



Umicore's sustainable development business activities

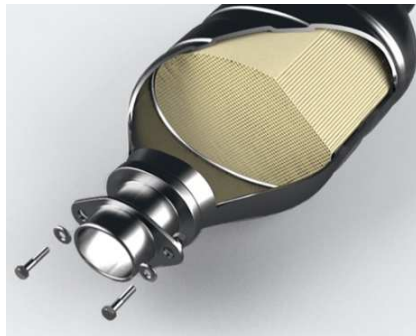
G7 Environment Ministers side event
“Firms for Sustainable Development “

Egbert Lox

Bologna, June 11, 2017

Who we are

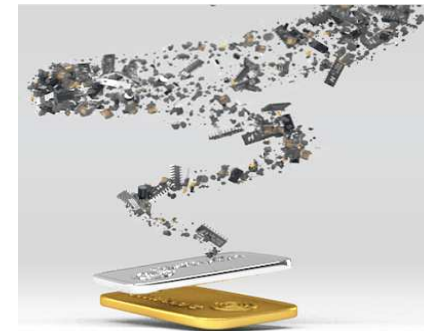
A global materials technology and recycling group



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



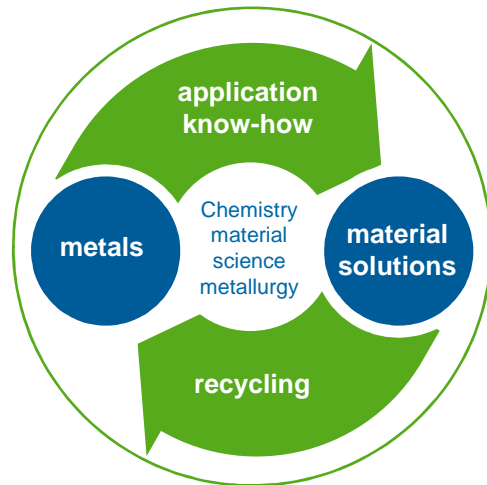
A leading supplier of key materials for rechargeable batteries used in portable electronics and hybrid & electric cars



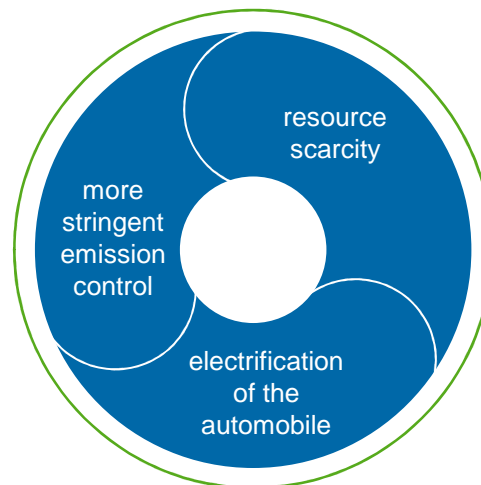
The world's leading recycler of complex waste streams containing precious and other valuable metals

Our foundations

Unique business model



Supportive megatrends



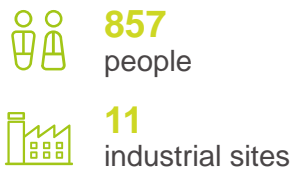
Industry leader in sustainability



Global presence:

10,429 people, 66 manufacturing sites

North America



South America



Africa



Europe

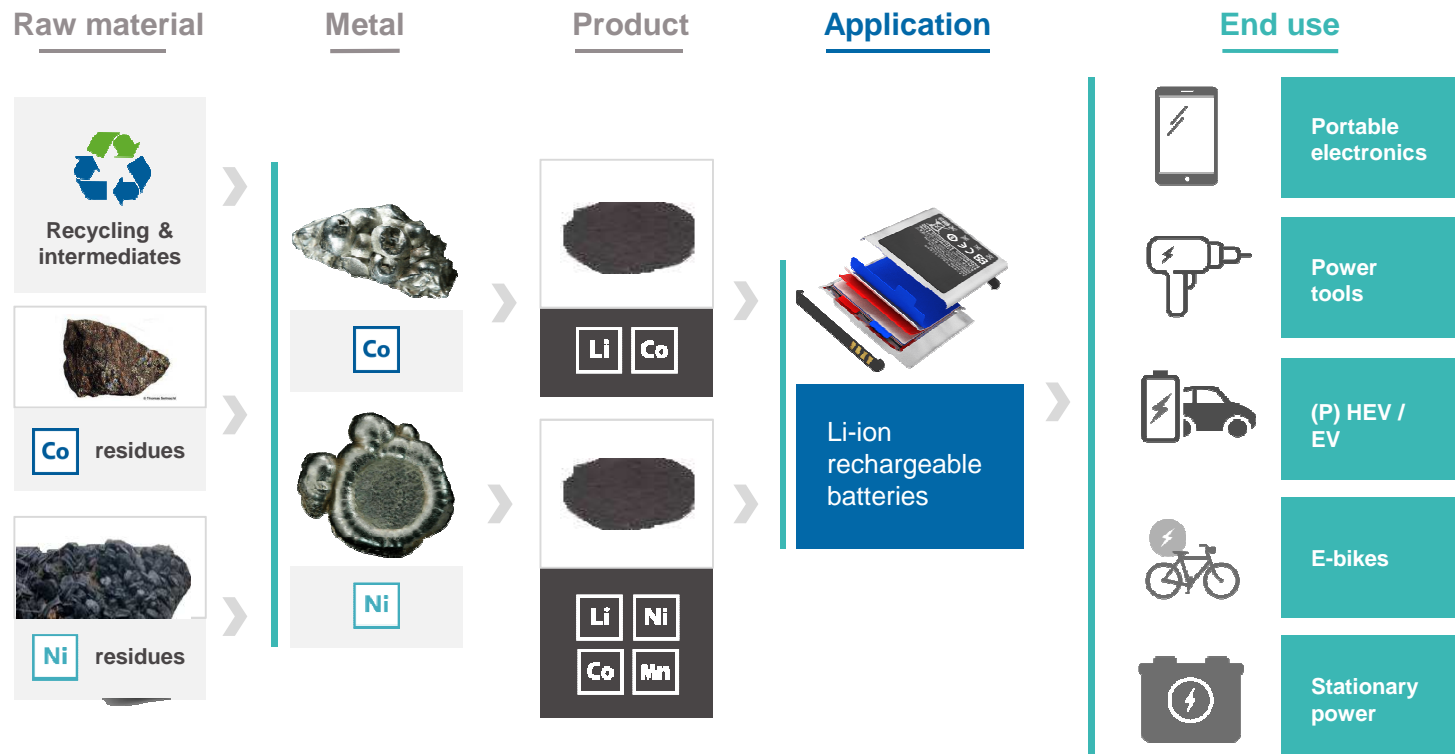


Asia / Pacific



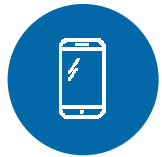
Figures exclude associated companies (December 2015)

Unique integration in the value chain



Umicore occupies a unique position in the value chain guaranteeing high speed to market, supply security, and responsiveness to customer needs

Exciting market potential



Portable
Societal driver

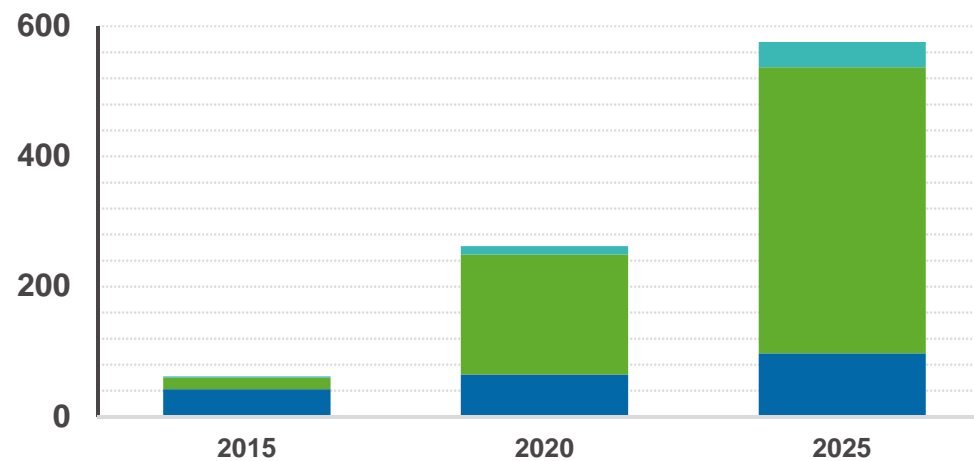


Electrification
Regulatory driver



Energy Storage System
Regulatory driver

RECHARGEABLE BATTERY MARKET (GWH)



The main growth driver will be
vehicle electrification

UHT Technology in Hoboken Belgium

Capacity: 7000 mt

- 250 mio mobile phone batteries (≈ 30 gr)
- 200,000 HEVs (≈ 35 kg)
- 35,000 EVs (≈ 200 kg)

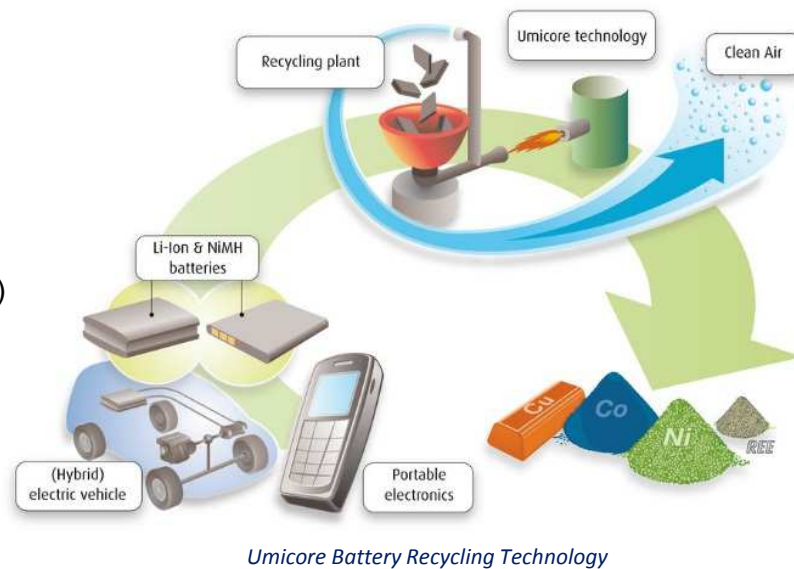
Metals recovery: Co – Ni – Cu

Slag recovery:

- NiMH: rare earth concentrate (Ce, La, ...)
- Li-Ion: Li recovery developed, cooperation with industrial Li-refineries

Flue dust: controlled separation of F

Energy efficient: use energy of battery (electrolyte, metals, plastics) to obtain high temperature.



materials for a better life

Recycling process

Feeding equipment / batteries handling



No breaking, no crushing...

Safe for workers

Safe for Environment

Cost efficient

For any size of batteries



Recycling process

Gas Cleaning



Specially designed **gas treatment**

A unique Umicore design

No VOC formation

All dust removal

Gas **cleaning technology**



Amnesty Report (January 2016)

Eye-opener for Lithium-ion Battery Users

Report states:

- “110,000 to 150,000 artisanal miners in Katanga region” (both for Copper and Cobalt)
- “40,000 children work in cobalt mines”

Report mentions hazardous working conditions (illness, fatal accidents...), human rights abuses, bribery...

Update on Report planned in January 2017



“THIS IS WHAT WE DIE FOR”

HUMAN RIGHTS ABUSES IN THE DEMOCRATIC REPUBLIC OF THE CONGO POWER THE GLOBAL TRADE IN COBALT

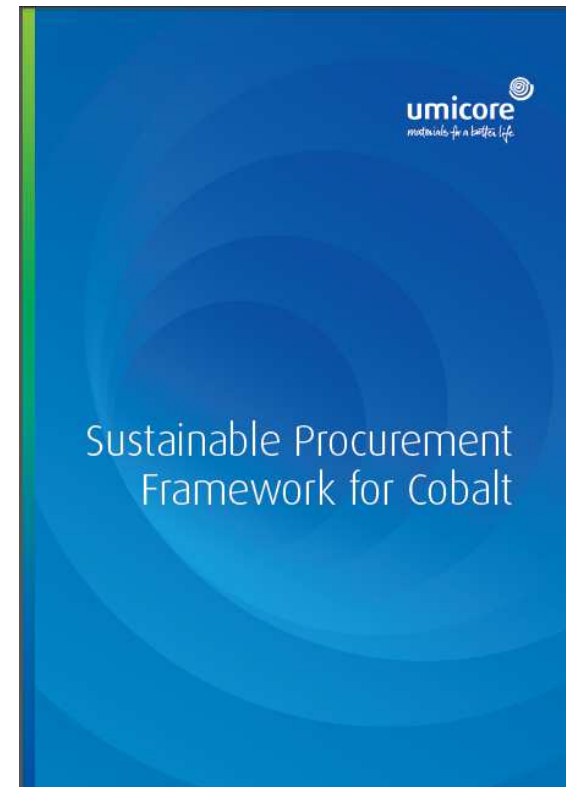


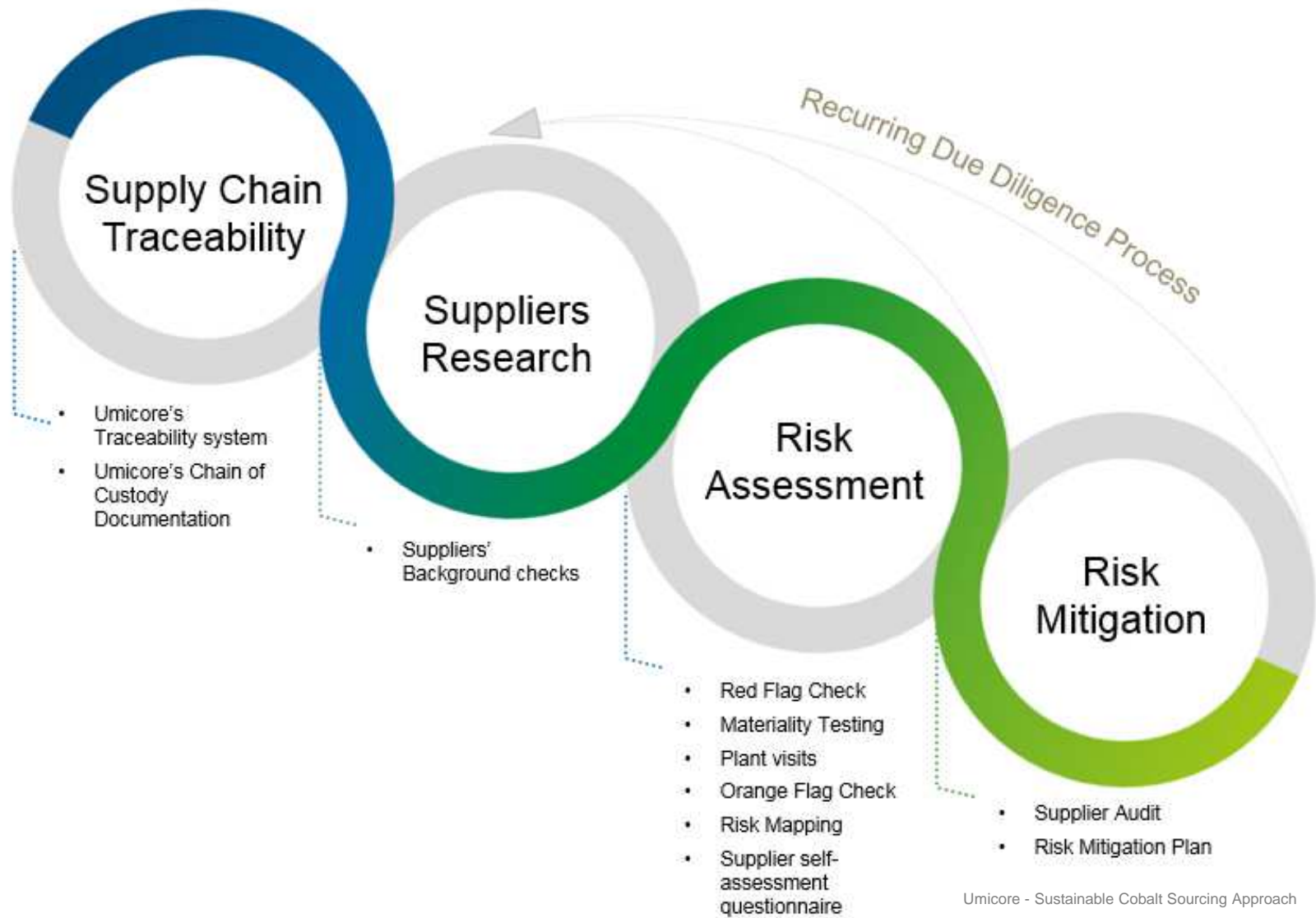
Sustainable Procurement Framework for Cobalt

The Framework was created to assure that all upstream practices are in line with Umicore's Standards, as listed in the Umicore Sustainable Procurement Charter:

- no child or forced labour;
- business ethics and compliance to law;
- environmental impact;
- occupational health and safety

Inspired by OECD's 5-steps process
Applied to all purchases of Cobalt in Umicore





Environmental responsibility and business success compatible





Thank you!

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Press release

8 May 2017 - 08:30 CET

Umicore to boost capacity in cathode materials

Umicore announced today an investment programme of €300 million between 2017 and 2019 to further increase its production of NMC (nickel-manganese-cobalt) cathode materials for lithium-ion rechargeable batteries. NMC is the preferred cathode material technology for rechargeable batteries used in vehicle electrification and global demand is increasing fast. The demand for Umicore's NMC materials is outpacing the market by a significant margin and the increased capacity will enable Umicore to cater for a surge in customer orders. The investment will also enable Umicore to meet growing demand for its proprietary high-energy LCO (lithium cobalt oxide) cathode materials used in high-end consumer electronics.

<http://www.umicore.com/en/media/press/20170508rbmexpansionen>