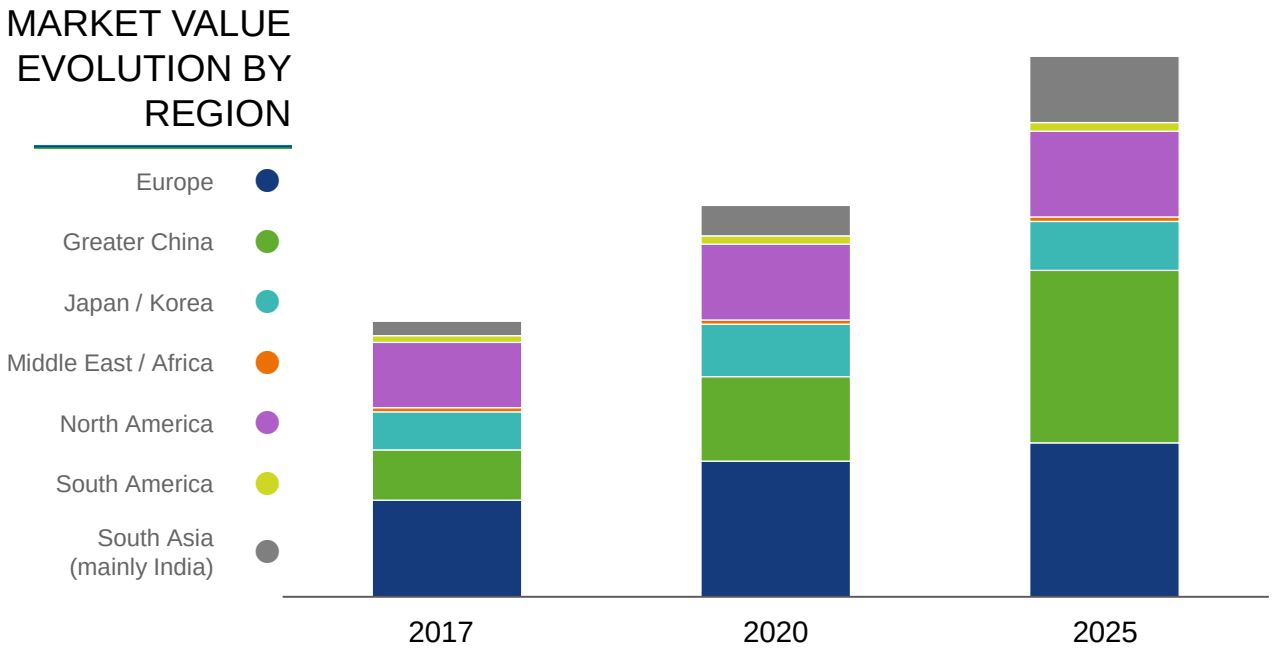
Customer focus

People engagement

Operational excellence

Global manufacturing & technical footprint

Total LDV and HDD catalyst market set for unprecedented value growth

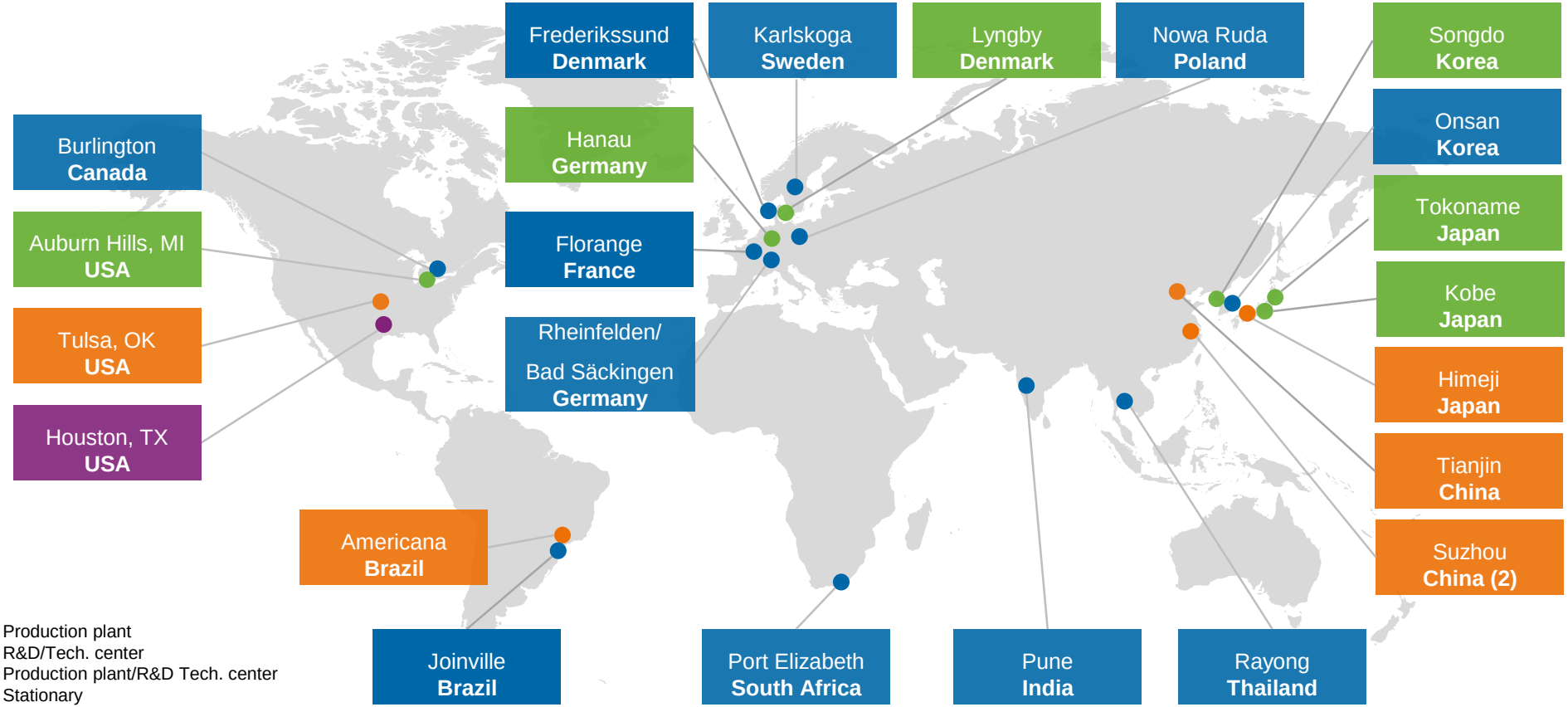


Source: IHS, KGP, Umicore estimates

- **Massive tightening of emission norms in China, Europe and India drive massive value uplift in both the LDV and HDD catalyst markets**
- **Value growth by far outpacing vehicle production**
- **Technology and Innovation play**

Automotive Catalysts Production Footprint

19 plants in 14 countries, 10 R&D / tech. centers in 7 countries



Umicore well positioned to capture this growth

Next to **volume growth**, unprecedented future **system value step-up** due to tightening emission norms in Europe, China and India in particular.

Light-Duty Vehicles

- Gaining significant share in growing gasoline segment
- Disproportionate share of gasoline GPF platforms won in China and Europe

Heavy-Duty Diesel

- Growing from a distant # 3 position
- Strong position in China, the largest HDD market
- Development partner of most major HDD OEMs

Stationary :

- Growing niche
- New legislation
- Leverage global presence

Through R&D, we continue to build a **competitive technology** portfolio and invest in **additional flexible capacity** using proprietary processes

Catalysis financials

2018: Revenues +9%, REBIT +2%, REBITDA + 6%

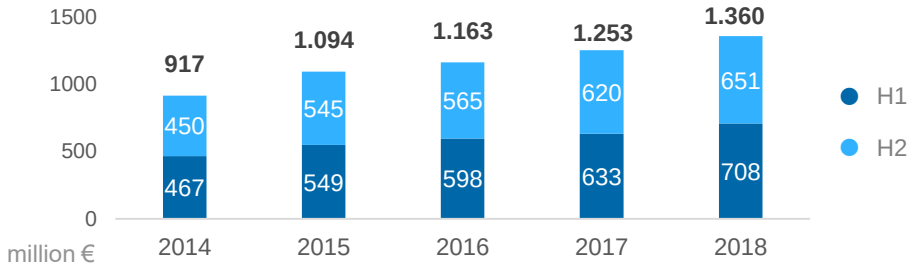
Automotive Catalysts

- Increased contribution of HDD activity
- Growth driven by higher gasoline volumes, despite slowing market (incl. diesel)
- Significant gasoline platform wins
- Late 2017 acquisition synergies not yet included

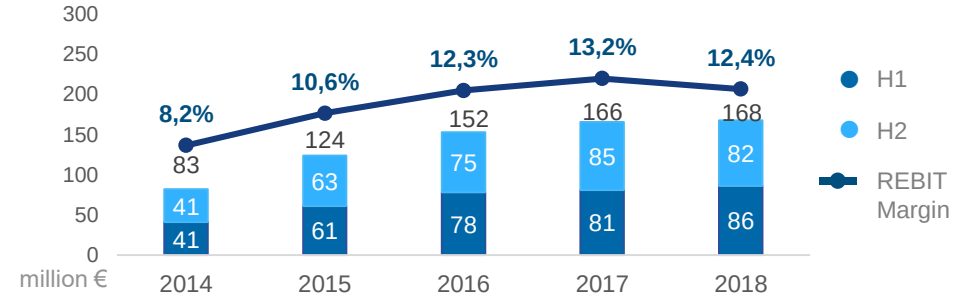
Precious Metals Chemistry

- Higher sales of APIs and chemical metal deposition applications
- Increased revenues from fuel cell catalysts

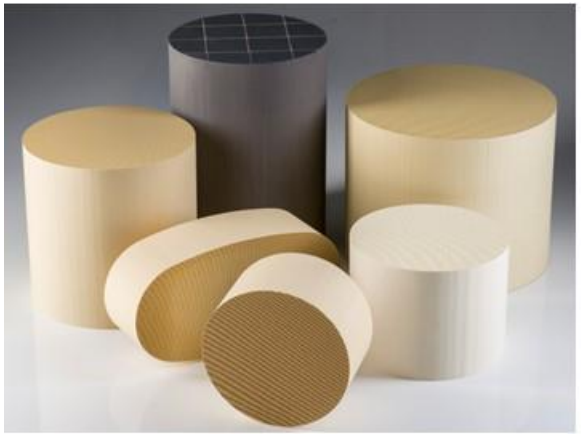
REVENUES



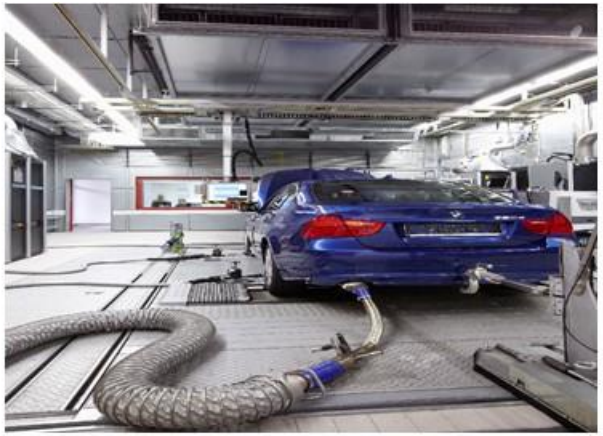
REBIT & REBIT margin



Impressions

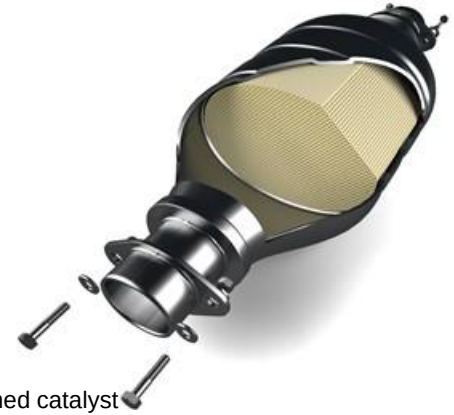


Catalyst elements



Test bench

Bad-Säckingen plant AC, Germany



Canned catalyst

Installation stationary DNox catalyst

Nowa Ruda plant AC, Poland

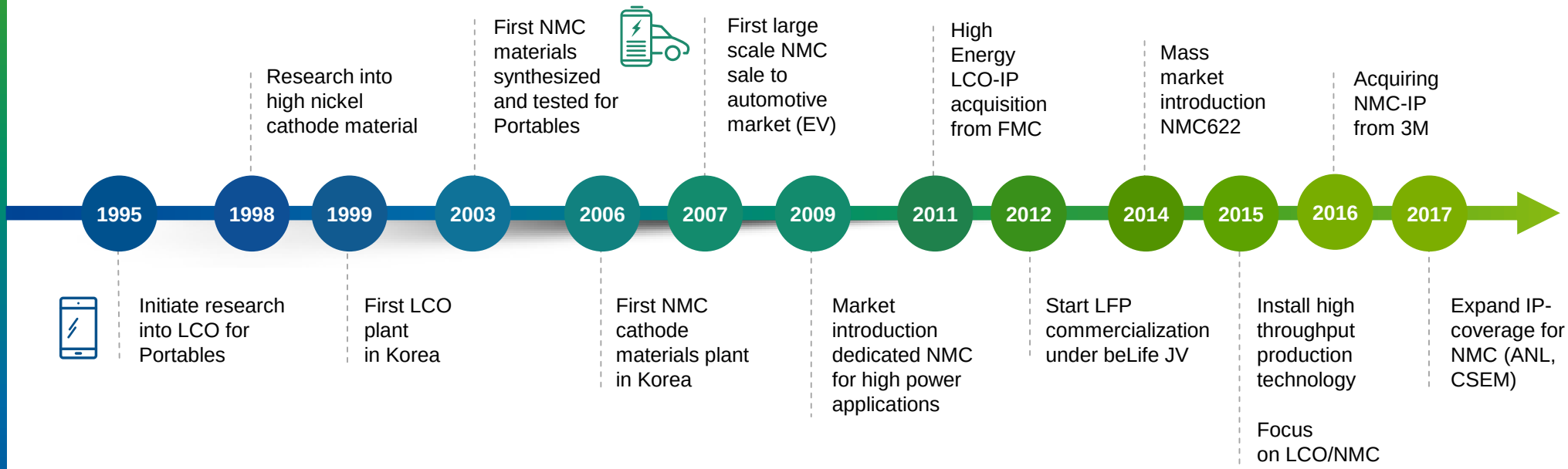
Business Group Overview

Energy & Surface Technologies

Energy & Surface Technologies

Rechargeable Battery Materials	A leading cathode material supplier for lithium-ion rechargeable batteries used in electrified vehicles and portable electronics.	Ni Co Li Mn
Cobalt & Specialty Materials	Refines and recycles cobalt and nickel; produces cobalt and nickel specialty chemicals for a wide range of applications (incl. tires, catalysts, surface treatment). Also includes battery recycling.	Re Co Ni W Ta Cu
Electroplating	Supplies precious metal electrolytes & processes for technical, functional and decorative applications.	Au Ag Rh Ru Pd Pt
Electro-Optic Materials	Supplier of products for thermal imaging as well as wafers for space solar cells and high brightness LEDs, chemicals for fiber optics and thin film applications.	Ge Sb Se

Rechargeable Battery Materials: 20+ years of innovation in li-ion battery materials



Rechargeable Battery Materials: business model

Product innovation based on strong **application know-how**

Established industrial footprint **close to the customer**

Strong industrialization capabilities building on historical Umicore key competences

Process innovation fuels productivity improvements while maintaining highest quality standards (stringent automotive standards)

Integrated process flows with guaranteed access to critical raw materials allows **an agile market approach**

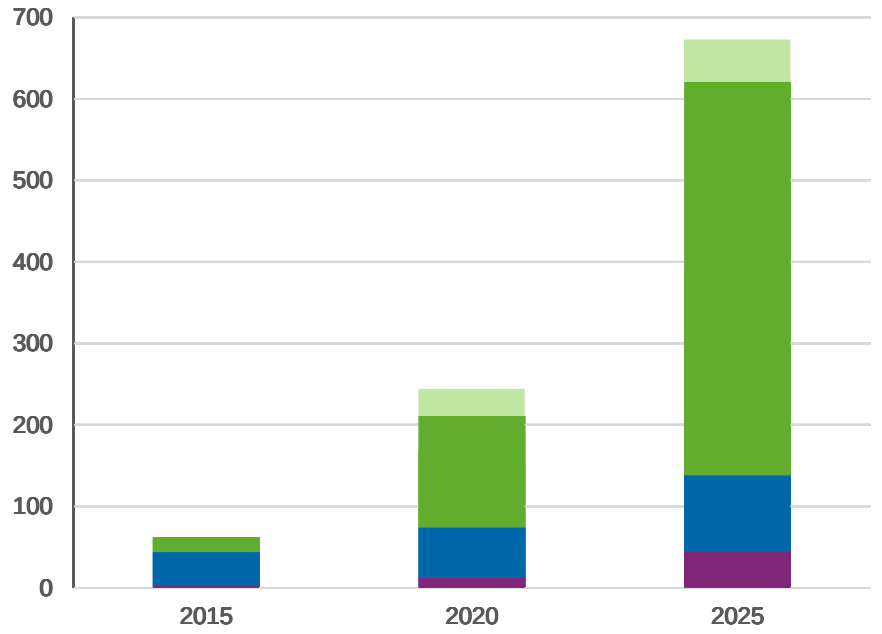
Battery market projections

Electrification triggered by legislation in Europe and China

Electrification
Regulatory driver

Portables
Societal driver

Energy Storage System
Regulatory driver



Source: Avicenne, Navigant, Roland Berger, AABC, IHS, Gartner, SNR, CRU, Roskill

It takes a lot to play in the automotive league

Car OEMs need :

High quality cathode materials

- … **custom made** for **different types** of xEVs
- … in **massive volumes**
- … at the highest **speed and flexibility**
- … at a **competitive price**
- …without any **sustainability image risk**.

- excellent product quality on 20+ specs
- wide spectrum of cathode material technologies
- industrial capabilities
- ability to scale up fast
- cost-efficient processes
- ethically sourced materials

It takes product technology, process technology and supply

Product, process and supply

Key success factors

3 Supply

Raw materials

- Feed flexibility
- Battery recycling

1 Product Technology

Lab scale

Wide spectrum of cathode material technologies

2 Process Technology

Pilot scale

Industrial scale

- Ability to scale up fast
- Cost-efficient processes
- Industrial capabilities

Best in class product quality on 20+ specs:
continuous fine-tuning at lab, pilot and industrial scale

Cathode material specs to fulfil cell performance specs

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Cathode material **product specs**

- Particle size
- Morphology
- Composition
- Purity
- Packing density
- Porosity
- Consistency
- and more…

Cathode material **performance specs**

- Capacity
- Power (charge/discharge)
- Cycle life
- Safety
- Charge efficiency
- and more…

Tailoring cathode material characteristics to the cell specs requires:

Fundamental chemistry know-how to design the right product composition during lab phase

Ability to further enhance the product designs during the qualification cycles in pilot phase

Not one cathode chemistry can fit all

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Transportation

	Low nickel NMC → High Ni chemistries
BEV Long range	
BEV Mid range	
pHEV	
E-Bus	
Other (Indust.)	

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- **Wide spectrum of cathode materials to fit different transportaion requirements**
- **Capability to deliver excellent product quality on the 20+ specs**

Process technology as enabler for fast growth and cost efficiency

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FAST GROWTH

- Efficient from pilot to industrial scale
- Excellent product quality at large industrial volumes
- Capability to respond to market swings
- Production lines forward and backward compatible

COST EFFICIENT

- Controlled capital intensity
- High throughput rate
- Maximize first pass yield
- Operational expenditures

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- Industrial capabilities
- Ability to scale up fast
- Cost-efficient and lean processes
- Excellent product quality on 20+ specs

2

Process technology

Rechargeable Battery Materials

Expansion projects timeline

Access to raw materials

Unique integration in the value chain

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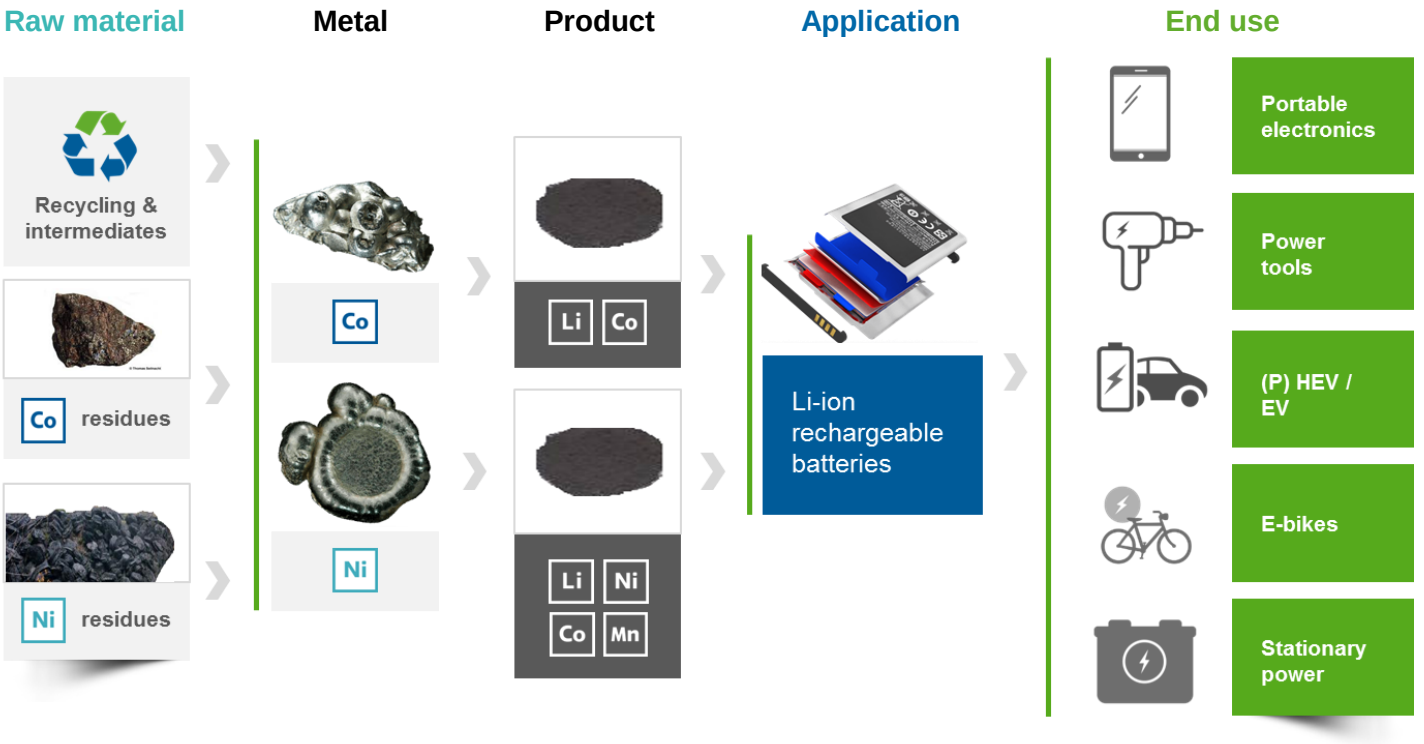


Umicore

- **Flexibility in supply feed, high speed to market and responsiveness to customer needs**

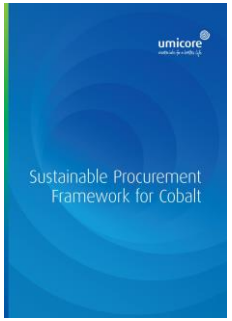
3

Supply

Access to raw materials

Battery recycling as critical additional source of supply

- Umicore is fully aligned with OECD Due Diligence for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas
- Certified clean and ethical supply to our customers
- Urban mining indispensable for global electrification of transportation
- Proven industrial capabilities for all types and formats of Li-ion batteries
- Patented recycling technology
- High recovery rates for lithium, cobalt, nickel and copper
- Highest environmental standards



Umicore **Flexibility in supply feed, high speed to market and responsiveness to customer needs**

Energy & Surface Technologies financials

2018: Revenues +44%, REBIT +82%, REBITDA +63%

Rechargeable Battery Materials

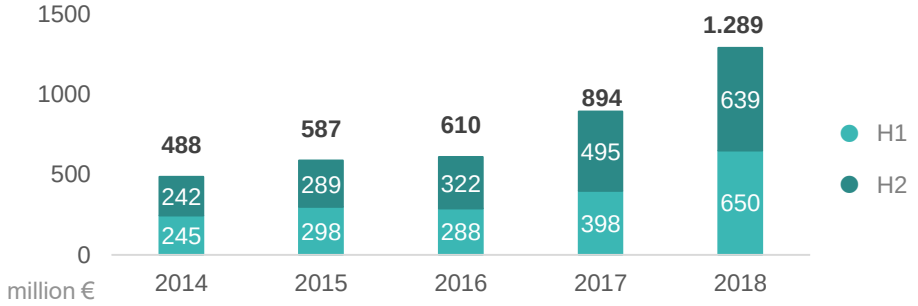
- Strong demand for NMC cathode materials for transportation applications
- Fast ramp-up of new capacity in China and Korea
- Earnings benefited from scale effects from new capacity

Cobalt & Specialty Materials

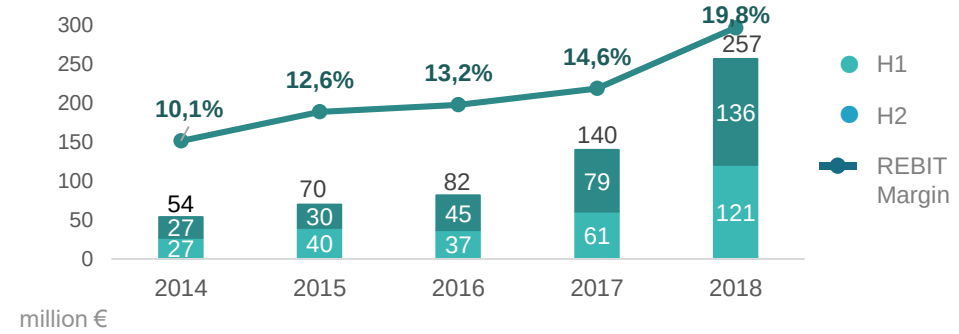
- Strong volumes & supportive metal prices in H1 18
- Increased activity level in battery recycling

Slightly lower revenues for **Electro-Optic Materials;** stable revenues in **Electroplating**

REVENUES



REBIT & REBIT margin



Key takeaways

Increasing electrification **drives strong market demand** in the medium term

Product customization trend

Umicore uniquely positioned to capture significant growth in this segment:

- Full spectrum of highest quality cathode materials
- Process technology and ability to scale up fast
- Innovation pipeline spanning the next 20 years
- Integrated supply chain and battery recycling

Impressions

EV car battery pack

Packaging finished product

RBM Cheonan production sites, Korea

Business Group Overview

Recycling

Recycling

Precious Metals Refining	Operates the world's most sophisticated precious metals recycling facility and recovers 17 precious and other valuable metals from complex waste streams.	Ag Pt Au Ir Ru Pd Rh
Precious Metals Management	Services for hedging, leasing, purchasing and sale of precious and platinum group metals to internal and external customers	Ag Te Sb Ir Pt Bi Pb Au Sn In As Ni Se Ru Pd Rh Cu
Jewelry & Industrial Metals	Supplier of precious metals based products for jewelry and industrial applications, recycler of jewellery and production scrap and producer of platinum-based equipment for the glass and chemical industries.	Ag Au Pt Pd

Precious Metal Refining

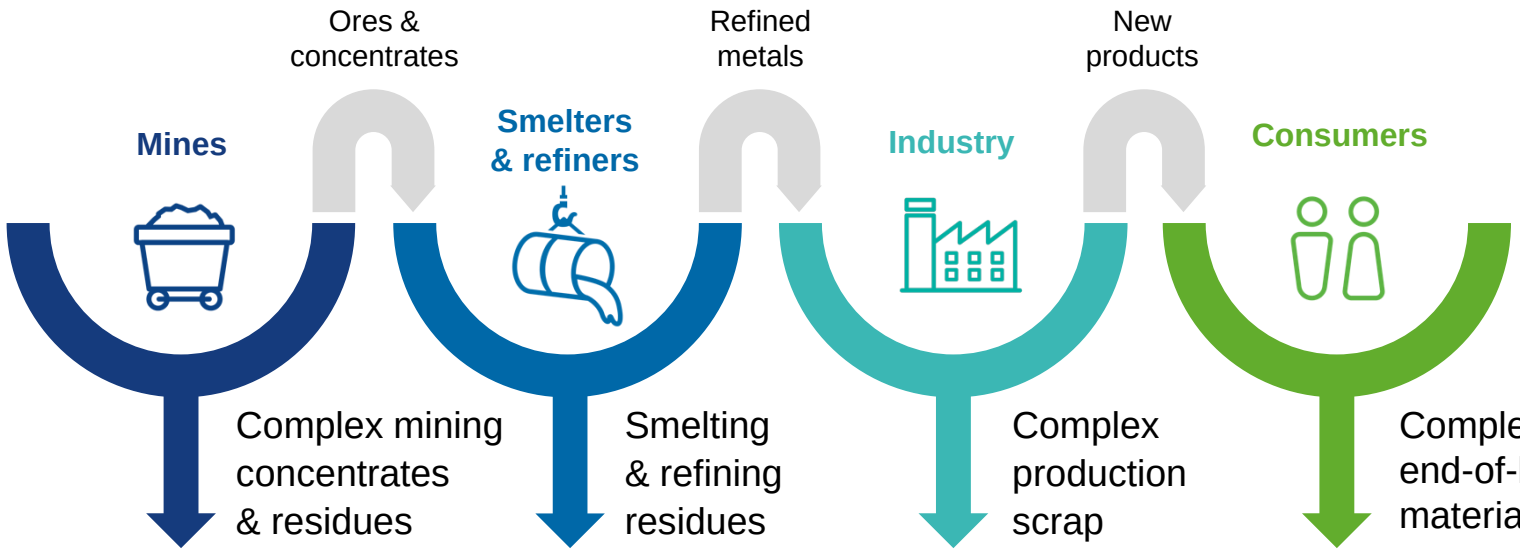
Largest and most complex precious metals recycling operation in the world

Processes more than 200 different types of raw materials

Leading refiner of 17 different metals

World class environmental and quality standards

The value chain of metals



Industrial by-products | **End-of life materials**

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Precious Metals Refining

Revenue Drivers

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Main revenue drivers

Treatment & refining charges	Metal yield
Treatment charges are determined, among other criteria, by the complexity of the materials	Umicore assumes the risk of recovery above or under the contractually agreed recovery rate

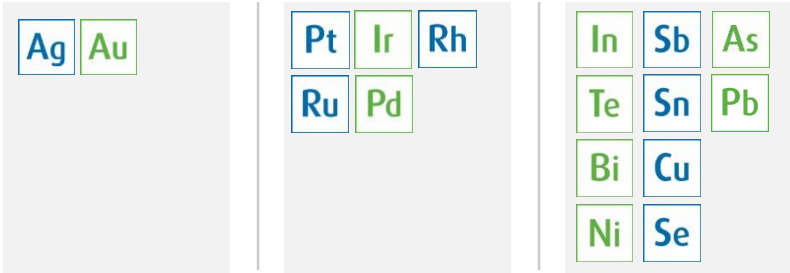
Metal price exposure

Direct:

through metal yield

Indirect:

through raw material availability



Managing the effects of metal price movements on earnings

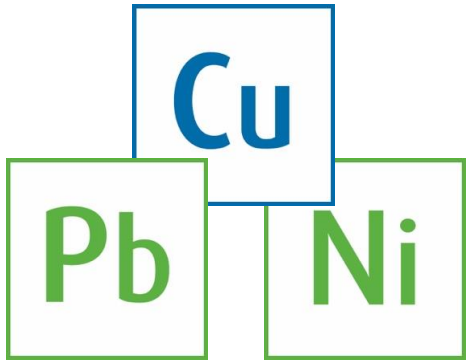
Systematic hedging of transactional exposure

Depending on market conditions hedging of (part of) structural metal price exposure through contractual arrangements

Impact on working capital is mitigated by toll-refining – metals remain property of the supplier during treatment

Umicore has unique technology

Umicore is unique due to its proprietary complex flowsheet that combines three metallurgical streams



This enables

Flexibility to treat a broad range of input materials	Recovery & valorization of the most metals	Ability to optimize feed and therefore profitability	Scope to broaden to new types of materials in future

- Umicore technology guarantees **environmentally friendly** processing, a high yield and a more competitive cost
- Umicore introduced its unique Ultra High Temperature technology for Battery Recycling more than 5 years ago

Recycling financials

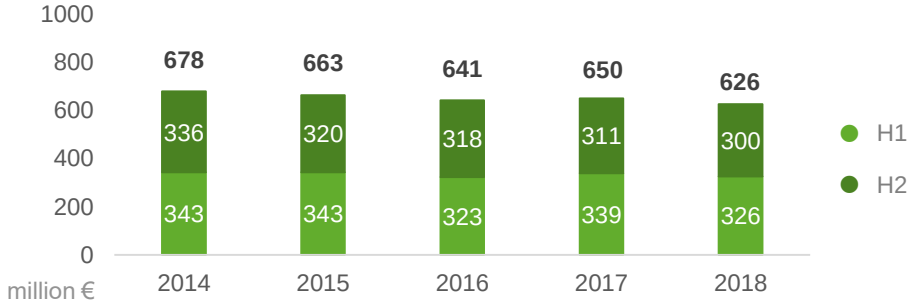
2018: Revenues +6%, REBIT +12%, REBITDA +7% (*)

Precious Metals Refining

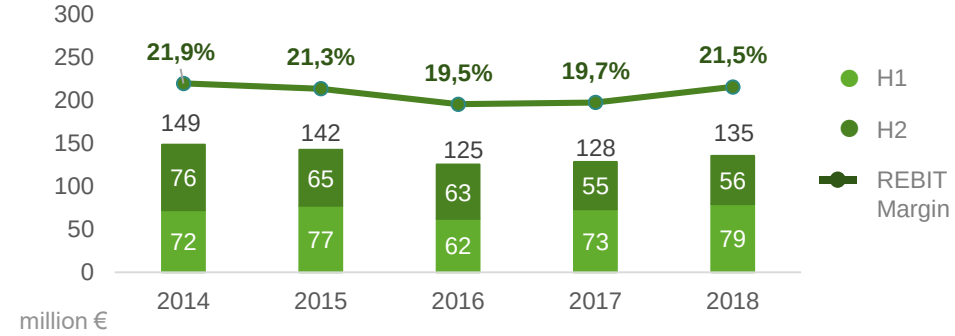
- Higher processed volumes despite fire incident
- Somewhat more supportive metal prices
- Commercial conditions in some segments impacted by competitive pressure
- Mix broadly unchanged

Stable revenues in **Jewelry & Industrial Metals** and higher revenues for **Precious Metals Management**

REVENUES



REBIT & REBIT margin



(*) excluding the impact of the divestment of European Technical Materials (Recycling) in January 2018

Key Takeaways

Unique position in complex recycling

Increasing availability of complex materials

Medium-term growth driven by gradual expansion of Hoboken facility. Longer term opportunity in battery recycling.

Impressions

PMR Hoboken recycling plant, Belgium

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Financials

Framework for value creation

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Strong growth

- Multiple growth drivers
- Secular trends
- Supporting legislation
- Privilege organic growth
  - Capex and R&D
- Complementary M&A
  - Value creation focus

Focus on returns

- Earnings growth objective
- Group and segment returns > cost of capital
- 15%+ ROCE target
- Value creation precedes ROCE maximization

Solid cashflows and capital structure

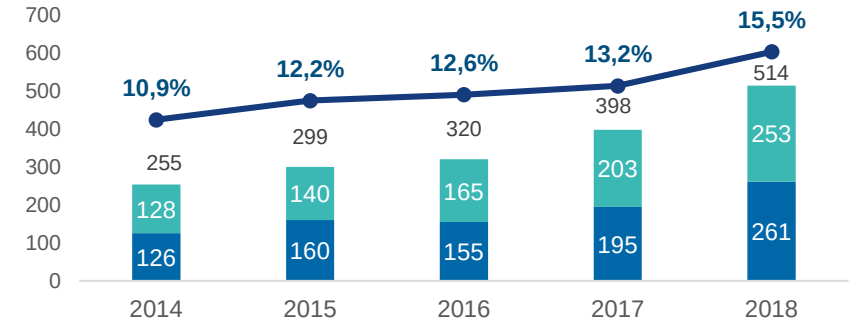
- Prioritize cash for strategic organic growth projects
- Currently in accelerated investment phase
- Strong self-funding capacity (normalized excl. current acceleration)
- Not overstretch balance sheet
- Cash return to shareholders

Strong growth

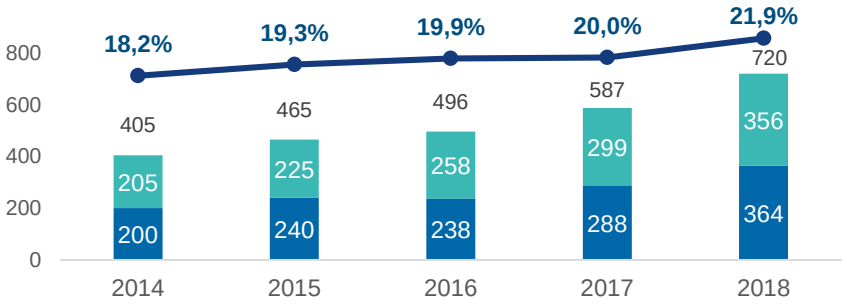
Strong top and bottom line growth

Strategic choices and recent investments paying off

REBIT & REBIT margin

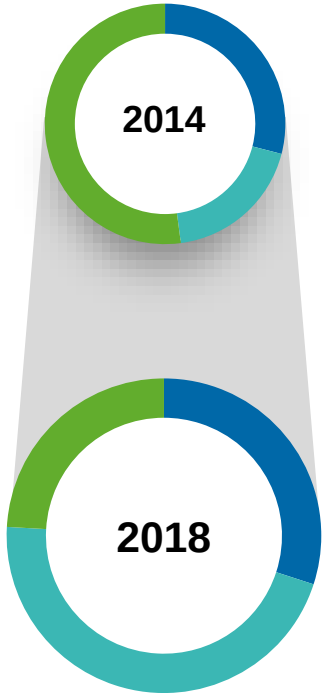


REBITDA & REBITDA margin



Group, excluding discontinued activities

million €



REBIT split per Business Group

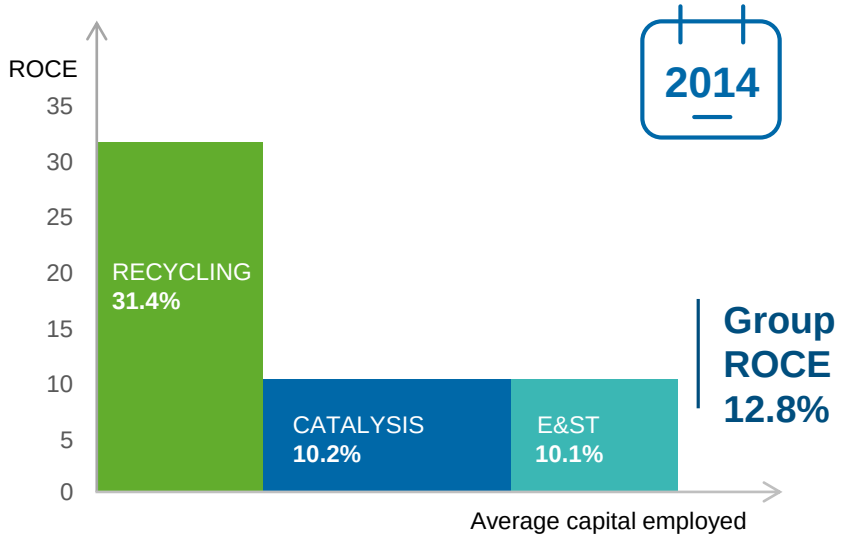
- Catalysis
- Energy & Surface Technologies
- Recycling

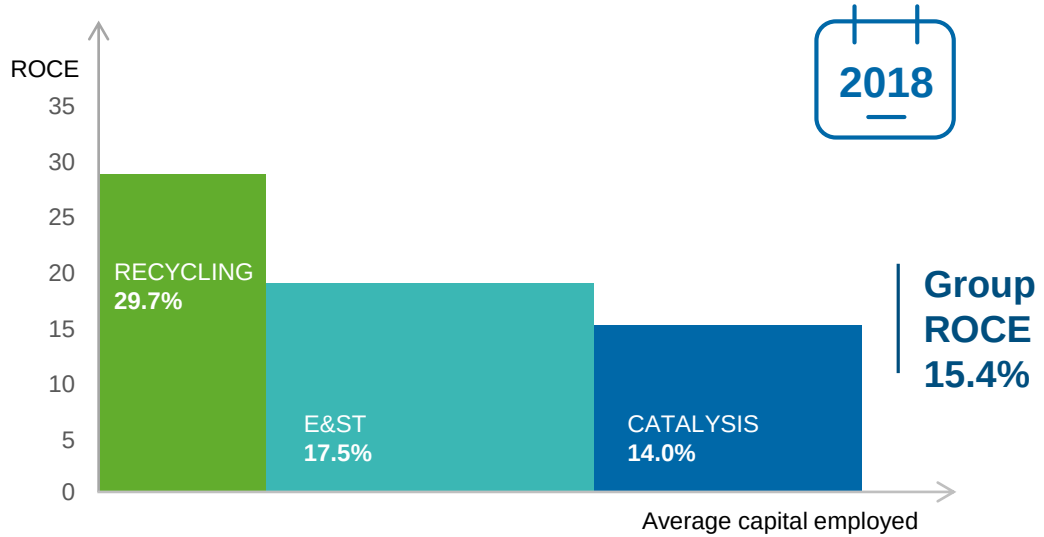
Group, excluding Corporate segment

Focus on returns

15 % ROCE target met in 2017 & 2018

All businesses creating value





Catalysis 2018 ROCE includes temporary **dilution from recent acquisitions**

Energy & Surface Technologies 2018 ROCE well up **despite 50% increase in capital employed YoY**

High recycling ROCE based on unique business model (in 2018 includes effect of divestment)

Group ROCE (excl. discontinued)	2014	2018
	12.8%	**15.4%**

Solid cashflows and capital structure

Accelerating organic growth investments

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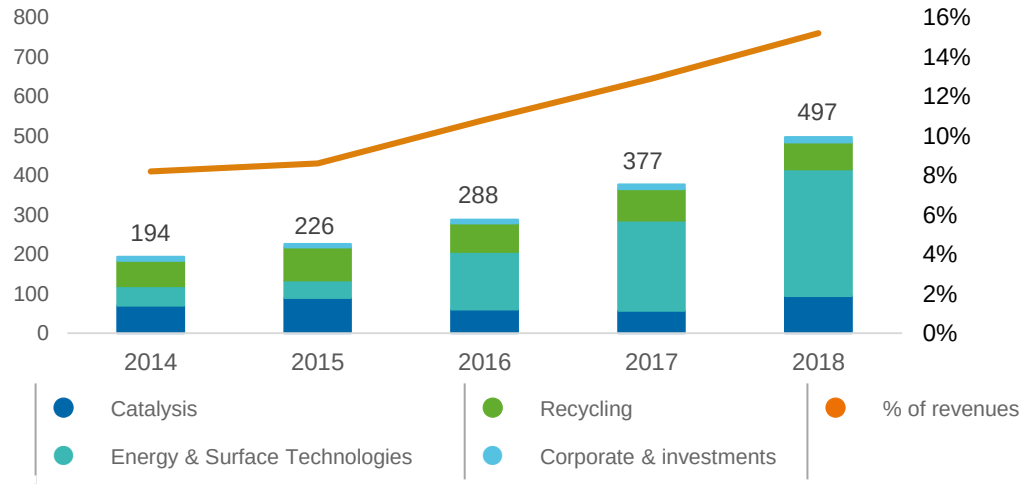
Capex incl. capitalized development expenses excl. Discontinued Operations

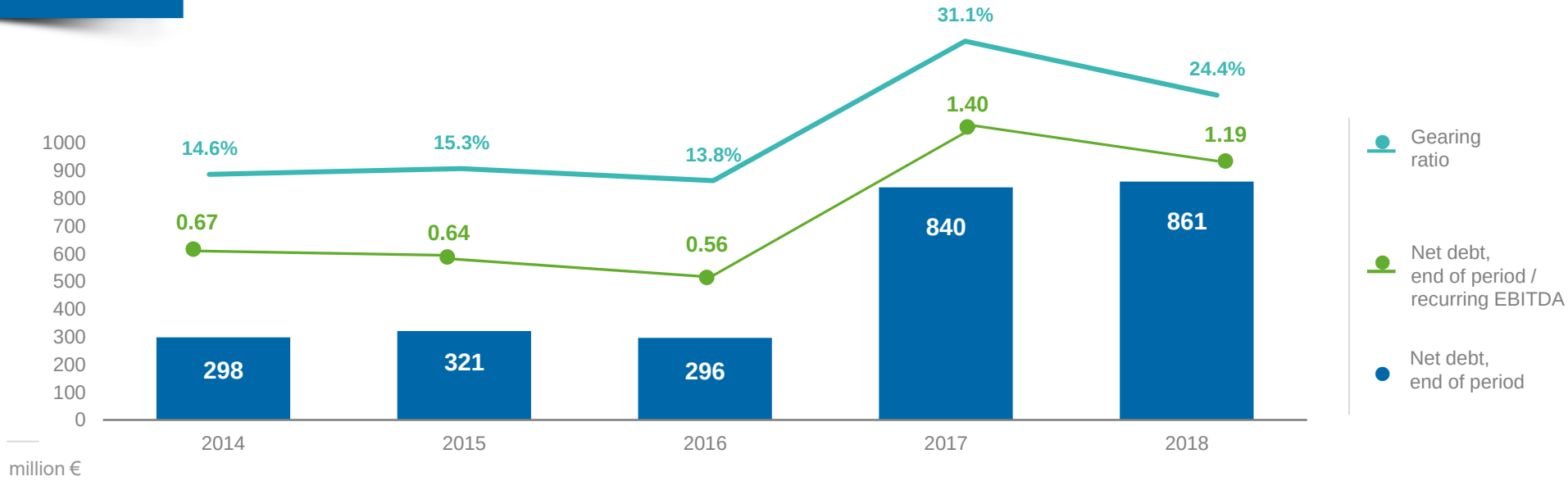


million €

Sizeable growth capex with over 2/3rd in strategic clean mobility	Complemented by **R&D** (€ 196 million in 2018), including applied technology	**Proven implementation track record** for large projects (budget & timing)	Capex **increase in 2019 expected** from E&ST greenfields and Catalysis expansion

Solid cashflows and capital structure

Solid capital structure



Underleveraged until 2017 when growth investments started to accelerate

10% equity raise in February 2018 (€ 892 million proceeds)

End of 2018 corresponds to :

1.2 x net debt to recurring EBITDA ratio

24% gearing ratio

€ 690 million fixed-rate medium- and long-term notes

Ample funding headroom to execute growth strategy

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2019 Outlook

Outlook: near term delay vs stepped-up targets

Umicore currently expects recurring EBIT for the full year 2019 to be in a range of € 475 million to € 525 million.

Developments in Catalysis and Recycling are positive and both business groups are expected to grow earnings vs 2018.

The Energy & Surface Technologies business group is facing challenging market conditions, resulting in delays of 12 to 18 months in the development of its cathode material sales compared to the stepped-up expectations communicated in 2018. E&ST earnings in 2019 are expected to be below the record levels of 2018.

In 2020 Umicore currently expects significant growth in revenues and earnings but below the stepped-up expectations communicated in 2018[1].

[1]Umicore indicated in Febr 2018 that it had identified a potential to exceed its original 2020 earnings ambition of appr. € 500 million for the year 2020 by some 35% to 45%.

Key Investment Considerations

Key investment considerations

- **Well positioned to take advantage of accelerating global megatrends :** more stringent emission control, electrification of the automobile and resource scarcity
  - Global presence and unique competences acquired over many years;
  - A market leader in most key product markets and particularly in automotive catalysts, cathode materials and complex polymetallic recycling;
  - Strong organic growth prospects supported by legislation
- **Well-diversified business profile** with broad product, end-market and customer base driven by a common theme of sustainability
- **Strong track record of and commitment to innovation to maintain competitive lead** (R&D spending of close to 6 % of revenues in 2018)
- **Robust financial performance** across cycles and margin focus with recent investments yielding returns
- **Strong balance sheet** with recent substantial growth investments
- **Experienced board, management team, and clear governance principles**

Annex

Record results in 2018

And all three business groups contributing to growth*

REVENUES
+17% to € 3.3 billion**

44% revenue growth in
Energy & Surface Technologies

REBITDA
+23% to € 720 million**

REBITDA margin up to 21.9%

REBIT
+29% to € 514 million**

Energy & Surface Technologies
already accounting for half
of the Group REBIT

REBIT margin up to 15.5%

RECURRING NET PROFIT
+22% to € 326 million

Recurring EPS **of € 1.36 (+12%)**

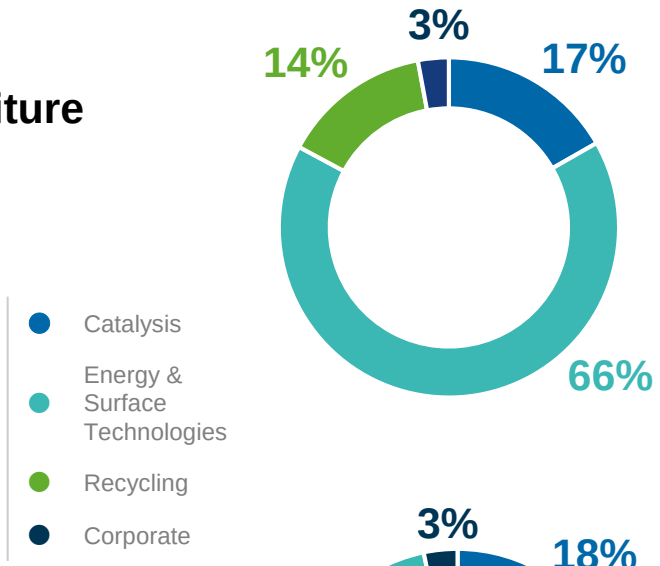
Proposed 2018 dividend
of € 0.75 per share
(up from € 0.70 in 2017)

ROCE
up to 15.4%, in a period of **intense investments**

(*) excluding the impact of the divestment of European Technical Materials (Recycling) in January 2018
(**) excluding Discontinued Operations

Record investment in growth in 2018

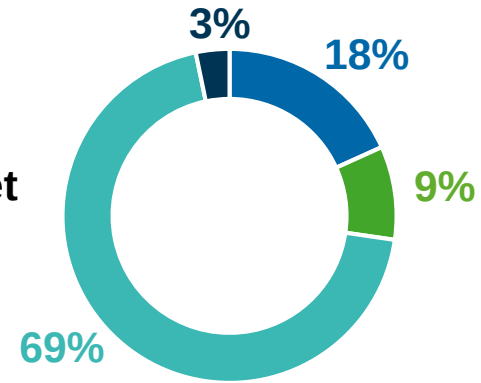
Capital expenditure



Group capex of € 478 million:

- Energy & Surface Technologies: capacity expansions in Korea and China
- Catalysis: capacity expansions in Poland, China and India
- Recycling: environmental investments in Hoboken

Change in Cash Net Working Capital



Increase in NWC of € 707 million driven by expansion in cathode materials:

- Base inventory for newly commissioned lines
- Substantial production growth
- Continuity of supply amidst a tight supply chain
- Substantial yoy increase in average cobalt price
- Impact of a fire at the Hoboken plant
- Initiatives underway to optimise NWC

Financial KPIs

million €	2017	2018
Total turnover	12,277.2	13,716.7
Total revenues (excl. metals)	2,915.6	3,271.1
Recurring EBITDA	599.3	720.1
REBITDA Margin	19.5%	21.9%
Recurring EBIT	410.3	513.6
REBIT Margin	13.1%	15.5%
Capital expenditures	365.3	477.6
R&D expenditures	175.2	196.4
Net financial debt	839.9	861.0
Average capital employed	2,710.0	3,344.2
ROCE	15.1%	15.4%
Gearing ratio	31.1%	24.4%
Net debt / REBITDA	140.0%	119.0%
Equity / Total Assets	35.2%	43.1%

Incl. discontinued operations in 2017

Business Group key figures

CATALYSIS

million €	2017	2018
Revenues	1,253.1	1,360.4
Recurring EBITDA	224.4	237.2
Recurring EBIT	165.5	168.2
EBIT	161.2	162.3
R&D expenditure	119.8	135.5
Capital expenditure	45.0	78.8
Recurring EBIT margin	13.2%	12.4%
ROCE	16.3%	14.0%

ENERGY & SURFACE TECHNOLOGIES

million €	2017	2018
Revenues	893.6	1,289.3
Recurring EBITDA	197.7	322.9
Recurring EBIT	140.7	256.6
EBIT	109.7	251.3
R&D expenditure	30.4	38.8
Capital expenditure	225.5	316.1
Recurring EBIT margin	14.6%	19.8%
ROCE	14.4%	17.5%

RECYCLING

million €	2017	2018
Revenues	650.3	626.2
Recurring EBITDA	188.9	194.7
Recurring EBIT	127.9	134.8
EBIT	121.3	125.8
R&D expenditure	18.6	15.2
Capital expenditure	79.5	68.4
Recurring EBIT margin	19.7%	21.5%
ROCE	25.8%	27.9%

Forward-looking statements

This presentation contains forward-looking information that involves risks and uncertainties, including statements about Umicore's plans, objectives, expectations and intentions.

Readers are cautioned that forward-looking statements include known and unknown risks and are subject to significant business, economic and competitive uncertainties and contingencies, many of which are beyond the control of Umicore.

Should one or more of these risks, uncertainties or contingencies materialize, or should any underlying assumptions prove incorrect, actual results could vary materially from those anticipated, expected, estimated or projected.

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