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Umicore in the driver's seat

Umicore, global leader in …

Automotive catalysts for passenger cars

Key **materials for rechargeable batteries** used in portable electronics and hybrid & electric cars

Germanium substrates and other materials which are used in new photovoltaic technologies

Recycling precious metals from old mobile phones, laptops, electronic scrap and spent catalyst material

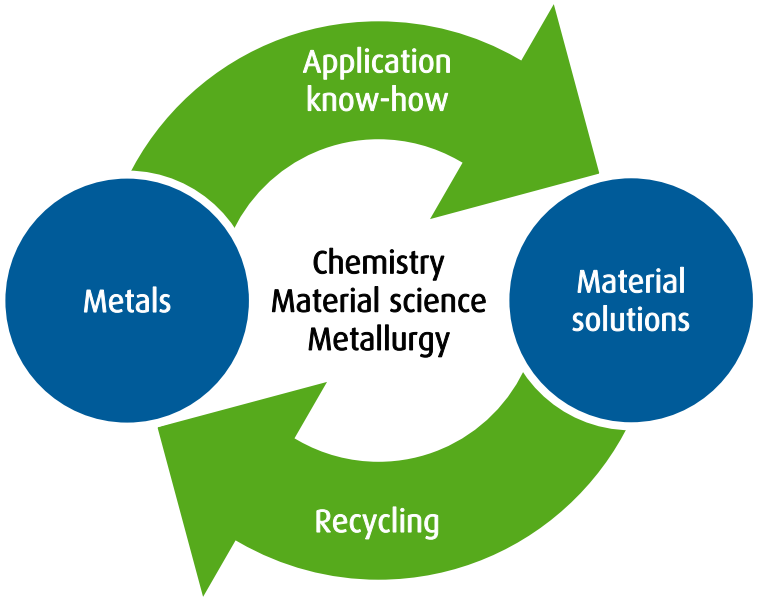
Umicore's business approach

We transform metals into hi-tech materials

We use application know-how to create tailor-made solutions in close collaboration with our customers

We close the loop and secure supply by recycling production scrap and end-of-life materials

We aim to minimize our environmental impact and be the best employer and neighbour



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Umicore 2011 in figures

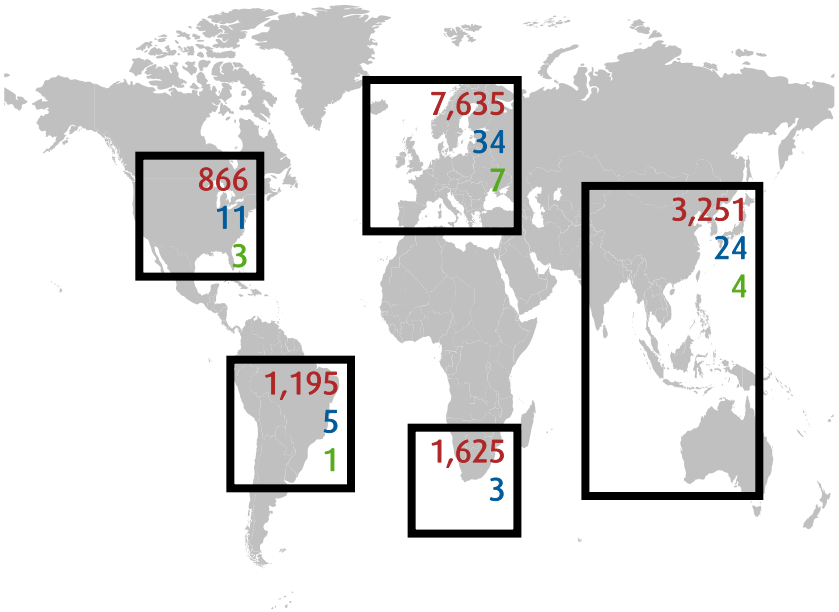
Key financials for 2011

Turnover	€ 14.5 G
Revenues	€ 2.3 G
Recurring EBITDA	€ 553 M
Recurring EBIT	€ 416 M
ROCE	18.6%
R&D	€ 157 M
Capex	€ 213 M
Gearing ratio	13.4%
Market cap. *	€ ~4.2 G
Recurring EPS	€ 2.69/share
Dividend	€ 1.00/share

* at Q1 2012 excluding treasury shares

Global positioning at end 2011

14,572 people | 77 industrial sites | 15 R&D centres



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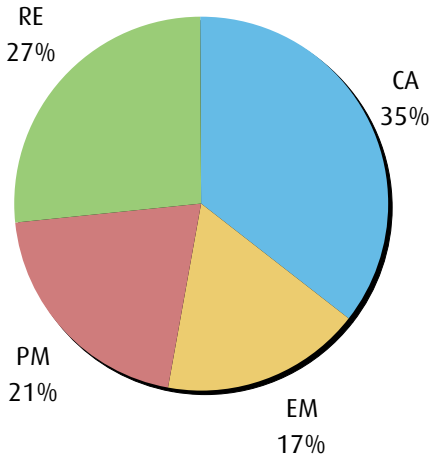
Umicore's business groups

Recycling	Energy Materials	Catalysis	Performance Materials
Unique recycling process dealing with complex industrial residues and end-of-life materials	Materials which enable the clean production and storage of low-carbon energy	Technology solutions to treat automotive emissions and other chemical processes	Essential materials and chemicals based on precious metals and zinc for pharma, construction, electrical equipment, ...
Business drivers • Materials scarcity • Recycling legislation • Energy efficiency	**Business drivers** • New (H)EV vehicles • Photovoltaic demand • Demand for safer products	**Business drivers** • Global emission legislation • Emerging markets • New applications (HDD)	**Business drivers** • Industrial production • Geographical expansion • Eco-friendly products

Business group split for 2011

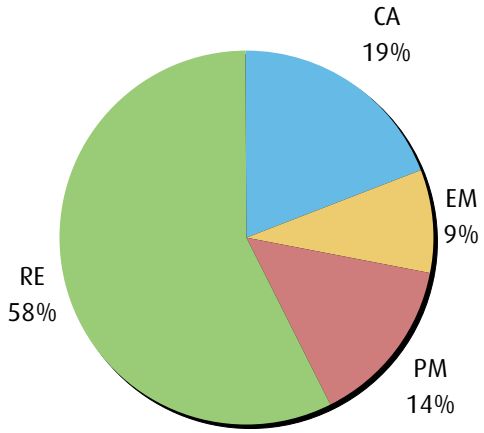
Revenues

(excluding metal)



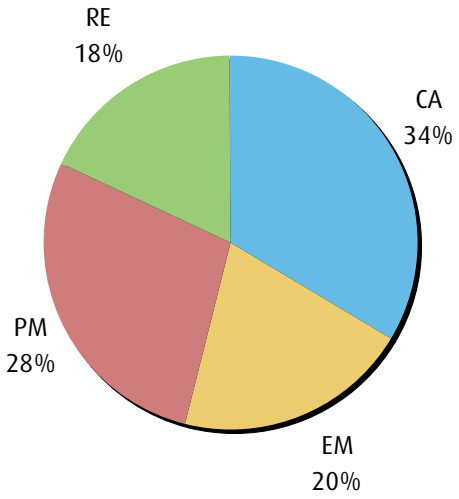
EBIT

(recurring)



Capital employed

(average)



CA	Catalysis
EM	Energy Materials
PM	Performance Materials
RE	Recycling
	excluding Corporate

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Vision 2015

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Strong growth potential

Recycling	Energy Materials	Catalysis	Performance Materials
Double digit growth (average over 2010 - 2015/2020) Based on key growth drivers aligned with market trends			**GDP growth**
• High R&D • High investments • Many new applications/markets			• Lower R&D • High investments • Some new applications/markets

Growth will **not** be **linear** and not equal over all activities

Innovation as a differentiator for success in all areas

Growth will not be pursued at the expense of value creation

Goal to generate an average ROCE of 15-20% between now and 2015

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Vision 2015

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Sustainability is essential

Economic performance	Growth and returns	We aim to achieve double digit revenue growth and our goal is to generate an average return on capital employed of more than 15%
Great place to work	Zero lost time accidents	We aim to have ZERO lost time accidents
	Occupational exposure reduction	We will reduce the body concentrations of specific metals to which our employees have an exposure: Cd, Pb, Co, Ni, As, Pt
	People development	All employees will receive an annual appraisal to discuss individual development
	Preferred employer	We will target our actions based on the results of the 2010 People Survey
Eco-efficiency	Reduce carbon footprint	We aim to reduce our CO_2 emissions by 20% vs 2006 levels and based on 2006 industrial scope
	Emission reduction	We aim to reduce by 20% the impact of metal emissions to water and air vs 2009 levels
	Product sustainability	We will invest in tools to better understand and measure the life cycles and impacts of our products
Stakeholder engagement	Sustainable procurement	We will implement the new Sustainable Procurement Charter throughout our business
	Local community	All our sites will be expected to make further steps in identifying key stakeholders and engaging with the local community

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Vision 2015

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Strategic roadmap

2010 - 2012

Prepare

Regain profitability of 2007-2008

Lay the foundations for exceptional growth initiatives, such as HDD

Demonstrate the feasibility of others, such as UHT recycling

2012 - 2015

Focus

Intensification of investment efforts

Initial pay-off for major growth initiatives in terms of market position and profitability

2015 - ...

Accelerate

Acceleration of growth

Growing into leadership positions

Optimum performance

Further investments in chosen areas

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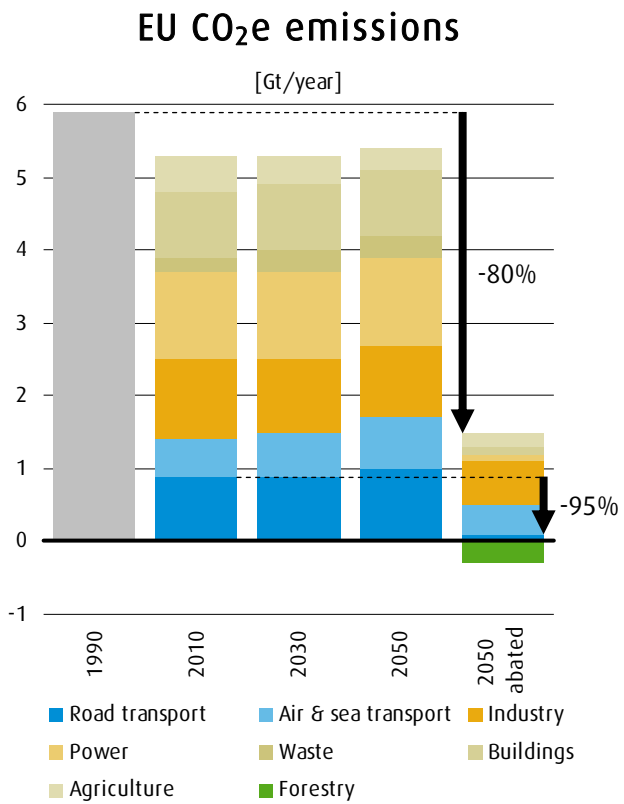
Umicore in the driver's seat

CO_2 emissions targeted today



Source: www.roadmap2050.eu

To reduce emission by 80% by 2050 serious efforts are necessary

Road transport to improve substantially

- Accounts today for 15-20% of total
- To be reduced by 95% by 2050

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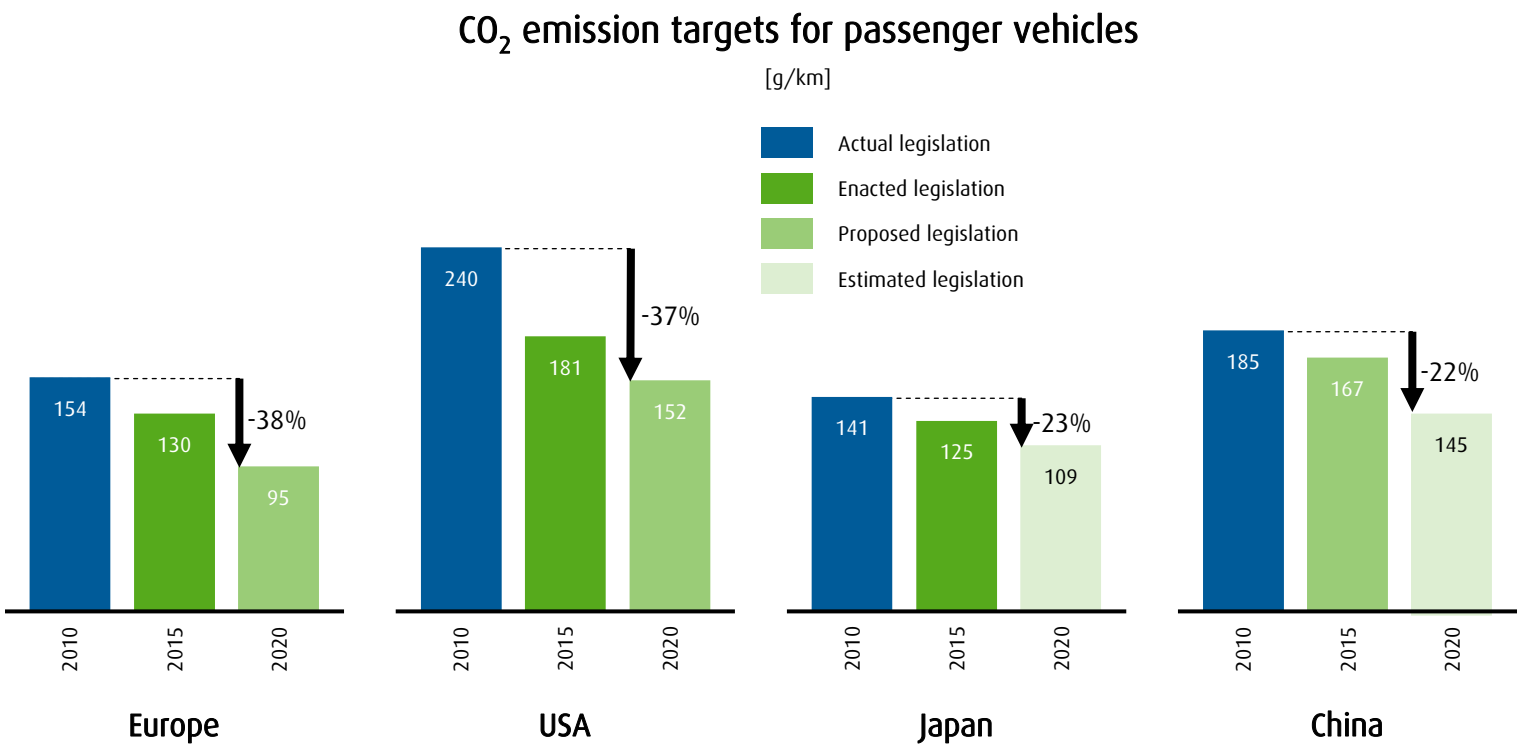
CO_2 reduction targets for passenger vehicles exist in most regions



Source: Continental (2011)

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Challenging CO_2 emission targets pushes advanced engine configurations

Advanced ICE configurations

- Down-sized turbo-charged gasoline
- Gasoline direct injection
- Lean burning gasoline engines
- Diesel
- (Flex fuel)

Requires more complex emission control catalyst solutions

Electrification of the vehicle

- Start-stop mechanism
- HEV: Mild HEV → Full HEV
- PHEV: Parallel → Range extender
- EV: BEV → FCEV

Requires larger battery and still automotive catalyst (except EV)

ICE	Internal Combustion Engine-powered vehicle	PHEV	Plug-in Hybrid Electric Vehicle	BEV	Battery-powered Electric Vehicle
HEV	Hybrid Electric Vehicle	EV	Electric Vehicle	FCEV	Fuel Cell-powered Electric Vehicle

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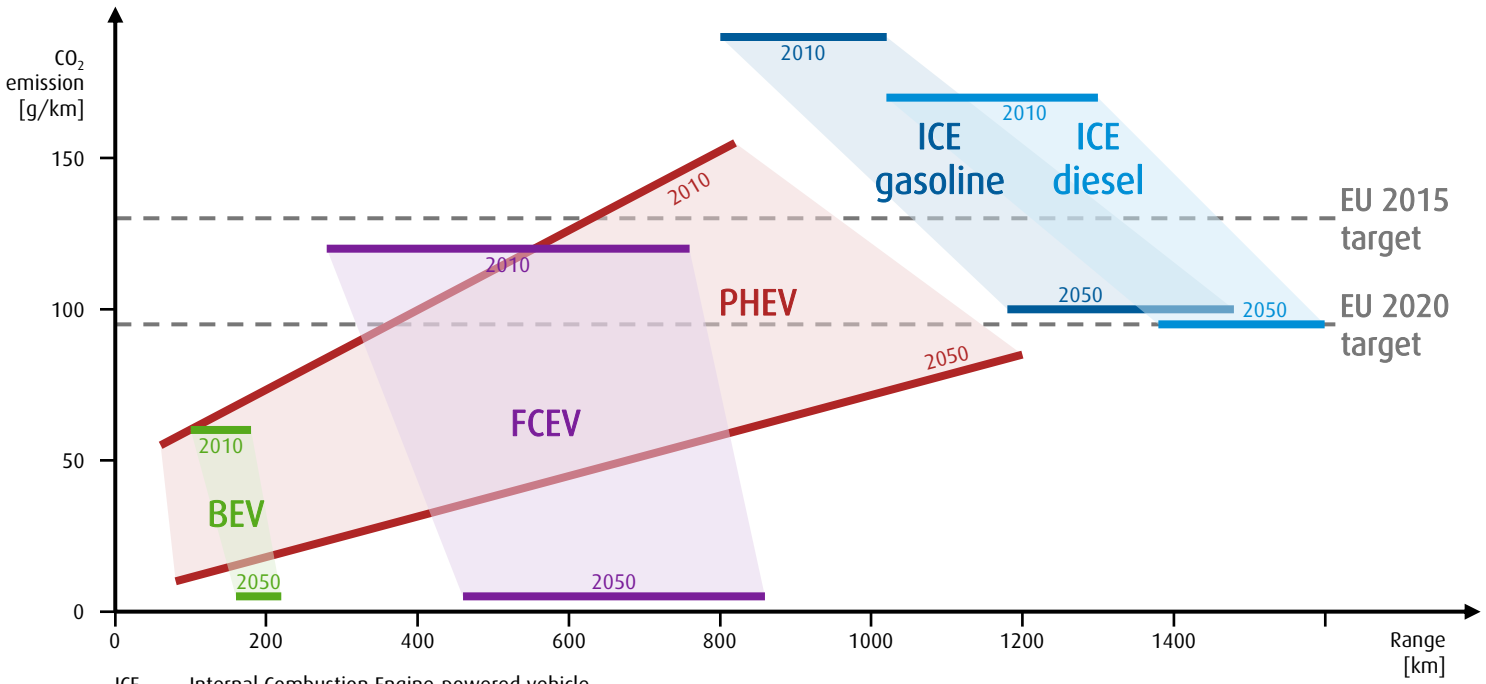
Different engine configurations will be needed to reach the 2050 goals



ICE	Internal Combustion Engine-powered vehicle
BEV	Battery-powered Electric Vehicle
HEV	Hybrid Electric Vehicle
PHEV	Plug-in Hybrid Electric Vehicle
FCEV	Fuel Cell-powered Electric Vehicle

Source: A portfolio of power-trains for Europe: A fact-based analysis (EU coalition study 2010)

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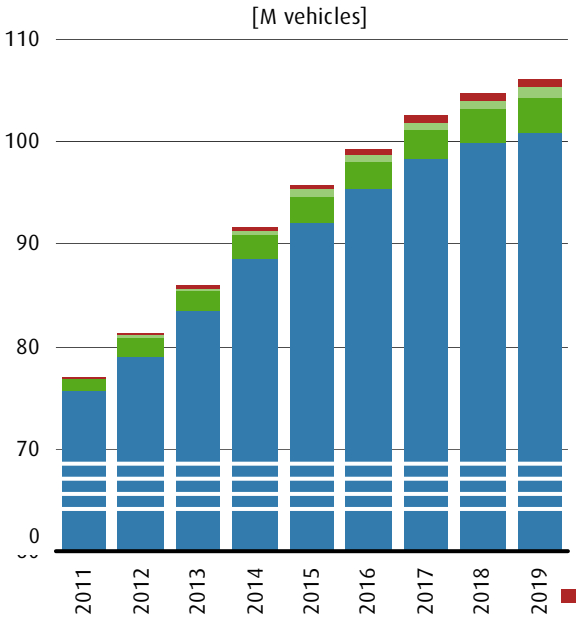
Different scenarios indicate growth of electrification
But ICE remains dominant in coming years

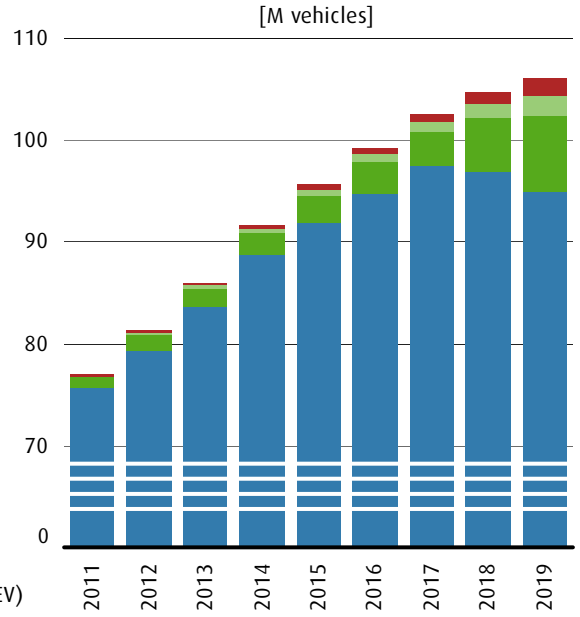
Scenario 1

CO_2 limits will be reached
through ICE improvement and electrification
(OEM push only)



Scenario 3

On top of meeting CO_2 limits,
there is also a positive TCO for consumers
(OEM push + customer pull)



- Electric Vehicle (EV)
- PHEV (Plug-in Hybrid Electric Vehicle)
- HEV (Hybrid Electric Vehicles)
- ICE (Internal Combustion Engine-powered vehicle)

Source: Umicore estimate based on external data sources

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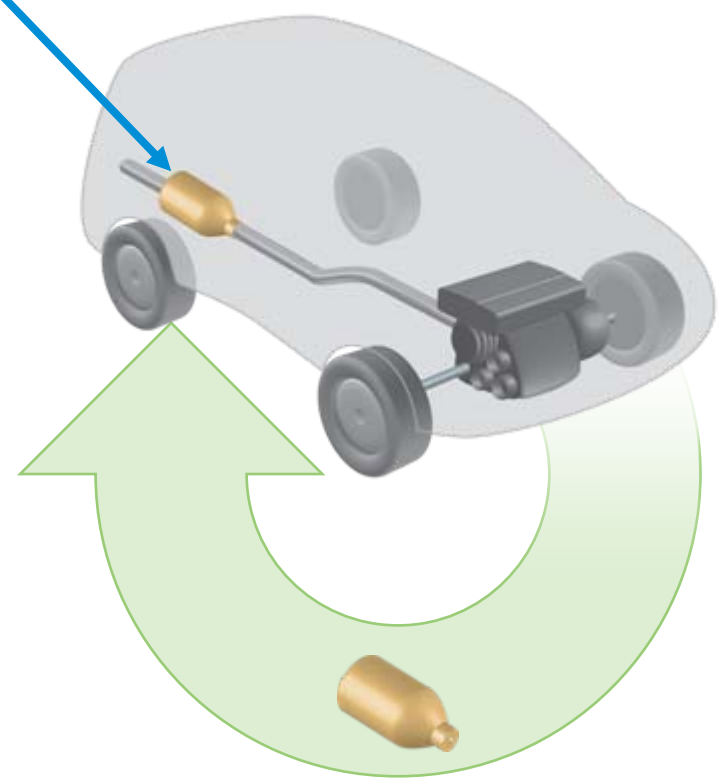
What's in ICEs for Umicore?
(Internal Combustion Engine-powered vehicles)

Automotive Catalyst

Increasing complexity with

- More stringent legislation
- Advanced ICE configurations



Recycling

Treating waste while recovering valuable metals

- Pt, Pd and Rh from automotive catalysts

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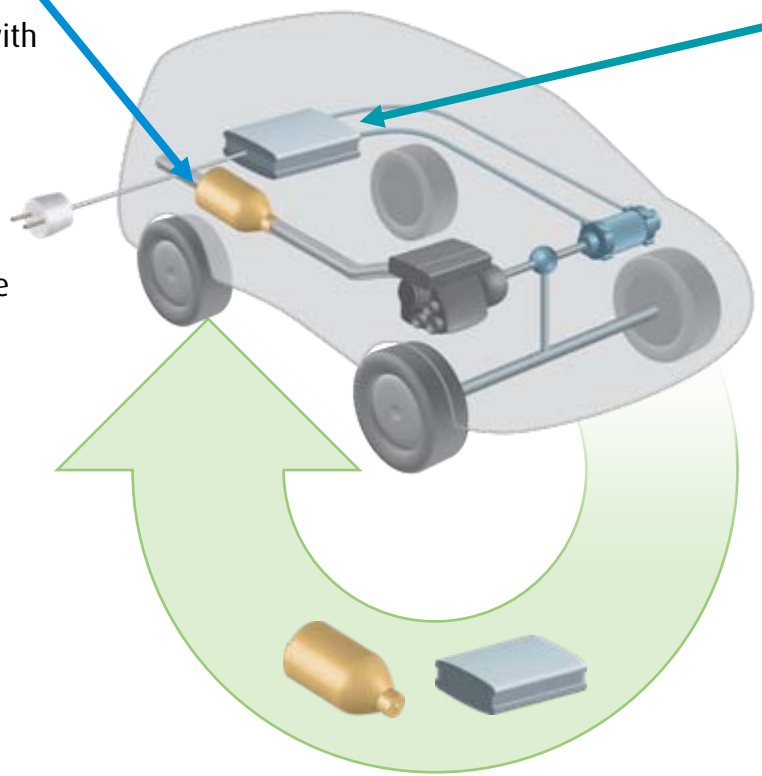
What's in (P)HEVs for Umicore? ((Plug-in) Hybrid Electric Vehicles)

Automotive Catalyst

Increasing complexity with

- More stringent legislation
- Advanced ICE configurations
- On/off mode of engine

Decreasing size with electrification level



Rechargeable battery cathode material

Increasing size with electrification level

Complexity increases with size

Recycling

Treating waste while recovering valuable metals

- Pt, Pd and Rh from automotive catalysts
- Ni, Co, Cu (and REEs) from rechargeable batteries

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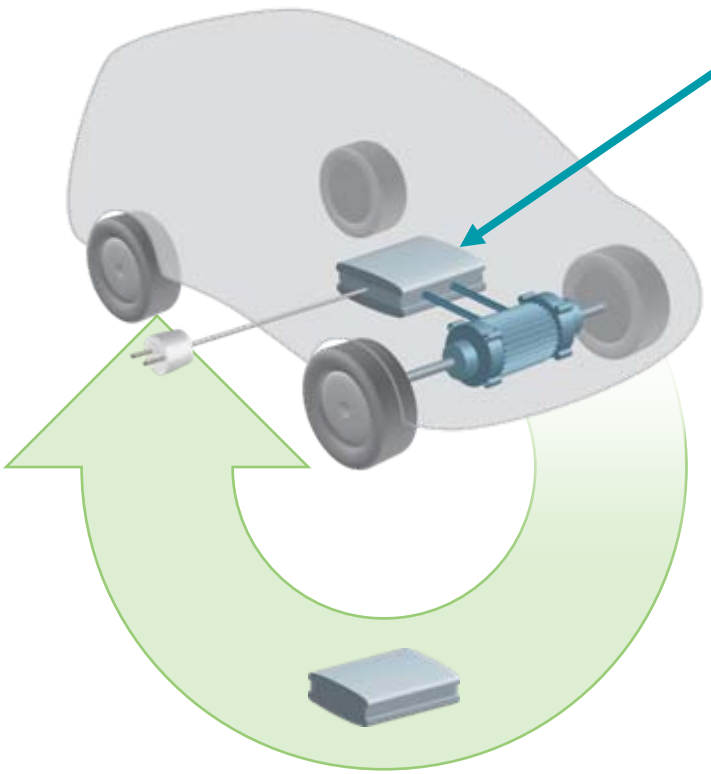
What's in BEVs for Umicore? (Battery-powered Electric Vehicles)



Rechargeable battery cathode material

Larger size depending on requested driving range

Complexity increases with size

Recycling

Treating waste while recovering valuable metals

- Ni, Co, Cu (and REEs) from rechargeable batteries

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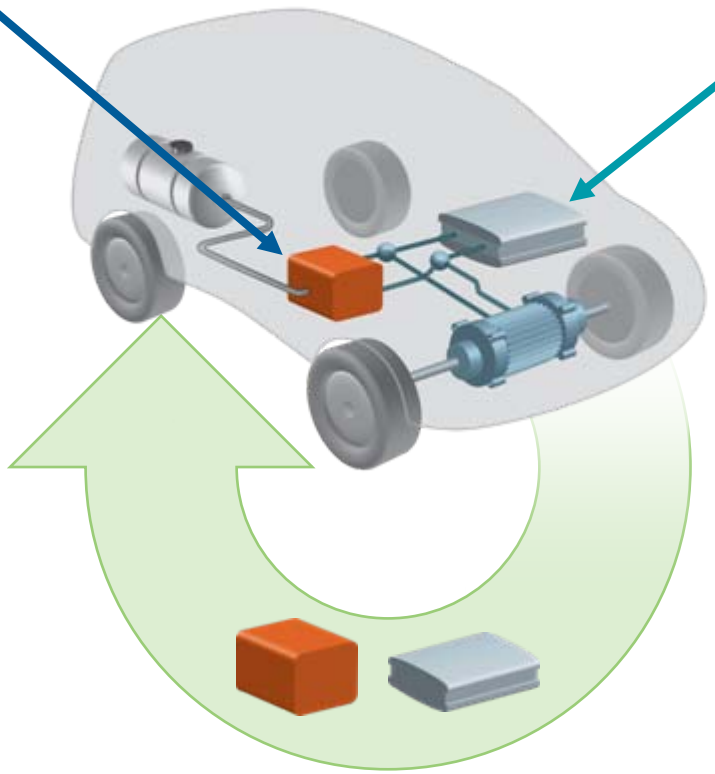
What's in FCEVs for Umicore? (Fuel Cell-powered Electric Vehicles)

Fuel Cell membrane electrode assembly

Increasing complexity with

- More stringent legislation
- Advanced ICE configurations

Decreasing size with electrification level



Rechargeable battery cathode material

Large battery still needed in FCEV

Recycling

Treating waste while recovering valuable metals

- Pt from fuel cells
- Ni, Co, Cu (and REEs) from rechargeable batteries

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Umicore's product offer covers all powertrain possibilities

		ICE		HEV		PHEV		EV	
		Normal	Start-stop	Mild	Full	Parallel system	Range extender	BEV	FCEV
Emission control catalyst	Relative size	+++	+++	+++	++	++	+	No emission control catalyst	
	Relative complexity	+	+	+	++	+++	+		
Battery	Relative size			+	+	++	++	+++	++
	Relative complexity			+	++	+++	++	++	++
Fuel cell		No fuel cell							+++

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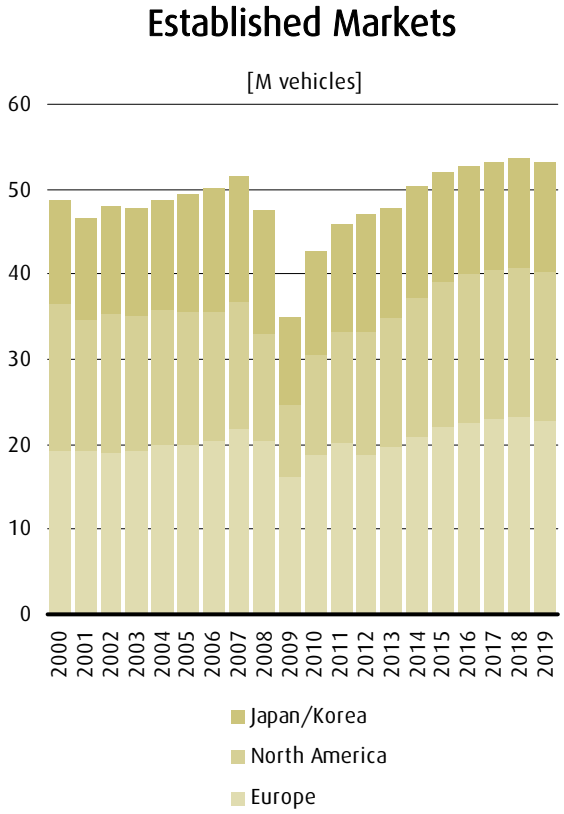
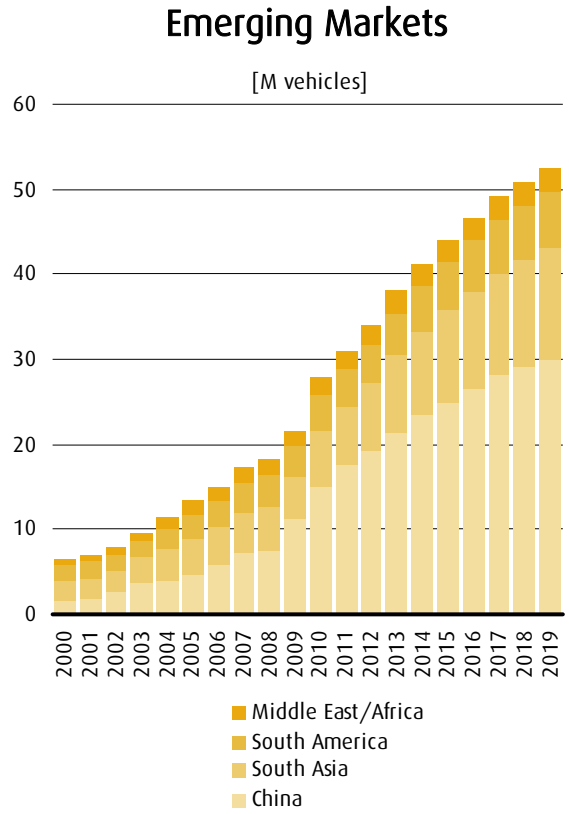
Automotive Catalysts
Vehicle production is due to grow … in emerging markets





Source: Umicore estimates based on external databases

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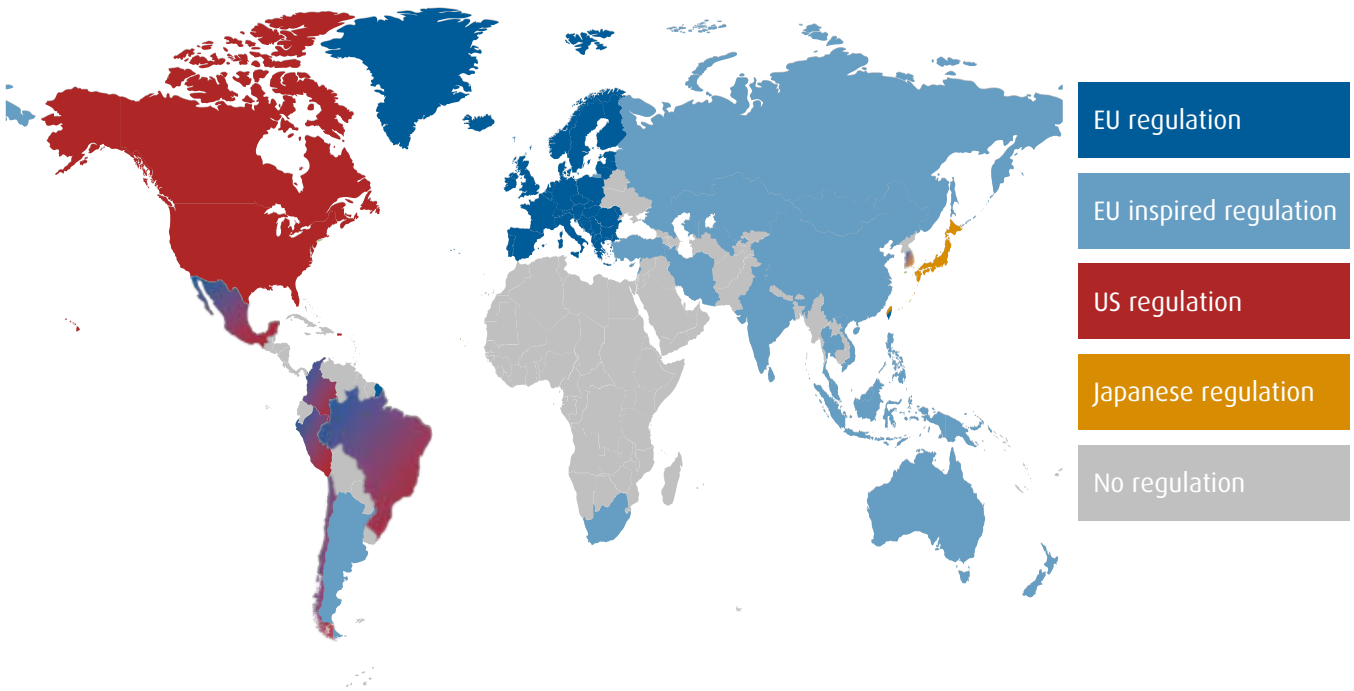
Automotive Catalysts
Toxic emissions legislation strengthening in most regions



Legislation requires new catalyst solutions

- NO_x abatement systems
- Gasoline Particulate Filters, ...

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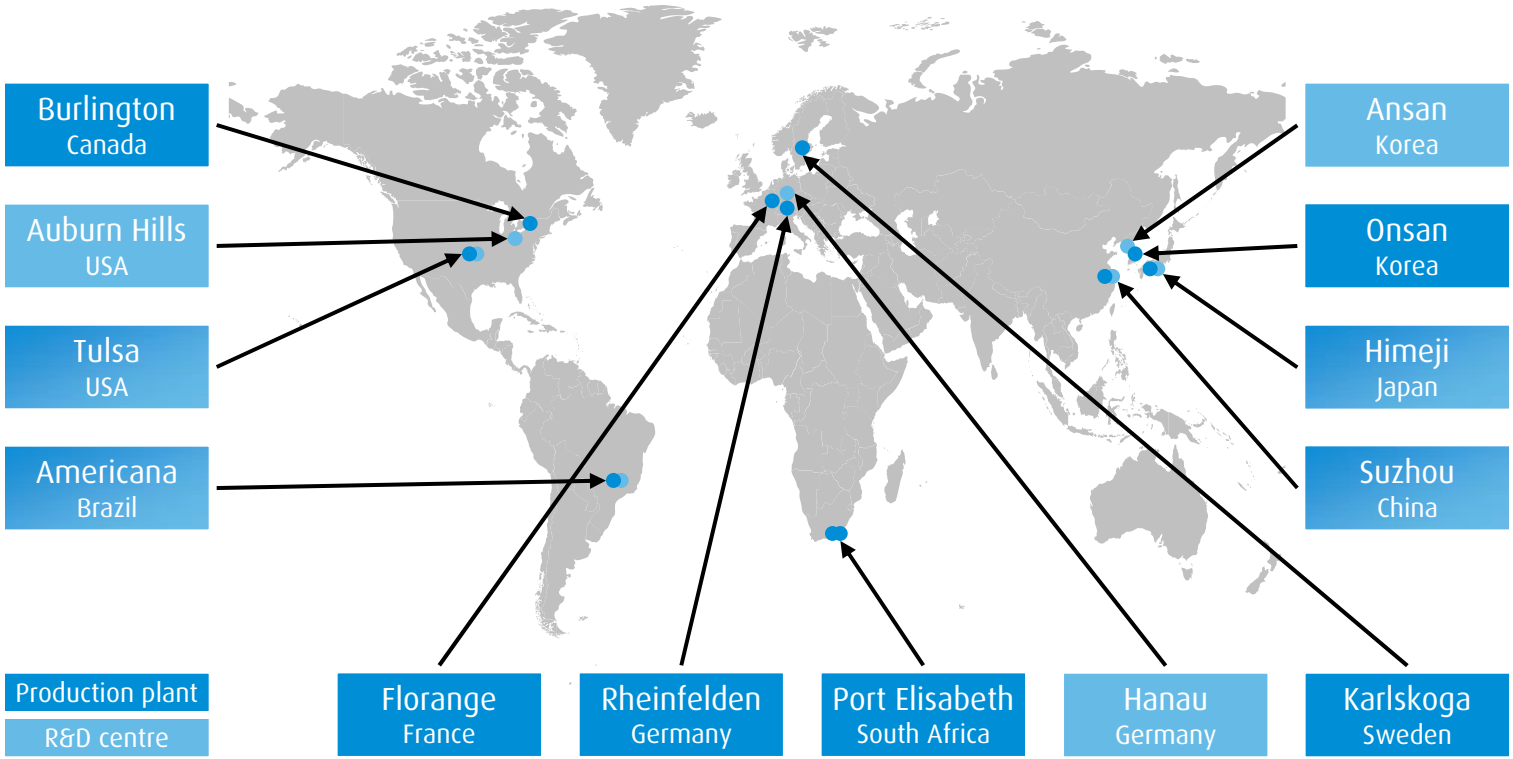
Automotive Catalysts
Umicore's global footprint



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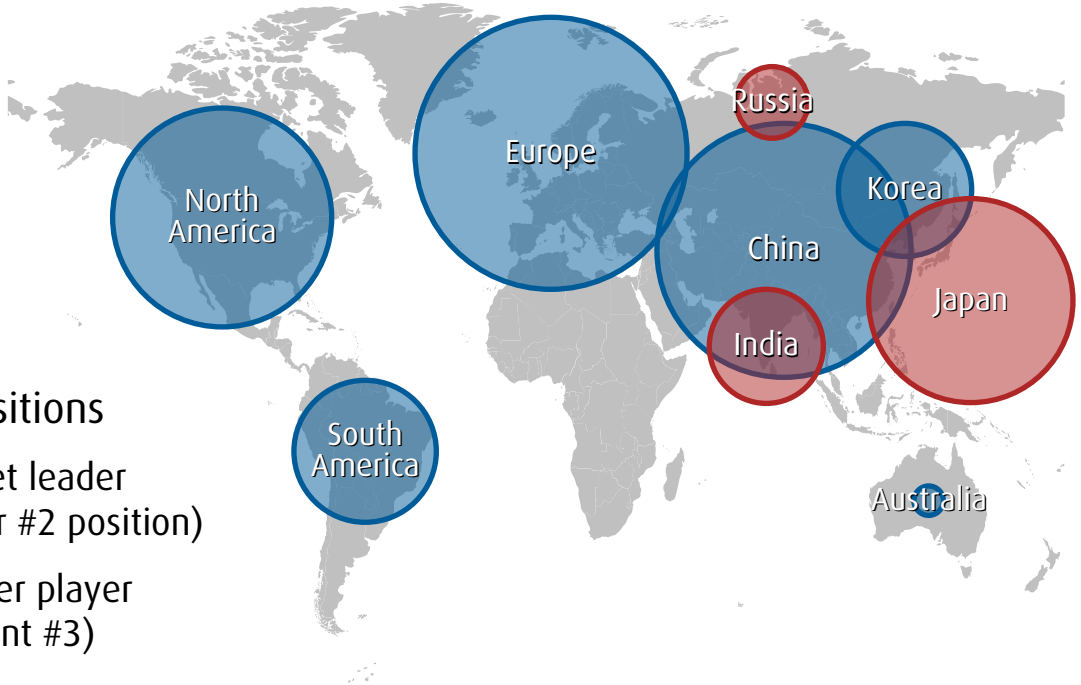
Automotive Catalysts
Umicore's global leadership position in light duty



Regional positions

- Market leader (#1 or #2 position)
- Smaller player (distant #3)

Circles indicative of 2011 light duty vehicle production volumes (≠ catalyst revenues)

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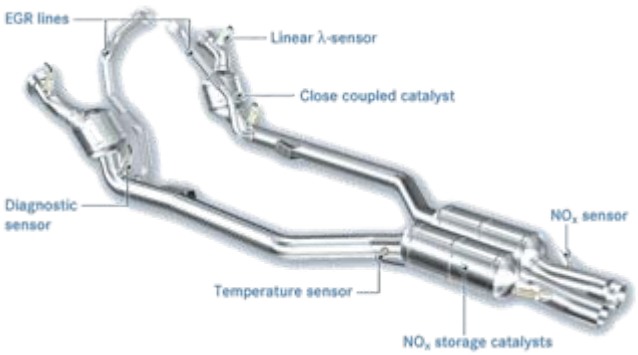
Automotive Catalysts

Automotive catalysts market set to grow

- Growing vehicle production with ICE
- More stringent emission legislation in all the major markets
- Complexity set to increase further (NO_x after-treatment, GPFs, ...)



Catalyst requirements are becoming ever more complex

Umicore is a global leader for light duty applications

- Well positioned globally
- Strong position for complex engine types including diesel, hybrid vehicles, flex fuel, ...

Umicore is continuing to invest in manufacturing and testing capabilities

Umicore is gradually gaining ground in HDD, supported by customer awards

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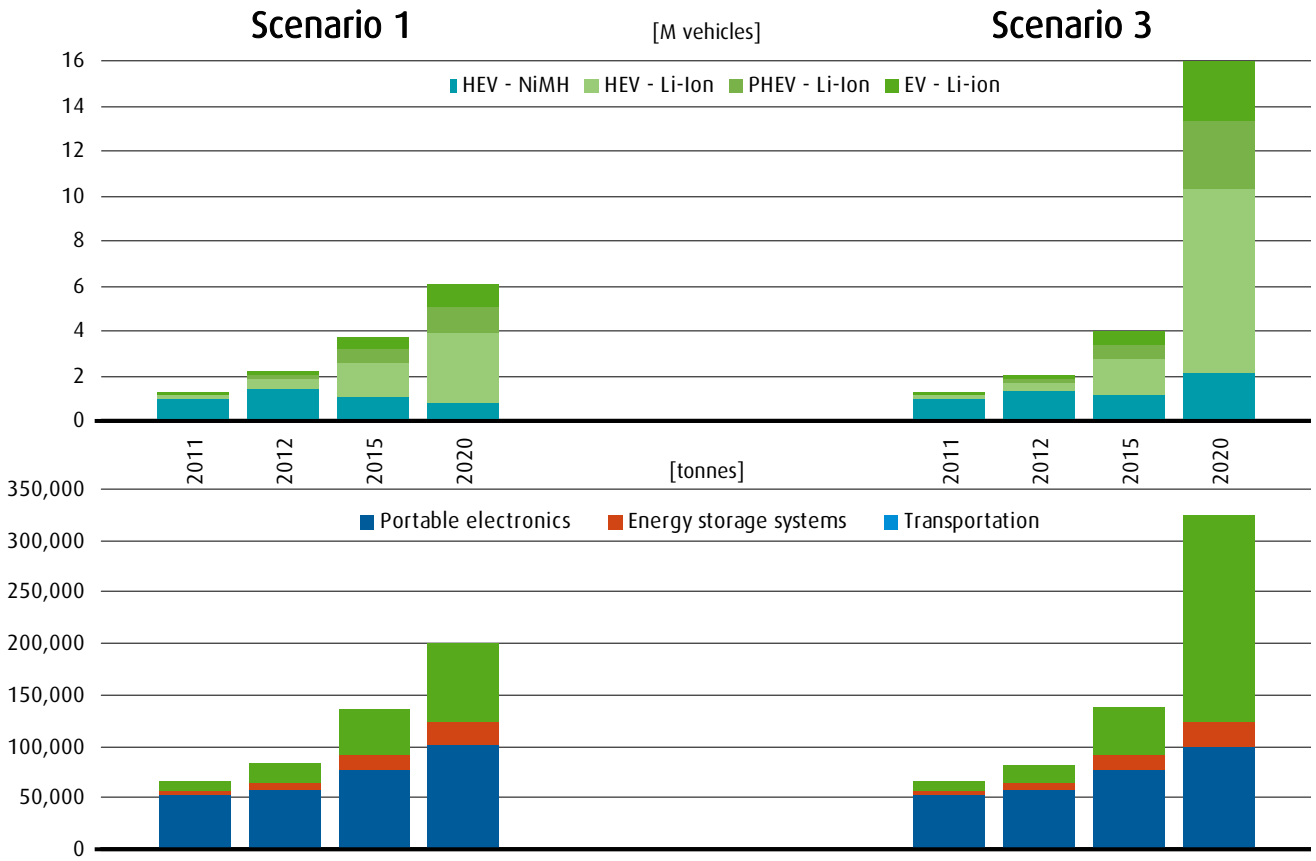
Rechargeable Battery Materials
Different scenarios indicate strong growth



Source: Umicore estimate based on external data sources

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Rechargeable Battery Materials
Different cathode materials with different properties

	Energy	Power	Safety*	Life	Cost
LCO lithium cobaltite $LiCoO_2$	+++	+++	-	++	+
LMO lithium manganese oxide $LiMnO_2$	-	+++	++	-	++
NMC nickel manganese cobalt $Li(Ni_xMn_yCo_{1-x-y})O_2$	++	++	++	+++	+++
LFP lithium iron phosphate $LiFePO_4$	+	+++	+++	++	++

* Impacts battery package design

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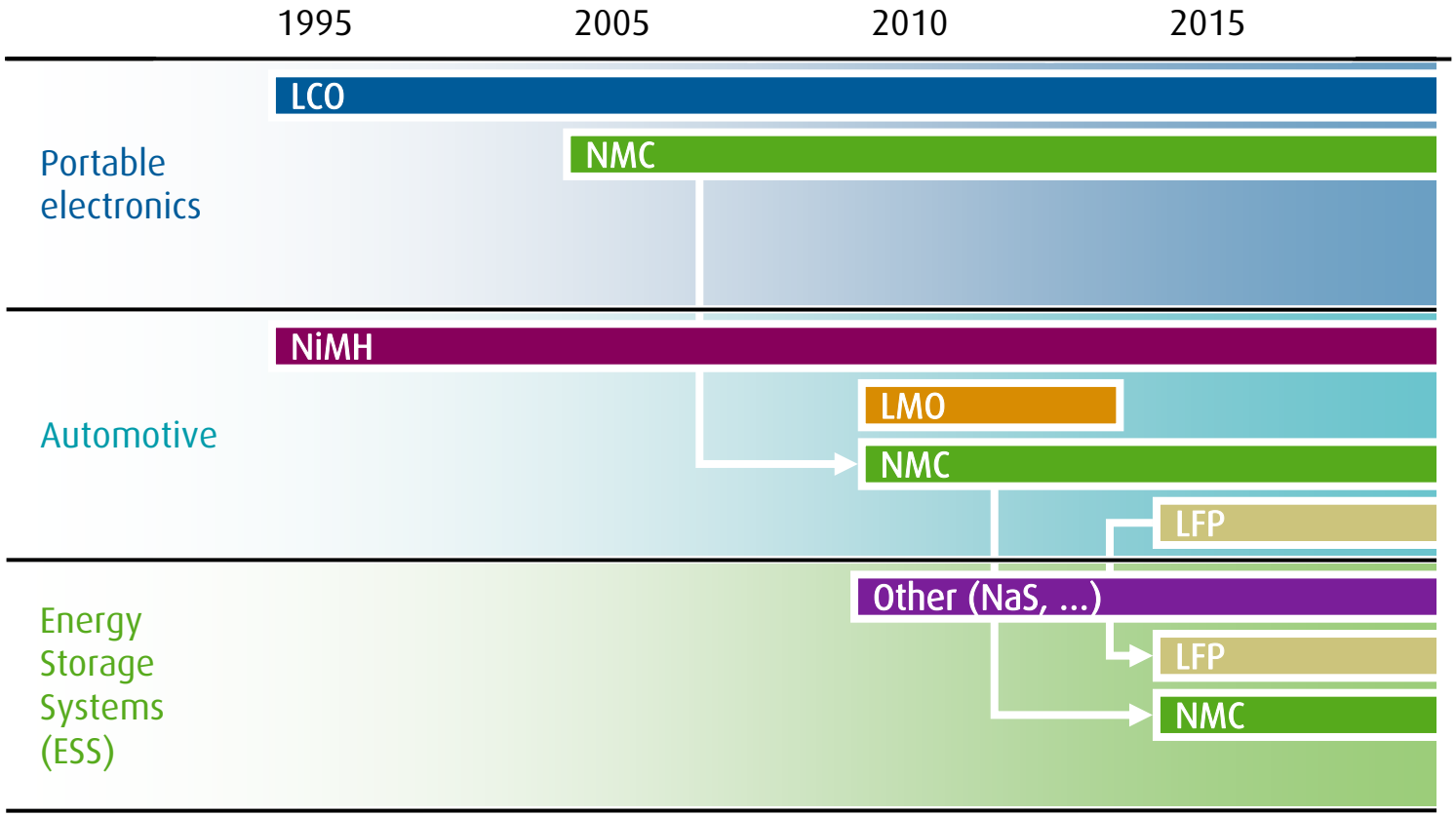
Rechargeable Battery Materials
Applications determine cathode materials used



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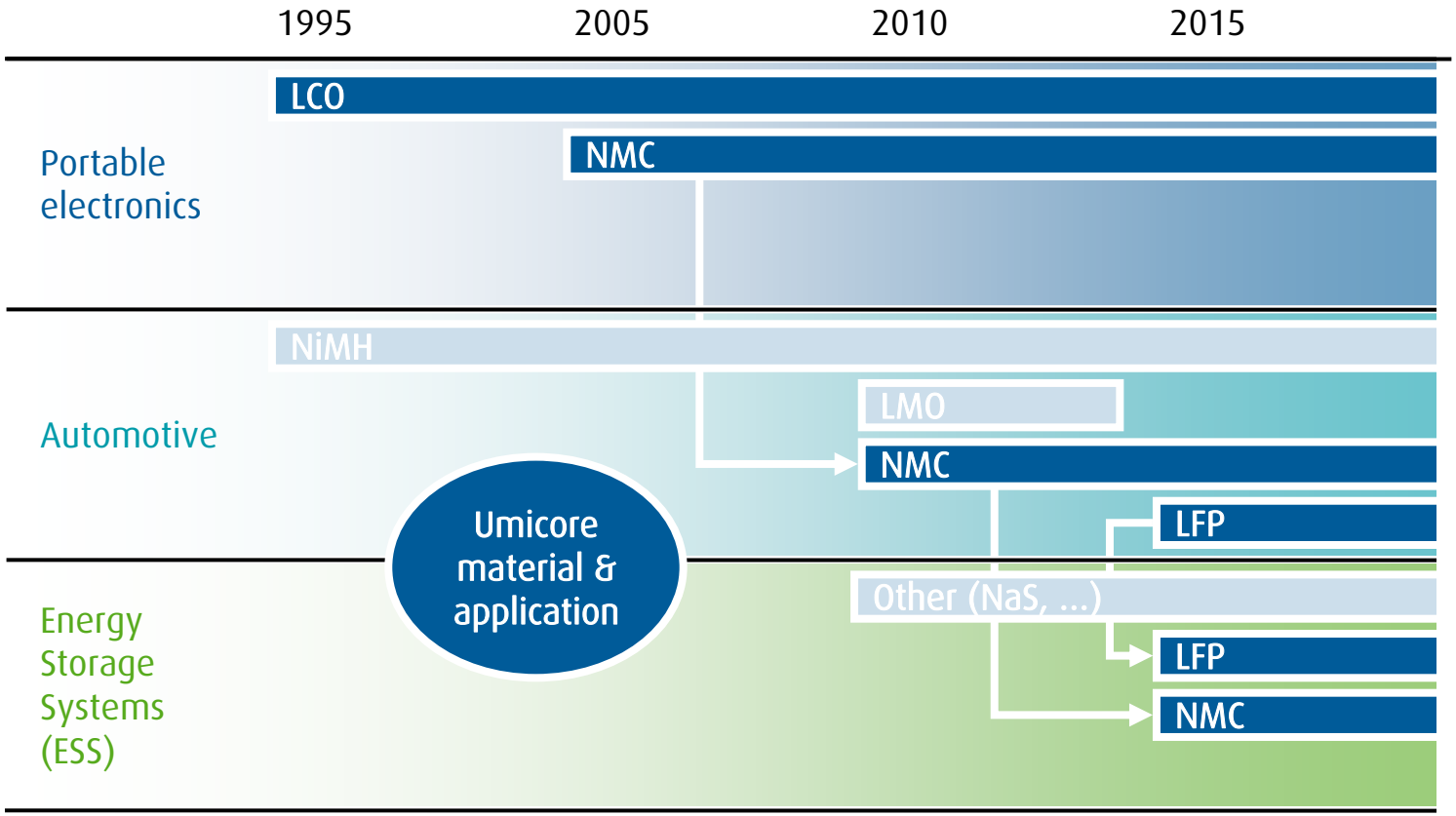
Rechargeable Battery Materials
Umicore offering technology and production synergies



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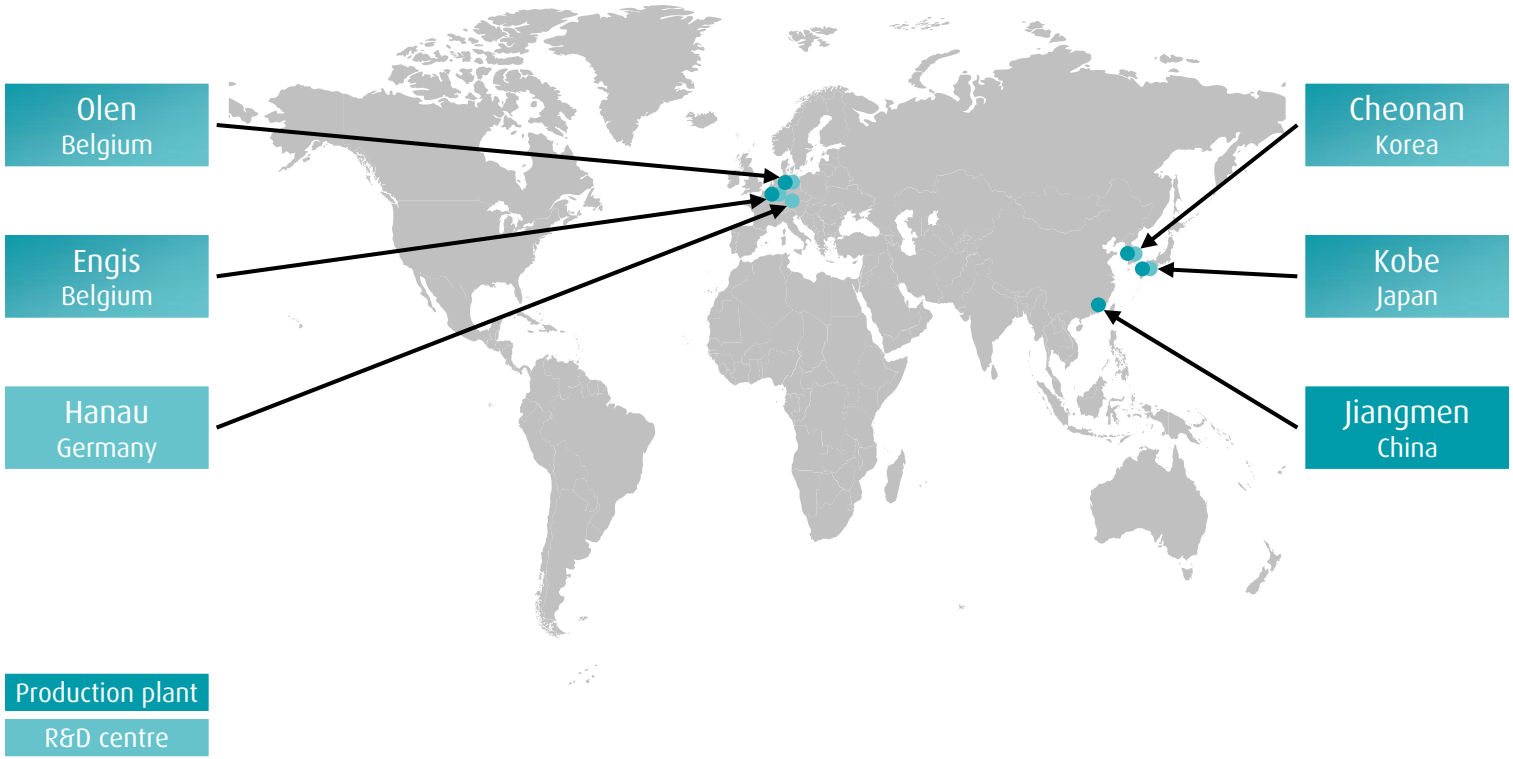
Rechargeable Battery Materials
Umicore's global footprint



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Rechargeable Battery Materials

Li-ion battery application is growing rapidly

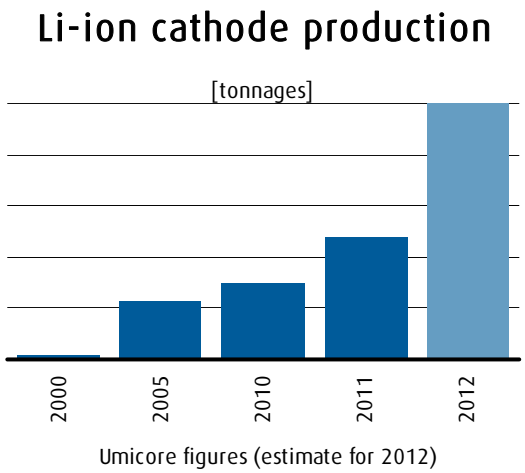
- Fast product turnover in portable electronics
- Penetration on-going in automotive
- Potential in energy storage systems

Applications drive cathode material development

Umicore has leading position in Li-ion cathodes

- Broad production footprint close to customer base
- Broadest product portfolio covering the materials of choice for all current and future applications
- Significant synergies, on technology development and production setup
- Strong track record in rapid production upscaling

Already present on more than a dozen electrified automotive platforms



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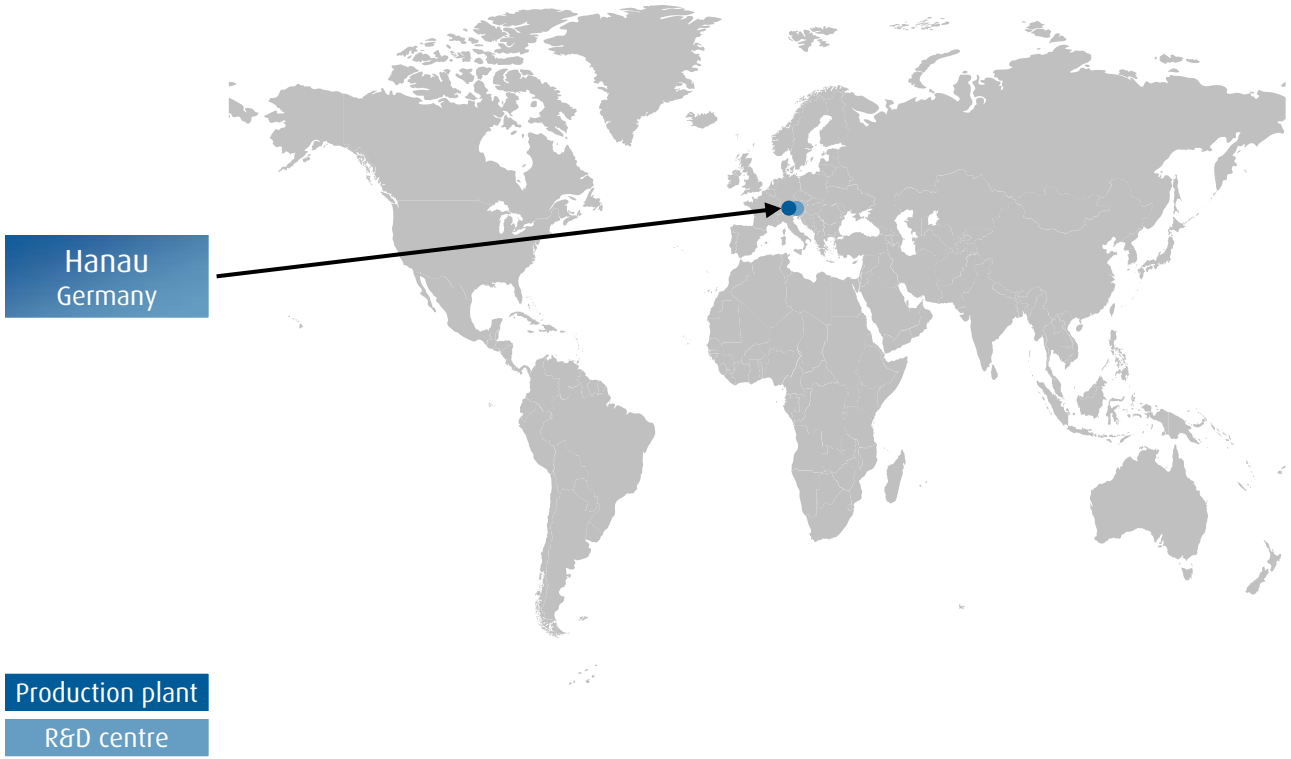
Fuel Cells
Umicore's global footprint



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Fuel Cells

Fuel cells on the technology roadmap of most larger OEMs today, but remains long term

A fuel cell future would require a combination of catalyst and battery materials know-how, which is ideal for Umicore

Current development set-up

- Umicore produces electrocatalysts for fuel cells
- Solvicore JV (with Solvay) develops membrane electrode assemblies (MEAs), the heart of the fuel cell

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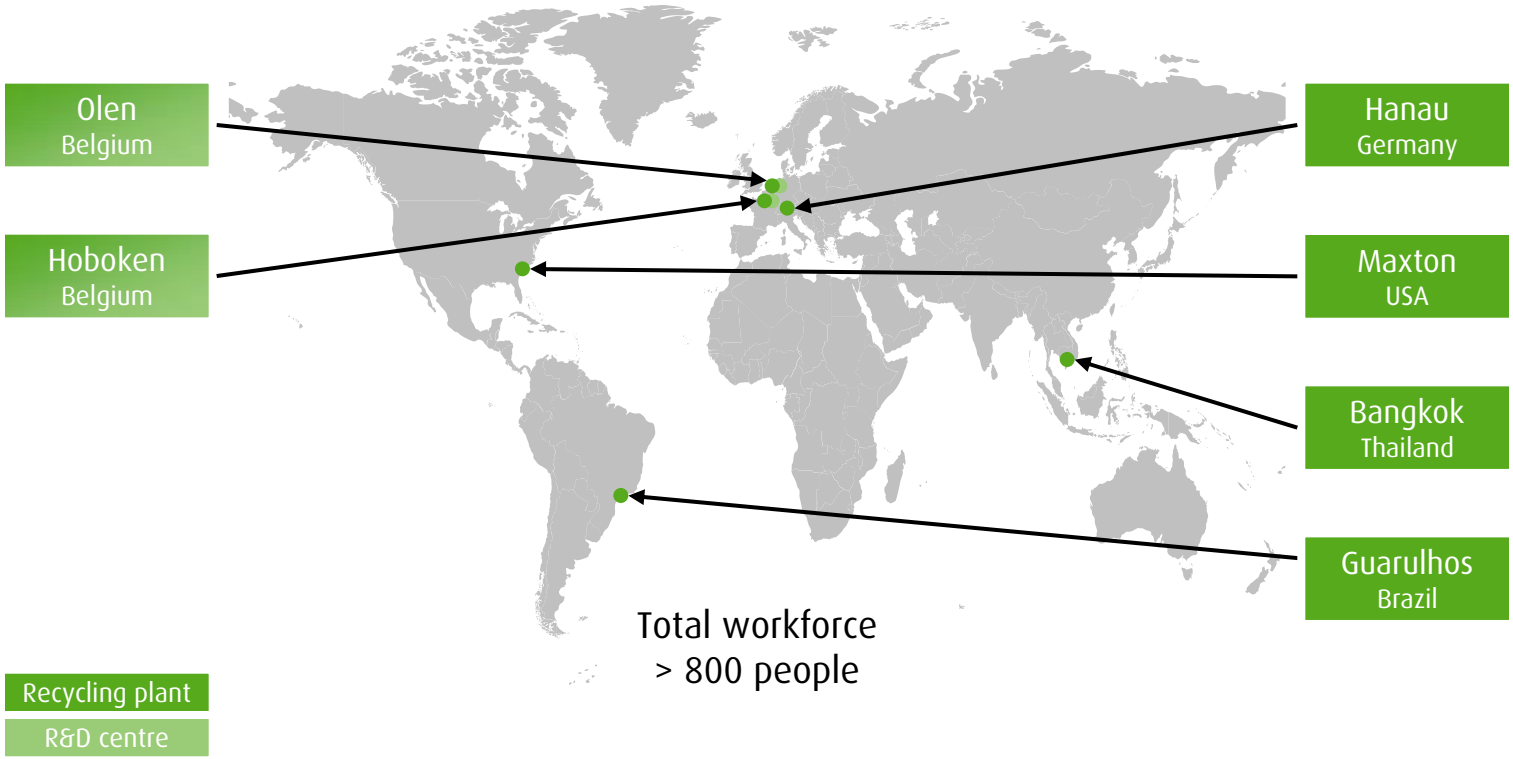
Recycling
Umicore's global footprint (for automotive parts)



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Recycling

Umicore is unique in its recycling capabilities relating to the sustainable powertrain roadmap

- Automotive catalysts
- Batteries
- Fuel cells
- Other materials

Umicore's battery pre-processing line in Hanau

Tightening legislation will enforce vehicle recycling

- End-of-Life Vehicles (ELV) Directive
- Battery Directive

Materials scarcity and traceability are also becoming drivers in the recycling landscape (eg PGMs, REEs)

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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