



# Investor presentation

May 2023





# Introducing Umicore



# Who we are



We deliver sustainable solutions to address global megatrends

Our products and services accelerate global **mobility transformation**, cater for the **growing need for advanced materials** and enable **even greater circularity for critical metals**

We are the leading ***circular* materials technology company** fulfilling our mission to create sustainable value through ***materials for a better life***



# Your global supplier, locally



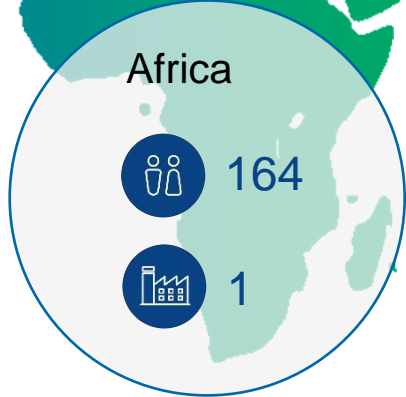
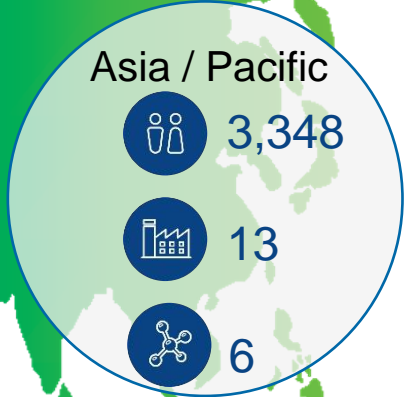
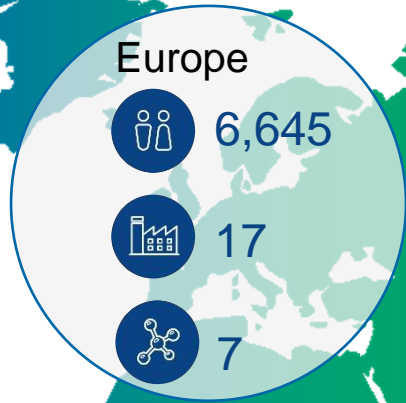
COLLEAGUES  
**11,565**



PRODUCTION  
SITES  
**44**



R&D |  
TECHNICAL CENTERS  
**15**

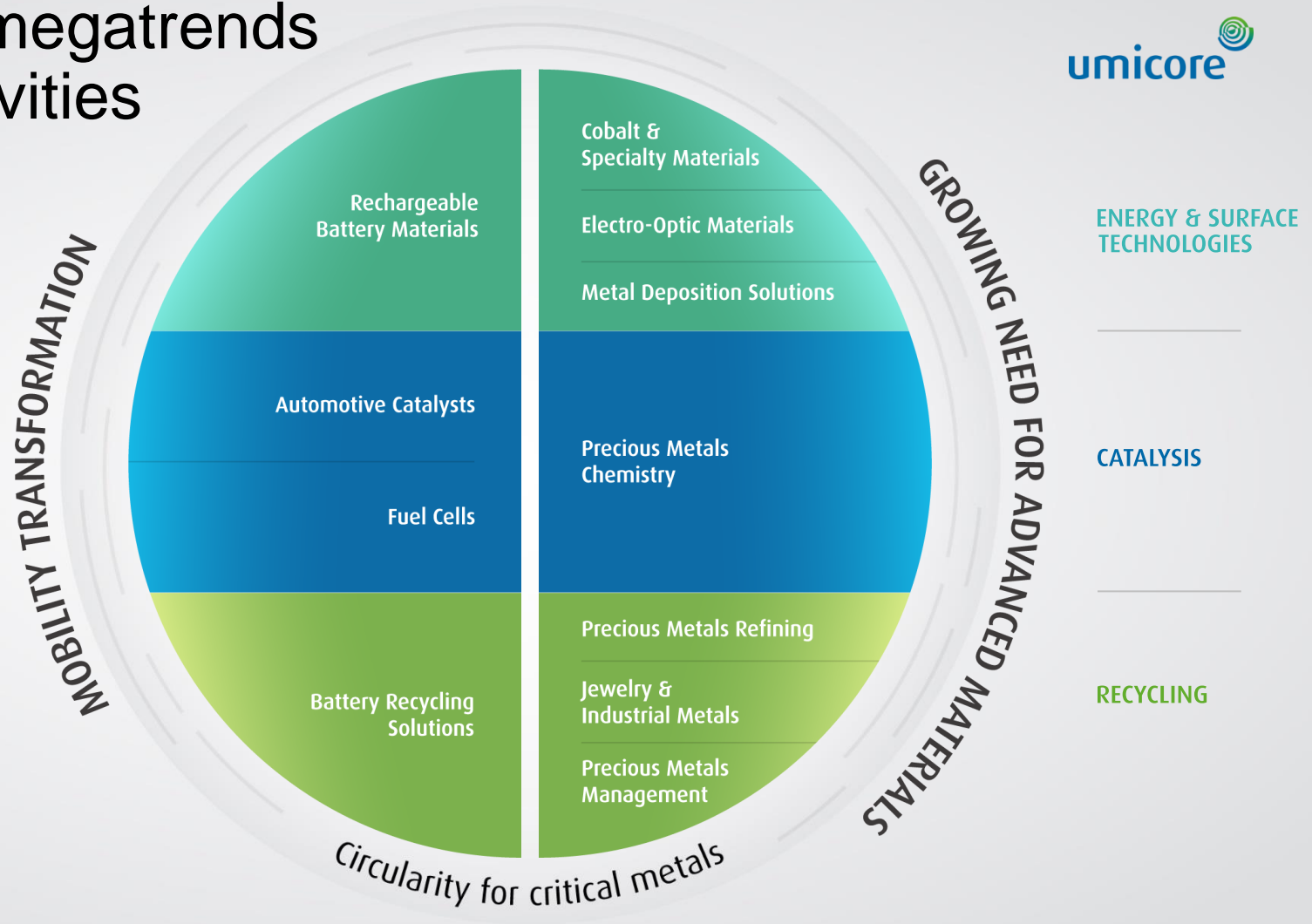




# Our strongly rooted foundations



# Accelerating megatrends driving all activities





# Megatrends:

# Mobility Transformation

Circularity for critical metals



# Mobility transformation radically accelerating

## Uniquely positioned to help the world transition to cleaner mobility

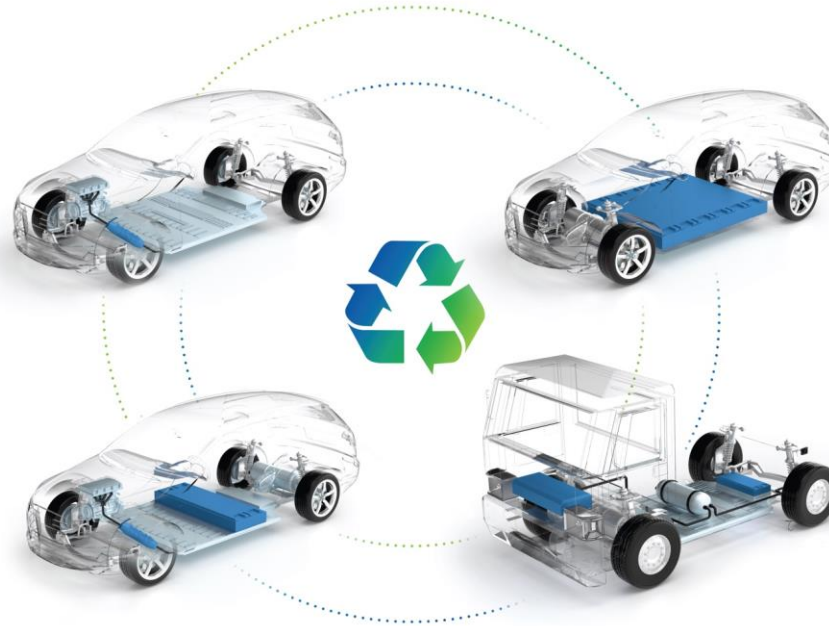
ICE equipped vehicles will remain the dominant clean mobility drive train for the next 10+ years

### Internal Combustion Engine

Emission control Catalyst

### Plug-in Hybrid Electric Vehicle

Battery active materials and emission control catalysts



### Full Electric Vehicle

Battery active materials

### Fuel Cells Vehicle

Electro-catalyst and battery active materials

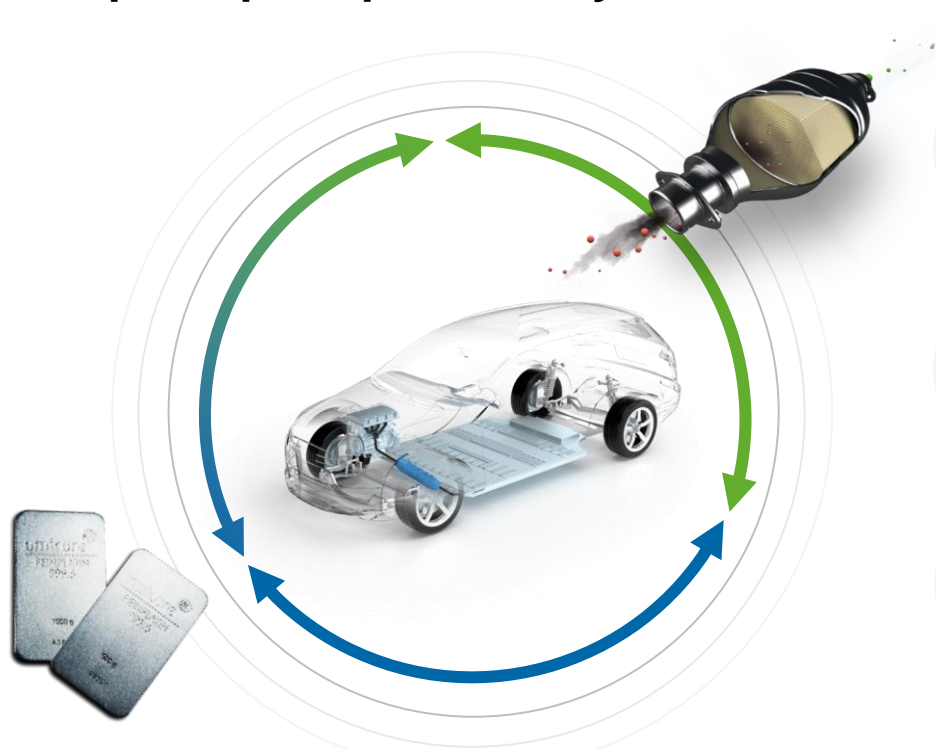
Prime electrification path for light transportation

Prime electrification path for heavy transportation



# Automotive Catalysts

Capture peak profitability and maximize value



Umicore catalyst technologies **prevented 2.8 million tons of NOx emissions** from being emitted into the air in 2021

Using average lifetime of 200,000 km including NOx, HC, CO, excluding PM

**R**

Embarking the mobility transformation together with our customers

**I**

Strong technology position in light of upcoming emission legislation

**S**

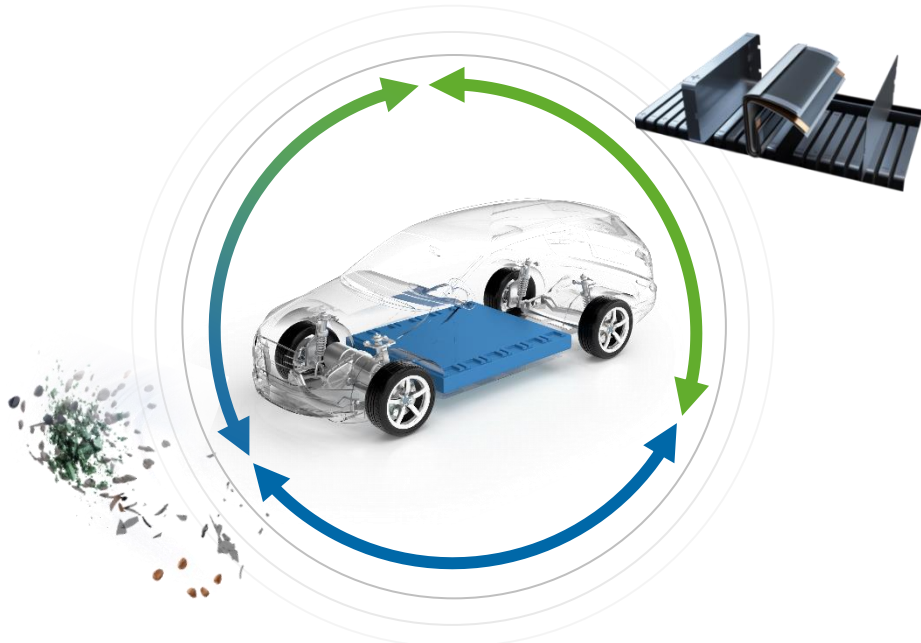
Long-standing partner in delivering cleaner air with embedded sustainability value through sustainable operations

**E**

Agility mindset and operational agility to manage the transformation

# Rechargeable Battery Materials

## Capture profitable growth and create sustainable value



Umicore cathode materials prevented **over 9.5 million tons of GHG emissions** from being emitted in 2021

Considering recycling, production, processing into batteries and the use of batteries in full EVs

**R**

Value-creative strategic partnerships across the value chain

**I**

Broad technology & IP portfolio covering design-to-performance and design-to-cost applications, incl. next-gen technologies

**S**

Pioneering responsibly-sourced materials and becoming the driving force to decarbonize the battery value chain

**E**

Step-change in process, operational and organizational excellence



# Battery Recycling Solutions

Capture profitable growth in circular battery value chain



Recycled material up to **96% lower CO<sub>2</sub> footprint** vs. primary materials

LCA-analyses performed according the ISO14040/44

- R** Supporting our customers with a circular offering from the start and ready to accelerate together
- I** Long-standing materials and process technology know-how
- S** Embedded sustainability value through sustainable recycling operations
- E** Over 10 years of pilot scale experience gives a head start to scale to 150kt capacity units

# Fuel Cell Catalysts

## Capturing the emerging growth



Umicore PEM catalysts prevented **147,000 tons of GHG emissions** from being emitted in 2021

PEM: Proton-exchange membrane  
Using average personal vehicle lifetime of 200,000 km

**R**

Long-term global leader in PEM fuel cell catalysts at industrial scale

**I**

Industry-leading materials in terms of durability, performance and PGM loading

**S**

Embedded sustainability value delivering high performance solutions for zero emissions transport

**E**

Scaling-up production footprint in most cost-efficient way



# Megatrends:


# Advanced Materials

Circularity for critical metals



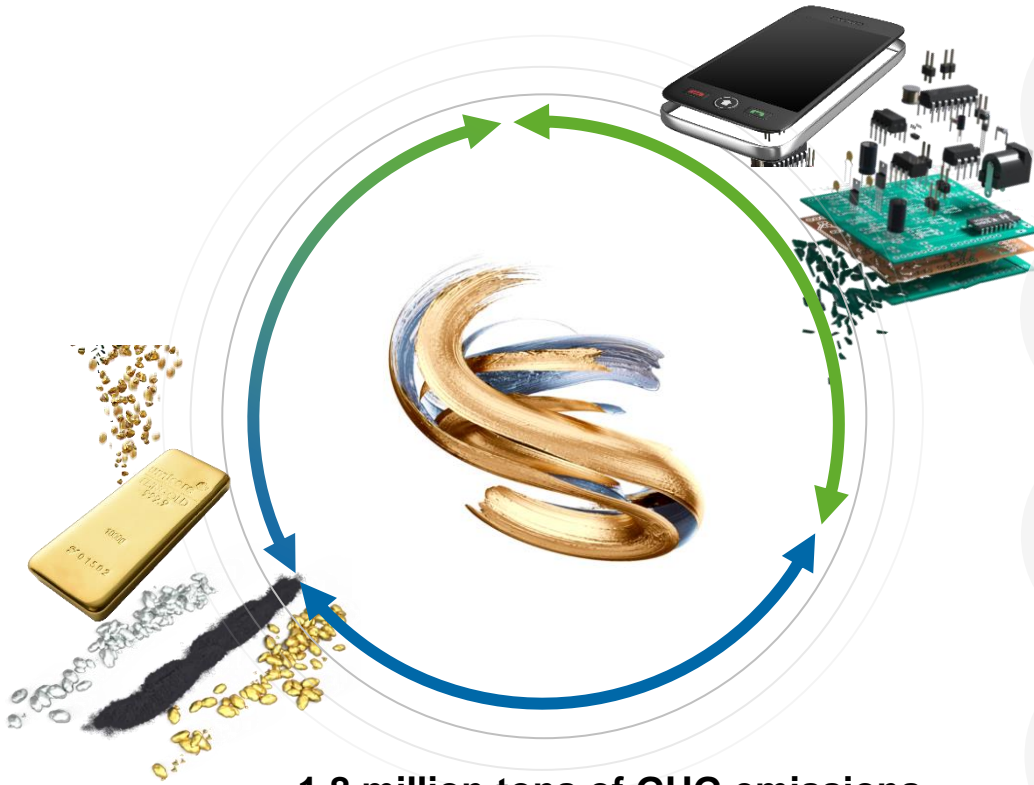
# Key enabling technology in various sectors

## Attractive markets and differentiated technology

	<i>Serving demanding high-tech applications</i>	<i>Synergies in R&amp;D, metal management</i>	<i>Circularity = efficient and sustainable business model</i>	<i>Key differentiator</i>
<b>Cobalt &amp; Specialty Materials</b>	Plating, chemicals, automotive, construction		Residues from tooling and chemical industries	Flexible supply, market and application knowledge
<b>Metal Deposition Solutions</b>	Consumer electronics, decorative applications, automotive		Residues from electroplating baths	Application knowledge, technical support
<b>Electro-Optic Materials</b>	Space, optics and electronics		Ge bearing residues	Superior performances through quality and purity, recycling
<b>Precious Metals Refining</b>	Metal recycling and refining industry		Recycling 17 metals	Ability to process complex streams, customer service
<b>Precious Metals Management</b>	Precious metal consumers (internal and external)		Traceability	Market knowledge, security of supply
<b>Jewelry &amp; Industrial Metals</b>	Jewelry, high-purity glass, chemicals		Recycling Gold, Silver, Platinum from jewellery and industrial applications	Application and market knowledge, closed-loop offering
<b>Precious Metals Chemistry</b>	Life science, fine chemicals		Closed-loop offering (with PMR)	Chemical synthesis of complex metal based molecules

# Precious Metals Refining

Leadership in sustainable, complex and low carbon recycling



**1.8 million tons of GHG emissions avoided** in 2021 through material input mix & recycling

**R**

Trusted partner for more than 20 years, recovering 17 different metals from more than 200 complex waste streams

**I**

Offering superior metal yields touching the full metal value chain with leading CO<sub>2</sub> performance with next generation technology

**S**

Responsibly sourced materials at the heart of our operations

**E**

Enhance operational excellence through digitalization and automation and continuous debottlenecking



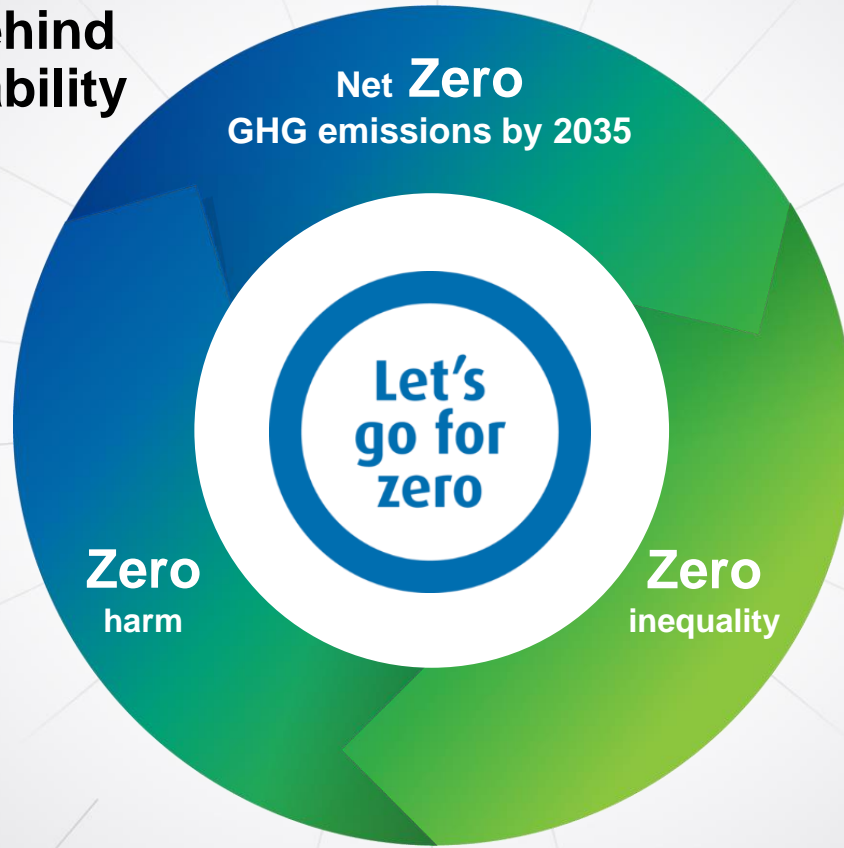
# We Go for Zero

## Sustainability Champion



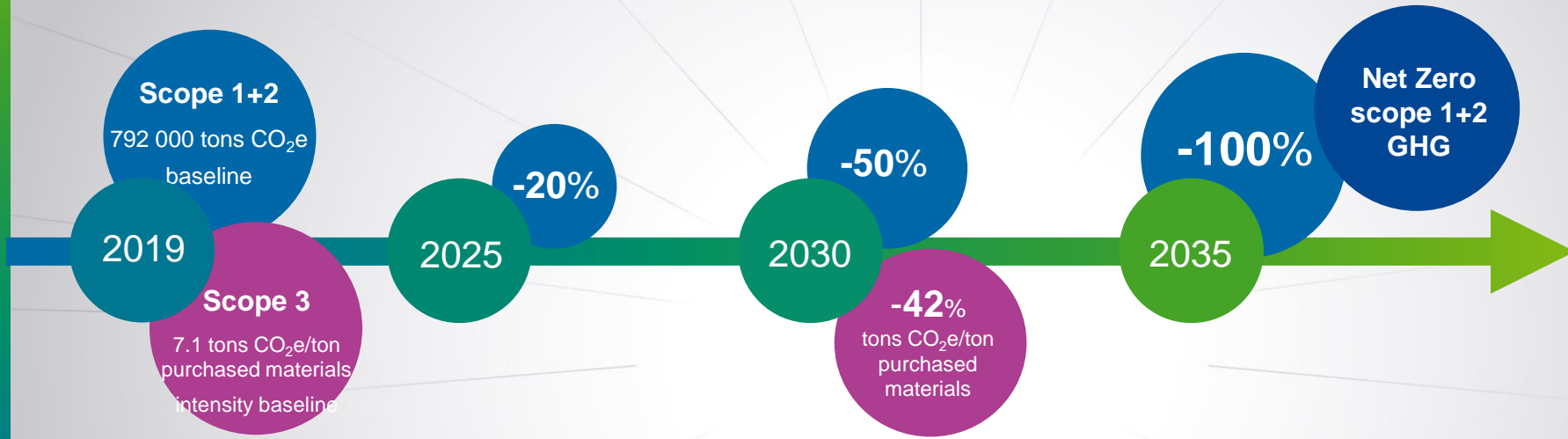
# Let's Go for Zero

the ambitions behind  
being a Sustainability  
Champion



Net Zero GHG. Zero regrets.  
**Endless possibilities.**

# Net Zero GHG emissions by 2035



Net Zero GHG. Zero regrets.  
Endless possibilities.



SCIENCE  
BASED  
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

committed

**Belgian  
Alliance** for  
**Climate  
Action**



# Zero inequality

**WHERE WE ARE TODAY**

**11,565**

Group employees

**WE GO FOR**

**Gender parity** in management as soon as possible, with **35%** women in management by 2030

**25%**

Women in management<sup>1</sup>

**Increased cultural diversity** in management teams by 2025

**21.6%**

Non-Europeans in senior management<sup>1</sup>

Measuring and disclosing **Pay Equality**

**75**

Nationalities<sup>1</sup>



<sup>1</sup> Figures as at 31 December 2021, pending publication of 2022 Annual report

# Zero harm



- **Minimizing impact on the environment**
- -25% diffuse emissions by 2025 with continuous improvement of other types of metal emissions
- New **water stewardship** program

**Wellbeing @ work**

**Zero work related injuries**

**Zero excess exposure**

Mental, physical, occupational and social **wellbeing** at work for **all**

**Sustainable sourcing champion**

**Driving positive impact in the value chain**







# 2030 RISE strategy

## Growth, returns and cashflows

# Horizon 2020 strategy financial targets

Delivered on financial targets



	2015 – 2020 Targets	2020 Values	2021 Values
Accelerating profitable growth	CAGR revenues of 7 %	7 %	9 %
	CAGR adj. EBITDA of 8 %	12 %	18 %
	Double adj. EBIT to € 0.5bn by 2020	Achieved in 2018	Tripled by 2021
High investments & strong returns	Group ROCE > 15 %	12.1 %	22.2 %

**Delivered on top-line growth ambition**

**Not at the detriment of margins**  
– double digit earnings growth

**Strong value creation** notwithstanding ROCE headwinds due to delayed capacity utilization in Rechargeable Battery Materials in China

**Record 2021 results** with record precious metal prices as accelerator

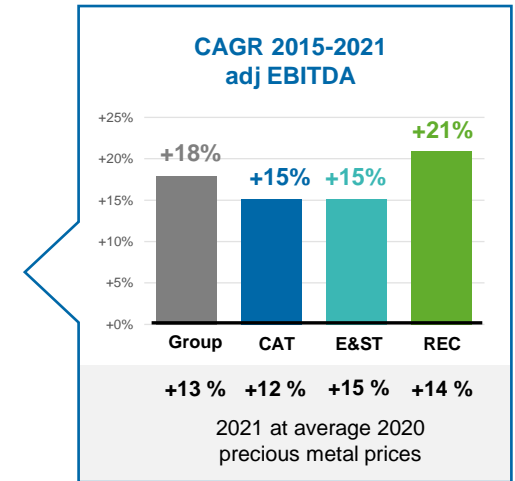
# Horizon 2020 strategy drove step-change

Doubled in size : earnings, capital employed and value



	2015	STEP CHANGE	2021
Workforce ('000)	8.8	+ 26 %	11.1
Revenues (€ bn)	2.3	x 1.7	4.0
adj EBITDA (€ bn)	0.47	x 2.7	1.25
Average Capital Employed (€ bn)	2.2	x 2.0	4.4
Enterprise Value (€ bn)	4.5	x 2.1	9.6
Market Cap (€ bn)	4.2	x 2.1 ~ 15 %	8.6

annual TSR



**Doubled size of the Group** driven by strong underlying market growth and accelerated by metal prices

**Substantial growth investments**, yet to generate full payback potential

**Strong double digit shareholder returns** (with increased volatility in recent years)

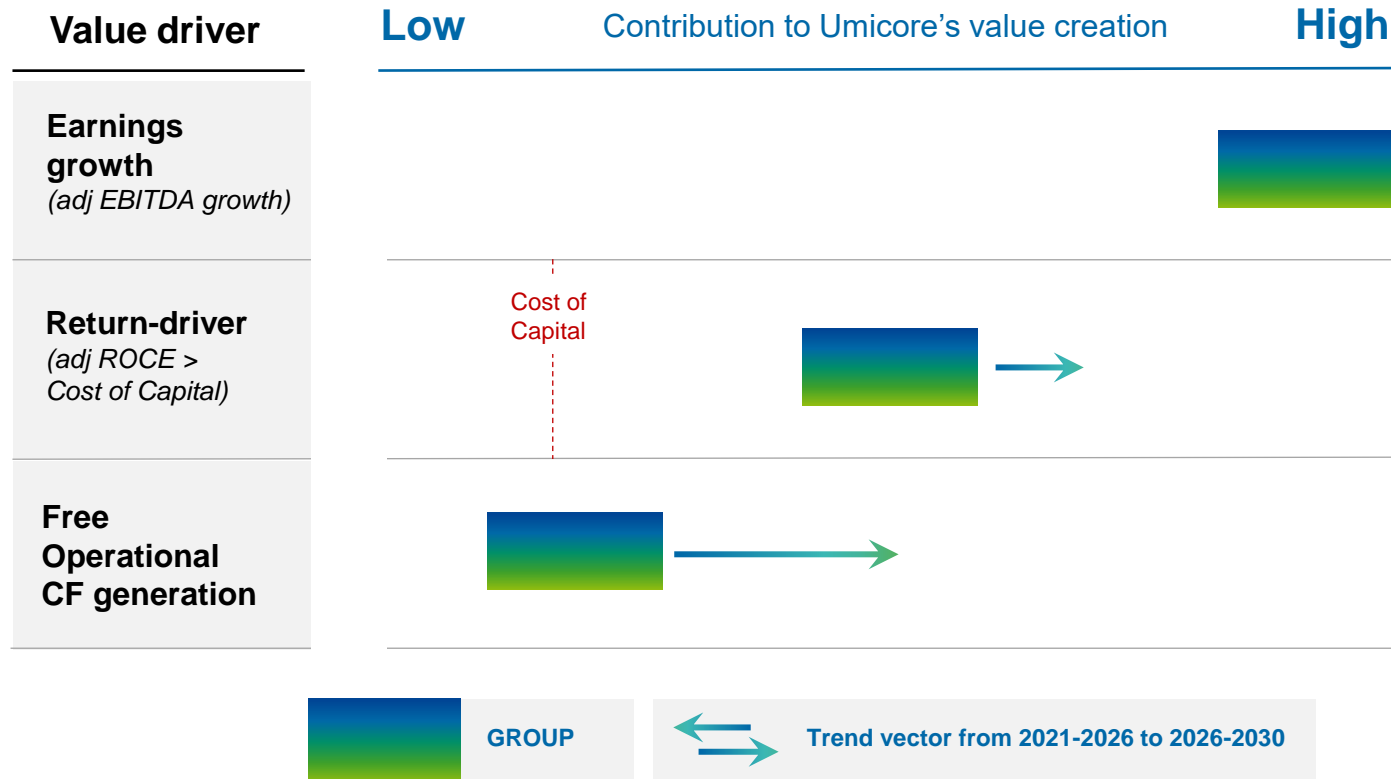
**Balanced earnings growth** across different business groups

Enterprise Value and Market Cap calculated end of calendar year  
 TSR = Total Shareholder Return = Market Cap accretion (eoy) + dividend payout  
 Workforce = fully consolidated entities



# Differentiated sources of value creation

## Balancing growth, returns and cash flows for the Group

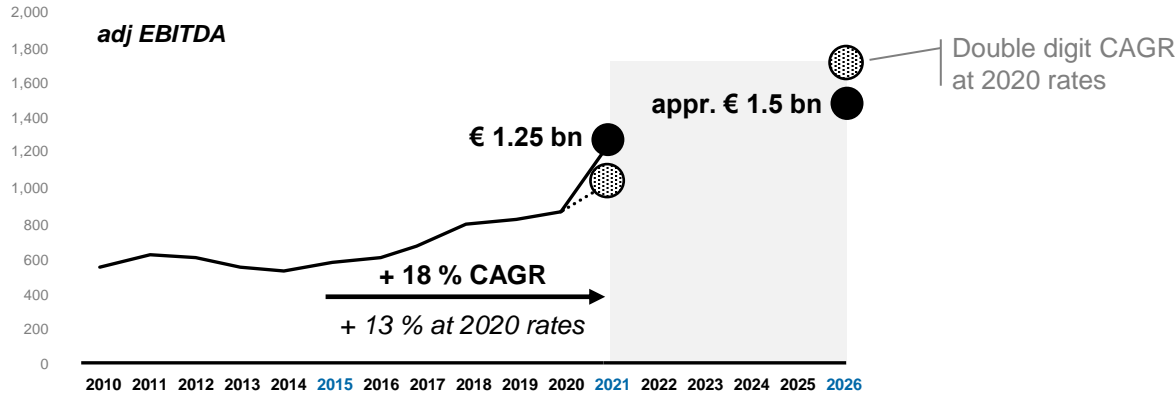


- **Attractive earnings growth** driven by Rechargeable Battery Materials & Battery Recycling Solutions
- Group growth rate depends on metal prices
- **Group returns above Cost of Capital across the plan** despite sizeable growth investments
- Reinvest significant free cash flows of Catalysis & Recycling in E&ST
- **Cash flow payback as from second half of decade**

# Umicore Group earnings growth ambition



## Secular earnings growth while maintaining attractive historical margins

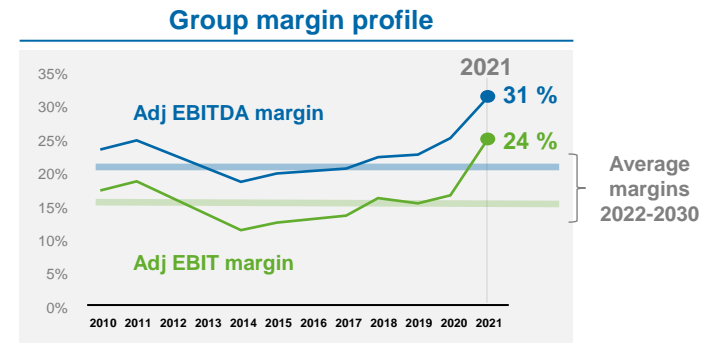


● 2021 actual reported adjusted EBITDA  
 2026 assuming a gradual PGM price normalization scenario

● at aver 2020 PGM prices

- Ambitious 2026 growth plan** with Rechargeable Battery Materials as transformative factor and growth in Catalysis
- Growth expected to be non-linear** and dependent on metal price trends
- Substantial growth beyond 2026** from battery materials, battery recycling and fuel cells
- Attractive Group margins** in line with historic average (assuming normalized PGM prices)

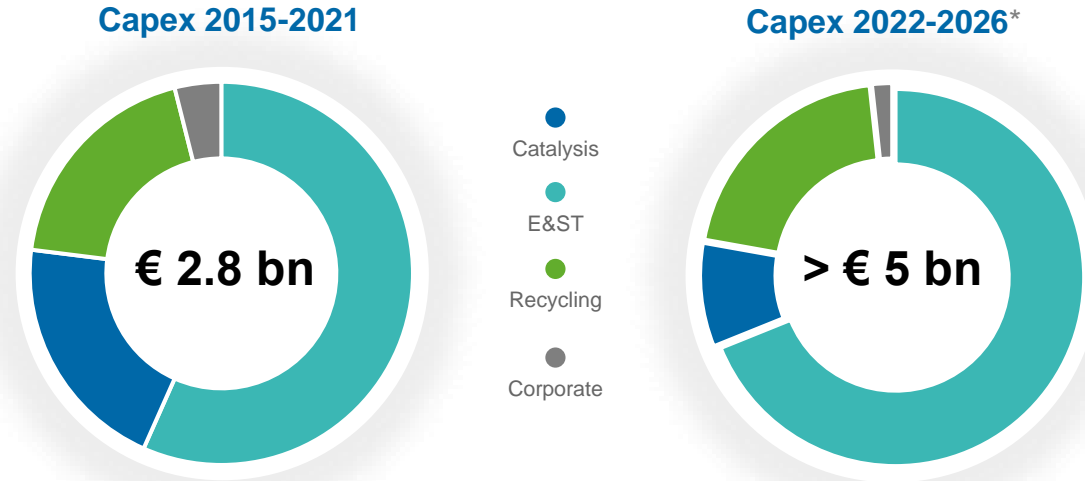
	2021	2026 ambition	2030 vision
<b>Revenues</b>	€ 4 bn	+ € 2.5 bn to € 3 bn vs 2021	+ € 2.5 bn to € 3 bn vs 2026
<b>adj EBITDA margin</b>	€ 1.25 bn 31 %	appr. € 1.5 bn > 20 %	> 20 %
<b>Phased growth conditional upon value creative returns from contracts</b>			



Group adj EBITDA includes Corporate adj EBITDA : from - € 52m in 2021 to appr - € 75m in 2026 and higher in 2030  
 All financial KPI's based on current Umicore reporting definitions

# Growth investments to accelerate

Over 3/4<sup>th</sup> of Group capex in battery materials, battery recycling & fuel cells



**Phased capex and conditional upon value creative returns**

**Bulk of Group capex oriented towards secular growth opportunities**

**Rechargeable Battery Materials & Battery Recycling Solutions most significant growth projects in 2022-2026**

**Lower share of capex in Catalysis notwithstanding initial fuel cell growth investments**

Fuel cell capex as % of Catalysis	< 20 %
Rechargeable Battery Materials capex as % of E&ST	> 90 %
Battery Recycling Solutions capex as % of Recycling	appr. 50 %
<b>Total as % of Group total</b>	<b>&gt; 75 %</b>

\* Net investments incl co-financing

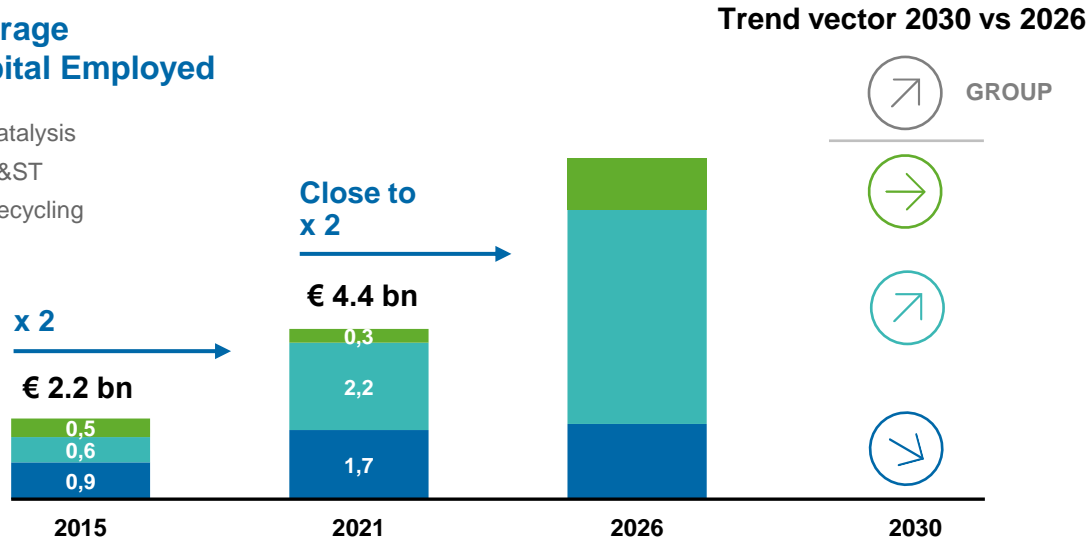


# Capital allocation shift to accelerate

## Doubling of capital employed subject to value creative returns

### Average Capital Employed

- Catalysis
- E&ST
- Recycling



**Close to doubling of average capital employed by 2026** (vs 2021) driven by Rechargeable Battery Materials & Battery Recycling Solutions

**Catalysis**  
stable base up to 2026 (incl. fuel cell investments); significantly lower base as from mid-decade; substantial working capital release anticipated

**E&ST**  
grow to appr. 2/3<sup>rd</sup> of group capital base driven by Rechargeable Battery Materials expansion

**Recycling**  
increase in capital base through large scale Battery Recycling plant & ESG investments in Hoboken

**Further growth beyond 2026** depending on growth pace in Rechargeable Battery Materials and Battery Recycling Solutions

E&ST in % of average Group Cap Employed	2015 ~ 1/3 <sup>rd</sup>	2021 ~ 50 %	2026 ~ 2/3 <sup>rd</sup>	2030 > 2/3 <sup>rd</sup>

Group totals include Corporate. Capital Employed sensitive to prevailing metal prices through NWC. Projections assume gradual normalization of PGM prices and battery material metal prices in line with 2021 average price.

# Capital allocation shift to accelerate

Group returns above cost of capital with some temporary dilution in E&ST

## Catalysis

ROCE

2015 - '20 average – ~14 %

**Lower capital employed base drives higher returns**

2026 ambition ~ 20 %      2030 vision > 20 %

## E&ST

ROCE

2015 - '20 average – ~11 %

**Near-term returns dampened by Rechargeable Battery Materials' growth costs and investments. Above cost of capital shortly after 2026**

2026 ambition > 8 %      2030 vision > 12.5 %

## Recycling

ROCE

2015 - '20 average – ~37 %

**Highly value-creative returns on higher capital base incl. Battery Recycling; assumes normalized PGM prices**

2026 ambition ~ 30 %      2030 vision ~ 20 %

## GROUP

ROCE

2015 - '20 average – ~14 %

**Stay above cost of capital across the plan and create substantial value towards end of decade once mid-decade investments are ramped-up**

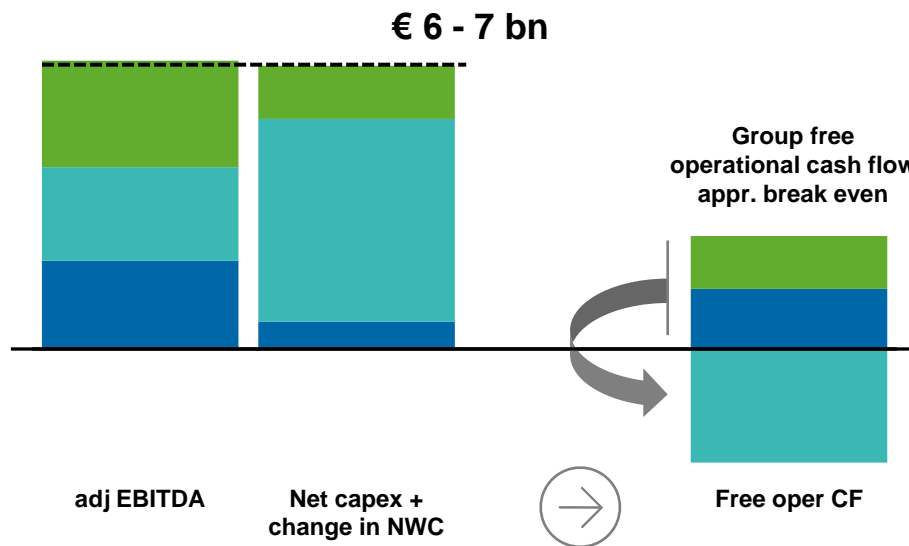
2026 ambition > 12.5 %      2030 vision 15 %

# Operational cash flow profile

## Substantial free cash flows in Catalysis & Recycling reinvested into E&ST

Cumulative cash flows 2022 - 2026

- Catalysis
- E&ST
- Recycling



Substantial free cash flows in Catalysis and Recycling Accelerating further beyond 2026

Reinvested in Rechargeable Battery Materials expansion

E&ST cash payback after capacity ramped-up (> 2026)

Potential for substantial operational free cash flows after 2026 depending on level of growth investments to accommodate post-2030 growth

Group total includes Corporate  
 Free Operational CF defined as adj EBITDA – equity accounted contribution – Capex – change in NWC  
 Net capex includes co-financing



# Funding levers

## From full autonomous funding to co-funding partnership model

Policy unchanged :  
Maintain Investment Grade status

Embedded in group strategy

Optional

Embedded in group strategy				Optional	
<p><b>Strong free operational cash flow generation</b></p> <p>Catalysis &amp; Recycling as strong free cash flow generators</p>	<p><b>ESG-focused debt funding appetite</b></p> <p>Leverage on growing debt appetite &amp; capacity in the market for ESG- and electrification-focused projects</p>	<p><b>Co-funding partnership model</b></p> <p>Customers open to participate in operational funding in return for capacity assurances &amp; technology commitment</p>	<p><b>Joint Venture investment sharing</b></p> <p>Selective strategic JV set-ups allow to share the upfront investment burden in return for sharing the returns</p>	<p><b>Grants and other funding incentive mechanisms</b></p> <p>Access substantial support funding for the electrification transformation as an established player with proven technology and industrialization skills</p>	<p><b>Capital Market funding</b></p> <p>To accelerate Rechargeable Battery Materials expansion, conditional upon business &amp; return visibility.</p>



The text "2022 overview" is centered in a large, white, bold, sans-serif font. It is overlaid on a scenic landscape featuring a winding asphalt road that curves along the edge of a calm lake. The road is bordered by a metal guardrail. To the right of the road is a steep, rocky hillside covered in a dense forest of tall, thin evergreen trees. The lighting suggests a late afternoon or early morning setting, with long shadows and a warm, golden glow. The sky is visible in the upper left, showing some light clouds.



# Key milestones 2022 & Q1 2023

## Strong progress in executing 2030 RISE

### Customers & Contracts



*LT, strategic 46GWh supply agreement for next generation Hi-Ni CAM with ACC, demonstrating Umicore technology and execution strength*



*JV with VW PowerCo for 164 GWh CAM in Europe, a value-creative partnership across the EU battery value chain and a strong signal of recognition of Umicore's product and process expertise*



*MoU with VW PowerCo for 40GWh in North America as recognition of Umicore's ability to offer a fully integrated battery materials supply chain also for the North American market*



*Mercedes-Benz honors Umicore AC with Supplier Award 2022, no better acknowledgment of Umicore's excellence in performance than when received from its customers*

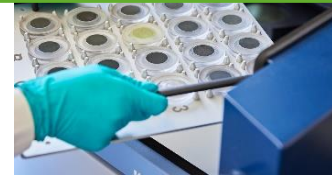
### Technology & Innovation



*JDA with Idemitsu Kosan Co to jointly develop high-performance CAM for Solid State Batteries, potential game-changer for the battery industry*



*JDA with Nano One on advanced CAM manufacturing, as additional building block of Umicore's strong innovation and technology ecosystem*



*Strong IP creation with more than 70 patents filled in 2022, drivers of our technology leadership*



*Start of industrialization of our leading HLM technology, distinctly competitive to other design-to-cost battery technologies*



# Key milestones 2022

## Strong progress in executing 2030 RISE

### Regional Value Chains & Manufacturing Footprint



Start of production of the **CAM Gigafactory** in Nysa (Poland), making Umicore the **only company** with a **complete circular and sustainable battery materials value chain in Europe**



Building a **Fuel Cell Catalyst plant** in Changshu (China) to capture the fast-emerging growth in fuel cell technology.



LT supply agreement with Terrafame for **low carbon, high-grade Nickel from Finland**, covering a substantial part of Umicore's future needs in Europe



MoU with **Canadian Government**, unlocking the **North American battery materials** market for Umicore compliant with the **US Inflation Reduction Act (IRA)**

### Clean Mobility Ecosystem



Partnership with ACC on Umicore's new generation Li-ion battery recycling technologies, leading the way towards a battery circular economy



Proof of concept **Battery Passport** milestone towards **creating traceability and accountability** at each EV battery supply chain stage

### ESG Roadmap



Diversified and extended funding base at attractive conditions with newly issued **sustainability linked debt instruments** for a total amount of **€ 1,091 million**, a **strong validation** of Umicore's "2030 RISE" strategy by institutional debt investors



SBTi validation of Umicore's 2030 **Scope 1/2/3 targets**

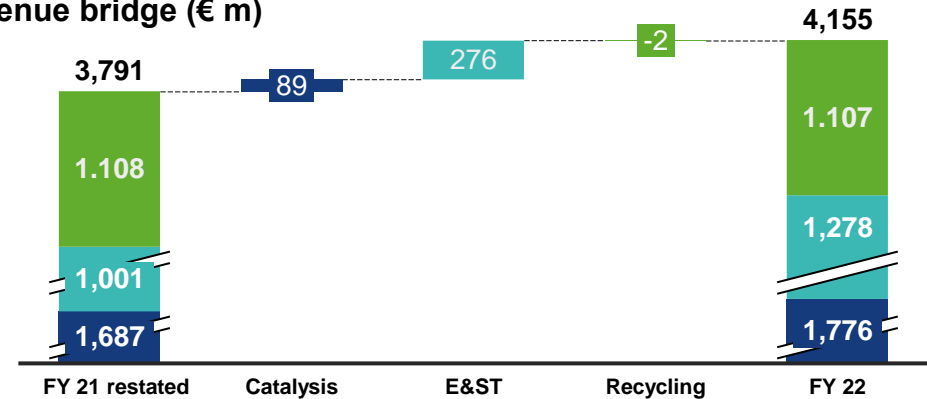
# Key figures 2022



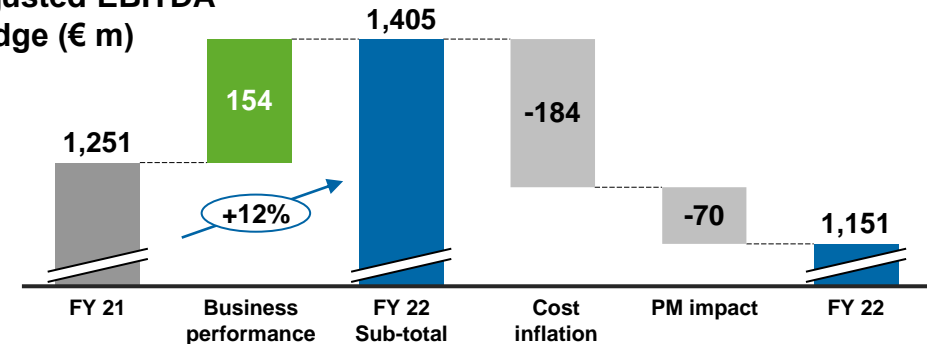
## Resilient business performance in a volatile market

<p>Revenues</p> <p><b>€ 4.2 bn</b></p> <p>+10% yoy</p>	<p>Adj. EBITDA</p> <p><b>€ 1.2 bn</b></p> <p>-8% yoy</p>
<p>Adj. Net profit, Group share</p> <p><b>€ 593 m</b></p> <p>-11% yoy</p>	<p>Adj. EBITDA margin</p> <p><b>27.3%</b></p>
<p>ROCE</p> <p><b>19.2%</b></p>	<p>Free operating cash-flow</p> <p><b>€ 344 m</b></p>

Revenue bridge (€ m)



Adjusted EBITDA bridge (€ m)



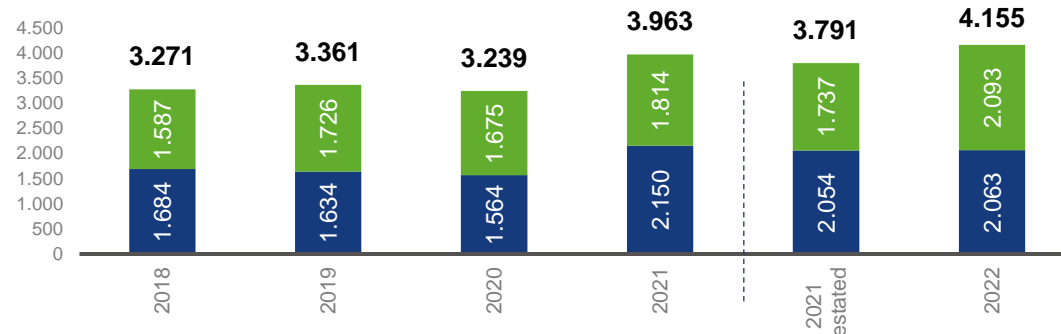
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Revenue: all revenue elements less the value of the following purchased metals: Au, Ag, Pt, Pd, Rh, Co, Ni, Pb, Cu, Ge, incl. Li, Mn as of 2021.

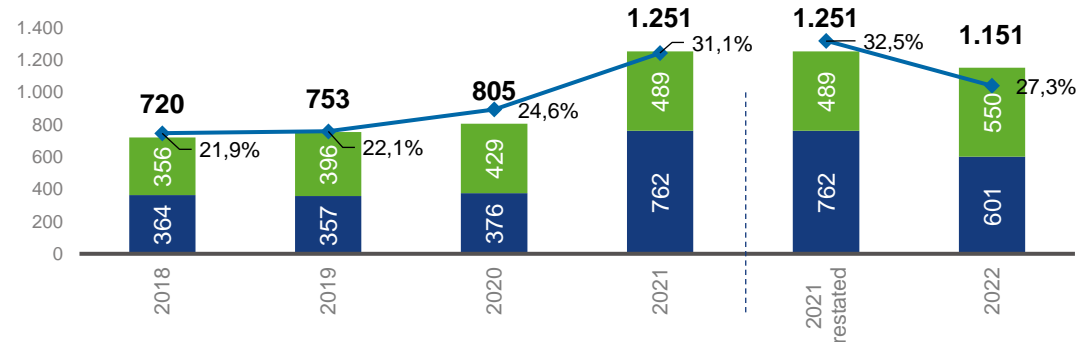
(Cost inflation = excluding pass-through to customers.

# History of strong adj. EBITDA and margins

Revenues<sup>1</sup> (€m)



Adj. EBITDA (€m) & Adj. EBITDA margin



- Revenue (excl. metals) steadily increasing the last 5 years, stable on the first year of Covid
- EBITDA margin consistently above 20%,
  - Peak of 32.5% in 2021, benefitting from Umicore good exposure to metal price

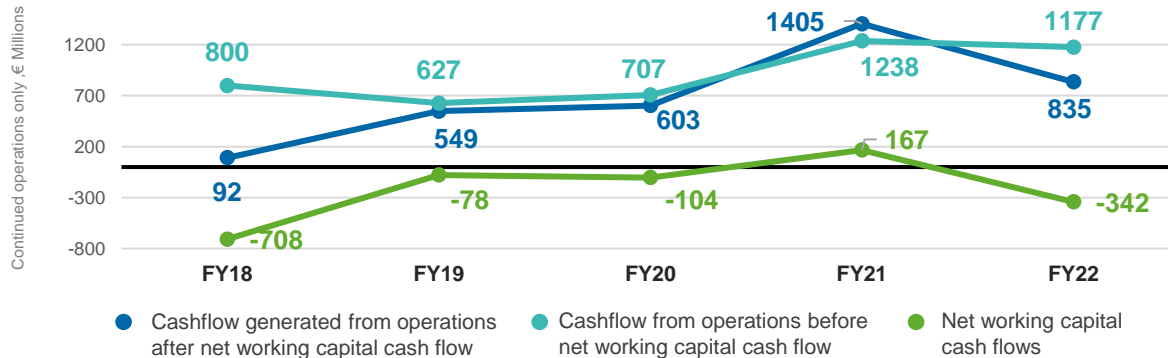
<sup>1</sup> All revenue elements less the value of the following purchased metals: Au, Ag, Pt, Pd, Rh, Co, Ni, Pb, Cu, Ge, incl. Li, Mn as of 2021



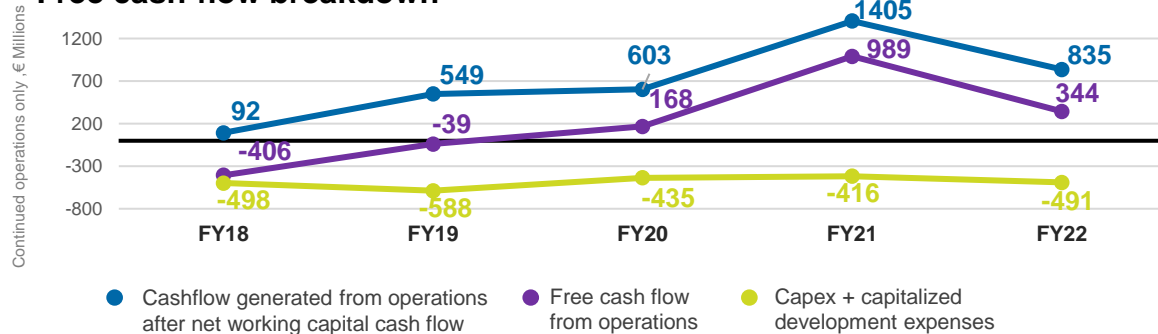
# Free operating cash-flow remains strong

## Supporting future growth

### Operating cash-flow breakdown



### Free cash-flow breakdown



Cash flow from operations after changes in working capital at € 835 million, driven by higher working capital requirements in E&ST on the back of increased battery metal prices

Free cash flow from operations of € 344 million

- Capex and capitalized development expenses up yoy to € 491 million
- E&ST accounting for more than 60% of Group capex, driven by RBMs European expansion plan

Continued capex discipline for expansion programs

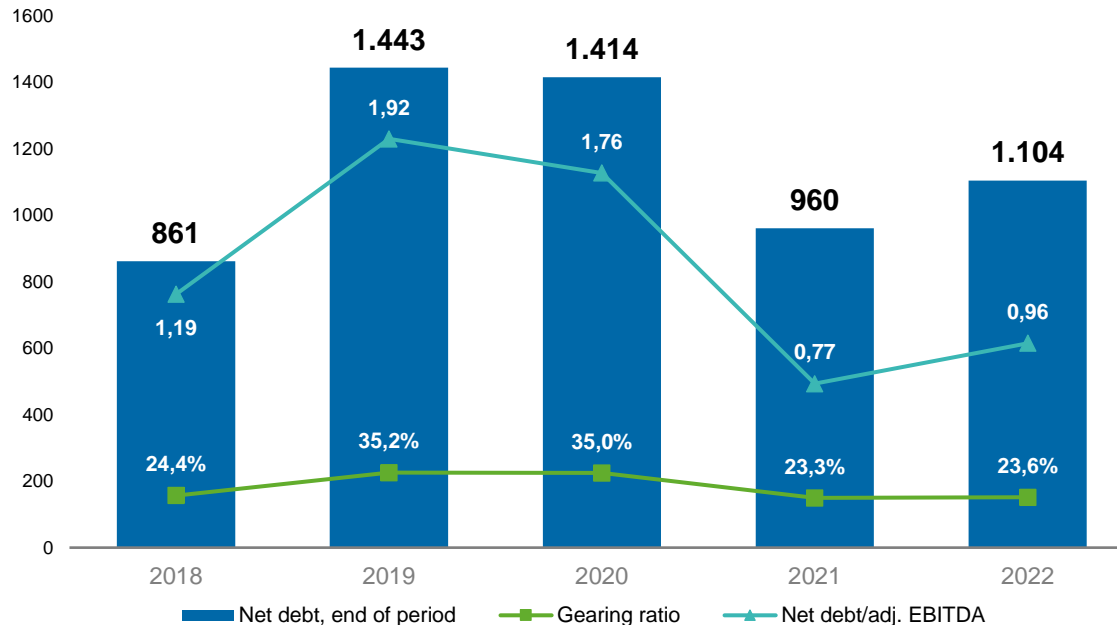
# Condensed consolidated P&L

## Solid net result

€ Million	2021	2022
Adjusted EBITDA	1,251	1,151
- Depr. & Amortization	(280)	(286)
Adjusted EBIT	971	865
- Adj net finance cost	(100)	(125)
- Adjusted Tax	(196)	(145)
Adjusted net result	675	595
- Minorities	(8)	(2)
<b>Adjusted net result Group share</b>	<b>667</b>	<b>593</b>
<i>Adjusted EPS</i>	<i>2.77</i>	<i>2.47</i>
Adjustments to EBIT(DA)	(75)	(32)
Adjustments to net result Group share	(49)	(23)
<b>Net result Group share</b>	<b>619</b>	<b>570</b>

- Increase in adj. net financial cost, reflecting higher net interest charges, in particular on short term loans, and somewhat higher FX-related costs
- Lower adj. tax charges from lower taxable profit and lower adj. effective group tax rate (20.0% vs 23.1%).
- Limited € -32 million adjustments to EBIT, mainly linked to environmental provisions

# Solid capital structure



In 2022,

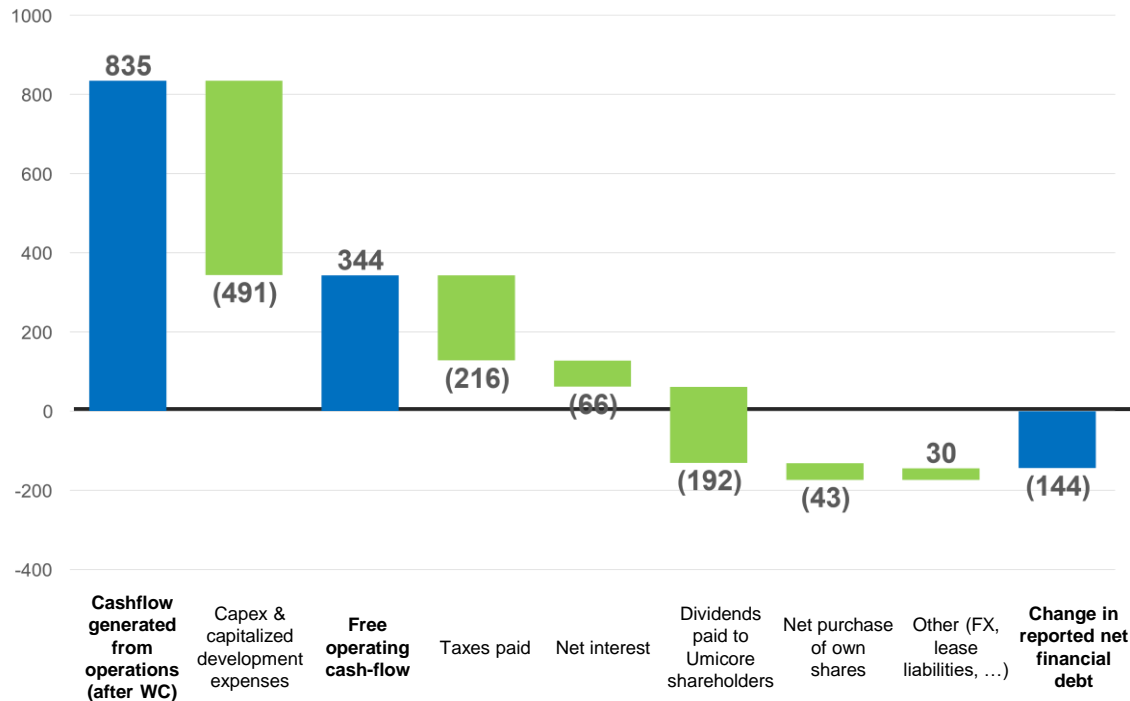
- Net financial debt of € 1.1 bn (€ +0.1 bn yoy)
- Leverage ratio of 0.96x LTM adj EBITDA



# Stable net financial debt versus end 2021

## Leverage ratio of 0.96x LTM adj EBITDA

Net cash-flow bridge (€ m)



- Free operating cashflow of € 344 million, despite € 342 million increase in working capital and € 491 million investments
- Funded a combined € 517 million cash outflow related to taxes, net interest charges, dividends & net purchase of own shares

# Q1 updated guidance for full year 2023 as published on 27 April, 2023



## CATALYSIS

**Adj. EBIT/EBITDA expected somewhat above 2022 record levels, slightly above current market expectations**

- Automotive Catalysts to continue to benefit from strong market position in gasoline catalyst applications and a further recovery of the supply chain and the Chinese HDD market.



## E&S

**Adj. EBIT/EBITDA anticipated somewhat below 2022 level, slightly above current market expectations**

- Rechargeable Battery Materials' earnings expected in line with 2022 level
- Normalization of Cobalt & Specialty Materials performance in 2023 compared to exceptional 2022 profitability



## RECYCLING

**Adj. EBIT/EBITDA expected to be in the lower range of current market expectations**

- Impacted by lower PGM prices and related, less supportive, supply environment for PGM-rich recyclables
- Taking into account the current outstanding strategic metal hedges

**Umicore updated on its Q1 trading conditions and outlook on 27 April 2023**

Refer to Q1 [press-release and webcast](#) for a full overview



# Appendices



# Thank you!

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*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.*

*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.*

*As a result, neither Umicore nor any other person assumes any responsibility for the accuracy of these forward-looking statements.*

# Additional information



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## 01 Business Group Overview

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01.a Catalysis

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01.b E&ST

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01.c Recycling

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## 02 Shareholder structure, financial calendar and leadership overview

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## 03 Financial KPIs

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## 04 Glossary



# 01. Business Group Overview

# Catalysis

Colleague working with robot at Umicore Catalysis Production Plant



# Catalysis overview

## Automotive Catalysts

We are one of the leading producers of emission control catalysts for gasoline and diesel on-road and non-road applications, power generation and industrial processes to meet environmental standards around the world.



## Precious Metals Chemistry

We are experts in metals-based catalysis for life-enhancing applications. Emission treatment technologies, cancer treatments, the production of fine chemicals and advanced electronics – all are made possible by our organometallic technology know-how.



## Fuel Cell & Stationary Catalysts

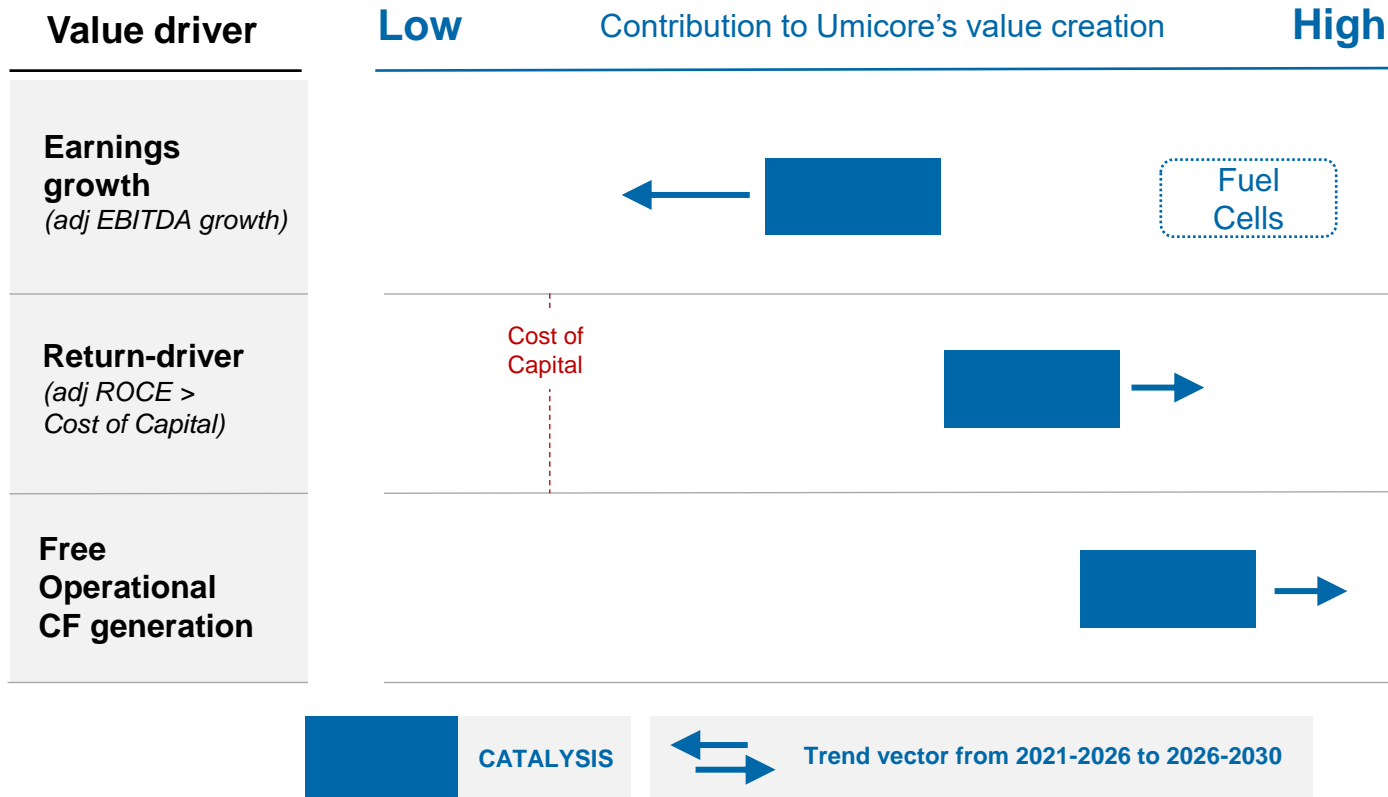
We are a leading player in emissions control catalysis for industrial plants and shipping, and supply state-of-the-art fuel cell catalysts for zero emission mobility and green hydrogen production.





# Catalysis

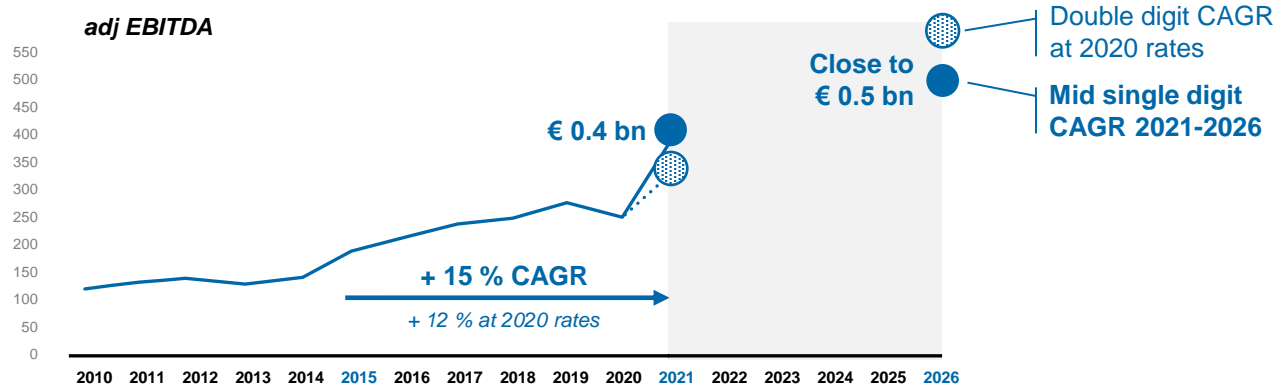
## Balancing growth, returns and cash flows



- Capture unprecedented value peak in Automotive Catalysts in the decade
- Prepare growth acceleration in fuel cell catalysts after mid-decade
- Reduction in Cap Empl in Automotive Catalysts to drive high(er) returns
- Initial payback in fuel cells towards end of decade (lower capital intensity)
- High free cash flows over the plan
- Transition from growth to free cash flow focused business model in Automotive Catalysts

# Catalysis

Committed to capture medium-term growth while driving efficiency & cash



● 2021 actual reported adjusted EBITDA 2026 assuming a gradual PGM price normalization scenario  
 ● at aver 2020 PGM prices

	2021	2026 ambition	2030 vision
<b>Revenues</b>	€ 1.69 bn	appr. € 2.0 bn	> 2021 and < 2026
<b>adj EBITDA</b>	€ 0.40 bn	close to € 0.5 bn	<i>comparable vs 2026</i>
<b>margin</b>	24 %	> 20 %	
<b>Fuel cell catalysts in % of adj EBITDA</b>	< 5 %	< 10 %	< 30 %
			<b>Substantial fuel cell acceleration after 2030</b>

**Attractive medium-term growth** from car market recovery, final legislation cycle and HDD expansion

**Maintain margins above historical average** through continued operational efficiency focus

**Substantial free cash flows** accelerating as from mid-decade

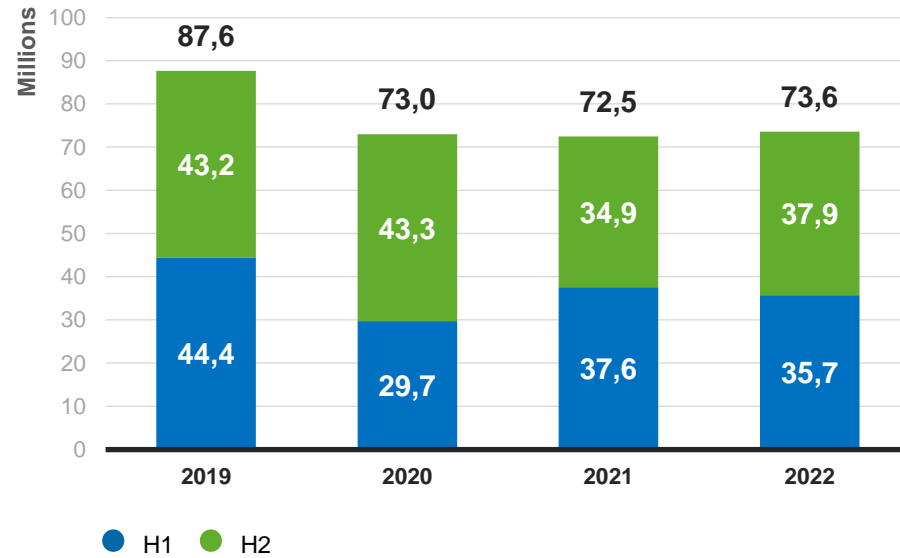
**Strong position in fuel cells** with meaningful growth contribution as from mid-decade and material contribution as from next decade



# Catalysis 2022 | Market context

## Subdued global car market over 2022

### Annual global passenger car production (all ICE powertrains)



- Continued global logistic disruptions, shortages of semi-conductors, COVID-19 resurgence (H1 in China)
- Manufacturers reduced production, despite strong global demand
- Lower y-o-y light-duty ICE production in China and EU, offset by strong growth in other regions
- **Global light-duty ICE production remained in line with 2021 (+1.5%)**



# Catalysis 2022 | Performance

Revenues up 5%, adj. EBITDA margin at 23.6%

→ Record performance, margins well above historical levels

## Automotive Catalysis

- Outperformed global car market, significant market share gains especially in China
- Strong operational performance, efficiency gains countering inflation
- Passing through inflation, supporting margins

## Precious Metals Chemistry

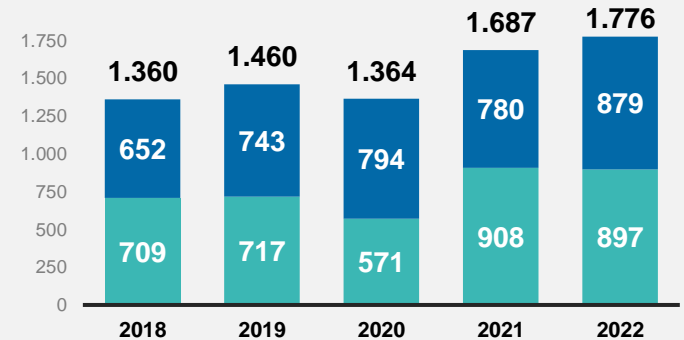
- Revenues increased vs 2021
- Strong demand, especially for inorganic chemicals in automotive
- Operational excellence and favorable PGM prices

## Fuel Cell & Stationary Catalysis

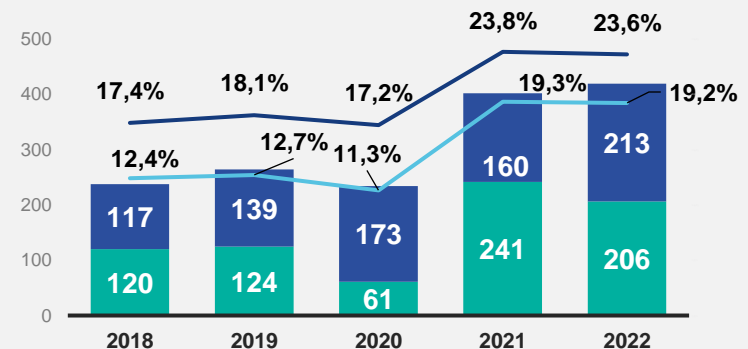
- Revenues flat vs 2021, impacted by H1 COVID-19 lockdowns in China
- Investing in fuel cell catalyst plant in China to capture future growth



Catalysis revenues (€ m)



Adjusted EBITDA (€ m) & EBIT(DA) margin



● H1 ● H2 ● EBITDA margin ● EBIT margin





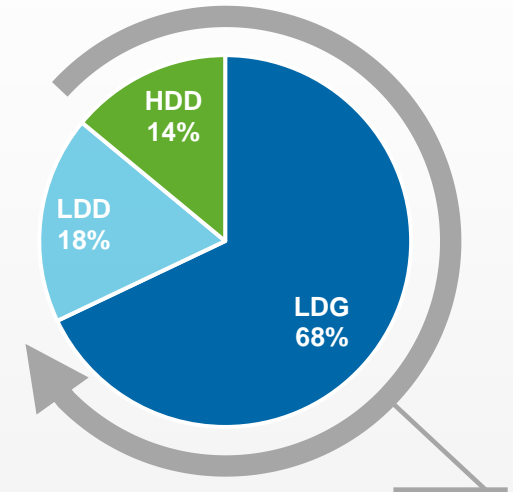
# Catalysis 2022 | AC revenue composition

**AC delivers strong free operating cash-flows in a challenging context**

## Strong market position

- Leading position in LDG segment, with marketshare gains in most global markets in 2022
- Favorable customer and platform mix in major regions in LDV and HDD
- Highly efficient manufacturing system and production footprint, with strong resilience to volume fluctuations
  
- **Final Euro 7 norms for LDG support**  
**2030 RISE ambitions for AC**
- Expected Euro 7 value uplift for LDG supporting AC profitability ambitions and its potential to generate a free cash flow of €3 Bn between 2022 and 2030
- Strong portfolio of next generation catalyst technologies, several Euro 7 platforms already acquired in 2022

**2022 Automotive Catalysts revenues per segment**



**Over 80% of AC generated in segments with highest combustion engine longevity (LDG and HDD)**

- HDD – Heavy Duty Diesel
- LDD – Light Duty Diesel
- LDG – Light Duty Gasoline

Zoom in on  
Automotive Catalysts (AC) and  
Fuel Cell & Stationary Catalysts (FCS)

# Catalysis: capture peak in Automotive Catalysts and emerging growth in Fuel Cells

**Fuel Cells:  
prepare growth  
acceleration after  
mid-decade**

**Automotive Catalysts:  
extending value capturing  
through presence in most  
attractive market segments  
with right technology**

- Strong position in light-duty gasoline; segment benefiting most from upcoming emissions legislation
- Growing share in HDD segment in China and Europe

## Continued focus on maximizing business value



**2022-2027**

Continued focus on high-capacity utilization (>85%)

Continued focus on process efficiency

Technology value pricing as core principle

**2028-2030**



Keep capacity utilization high (>85%) and align operations with market evolution

Annual fixed cost reduction of € 100 Mn in 2030

**~ € 3 billion cash delivered between 2022 and 2030**

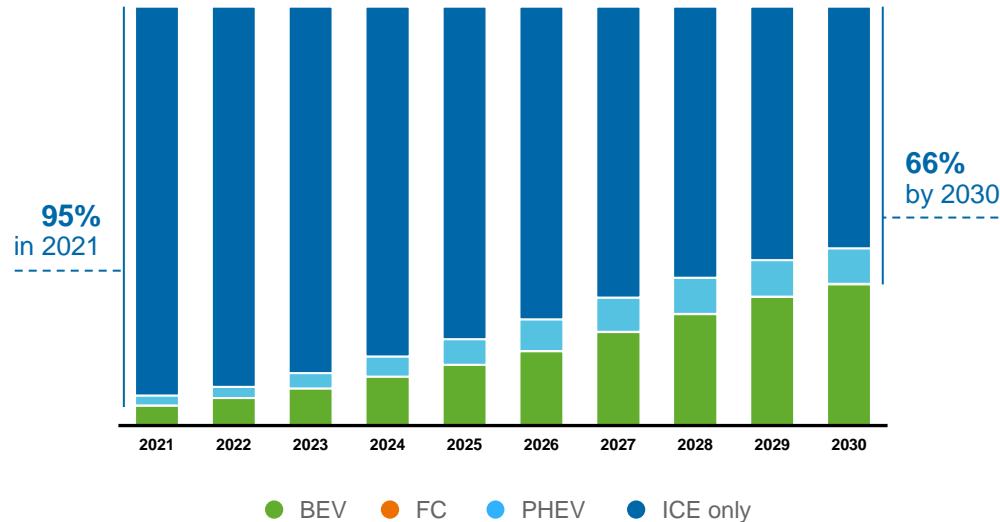
# Accelerating mobility transformation

## ICE remains dominant powertrain solution in 2030

### Light-duty vehicles

Proportion by powertrain in global production

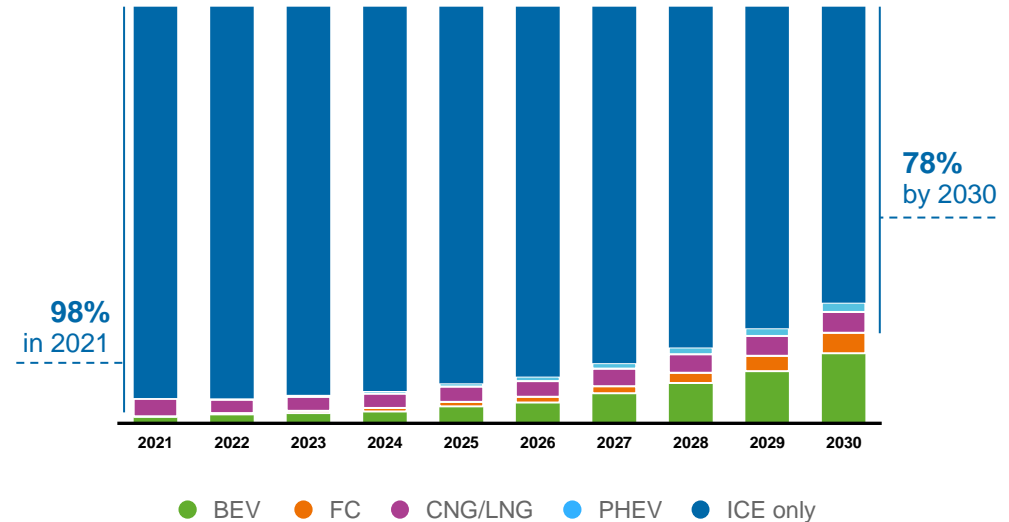
Source: Umicore market model – LDV



### Heavy-duty vehicles

Proportion by powertrain in global production

Source: Umicore market model – HDV (incl. medium-duty vehicles, on-road vehicles only)



BEV: battery electric vehicle

FC: fuel cell vehicle

CNG/LGN: Compressed natural gas / Liquefied natural gas

PHEV: plug-in (hybrid) vehicle

ICE: internal combustion engine (gasoline/diesel) only

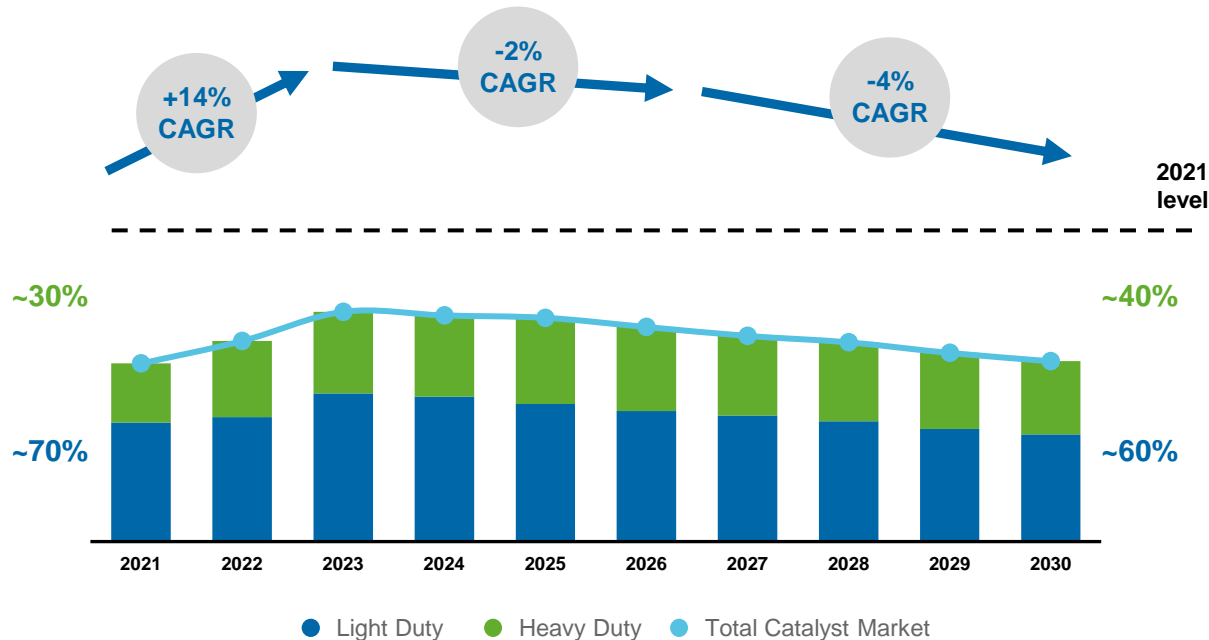


# Attractive value to capture the next decade

## Emission catalyst market moving towards unprecedented value peak



### Light, Medium & Heavy-Duty Vehicles Global automotive catalyst volumes (liters)



Source: Umicore market model – LDV and HDV (includes emissionized Heavy-Duty and Medium-Duty Vehicles; on-road only)

Value growth driven by market rebound and tighter legislation for light-duty and heavy-duty vehicles

Total addressable market in 2030 still exceeding addressable market in 2021

Attractive market profile – Ability to capture peak profitability and afterwards generate significant amount of free cash flow

# Automotive Catalysts – RISE

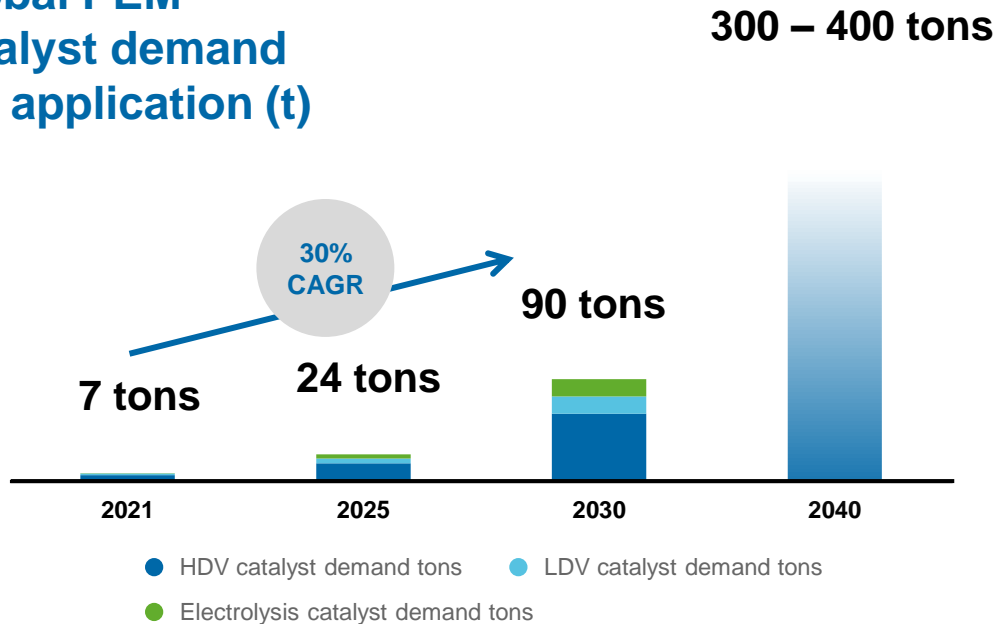
## Capture peak profitability and maximize value



**Throughout period:**  
**€ ~3 Bn total cash delivered and critical talent pool,**  
**supporting Umicore growth**  
**ROCE ~20% in 2030 and adj. EBITDA margin ~20%**

# PEM catalyst market to witness exponential growth towards 2040

## Global PEM catalyst demand per application (t)



Source: Umicore market model (HDV incl. MDV)

Strong regulatory support for hydrogen economy in Europe and APAC region

PEM catalyst demand to grow exponentially as of 2025 driven by increasing penetration of fuel cell HDV as well as electrolysis



Global addressable market of 90t for Umicore by 2030

# Fuel Cells – RISE

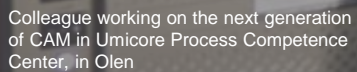


## Capture emerging growth as leading fuel cell catalyst provider

<p>Capture near term growth in fuel cells for HDV/MDV and long range LDV</p> <hr/> <p>Adjacent opportunities - market potential for green electrolysis</p>	<p><b>R</b> Reliable Transformation Partner</p>	<p><b>I</b> Innovation &amp; Technology Leader</p>	<p><b>S</b> Sustainability Champion</p>	<p><b>E</b> Excellence in execution</p>
	<p>BUILDING CUSTOMER COOPERATIONS ACROSS THE VALUE CHAIN</p>	<p>BENCHMARK MATERIALS – INNOVATION AND RESEARCH AT THE HEART OF THE FUEL CELL GROWTH STRATEGY</p>	<p>KEY PARTNER FOR THE TRANSITION TO ZERO-EMISSIONS MOBILITY</p>	<p>SCALING-UP PRODUCTION FOOTPRINT IN MOST COST-EFFICIENT WAY</p>

**Head start, based on proven technology leadership**  
**Profitable today and value accretive throughout period**



A blue rectangular box containing the text "E&ST" in white, bold, sans-serif font. The box is positioned in the center-right of the image, overlapping the scientist and the equipment.A semi-transparent white rectangular box containing the text "Colleague working on the next generation of CAM in Umicore Process Competence Center, in Olen".



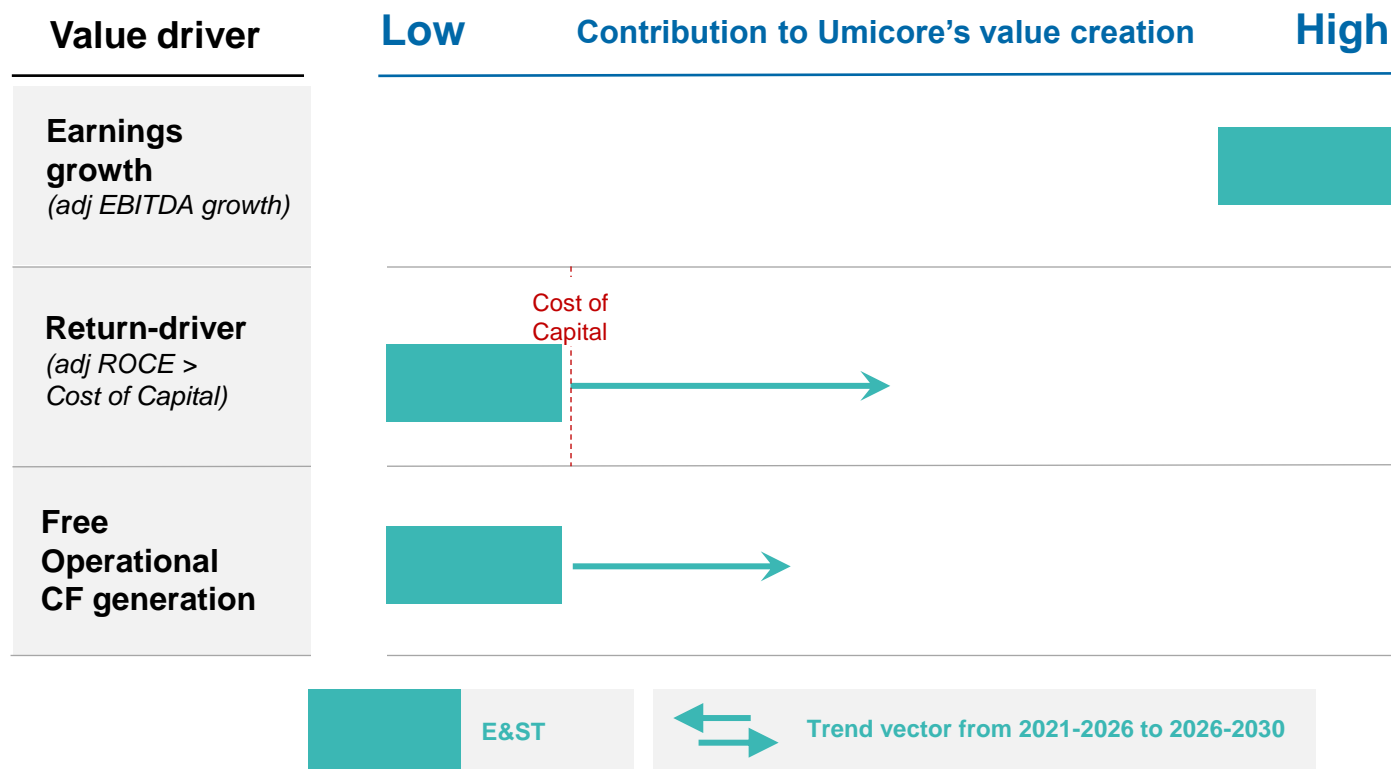
# Energy & Surface Technologies overview



<b>Rechargeable Battery Materials</b>	We are a pioneer in battery materials and a leading cathode material supplier for rechargeable lithium-ion batteries, giving added range and performance to electric vehicles, and longer battery life for portable electronics.	Ni Co Li Mn
<b>Cobalt &amp; Specialty Materials</b>	We are experts in sourcing, production and distribution of cobalt and nickel products. Our materials are at the heart of everyday products such as rechargeable batteries, tools, paints and tyres. Our recycling and refining processes, give new life to cobalt and other metals.	Co Ni W Ta Cu
<b>Metal Deposition Solutions</b>	We are one of the world's leading suppliers of products for (precious) metal-based electroplating and PVD coating of surfaces in the nano and micrometre range. Our solutions for the highest demands are used in many products of daily use or enable their production in the first place.	Au Ag Pd Pt Rh Ru
<b>Electro-Optic Materials</b>	We are a leading supplier of material solutions for the space, optics and electronics sectors, including products for thermal imaging, wafers for space solar cells, high brightness LEDs and chemicals for fiber optics.	Ge Pt Se Si Ti W

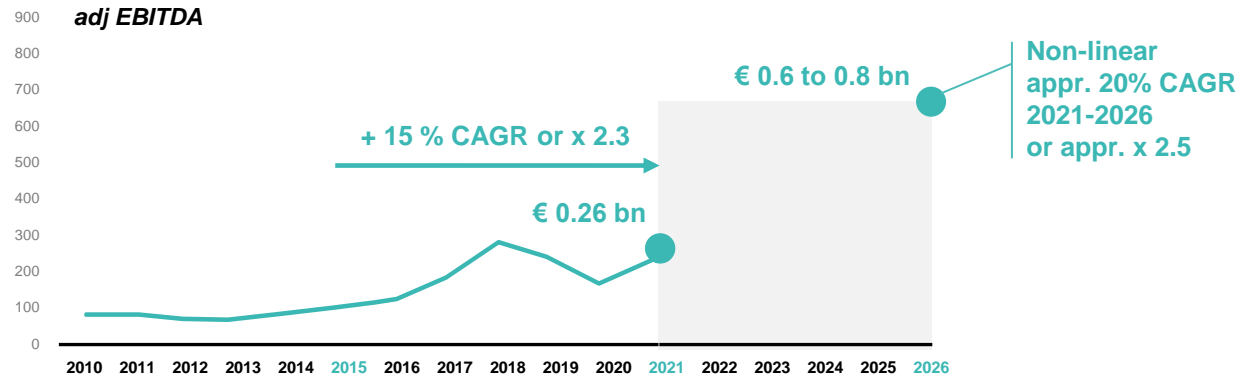
# E&ST

## Balancing growth, returns and cash flows



- Unprecedented transformational growth in Rechargeable Battery Materials
- Partial payback by 2026 from high growth investments in Rechargeable Battery Materials; becoming value creative shortly thereafter
- Significant upfront growth investments dampen free cash flows; strong free cash flows once new greenfield sites are ramped-up

## Rechargeable Battery Materials to drive transformative growth



**Step-change in revenues & earnings as from mid-decade** driven by Rechargeable Battery Materials

**Robust underlying EBITDA margins** despite impact from substantial upfront growth & start-up costs. Margin increase after 2026

**Material but phased investments** conditional upon value creative returns

**Non-Rechargeable Battery Materials businesses target selective growth**, maintaining + 20% adj EBITDA margins

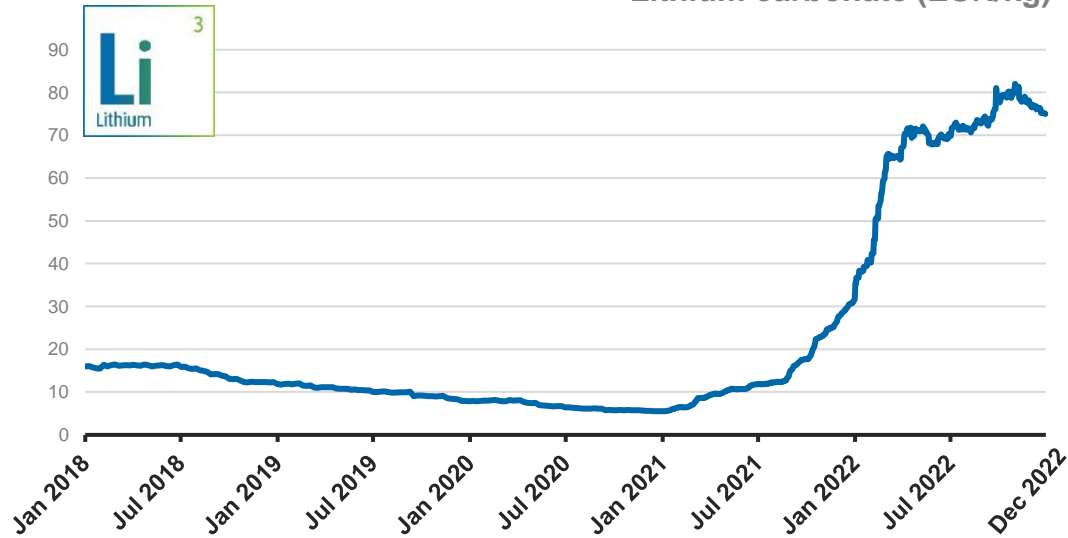
	2021	2026 ambition	2030 vision
<b>Revenues</b>	€ 1.17 bn	+ € 2.5 bn to € 3 bn vs 2021	+ € 2.5 bn to € 3.5 bn vs 2026
<b>adj EBITDA margin</b>	€ 0.26 bn 22 %	€ 0.6 to 0.8 bn < 20 %	higher vs 2026
<b>Phased growth conditional upon value creative returns from contracts</b>			



# E&ST 2022 | Market context

## Lithium price blasts mid-2021

Lithium carbonate (EUR/kg)



Weighting battery powder in Olen, Process competence center

Average 2021  
**14 €/kg**

Average 2022  
**68 €/kg**

30/12/2022 spot price  
**75 €/kg**





# E&ST 2022 | Market context

**EV sales reached 10% of global new vehicles sales in 2022**

- **Mobility transformation** – rapid **acceleration** continues
  - Regulatory push: EU zero-CO<sub>2</sub> target in 2035 and US Inflation Reduction Act
  - Higher customer demand for EVs
  - Car OEMs commit to significant investments to roll out new EV models
- **Energy crisis** – a strong **catalyst for renewable energy** investments in EU
- Shift to e-mobility to increase **Umicore's addressable CAM market** by **x6-7** until 2030
- **Structural undersupply of CAM in Europe and North America** expected until 2030, accelerated by push to regional supply chains





# CAM Capacity Development

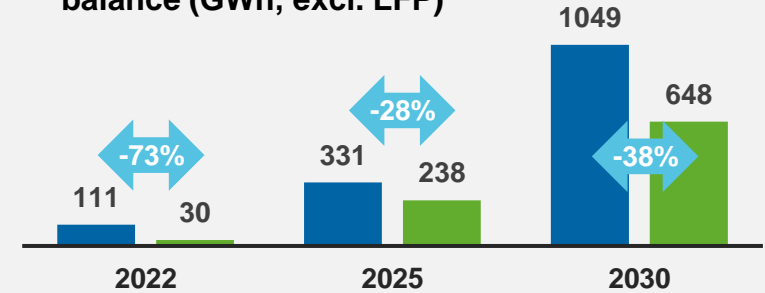
## Structural CAM undersupply

- 2022 - 2030 – NMC **pCAM** and **CAM manufacturing capacity** in EU & N-A **insufficient to cover local demand**
- Supply gap to be only **temporarily bridged** from Asia:
  - **Local content requirements** and geopolitical independency for regional subsidy schemes (US IRA, EU NZIA)
  - OEM **CO<sub>2</sub> reduction** targets (scope 3)
  - Need for robust and **reliable supply-chains** close to customers

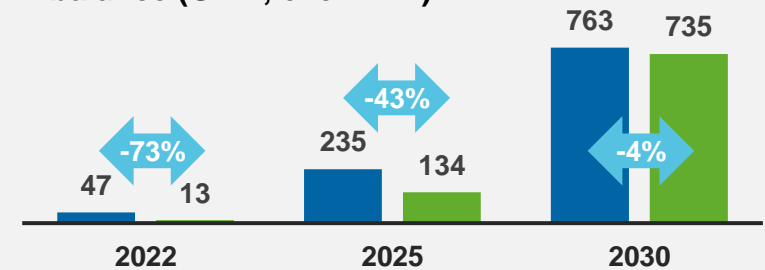


In this undersupply context, Umicore's fully integrated supply chain and existing / planned CAM manufacturing footprint in EU and N-A America to play important role in supporting regional demand of battery and car OEMs

European addressable CAM market supply & demand balance (GWh, excl. LFP)



North American addressable CAM market supply & demand balance (GWh, excl. LFP)



● Expected NMC battery demand    ● Announced supply capacity from CAM producers



# E&ST 2022 | Performance

Revenues +28%, adj. EBITDA margin at 22.3%

→ Higher revenues and earnings in RBM and CSM

## Rechargeable Battery Materials

- As anticipated, sales volumes of legacy CAM contracts subdued
- Revenues<sup>1</sup> and earnings well up, incl. favorable exposure to increase in lithium price
- Preparations for 2024 ramp-up on track, with good customer traction in 2022
- Intention to group RBM activities within one legal entity within Umicore

## Cobalt & Specialty Materials

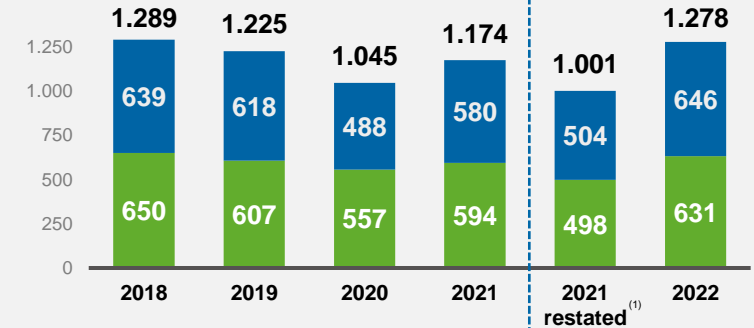
- Revenues substantially higher
- Exceptionally strong demand and a supportive cobalt and nickel environment and related distribution activities in H1
- As anticipated, normalization of performance in H2

## Metal Deposition Solutions & Electro-Optic Materials

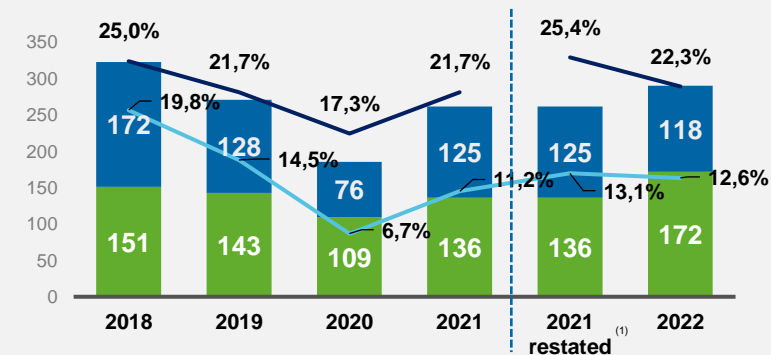
- Stable revenues with good operational performance



Revenues (€ m)



Adjusted EBITDA (€ m) & EBIT(DA) margin



● H2 ● EBITDA margin  
● H1 ● EBIT margin

=

<sup>(1)</sup> Li and Mn pass through excluded from revenues as of 2021



# Zoom in on Rechargeable Battery Materials (RBM)

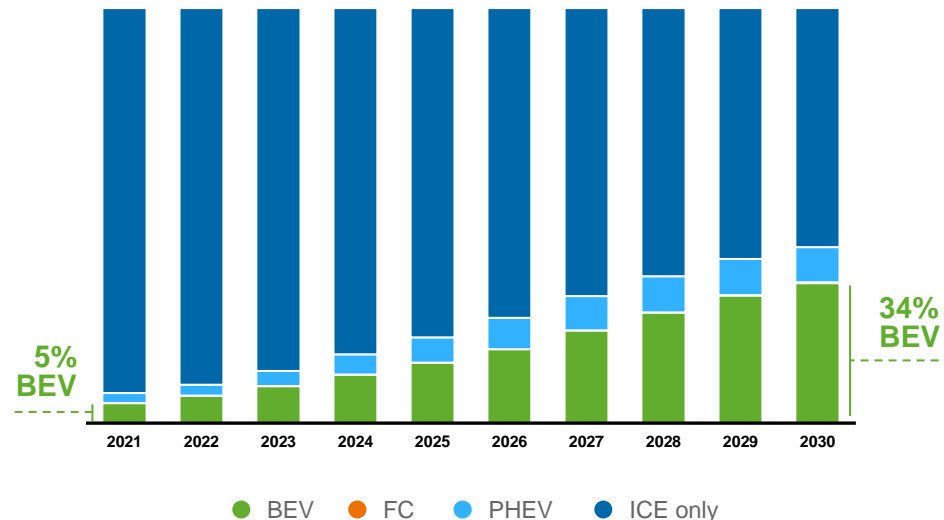
# Electrification increasing at fast pace, triggered by regulatory push and OEM commitments



## Light-duty vehicles

Proportion by powertrain in global car production

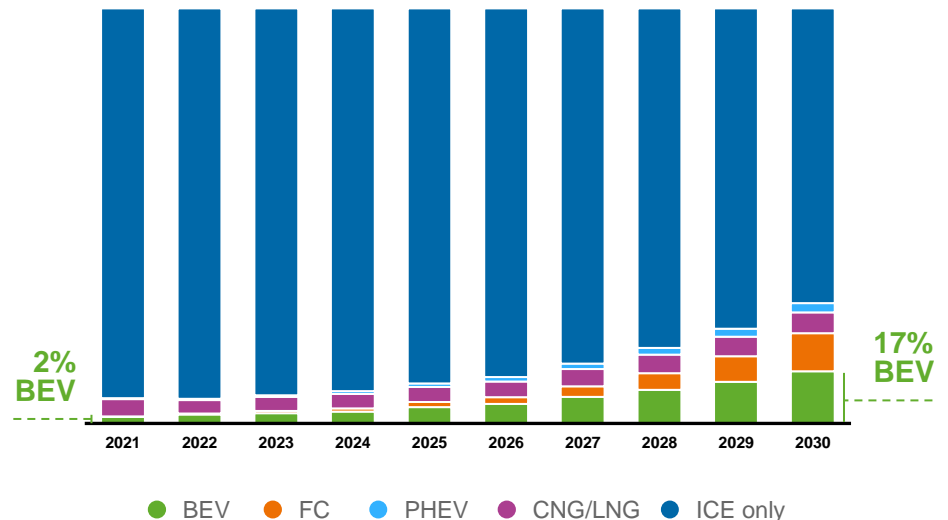
Source: Umicore market model



## Medium- and Heavy-duty vehicles

Proportion by powertrain in global car production

Source: Umicore market model



BEV: battery electric vehicle

FC: fuel cell vehicle

CNG/LNG: Compressed natural gas / Liquefied natural gas

PHEV: plug-in (hybrid) vehicle

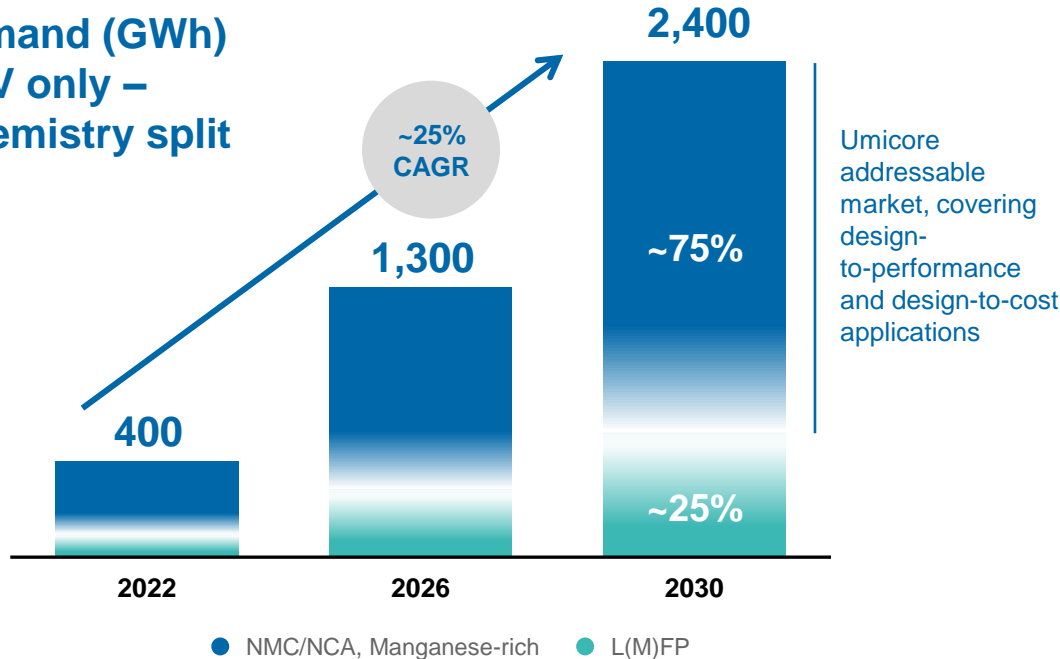
ICE: internal combustion engine (gasoline/diesel) only



# Umicore chemistries addressing ~75% of total Light-duty EV CAM demand



Global CAM demand (GWh) LDV only – Chemistry split



Source: Umicore market model

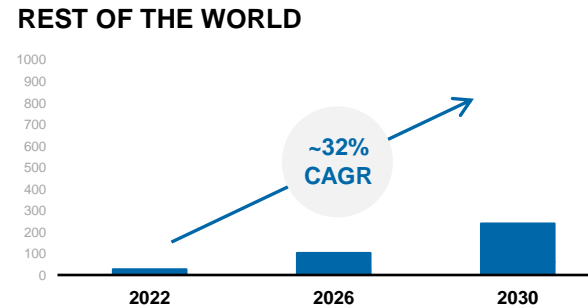
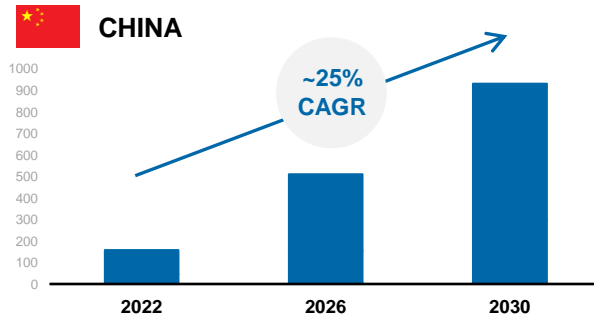
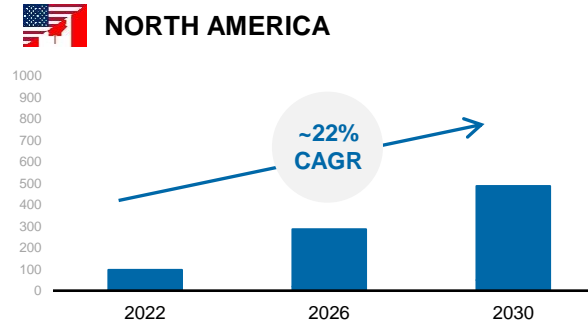
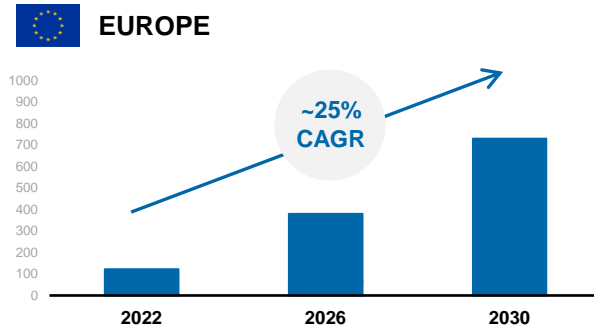
Evolving technologies reflecting car OEMs' need for performance- and cost-focused solutions

NM(C) chemistries (incl. Mn-rich) represent vast majority of EV CAM demand in 2030

Solid-state batteries expected to gain traction based on NMC, with a single digit market share expected towards 2030

# >20% annual market growth across all regions

## CAM demand (GWh) across regions LDV only

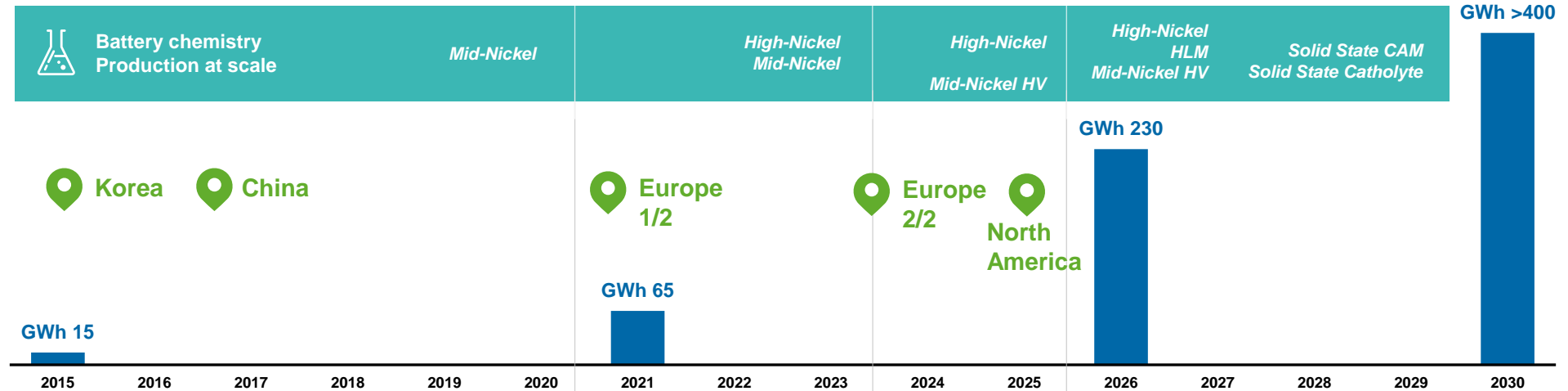


Europe, China and North America expected to represent ~90% of total LDV CAM demand

- Ongoing regionalization of supply chain:
- Geopolitical context
  - OEMs' sustainability considerations
  - Security of supply

Source: Umicore market model

# Rechargeable Battery Materials - the plan to 2030



## 1. Pioneering Battery Materials

- Starting of CAM R&D in 1995
- Early move into industrial scale CAM production
- Business-model: **OEM Tier 2** / direct to cell makers
- Technical interface: cell makers

## 2. Re-Shaping

- Market shift to **OEM Tier-1** involvement business models, next to cell makers
- Technical interface: OEM
- Customer and platform diversification
- Pioneering new **OEM co-investment** / partnership model to secure demand and share investments

## 3. Ramping-up

- Expanding **global footprint** to support customer SC needs **“from mine to battery”**
- Accelerate implementation of **advanced chemistries roadmap & SSB**

## 4. Value creative growth

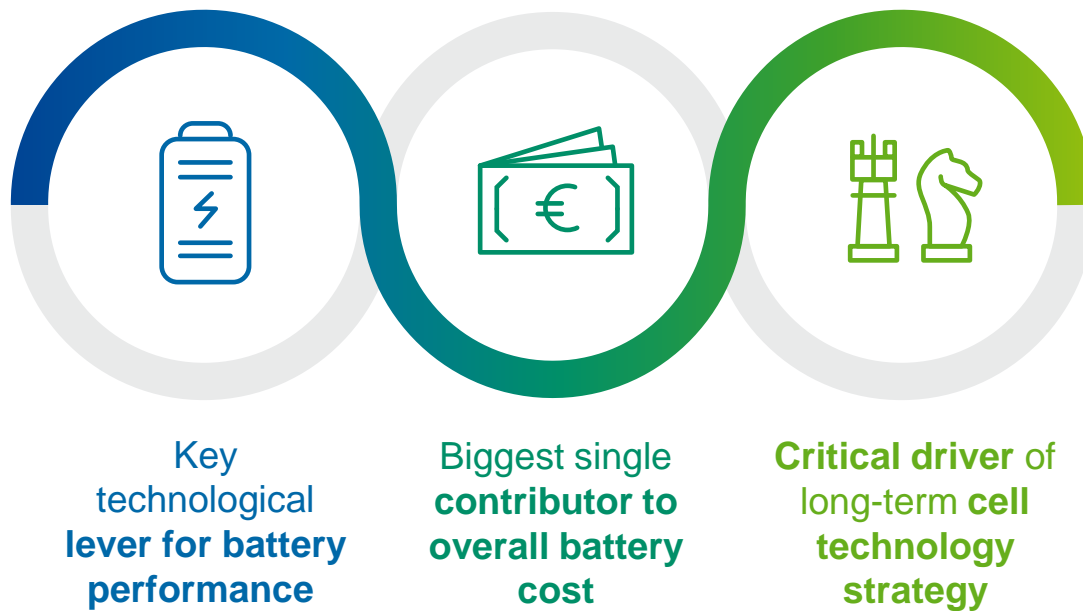
- **Significant growth** in sweet-spot phase for returns
- Visible impact of Umicore Scope 3 initiative to decarbonize BEV supply chain
- Full roll-out of advanced CAM technologies / SSB



# Cathode active materials crucial for the mobility transformation ...



**CAM critical component determining electrification success**



# ... requiring critical competences and skills for CAM producers to succeed

## Product



**High performance and quality**  
product with customized end specs

**Joint development** with customers and partners

Strong **technology and IP portfolio** and **continuous innovation**

## Process



Mastering **complexity and flexibility** of production process

Continuous **industrialization and process innovation**

Extensive **quality and purity control**

## Supply



**Strategic access to raw materials**  
– low carbon intensity, highest ESG requirements

**Metal refining expertise**  
enhancing supply flexibility

**Regionalized production footprint** along value chain

**Ample opportunities for differentiation and gaining advantage over competitors**



# Rechargeable Battery Materials – RISE

## Capture profitable growth and create sustainable value



<p>Extend leadership in Europe</p> <hr/> <p>Enter North America with local production</p> <hr/> <p>Reinforce market position in Asia</p>	<p><b>R</b></p> <p>Reliable Transformation Partner</p>	<p><b>I</b></p> <p>Innovation &amp; Technology Leader</p>	<p><b>S</b></p> <p>Sustainability Champion</p>	<p><b>E</b></p> <p>Excellence in execution</p>
	<p>VALUE CREATIVE STRATEGIC PARTNERSHIPS ACROSS THE VALUE CHAIN</p>	<p>TECHNOLOGY &amp; IP PORTFOLIO COVERING PERFORMANCE &amp; COST</p>	<p>KEY PARTNER IN TRANSITION TO LOW CARBON MOBILITY</p>	<p>STEP-CHANGE IN PROCESS, OPERATIONAL AND ORGANIZATIONAL EXCELLENCE</p>

**Sustainable EBITDA growth with margins ~ 20% in 2030**  
**Value accretive after 2026**

# Recycling

Hoboken, main central building



# Recycling overview

## Precious Metals Refining

We operate the world's most sophisticated precious metals recycling facility and we are experts in treating the most complex materials. Our refining and recycling technology gives used metals a new lease of life. Our processes help bring value to the circular economy.

Ag	Te	Sb	Ir	Pt	Bi
Pb	Au	Sn	In	As	Ni
Se	Ru	Pd	Rh	Cu	

## Precious Metals Management

We supply and handle all precious metals, ensuring physical delivery by using both the output of our precious metals refineries and our network of industrial partners and banks. We offer our customers tailor-made solutions for delivering, hedging and trading precious metals.

Ag	Pt	Au	Ir
Ru	Pd	Rh	

## Jewelry & Industrial Metals

We are experts in developing products and processes based on precious metals such as gold, silver and platinum. Our customers use these materials to make fine jewelry, coins, high-purity glass and industrial catalysts. We provide our customers with sustainable and responsible sourcing of these metals and closed-loop recycling.

Ag	Au	Pt
Pd	Rh	

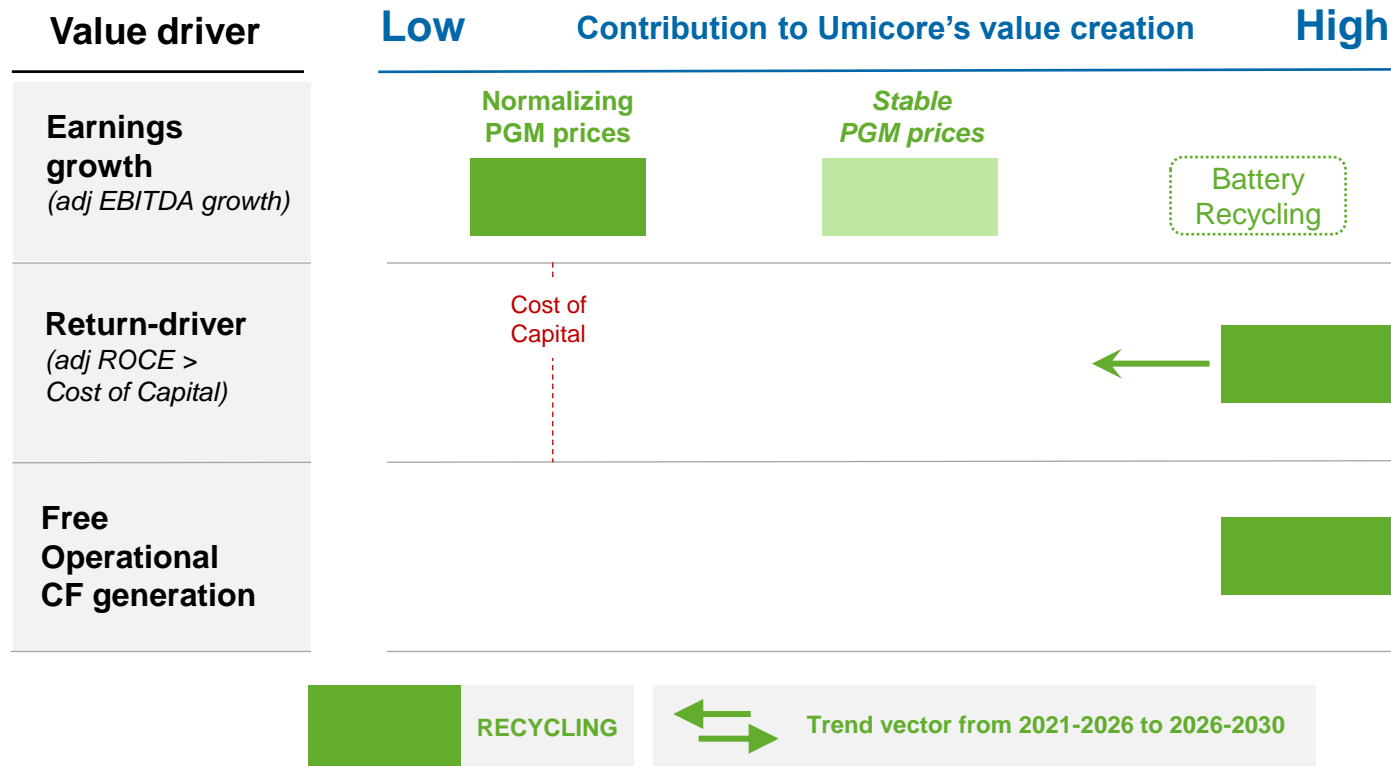
## Battery Recycling Solutions

Our leading technology closes the loop for rechargeable batteries. We use proprietary high-quality recycling processes to recover all valuable metals in an environmentally sound manner. We offer a unique sustainable and circular approach.

Ni	Co	Li	Cu
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# Recycling

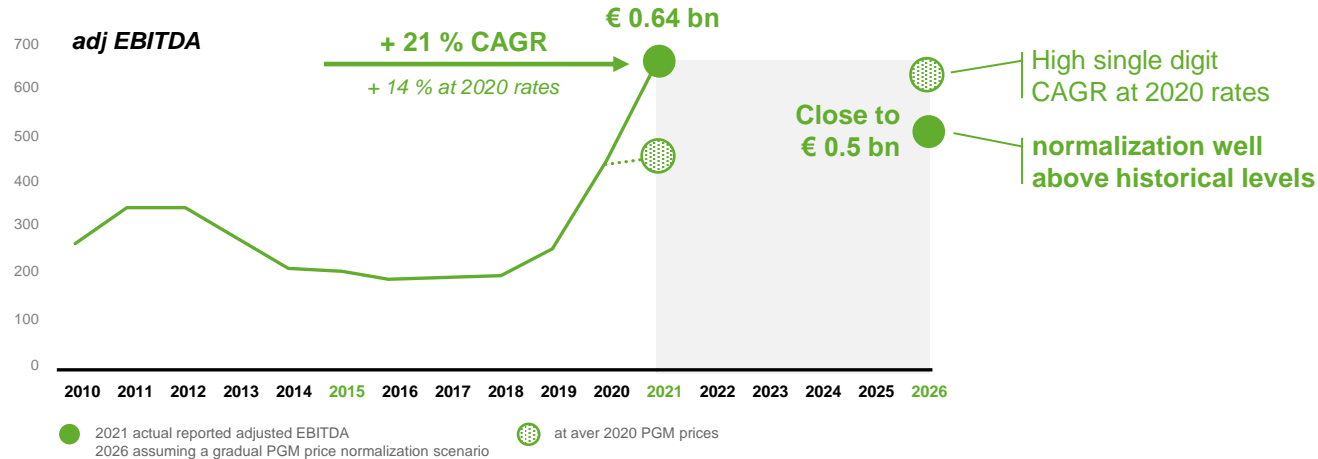
## Balancing growth, returns and cash flows



- Earnings path to depend on prevailing metal prices
- Initial battery recycling payback second half of decade
- Highly value creative returns across the plan (even with lower metal prices)
- Battery recycling capital investment to somewhat dilute returns
- Significant free cash flows despite important mid-decade battery recycling investments

# Recycling

## Strong margins, returns & cash flows and Battery Recycling kicking in mid-decade



	2021	2026 ambition	2030 vision
<b>Revenues</b>	€ 1.11 bn	> € 1.0 bn	> € 1.0 bn
<b>adj EBITDA</b>	€ 0.64 bn	close to € 0.5 bn	
<b>margin</b>	58 %	> 40 %	< 40 %
<b>Battery Recycling in % of adj EBITDA</b>	<i>n.r.</i>	< 10 %	> 30 %

**Sizeable additional battery recycling growth potential**

Earnings dependent on assumed metal prices but continue to generating superior margins even at normalized PGM prices

Includes substantial **Battery Recycling Solutions** - related development costs up to 2025

Includes one initial large-scale battery recycling plant, operational by 2026 with full contribution by end of the decade. Potential for additional growth

Substantial free cash flow generation, accelerating as from battery recycling plant commissioning





# Recycling 2022 | Market context

## Volatile precious metal prices



Average 2021  
**544 K€/kg**

Average 2022  
**472 K€/kg**

30/12/2022 spot price  
**369 K€/kg**



Hoboken plant



# Recycling 2022 | Performance

## Stable revenues, adj. EBITDA margin at 48.1%



→ Excellent operational performance, tempered by inflation headwinds and a less favorable precious metal price environment

### Precious Metals Refining

- Revenues close to 2021 levels with solid volumes
- Earnings affected by cost inflation, partially offset through efficiencies
- Limited inflation pass-through options due to global market dynamics
- Pb in blood and emission values end 2022 at lowest average level ever achieved

### Battery Recycling Solutions

- Successful implementation of high efficiency flow sheet and high recovery yields
- Good traction: > 5 additional agreements with battery and car OEMs
- Preparations for 150kt battery recycling plant in EU well on track

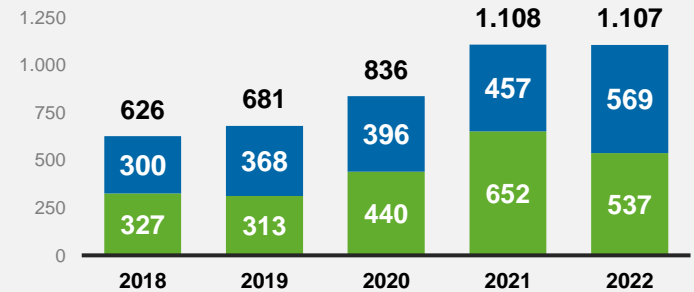
### Jewelry & Industrial Metals

- Revenues up, with strong performance across most product lines

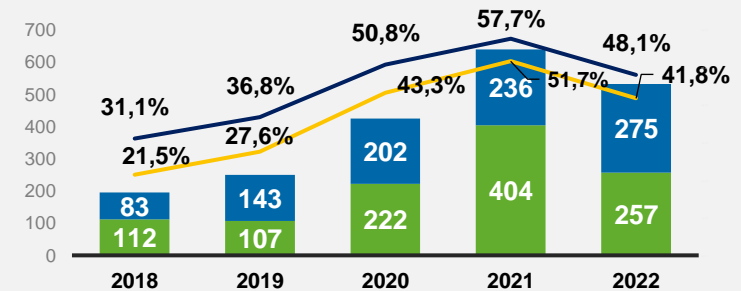
### Precious Metals Management

- Earnings slightly below exceptional 2021 level, reflecting less favorable trading conditions, in particular for rhodium

### Revenues (€ m)



### Adjusted EBITDA (€ m) & EBIT(DA) margin



● H2 ● EBITDA margin  
 ● H1 ● EBIT margin



Zoom in on  
Precious Metal Refining (PMR)  
and Battery Recycling Solutions (BRS)

# Recycling: Precious Metals Refining as solid platform to enable success in Battery Recycling



EBITDA



## Precious Metals Refining

Undisputed leader in complex precious metals recycling with minimized carbon footprint

>30%  
of Business  
Group  
EBITDA

Battery Recycling

2022

### Battery Recycling: Pioneer in Europe

- Leverage 10kt plant and recycling know-how to establish strong position
- Prepare high-volume plant in EU

2026

### Battery Recycling: Scale-up in Europe and prepare entry in North America

- Launch 150kt plant in 2026 as pioneer in Europe
- Umicore Pyro/Hydro technology best in cost and sustainability

2030

**Recycling Business Group maintaining superior returns despite normalizing PGM prices, investing in battery recycling and sustainability**

# Precious Metal Refining


Largest and most complex precious metals recycling operation in the world



Processes more than 200 different types of raw materials



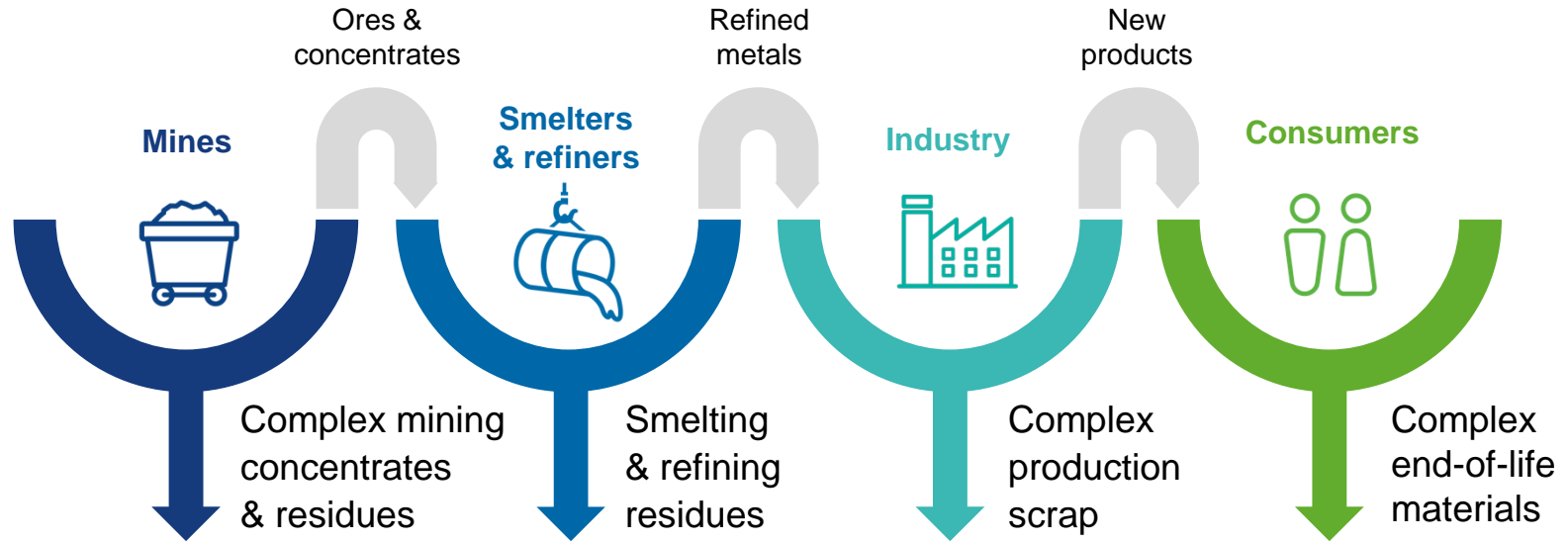
Leading refiner of 17 different metals



World class environmental and quality standards



# The value chain of metals



**Industrial by-products**

**End-of life materials**

# Revenue Drivers



## Main revenue drivers

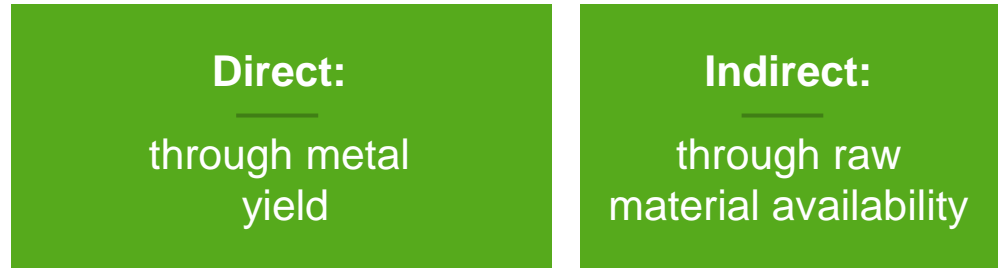
### Treatment & refining charges

Treatment charges are determined, among other criteria, by the complexity of the materials

### Metal yield

Umicore assumes the risk of recovery above or under the contractually agreed recovery rate

# Metal price exposure



Ag	Au	Pt	Ir	Rh	In	Sb	As
		Ru	Pd		Te	Sn	Pb
					Bi	Cu	
					Ni	Se	

## Managing the effects of metal price movements on earnings

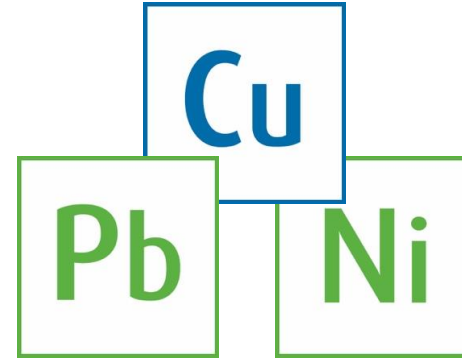
Systematic hedging of transactional exposure

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

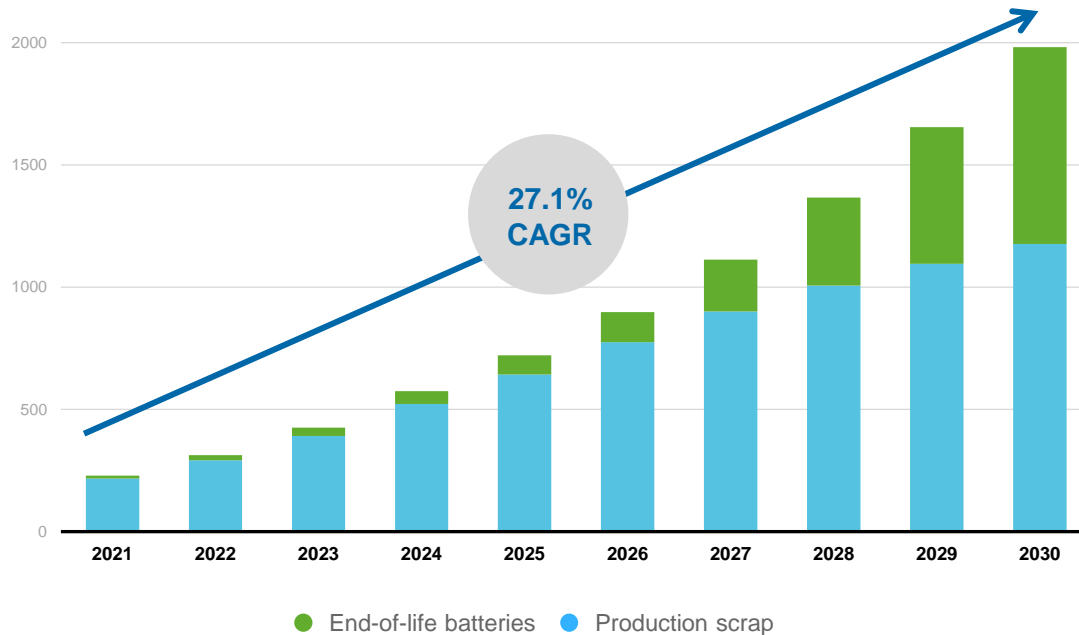
Ability to optimize feed and therefore profitability

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

# Production scrap primary source of supply towards 2030

End-of-life EV batteries and production scrap available for recycling (kMT, global)



Source: Umicore forecast data

Continuous startup of battery plants expected to produce significant pre-consumer scraps

Diverse and complex input feed mix

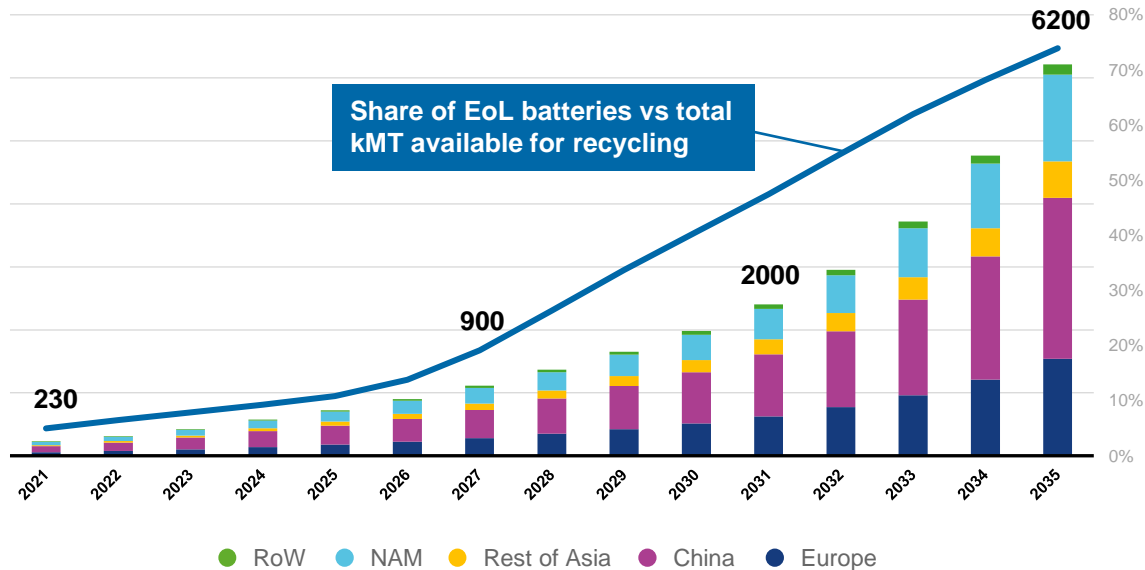
Diversified, flexible and robust recycling technology crucial



# Global recycling need accelerating significantly post 2030

## Robust technology to cope with feed mix changes

End-of-life EV batteries and production scrap available for recycling – per region (kMT, global)



Source: Umicore forecast data

From 2030 end-of-life expected to become the vast majority of supply feed

Regional markets expected to emerge with specific dynamics (differentiated applications and battery technologies, regulation,...)

Importance of tuning offering for the different regional markets

# Recycling is crucial for the mobility transformation...

Recycling as critical additional source of supply

**SECURING  
RAW  
MATERIALS**

**MAJOR  
ESG  
ADVANTAGES**

Multiple use of minerals versus single use of fossil fuels

Upcoming recycled content targets for new battery production

Proven and traceable sustainably sourced metals (battery passport)

Enabling regional supply chains and critical material price visibility

Mandatory End-of-Life battery recycling

Reduces the need for primary natural resources

Recycled material up to 96% lower CO2 footprint vs primary materials

# ...requiring critical competences and skills for battery recyclers to succeed

## Process



**Effective volume & mass reduction at massive scale (> 100kt/y)**

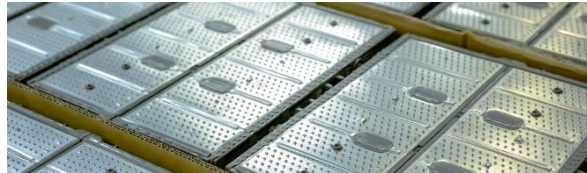
**High metal extraction yields**

**Capable to process complex feed mix**

**Sustainable process:**

- Safe elimination of hazardous compounds
- Manage occupational health exposure risk
- Low environmental impact

## Product



**Output of high-quality battery grade materials (no downcycling)**

**Realize effective compatibility with existing primary CAM-flowsheet**

**Products for high-volume addressable markets**

## Services



**Capability to collect and treat a wide variety of materials** (production scrap, off-spec components, end-of-life batteries, modules, cells, black mass)

**Closed-loop operating system** offering our partners a user-friendly interface and compliancy information

**Competence center with integrated offering – “design for circularity”**

# Battery Recycling Solutions – RISE



## Capture profitable growth in circular battery value chain

<p>Scale up as frontrunner in Europe and prepare industrial presence in North America</p> <hr/> <p>Leverage the optimal pyro-hydro balance as differentiating technology</p> <hr/> <p>Attract multiple sources for short- and long-term feed</p>	<p><b>R</b></p> <p><b>Reliable</b> Transformation Partner</p>	<p><b>I</b></p> <p><b>Innovation</b> &amp; Technology Leader</p>	<p><b>S</b></p> <p><b>Sustainability</b> Champion</p>	<p><b>E</b></p> <p><b>Excellence</b> in execution</p>
	<p><b>SUPPORTING OUR CUSTOMERS WITH A CIRCULAR OFFERING FROM THE START, READY TO ACCELERATE TOGETHER</b></p>	<p><b>SCIENCE MEETS BUSINESS: LONG-STANDING MATERIALS AND TECHNOLOGY KNOW-HOW</b></p>	<p><b>KEY ENABLER FOR THE CIRCULAR ECONOMY</b></p>	<p><b>SCALABLE TECHNOLOGY DELIVERING ON MARKET REQUIREMENTS</b></p>

**Establishing Battery Recycling Solutions as key enabler for a circular and low-carbon battery value chain**

## 02. Shareholder Structure, Shareholder structure, financial calendar and leadership overview

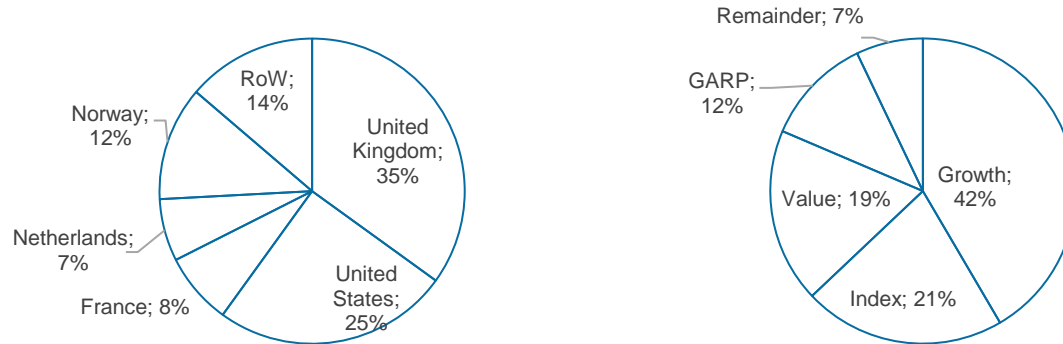


# Shareholder structure

## Worldwide presence with mixed investor styles shareholders



### Share – Geographical and investment style distribution<sup>(1)</sup>



(1) Based on 31/12/2022 public data - GBL excluded

### Key shareholders<sup>(2)</sup>

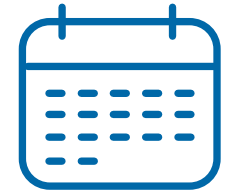
Firms	%
Groupe Bruxelles Lambert S.A.	15.98%
Baillie Gifford & Co and Baillie Gifford Overseas Ltd.	9.91%
BlackRock Inc.	5.43%
Norges Bank	5.30%
APG Asset Management	3.00%
	<b>39.62%</b>

(2) Per transparency declaration received up to 28 February 2023

- 246,400,000 total shares issued (240,200,659 outstanding)
- Component of Belgium's benchmark stock market index since 1991; listed on Euronext Brussels Stock Exchange
- High free float with large international and diversified shareholder base
- GBL largest shareholder with one representative on the Board of Directors

# Financial calendar

28 March 2023	<b>Annual report 2022</b>
27 April 2023	<b>AGM 2022</b>
02 May 2023	<b>Ex-dividend trading date</b>
03 May 2023	<b>Record date for the dividend</b>
04 May 2023	<b>Payment date for the dividend</b>
28 July 2023	<b>Half-year results 2023</b>



# Umicore Leadership overview



**Mathias  
Miedreich**  
Chief Executive Officer



**Wannes  
Peferoen**

Chief Financial Officer



**Frank  
Daufenbach**

Chief Strategy Officer



**Géraldine  
Nolens**

Executive Vice-President  
ESG & General Counsel



**Bart  
Sap**

Executive Vice-President  
Catalysis



**Ralph  
Kiessling**

Executive Vice-President  
Energy & Surface  
Technologies



**Denis  
Goffaux**

Executive Vice-President  
Recycling

## 03. Financial KPIs 2022

# Financial KPIs

(in million €)	2021	2022
Turnover	24.054	25.436
Revenues (excluding metal) (*)	3.791	4.155
Adjusted EBITDA	1.251	1.151
Adjusted EBIT	971	865
of which associates	21	16
EBIT adjustments	(75)	(32)
Total EBIT	896	832
Adjusted EBIT margin (*)	25.1%	20.4%
Effective adjusted tax rate	23.1%	20.0%
Adjusted net profit, Group share	667	593
Net profit, Group share	619	570
R&D expenditure	245	316
Capital expenditure	389	470
Net cash flow before financing	787	153
Total assets, end of period	9.045	9.942
Group shareholders' equity, end of period	3.113	3.516
Consolidated net financial debt, end of period	960	1.104
Gearing ratio, end of period	23.3%	23.6%
Net debt / LTM adj. EBITDA	0,77x	0,96x
Capital employed, end of period	4.377	4.716
Capital employed, average	4.384	4.511
Return on capital employed (ROCE)	22.2%	19.2%
Workforce, end of period (fully consolidated)	11.050	11.565
Workforce, end of period (associates)	2.589	2.664
Accident frequency rate	3,70	4,87
Accident severity rate	0,12	0,16

(\*) Revenues of 2021 and 2022 have been restated to exclude the pass-through value of the purchased lithium and manganese

# Business Group key figures

## CATALYSIS

(in million €)	FY 2021	FY 2022
Total turnover	8.155	7.738
Total revenues (excluding metal)	1.687	1.776
Adjusted EBITDA	402	419
Adjusted EBIT	326	342
Total EBIT	308	331
Adjusted EBIT margin	19.3%	19.2%
R&D expenditure	142	139
Capital expenditure	70	67
Capital employed, end of period	1.551	1.564
Capital employed, average	1.743	1.522
Return on capital employed (ROCE)	18.7%	22.5%
Workforce, end of period (fully consolidated)	3.007	3.080

## ENERGY & SURFACE TECHNOLOGIES

(in million €)	FY 2021	FY 2022
Total turnover	3.534	4.974
Revenues (excluding metal) (*)	1.001	1.278
Adjusted EBITDA	262	290
Adjusted EBIT	139	166
of which associates	8	5
Total EBIT	141	169
Adjusted EBIT margin (*)	13.1%	12.6%
R&D expenditure	64	107
Capital expenditure	219	296
Capital employed, end of period	2.275	2.751
Capital employed, average	2.198	2.498
Return on capital employed (ROCE)	6.3%	6.7%
Workforce, end of period (fully consolidated)	3.836	3.991
Workforce, end of period (associates)	792	821

(\*) Revenues of 2021 and 2022 have been restated to exclude the pass-through value of the purchased lithium and manganese

## RECYCLING

(in million €)	FY 2021	FY 2022
Total turnover	15.609	15.338
Total revenues (excluding metal)	1.108	1.107
Adjusted EBITDA	640	532
Adjusted EBIT	573	463
Total EBIT	529	463
Adjusted EBIT margin	51.7%	41.8%
R&D expenditure	13	24
Capital expenditure	83	81
Capital employed, end of period	461	347
Capital employed, average	345	415
Return on capital employed (ROCE)	165.9%	111.6%
Workforce, end of period (fully consolidated)	2.867	2.996



# 04. Glossary

# Glossary

*The below definitions cover Umicore's main financial Alternative Performance Measures (non-IFRS definitions).*



**Adjusted EBIT:** EBIT - EBIT adjustments.

**Adjusted EBIT margin:** Adjusted EBIT of fully consolidated companies / revenues excluding metals.

**Adjusted EBITDA:** Adjusted EBIT + adjusted depreciation and amortization of fully consolidated companies.

**Adjusted EBITDA margin:** Adjusted EBITDA of fully consolidated companies / revenues excluding metals.

**Adjusted EPS (Earnings per share):** Adjusted net earnings, Group share / average number of (issued shares – treasury shares).

**Average capital employed:** For half years: average of capital employed at start and end of the period. For full year: average of the half year averages.

**Capital employed:** Fixed Assets + Working Capital (Inventories + adjusted Trade & Other Receivables – adjusted Trade & Other Payables) – Translation Reserves – Current & Non-Current provisions other than provisions for Employee Benefits.

**Capital expenditure:** Capitalized investments in tangible and intangible assets, excluding capitalized R&D costs.

**EBIT:** Operating profit (loss) of fully consolidated companies, including income from other financial investments + Group share in net profit (loss) of companies accounted for under equity method.

**EBIT adjustments:** Includes adjusted items related to restructuring measures, impairment of assets, and other income or expenses arising from events or transactions that are clearly distinct from the ordinary activities of the company. This includes a.o. adjustments related to the sale of business activities or environmental provisions related to historic pollution and environmental remediation of closed sites.

**Effective adjusted tax rate:** Adjusted tax charge / adjusted profit (loss) before income tax of fully consolidated companies.

**Free cash flow from operations:** cashflow generated from operations – capex & capitalized development expenses

**Gearing ratio:** Net financial debt / (net financial debt + equity of the Group).

**Market capitalization:** Closing price x total number of outstanding shares.

**Net cashflow before financing:** Net operating cashflow – net cashflow generated by (used in) investing activities.

**Net financial debt:** Non-current financial debt + current financial debt - cash and cash equivalents.

**Net debt / LTM adj. EBITDA:** Net financial debt divided by adjusted EBITDA of the last 12 months.

**Return on capital employed (ROCE):** Adjusted EBIT / average capital employed.

**Revenues (excluding metal):** All revenue elements less the value of the following purchased metals: Au, Ag, Pt, Pd, Rh, Co, Ni, Pb, Cu, Ge and also incl. Li, Mn as of 2021. In order to neutralize distortions from fluctuating metal prices and precious metal prices in particular, Umicore uses revenues excluding the value of purchased metals rather than turnover (which include the value of the purchased metals) to track its performance. This is an industry practice followed by direct peers with similar activities.

**R&D expenditure:** Gross research and development charges, including capitalized costs. The reported R&D figures exclude R&D of associates.

# Glossary

*The below definitions cover Umicore's main business & technical abbreviations*



## Catalysis Glossary

**Automotive platform:** A shared set of common design, engineering and production efforts as well as major components over a number of outwardly distinct models of vehicles

**Catalysis/catalyst:** Catalysis is a chemical process whereby one of the elements used in the reaction process, the catalyst, makes this chemical reaction possible, or speeds up this process.

**China / Euro 7:** Chinese / European air pollution emissions standard for light-duty and heavy-duty vehicles, imposing stringent norms in particular for gasoline vehicles and heavy-duty diesel.

**Emission Control Catalyst:** Emission control catalysts constitute an essential part of today's vehicles powered by internal combustion engines, mitigating the harmful effects of pollutants in the exhaust such as carbon monoxide, hydrocarbons, nitrogen oxides, and particulate matter. Emission control catalysts are made from Platinum Group Metals (Pd, Pt, Rh) which have specific properties (pollutants attach to the metals). Emission control catalysts are highly customized and tailored to the specific car / truck engine characteristics as well as the applicable emission norms which can differ from one region to another. Umicore's Automotive Catalysts business unit produces catalysts for transportation, while the Stationary Catalysts activity produces this for power plants, industry.

**Emission norms:** Emission standards are the legal requirements governing air pollutants released into the atmosphere. Emission standards set quantitative limits on the permissible amount of specific air pollutants that may be released from specific sources over specific timeframes. Many emissions standards focus on regulating pollutants released by automobiles and other powered vehicles. Others regulate emissions from industry, power plants, small equipment such as lawn mowers and diesel generators, and other sources of air pollution. There are largely three main sets of standards: United States, Japanese, and European, with various markets mostly using these as their base. India, China, and other newer markets have also begun enforcing vehicle emissions standards (derived from the European requirements) as growing vehicle fleets have given rise to severe air quality problems there, too.

**Fuel cell catalysts (FCC):** a fuel cell is an electrochemical cell that converts the chemical energy of a fuel (hydrogen) and an oxidizing agent (oxygen) into electricity. Fuel cells can produce electricity continuously for as long as fuel and oxygen are supplied. A hydrogen fuel cell catalyst eases the reaction of oxygen and hydrogen. These catalysts are made with platinum. Umicore's Fuel Cell activity produces PEM fuel cell catalysts and it's a market leader in the transportation.

**Gasoline Particulate Filters (GPF):** Gasoline particulate filters are used to remove particulate matter from the exhaust gas from a gasoline direct injection (GDI) engine. The implementation of Euro 6 and China 6 emission norms in 2018 / 2019 resulted in the introduction of GPF's in most gasoline direct injection engines in these regions. **Heavy duty diesel (HDD):** Large diesel vehicles – either on-road, such as trucks and buses, or non-road such as heavy plant and mining equipment or locomotives and agricultural equipment.

**Heavy duty vehicle (HDV):** Primarily heavy-weight trucks (but also off-road heavy transportation). Mostly using diesel (heavy-duty diesel – HDD) but growing use of hydrogen.

**Light duty vehicle (LDV):** Primarily passenger cars – using diesel, gasoline or other fuel.

**Original Equipment Manufacturer (OEM):** In the automotive industry, refers to car manufacturers.

**Platinum-group metals (PGMs):** The six platinum-group metals are ruthenium, rhodium, palladium, osmium, iridium, and platinum. In particular, palladium, platinum and rhodium are key components of emission control catalysts.

**PEM FCC:** Proton-Exchange-Membrane fuel cell catalysts are a type of fuel cells (see fuel cell catalyst)

# Glossary

*The below definitions cover Umicore's main business & technical abbreviations*



## Rechargeable Battery Materials Glossary:

**Battery Electric Vehicle (BEV):** full electric vehicle

**Cathode active materials (CAM):** The cathode is the positive side in a (rechargeable) lithium-ion battery. In the charging phase ions are released from the cathode and migrate to the anode (negative side), thereby storing electricity. In the discharging phase, the ions move back to the cathode, thereby releasing electricity. Cathode active materials are composed of lithium and metals and are critical components in batteries, determining to a large extent the energy density, power, price, durability, cyclability, fast charging, thermal stability... of the battery and its end application.

**Cathode chemistries:** cathode active materials have different characteristics depending on type and ratio of metals. For example, Ni(Nickel) has high capacity, Mn(Manganese) and Co(Cobalt) has high safety and Al(Aluminum) increases power of a battery.

**NMC (Lithium-Nickel-Manganese-Cobalt-Oxide):** One of the most successful li-ion cathode formulas developed to date and which has become to go-to powder to develop batteries. It delivers strong overall performance and excellent energy which makes it the preferred option for automotive batteries. NMC powder can be made in a variety of blends (depending on the proportional content of the different metals). Umicore covers the full spectrum of NMC chemistries, and its production lines are entirely flexible between the different types.

**NMC – HV** ("high voltage" NMC): step in NMC innovation roadmap allowing high charge voltage

**HLM (High Lithium and Manganese cathode material):** a variant within the NMC family, with high lithium and manganese content, which is attracting much attention as it is cost-effective while offering higher energy density than LFP. Not yet commercialized in the industry but in development. Umicore is also actively working on this with customers.

**LFP (Lithium Iron phosphate):** is a popular, cost-effective cathode material that is known to deliver excellent safety and long-life span. On the other hand, LFP delivers a lower nominal voltage, which results in lower specific energy when compared to other cathode materials on the market.

**NCA (Lithium Nickel-Cobalt-Aluminum Oxide):** within the NMC family, however, replacing the manganese with aluminum. This chemistry has a high nickel content, which contributes to a longer distance that can be covered with a single-time charging. It comes, however, also at a higher cost point which makes it a somewhat lesser preferred chemistry by the automotive industry.

**Electrified vehicle (EV):** Vehicle (passenger car or other) that runs fully or partially on electricity, rather than on conventional fuel.

**New Energy Vehicle policy (NEV):** policy to promote electric vehicle deployment in China

**Solid State Batteries (SSB):** A solid-state battery is a battery technology that uses solid electrodes and a solid electrolyte, instead of the liquid electrolytes found in lithium-ion batteries. Solid-state batteries can provide potential solutions for many problems of lithium-ion batteries, such as flammability, limited voltage, limited cycling performance and strength. As such they are on the roadmap of most car manufacturers to be gradually introduced as of the second half of the decade. Umicore has developed specific NMC cathode materials for solid state as well as innovative, break-through "catholyte" material, which combines the solid electrolyte and cathode materials in one component, hereby offering a strong value proposition.

# Glossary

*The below definitions cover Umicore's main business & technical abbreviations*



## Recycling Glossary:

**Closed loop:** For Umicore a “closed loop” involves taking back secondary materials from customers (e.g. production residues) or End-of-Life materials (e.g. used mobile phones, automotive catalyts). The recovered metals are then fed back into the economic cycle.

**Free metal yield:** Surplus metal recovered within a refining and recycling process. This is a significant revenue stream of Umicore's refining and recycling processes, which is dependent on the metal price evolution.

**Hydrometallurgy:** Hydrometallurgy involves the use of aqueous solutions for the recovery of metals from ores, concentrates, and recycled or residual materials. Umicore's Precious Metals Refining and Battery Recycling Solutions activities combine the advantages of both the pyrometallurgical and hydrometallurgical processes.

## Raw materials:

**Primary raw material:** Material which has never before been subjected to use or processed into any form of end-use product (or part thereof) other than that required for its manufacture. In the absence of information from the supplier on the nature of the raw materials supplied, these raw materials are considered as primary. The collected data are expressed in terms of total tonnage of incoming material.

**Secondary raw material:** Material which has been used and/or processed before and can be reused or processed again into any form of end-use product (or part thereof). Includes both pre- and post- consumer materials.

**Secondary pre-consumer raw material:** Material resulting from the industrial processes in the value chain before that material has been processed into a product. Please note that this includes waste materials originating from intermediate manufacturing steps in the value chain using primary raw materials as input. In all cases the material should not be suitable for consumption in the intermediate manufacturing steps from which it originates.

**Secondary post-consumer raw material:** Material resulting from products ending at least one lifetime. Please note that this includes waste materials originating from intermediate manufacturing steps in the value chain using secondary raw materials (pre- and or post- consumer raw materials) as input. This also includes material recovered from waste generated by industrial facilities in their role as end-users of a finished product. In all cases the material should not be suitable for consumption in the intermediate manufacturing steps from which it originates. This also includes material recovered from waste generated by industrial facilities in their role as end-users of a finished product.

**Platinum-group metals (PGMs):** The six platinum-group metals are ruthenium, rhodium, palladium, osmium, iridium, and platinum.

**Pyrometallurgy:** Pyrometallurgical processing involves incineration and smelting in a furnace at high temperatures. Has a very high reaction rate which allows to have a quick recovery process, and a large robustness to impurities. Lower physical footprint compared to hydrometallurgy. Umicore's Precious Metals Refining and Battery Recycling Solutions activities combine the advantages of both the pyrometallurgical and hydrometallurgical processes.

# Glossary



*The below definitions cover ESG-related Performance Measures*

**CO2 equivalent (CO2e):** The universal unit of measurement to indicate the global warming potential (GWP) of each of the six greenhouse gases, expressed in terms of the GWP of one unit of carbon dioxide. It is used to evaluate releasing (or avoiding releasing) different greenhouse gases against a common basis.

**Energy consumption:** the sum of indirect energy consumption (energy from purchased electricity, steam, compressed air and heat) and direct energy consumption (energy from fuel, gas oil, natural gas, LPG, coal, cokes, pet cokes etc.) at our sites. This includes also self-generated energy, for which only the consumption of fuels is taken into consideration to avoid double-counting. Energy that is sold to third parties is not included.

**Greenhouse gas (GHG):** GHGs are the six gases listed in the Kyoto Protocol: carbon dioxide (CO<sub>2</sub>); methane (CH<sub>4</sub>); nitrous oxide (N<sub>2</sub>O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF<sub>6</sub>). See 'Kyoto Protocol'.

**GHG emissions intensity:** total scope 1+2 CO<sub>2</sub>e market-based emissions divided by the total revenues excluding metals

**Life Cycle Analysis (LCA):** LCA measures the environmental impacts of each distinct part involved in creating and using products and services, such as energy used in production, fuel used in transport, and end-of-life ecological costs.

**Science-Based Targets Initiative (SBTi):** Organization that validates greenhouse gas targets. Partnered with CDP, UN Global Compact, World Resources Institute, World Wildlife Fund.

**Scope 1 CO<sub>2</sub>e emissions:** A reporting organization's direct GHG emissions.

**Scope 2 CO<sub>2</sub>e emissions:** A reporting organization's indirect GHG emissions from the generation of purchased electricity, heating/cooling, compresses air or steam.

**Scope 3 CO<sub>2</sub>e emissions:** A reporting organization's indirect emissions that occur upstream and downstream in the value chain, including purchased goods and services, business travel, employee commuting, waste disposal, use of sold products, transportation and distribution (up- and downstream), investments and leased assets and franchises

**Scope 4 CO<sub>2</sub>e emissions:** emission reductions which occur outside of a product's lifecycle or value chain, but as a result of the use of the product. Also referred to as "avoided emissions".

**Sustainable Development Goals (SDG):** The 17 Sustainable Development Goals adopted by the United Nations on September 25 2015 build on the Millennium Development Goals and aim at ending poverty, protecting the planet, and ensuring prosperity for all as part of a new UN sustainable development agenda. Each goal has specific targets to be achieved by 2030.

**Task Force on Climate-related Financial Disclosure (TCFD):** Recommendations launched in 2017 to improve and increase reporting of climate-related financial information. CDP's disclosure platform provides the mechanism for reporting in line with the TCFD recommendations.





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