
SUSTAINABLE SUPPLY CHAIN MANAGEMENT & RAW MATERIAL SOURCING.

20.11.2019

NIELS ANGEL

HEAD OF SUSTAINABILITY AND INNOVATION MANAGEMENT
SUPPLIER NETWORK

FREDRIK ALTMANN

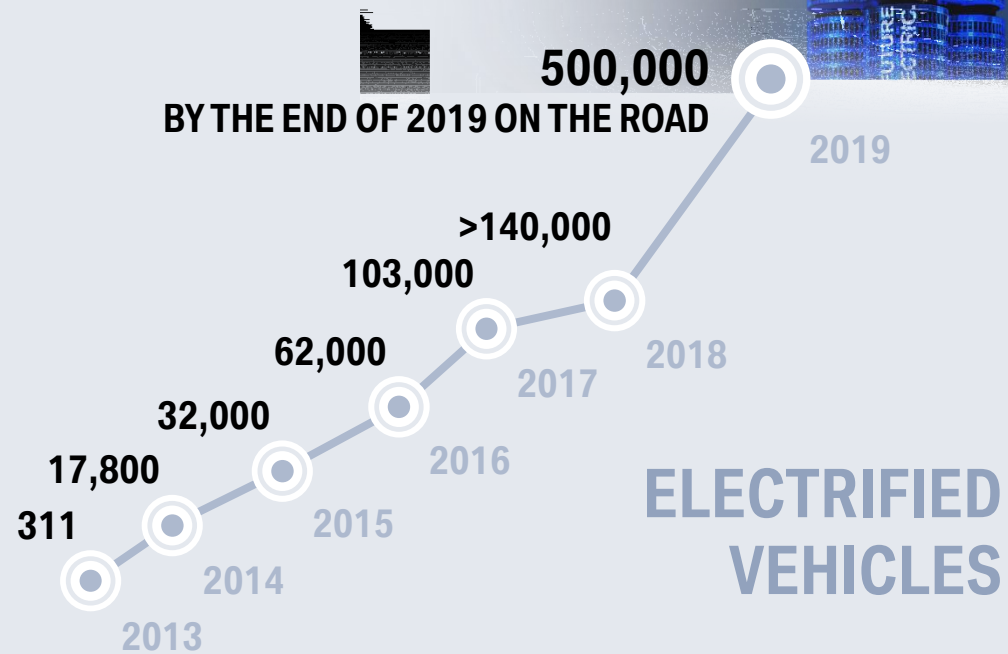
DIRECTOR CORPORATE FINANCE, STEERING TREASURY CENTERS

PETER ZISCH

SENIOR MANAGER CHEMICALS AND BATTERY RAW MATERIAL
PURCHASING

THE BMW GROUP MANAGES THE CHALLENGES OF E-MOBILITY.

RAPID INCREASE IN ELECTRIFIED VEHICLES



MANAGEMENT OF CRUCIAL RAW MATERIALS

NICKEL	COBALT	LITHIUM	MANGAN
GRAPHITE	COPPER	RARE EARTH	ALUMINUM

KEY CHALLENGES

RAW MATERIAL MARKETS

SECURITY OF SUPPLY

MARKET PRICE RISKS

COST OPTIMIZATION

TRANSPARENCY

SUSTAINABILITY

RAW MATERIAL MANAGEMENT – AN INTEGRAL PART OF CORPORATE PERFORMANCE.

BMW CONSIDERS THE TOTAL VALUE CHAIN OF BATTERY CELL: FROM CRADLE TO GRAVE.

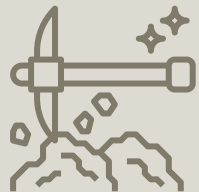
RAW MATERIALS AND REFINING

Environmental and
social standards

Raw material optimized
for chemistry design

Use of recycled raw
materials

Securing raw material
supply

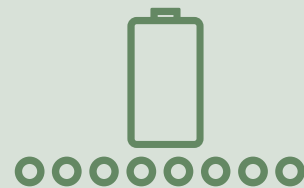


CELL DESIGN AND PRODUCTION

Optimized performance/ costs
based on BMW Group application

Securing production
capacity

Reduction
CO₂ footprint

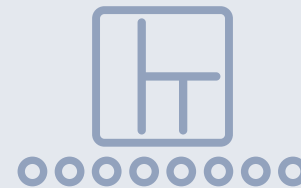


BATTERY »2ND LIFE«

Cell/module/pack
design

Application on
BMW Group sites

Business Models
to secure markets



RECYCLING

Cell/module/pack design
to foster recyclability

Development of recycling
processes with ability to
close material loops

Securing recycling
capacities

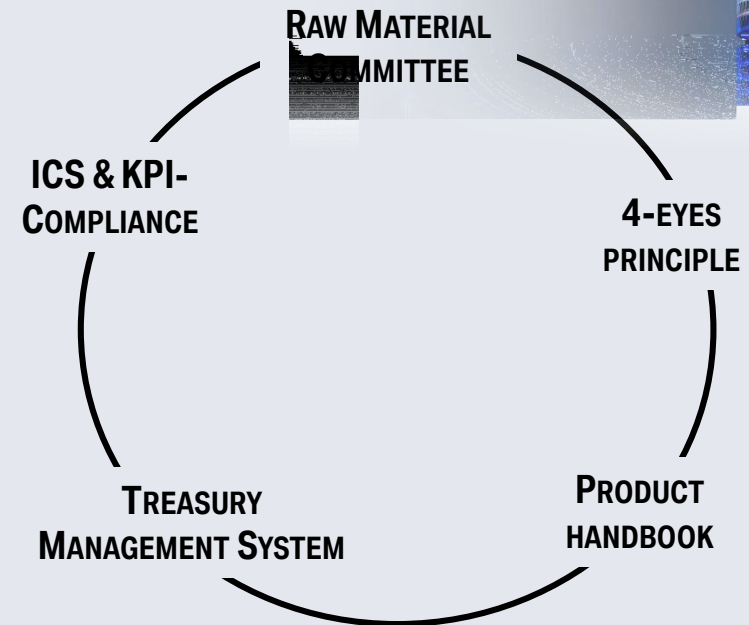


BMW CORPORATE FINANCE SUPPORTS THE BMW GROUP ALONG THE ENTIRE AUTOMOTIVE VALUE CHAIN IN ITS RISK MANAGEMENT FUNCTION.

HEDGING OF MARKET PRICE RISKS HAS A LONG TRADITION AT BMW GROUP

- 1998** HEDGING OF PRECIOUS METALS (PLATINUM, PALLADIUM, RHODIUM)
HEDGING OF NON-FERROUS METALS (ALUMINUM, COPPER, LEAD)
- 2009** HEDGING STEEL RAW MATERIALS (IRON ORE, COKING COAL)
HEDGING OF ENERGY
HEDGING OF CO₂
COMPLETE STRATEGY REVIEW: VALUATION BASED APPROACH CONFIRMED
- 2019** SUPPORT OF RAW MATERIAL MARKET PRICE RISK MANAGEMENT BBA (JV CHINA)
INCREASED FOCUS ON BATTERY MATERIALS: HEDGING OF NICKEL
- 2020** HEDGING OF ADDITIONAL BATTERY MATERIALS

COOPERATE GOVERNANCE ARE FULFILLED



FINANCIAL MARKET RISK MANAGEMENT ADDRESSES THE COMPANY'S NET RISK POSITIONS AGAINST THE VOLATILITY OF THE CAPITAL MARKET.

STRATEGIC OBJECTIVES



Increase planning security



Reduce earnings risk



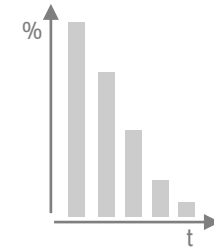
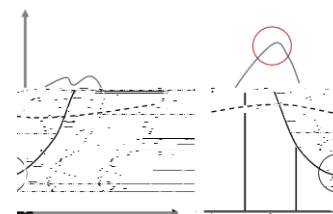
Maintain opportunities

The operational implementation is selective and valuation driven – not speculative.
Natural hedging improves the risk position of the BMW Group.

OPERATIONAL CORE ELEMENTS

Selective Approach

relative value

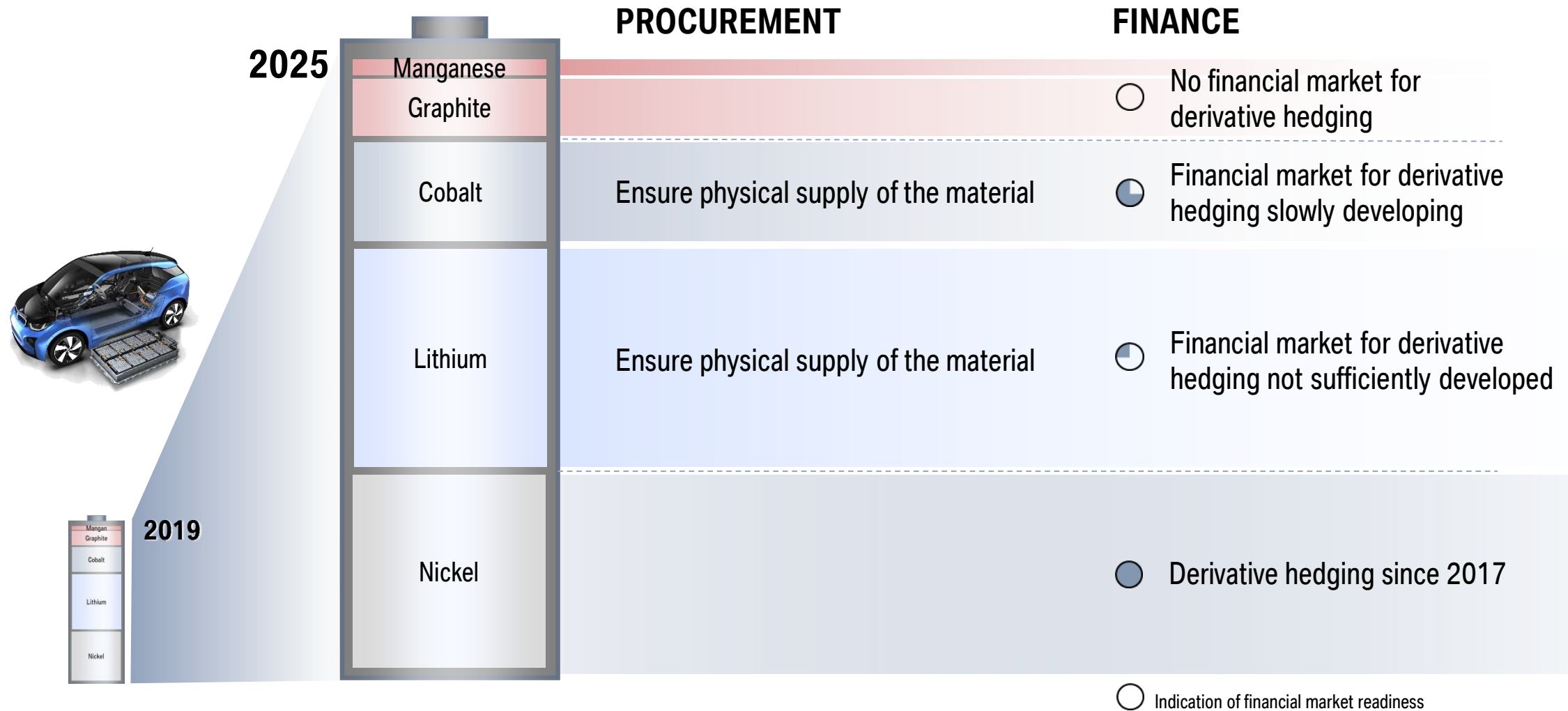


Risk bearing capacity
(Minimum hedge quotas)

Overlay Management



THE NEED FOR BATTERY MATERIALS INCREASES SUBSTANTIALLY.



BMW GROUP'S ROADMAP: LEADING POSITION IN MANAGING RAW MATERIAL RISKS AND SECURING LONG-TERM PROFITABILITY.

BEV/PHEV



BEV/PHEV



BEV/PHEV

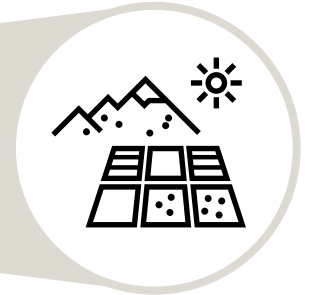


BATTERY MATERIALS

REFINERY



MINING



SECURING LONG-TERM, STRATEGIC ACCESS TO CRUCIAL RAW MATERIALS

To secure the long-term supply for raw materials and to improve the traceability of ESG critical materials, BMW Group is working closely with its TIER n suppliers.

RISK EVALUATION & ACTION

SUSTAINABILITY

SECURITY OF SUPPLY

PRICE RISK

TIER 1

TIER 2

TIER N



RAW MATERIAL MANAGEMENT

BATTERY SUPPLY CHAIN – KEY CHALLENGES.

SUSTAINABILITY

COMPLIANCE AND HUMAN RIGHTS



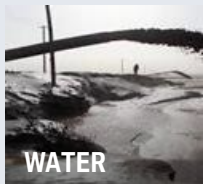
WORK



ENVIRONMENTAL PROTECTION

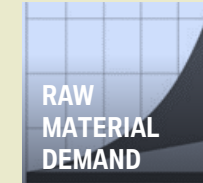
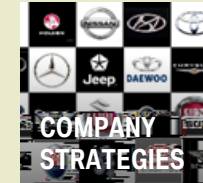


HEALTH / CLIMATE CHANGE

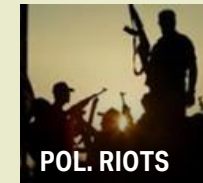
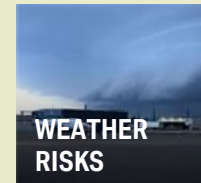


SECURITY OF SUPPLY

RAW MATERIAL DEMAND



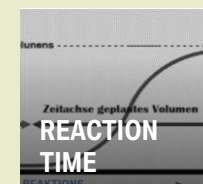
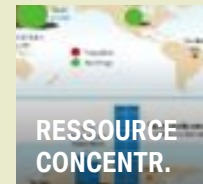
STABILITY



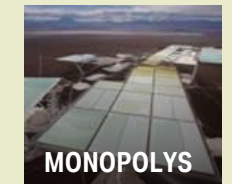
SECONDARY RESOURCES



PRODUCTION



STRATEGIES



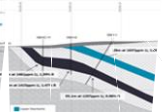
NEW PROJECT REQUIREMENTS

DEVELOPMENT OF OPERATIONAL EFFICIENCY

INTEGRATED KNOWLEDGE

OPERATIONS AND GLOBALIZATION

MINING



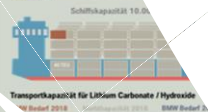
COST ANALYSIS



SUSTAINABILITY



LOGISTICS



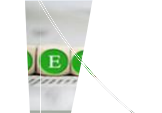
FINANCING



BUSINESS



LAW



CC



OPERATIONAL RISKS



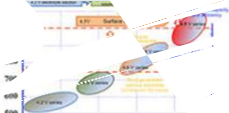
ENVIRONMENTAL RISKS



GLOBAL STRATEGY



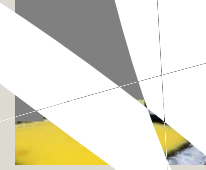
INNOVATION



CHANGE



RAW MATERIAL



Chromium

0.3 20



COMMITMENT TO RESPONSIBLE MATERIAL EXTRACTION AND PROCESS-INDUSTRY PILOT PROMOTE SUSTAINABLE ARTISANAL MINING.

FACTS & FIGURES

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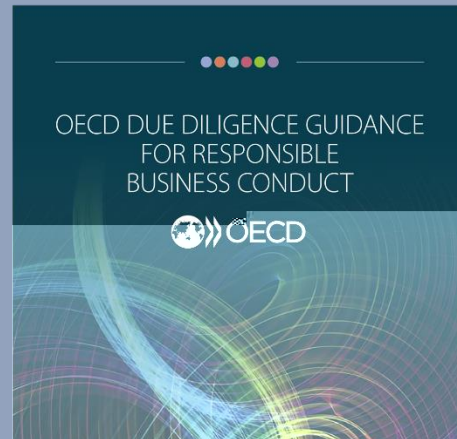
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SUPPORT FOR ARTISANAL COMMUNITIES

THE BMW GROUP COBALT STRATEGY IS THE BENCHMARK FOR THE INDUSTRY.

BMW DUE DILIGENCE PROGRAMME



SECURING SUPPLY OF COBALT FROM MOROCCO/AUSTRALIA FOR GEN5 WITH HIGH SUSTAINABILITY STANDARDS

INVOLVEMENT IN INITIATIVES



CROSS-INDUSTRY PILOT PROJECT TO PROMOTE SUSTAINABLE ARTISANAL MINING

**WE ARE SHAPING
THE MOBILITY
OF THE FUTURE.**

