

FLSmidth Minerals

- a world leader in mining and minerals processing

George Robles, Deputy CEO, FLSmidth Minerals



George Robles

- **EVP and Deputy CEO, FLSmidth Minerals**
- Based in Bethlehem, Pennsylvania, USA
- Joined FLSmidth in 1994
- Previous positions:
 - VP International Operations, EIMCO Process Equipment (Jan 1993 - 1994)
 - VP European Operations, EIMCO Europe (Jan 1988 – 1993)
 - GM Chile, WEMCO (Mar 1983 - 1988)



- We make the machines that help our customers make:



- **The mining world today**
- **Mining industry dynamics and trends**
- **The new FLSmidth Minerals - industries served**
- **'One Source - One Partner'**
- **Concluding remarks**

Three primary objectives

- Grow the minerals business to the size of the cement business
- Establish FLSmidth Minerals as market leader in every major minerals processing category
- Develop a unique value proposition in the Minerals and Processing industry



- The sharp fall in **metals prices** since mid 2008 prompted numerous companies to announce production cut backs and deferrals of capital spending
- Metal prices appear to be **stabilizing** slightly above threshold levels
- The **credit situation** remains severe with the banking sector reluctant to lend new funds
- Most large **viable projects** belong to the major mining houses or are being financed by Chinese investors. Junior companies, and their projects, are the most effected by the crisis
- However, some people continue to realize that the **China and India growth stories** are still intact giving us some optimism for 2009

- **SOUTH AMERICA** – Very strong market led by investments in copper in Chile and Peru as well as iron ore in Brazil. Once metal prices stabilize, the strong market trend is expected to resume
- **NORTH AMERICA** – Difficult market due to environmental regulations and high costs. Recent openings of marginal mines have been highly affected by today's low prices and shut downs have taken place. FGD investments are slowing down, but coal gasification is an emerging technology
- **SOUTHERN/CENTRAL/WEST/AFRICA** – Strong market with considerable political risk. In today's climate new mine development will be highly curtailed due to the lack of available funds for junior miners and it will take a while for this market to come back since the large mining houses are more risk averse than the juniors. Gold and uranium are expanding, however
- **NORTH/EAST AFRICA** – Moderate market that will depend on government financing for further development
- **EUROPE** – Market activity is primarily for KOCH MVT in coal unloading and rolling mills and EIMCO IT for industrial minerals

- **AUSTRALASIA** – Very strong market primarily lead by investments in iron ore, coal, and base metals. Many projects have been affected by the lack of funding for junior miners. The Chinese have been playing a major role in the expansion of Australia and this is expected to continue
- **MIDDLE EAST** – Expanding market with large potential for phosphate and potash
- **CHINA** – Large market but difficult for Western suppliers due to IP issues as well as low pricing
- **SOUTHEAST ASIA** – Moderate market that is slowing down fast.
- **RUSSIA/CIS** – Strong market with a lot of volatility. Continued investment expected primarily lead by the continued use of internal financial resources, however, currently hampered by the fall in oil prices and political risk.
- **GENERAL** - Geographical investment will be set by proven exploration results of the recent past. The South American market has lead suppliers to develop ever larger equipment due to the size of the copper and iron ore projects. The China market will lead suppliers to look for lower cost solutions to remain competitive.

Industry Dynamics

Industry themes

▪Near term

- Slowing economic growth
- Capital scarcity
- Commodity prices falling near marginal costs

▪Long term

- Structural demand from China and India to drive metal consumption growth
- Commodity prices set by marginal costs

Producer response

▪Near term

- Operational closures
- Driving down costs
- Capex deferral
- Consolidation (cheaper than greenfield)

▪Long term

- Supply shifts to low cost geographies
- Resource scarcity
- Cost of capital increases with geopolitical risk

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▪Near term

- Restructure due to slower growth
- Flawless execution to maintain margins
- Well positioned for organic growth (systems)

▪Long term

- One Source - One Partner market leader
- Low cost manufacturer
- Industry Leader

FLSmidth Minerals must be positioned for both near-term and long-term

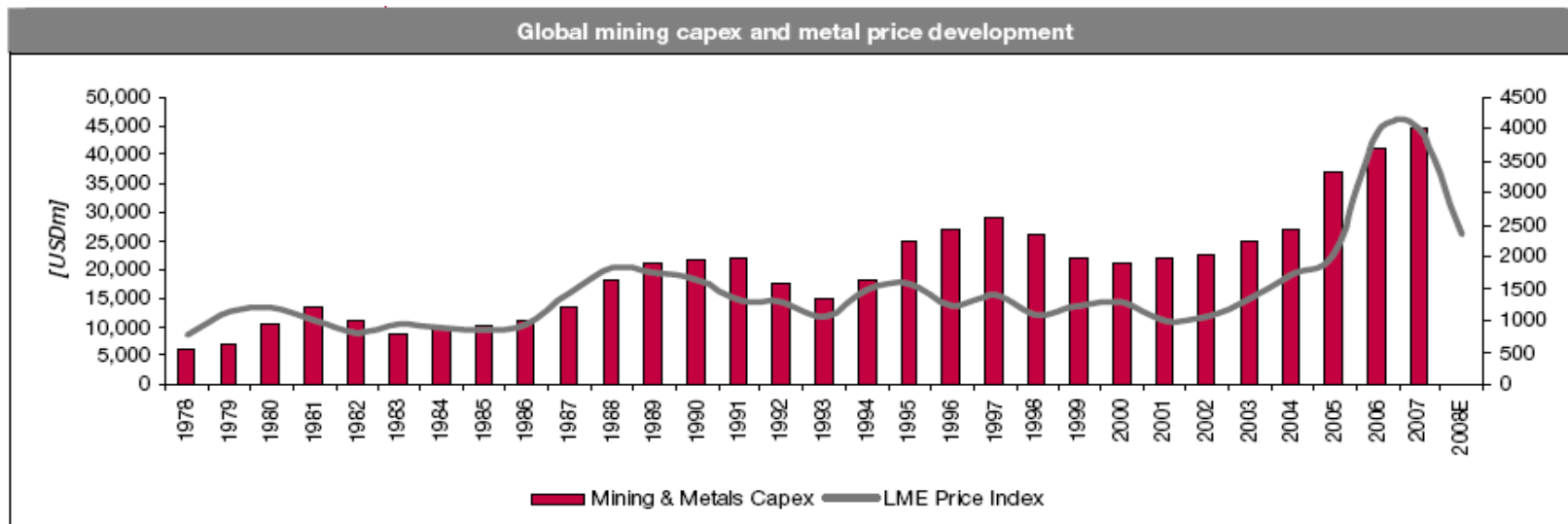
Industry needs:

- Shorter project lead times
- Water
- Reduced environmental impact
- Super-sized production lines
- Lower CAPEX
- Deeper long term support

FLSmidth Minerals Response:

- Complete flowsheet capability
- Technology leader in water recovery
 - Paste thickener technology
 - Horizontal belt filters
 - Pneumapress
- Exploring new designs for crushing and grinding
- Hydrometallurgical processing
- The world's largest process equipment
- Outsourcing to low cost countries
- Full service maintenance contracts

Historically, reductions in Mining CAPEX, on a year to year basis, have not been as severe as many analysts are forecasting



Source: CRU, Cheuvreux

Revised CAPEX budgets and total CAPEX plans

Top 5 Mining Companies (USD bn)

	Approved	Planned
Anglo American	4.5 (2009)	45.0
Vale	14.2 (2009)	56.0
Xstrata	3.4 (2009)	37.0
BHP Billiton	17.1 (total approved)	90.0
Rio Tinto	4.0 (2009)	34.0
Total	43.2	262

Feb 09, based on Q4 company reports

'Customer Services' has been more resilient than capital orders in economic down-turns in the past

- ~ **20% of current revenue** and **order intake** in Minerals is within Customer Services
- Customer Services is **expected to grow** relative to capital orders in the coming years
- **Customer Services includes:** spare parts, wear parts, service before, under and after the delivery of new equipment, maintenance contracts, upgrades, modernisation projects, etc.
- FLSmidth Minerals runs three long-term **maintenance contracts** in South America:
 - Los Pelambres, Chile (prolonged in 2008)
 - Collahuasi, Chile (prolonged in 2008)
 - Peñasquito, Mexico (contracted in 2008)

The new FLSmidth Minerals



DORR-OLIVER EIMCO • MVT
EXCEL • TECHNIQUIP
WEMCO • BUFFALO
One Source • ABON
KOCH • **One Partner**
FULLER TRAYLOR • KREBS
FFE MINERALS • RAHCO
VECOR • MOLLER

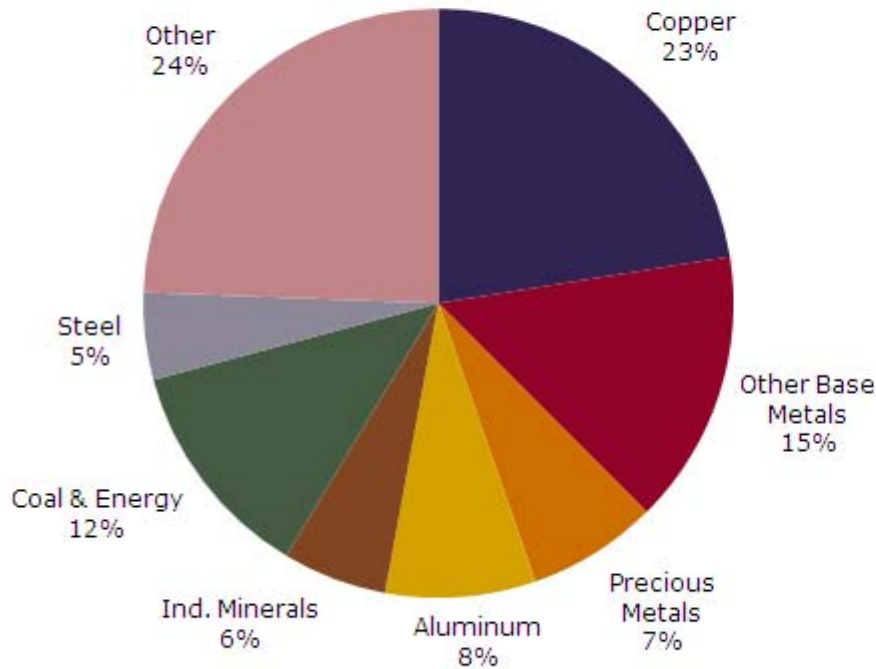
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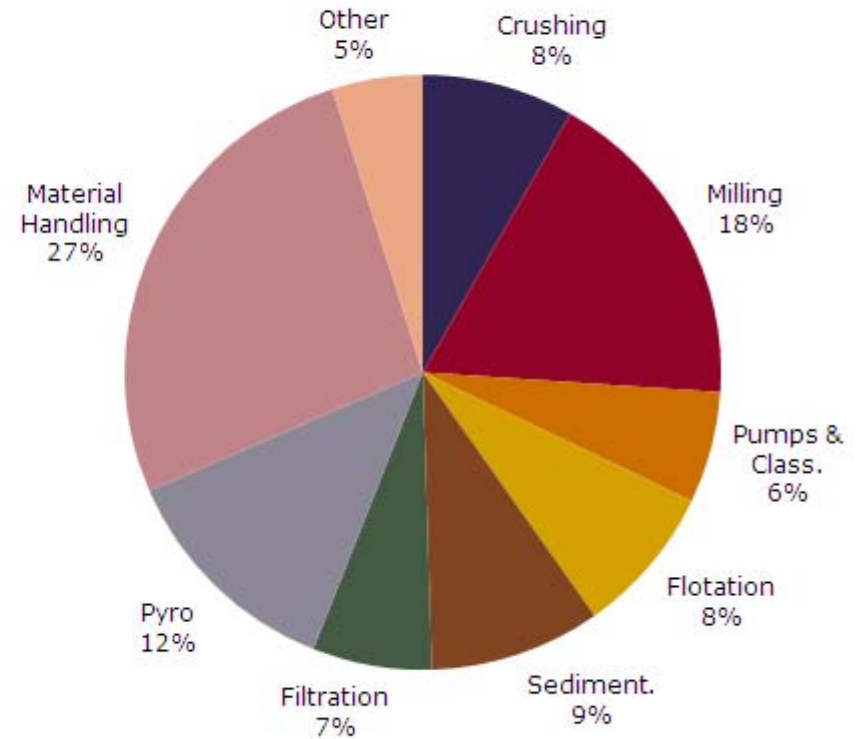
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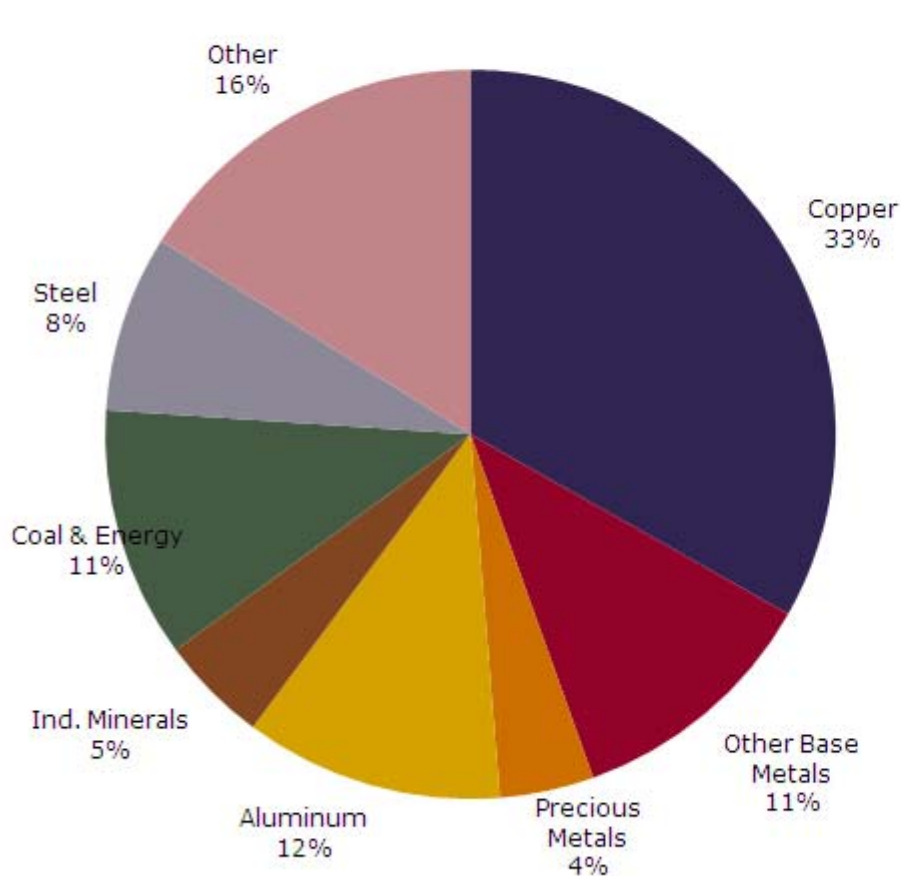
Capital Revenue by Industry



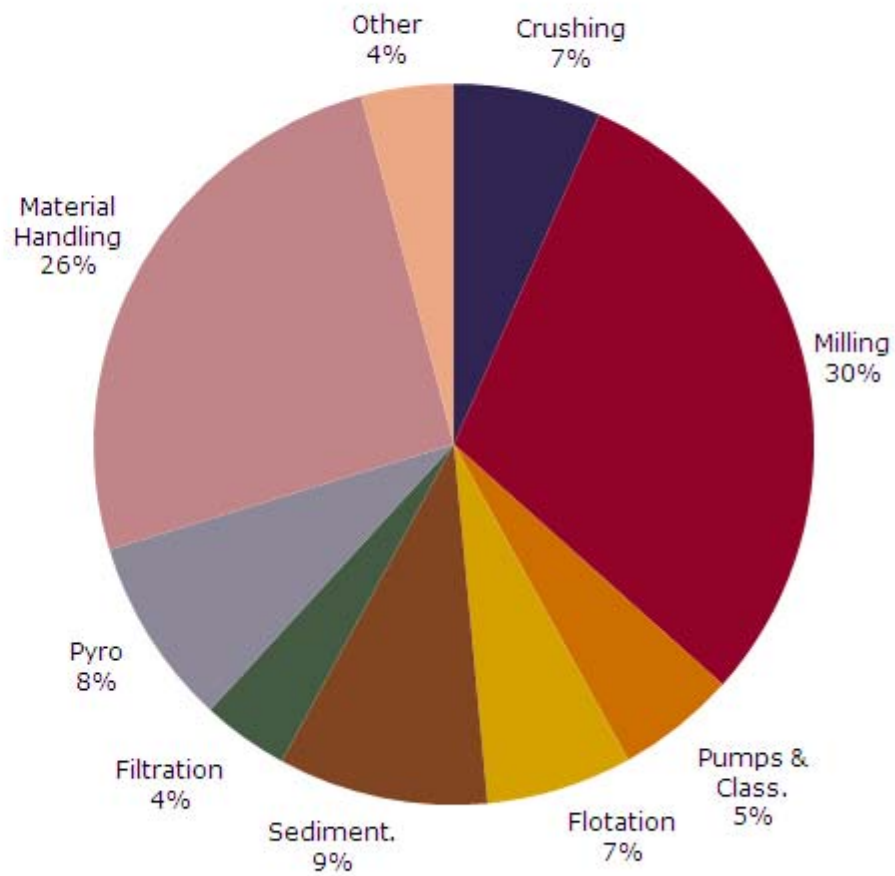
Capital Revenue by Product



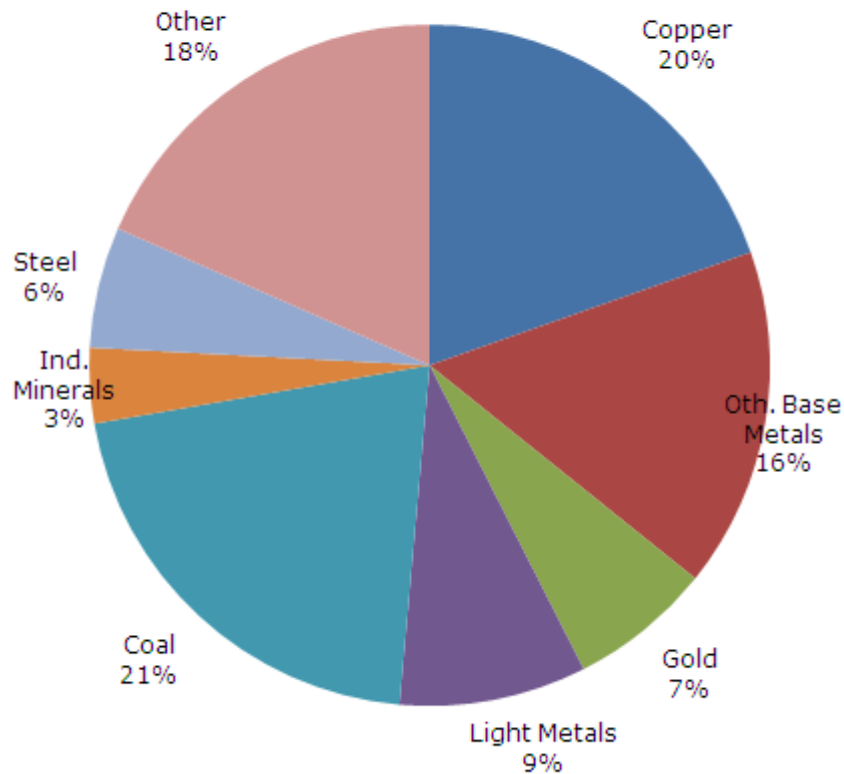
Capital Intake by Industry



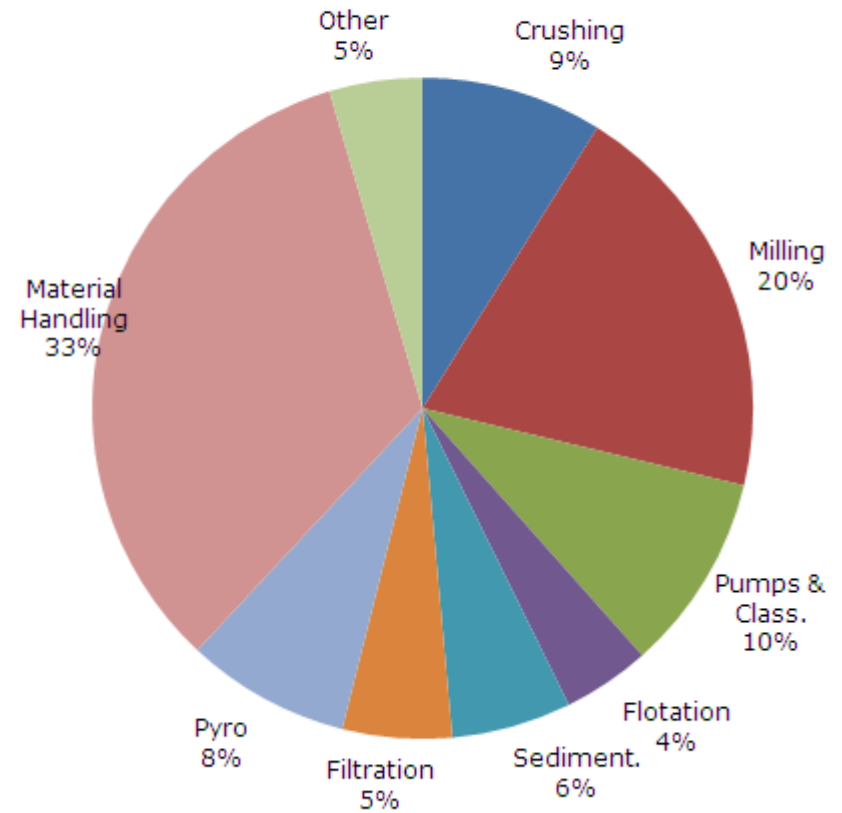
Capital Intake by Product



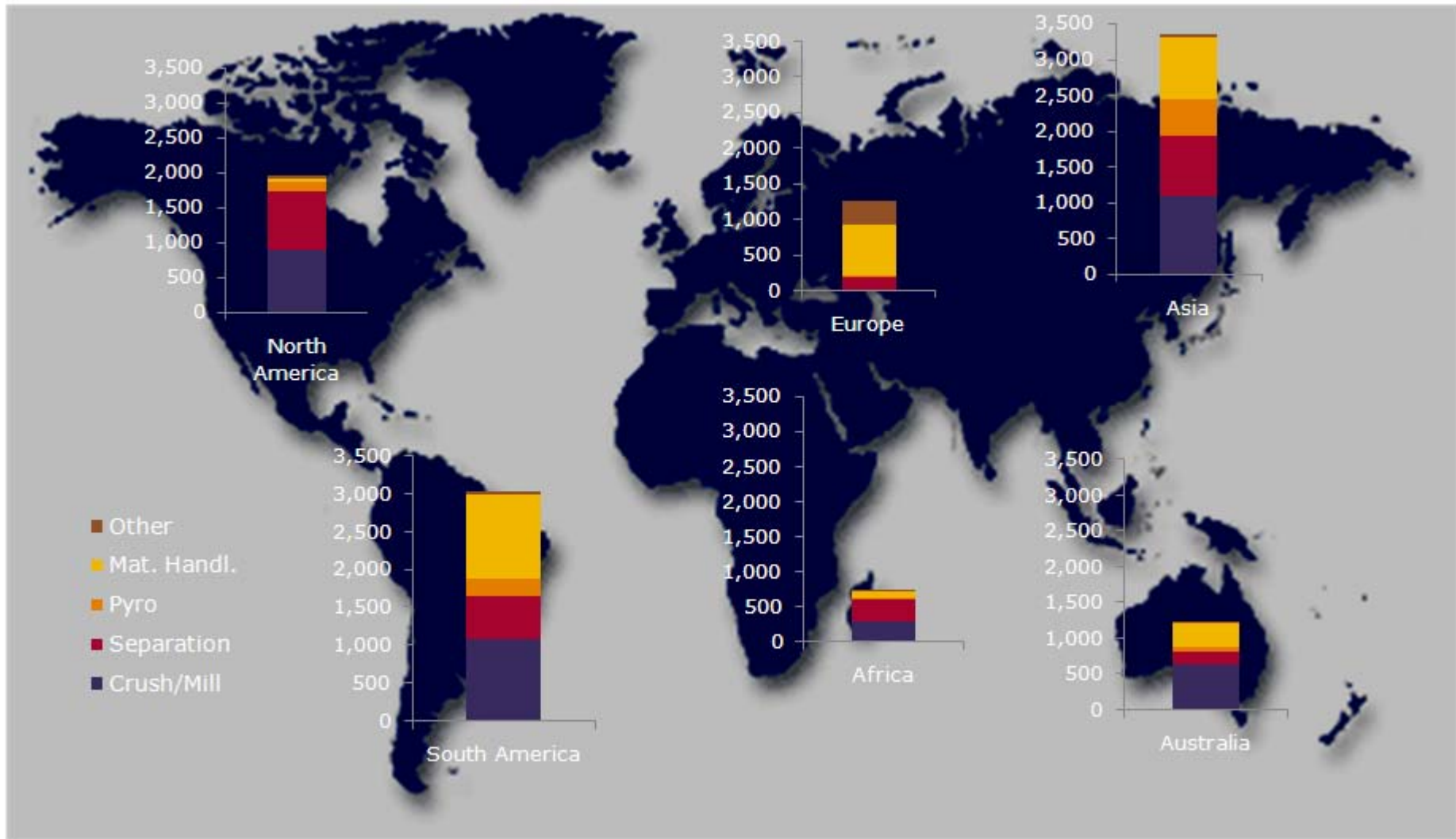
Capital Intake by Industry



Capital Intake by Product

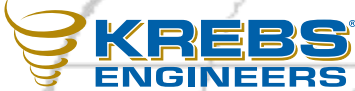


Industry Groups	Segment	Industry Groups	Segment
Base Metals	Copper Moly Lead Zinc Nickel Iron Ore Uranium	Industrial Minerals	Aggregate Lime/Limestone Soda Ash/ Brine/ Phosphate Fertilizer (Potash /Phos Acid) Pigments (Kaolin / TiO2 / PCC)
Precious Metals	Gold Silver Platinum Diamonds	Energy	Coal FGD Oil Sands Bio-Ethanol / Geo Thermal Oil & Gas Dewaxing (SOD)
Light Metals	Aluminum Alumina & Bauxite Petcoke Magnesium	CSPP (Chemical, Steel, Pulp & Paper)	Pulp & Paper Steel Base & Fine Chemicals Food & Pharma





One Source
One Partner



FLSmidth Minerals has successfully carried out a number of acquisitions over the past 16 years

- 1993 Technequip, Canada
- 1997 Vecor, South Africa
- 1998 ABON, Australia
- 1999 Buffalo, South Africa
- 2003 ConveyorKit, South Africa
- 2005 MVT & Möller Materials Handling transferred from FLSmidth Cement
- 2005 Excel Crusher Technology, USA
- 2006 Excel Foundry and Machine, USA
- 2006 KOCH Transporttechnik, Germany
- 2007 RAHCO, USA
- 2007 GL&V Process, Canada
- 2008 Pneumapress, USA
- 2008 Dawson Metallurgical Laboratories, USA
- 2008 CEntry Engineers, USA
- 2009 Conveyor Engineering, USA



Together, we:

- Make a perfect match
- Cover the entire flow sheet of a typical minerals plant
- Have a strong position in all geographical regions
- Are a global market leader and preferred supplier
- Have the best people in the industry



The FLSmidth Minerals competitive advantage

- **Strong position** in all relevant product segments
- **Strong local presence** in all geographical markets
- **Total flow sheet coverage** with **Heritage Brand Names**
- **Technological edge** for large-scale equipment/systems

”Out-local
the
globals”



”Out-global
the
locals”

Typical mining site plant



Exploration for mineral resources

- Remote sensing
- Geophysical / geochemical tests
- Samples

Feasibility studies

Drilling and modelling of the ore body

Selection of appropriate mining technique

Capital investment in mine infrastructure

Mining of the ore body

Rock breaking

Surface mining

Underground mining

Mined minerals transported to processing site

Use of loaders, trucks, trains, at the face mining systems and conveyors

Crushing, Grinding & Sizing

Materials are crushed and ground to achieve finer particles

Particles sized for optimum recovery of minerals specie

Concentration

Flotation, leaching, sedimentation and filtration are used to increase the mineral content to an economic level

Refining to increase concentration of minerals further

Key techniques:

- Pyro-metallurgy
- Electro-winning

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Metso Minerals

Outotec

Bateman

Sandvik

Atlas Copco

Boart Longyear

Furukawa

Terex

Astec

Komatsu

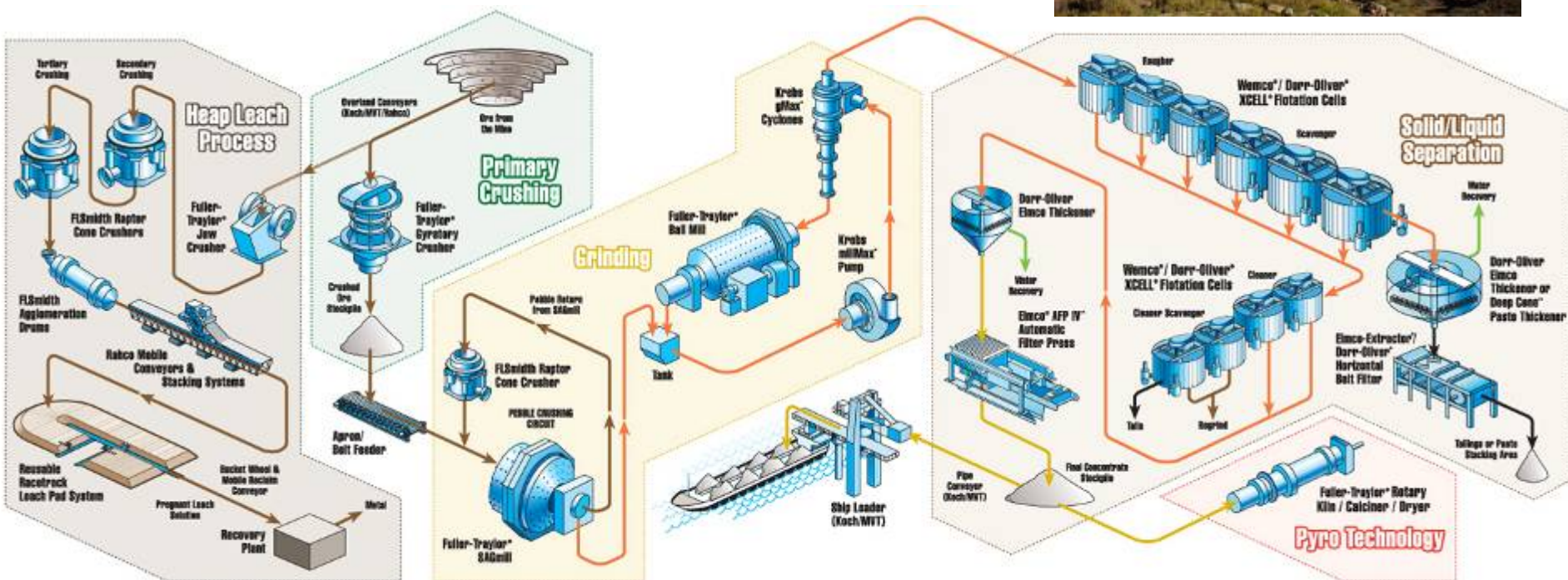
Bucyrus

Joy Global

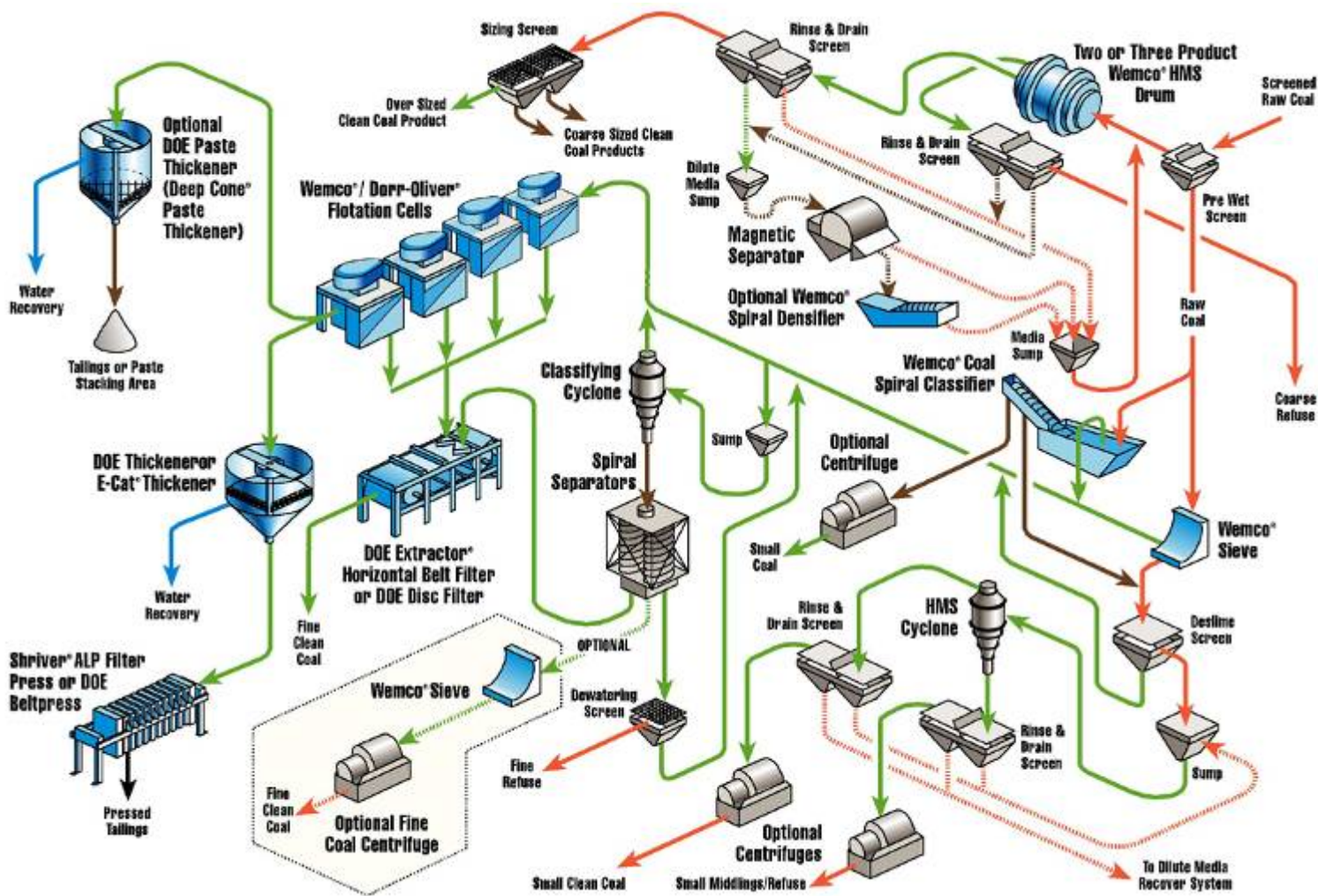
CAT

Source: Morgan Stanley, FLSmidth

Base metals



Coal preparation



Few other technology suppliers can offer such a broad range of **brand name equipment** and **processes**

- Crushing
- Grinding
- Classification
- Separation (Flotation, Hydrometallurgical)
- Dewatering (Thickening, Filtration)
- Pyroprocessing
- Slurry Handling
- Material Handling



**Cone
Crushers**



**Gyratory
Crushers**

**Low-Speed
Sizers**





SAG Mills



Ball Mills



**From
the
world's
largest**



**To the
smallest**





Flotation



Hydromet





Tailings Thickeners



Traction Thickeners



Paste Thickening



E-Cat® Clarifier Thickeners

Rotary Kilns

Rotary Dryers

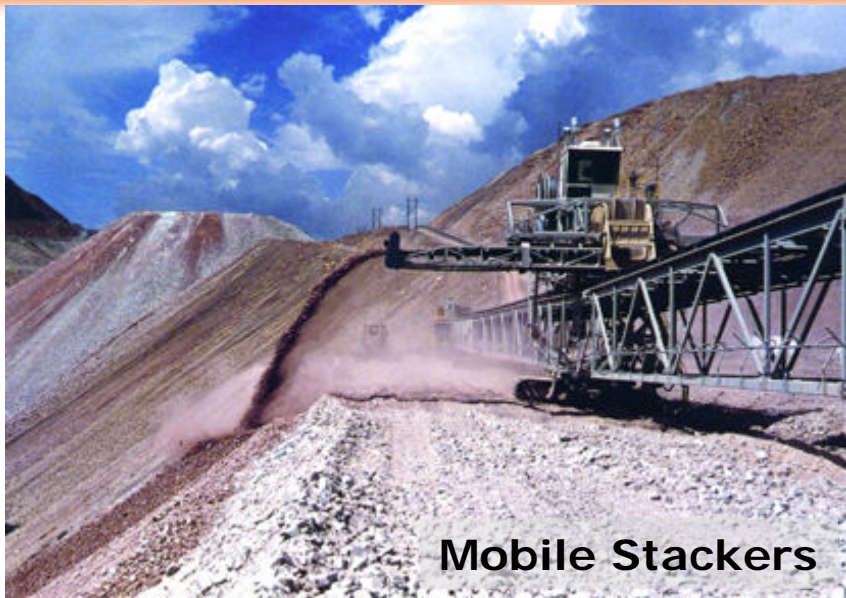
Fluid Beds

**Gas Suspension
Calciners**

Preheaters







Mobile Stackers



Pipe Conveyors



Mine Hoists



Long Distance Conveyors

Stockyard Storage Systems



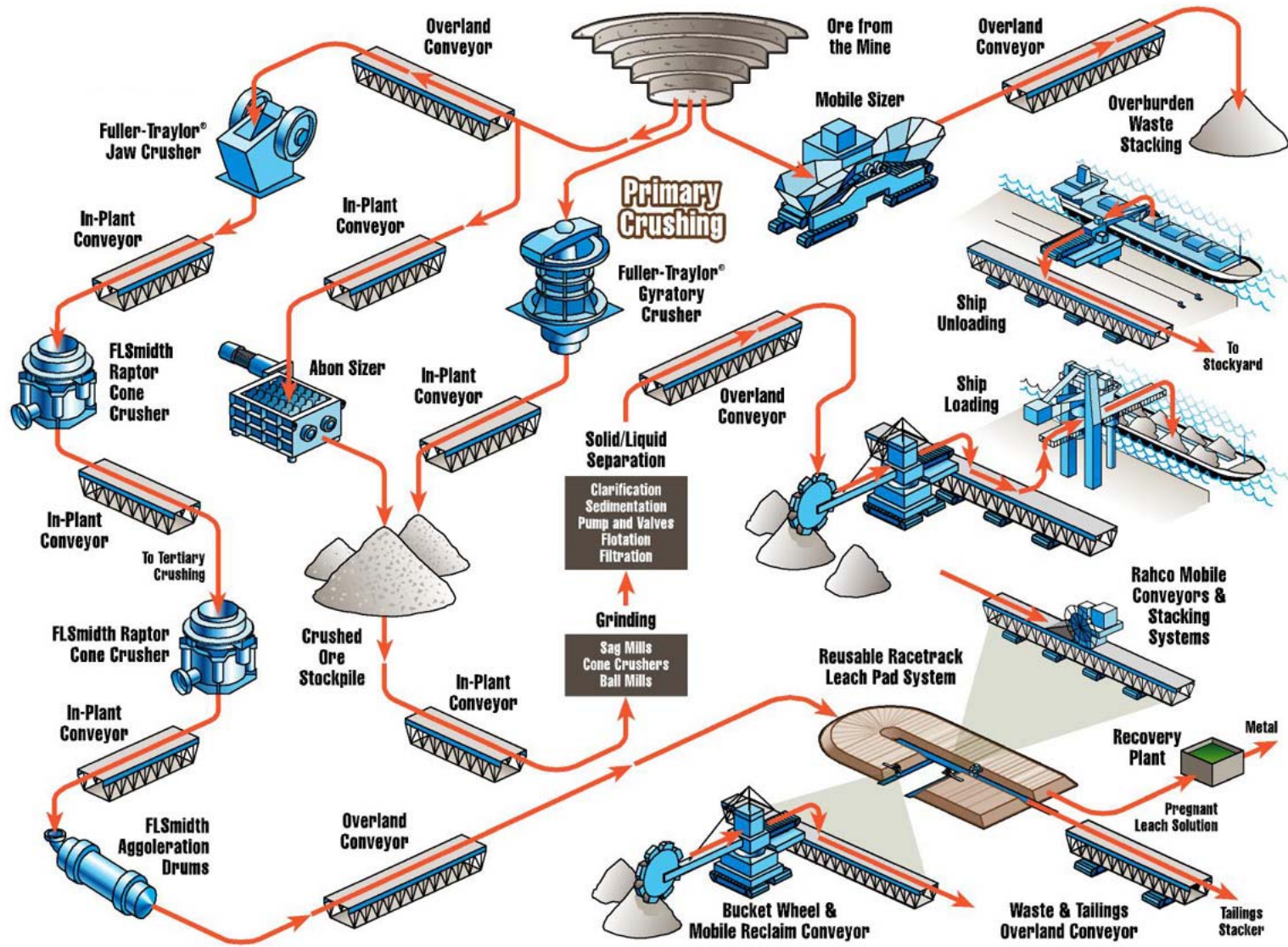
Ship Loaders



Bucket Wheel Reclaimers



Ship Unloaders

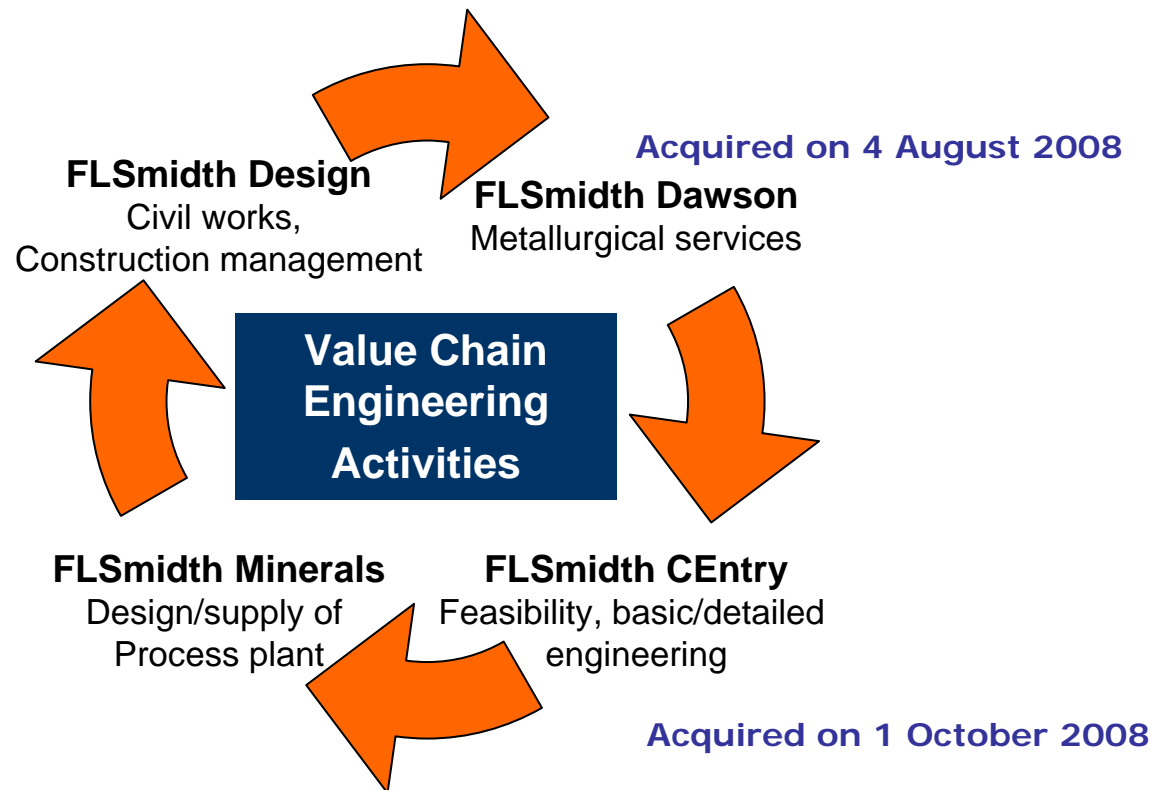


Why is Material Handling our growth story?

- **Ore content** of most mined materials is typically $\pm 1\%$
- In an open-pit mine, a lot of **overburden** material has to be removed to get down to the ore. As the mines have become bigger, the competitive position of FLSmidth has become better
- The mined material needs to be transported **from the mine** (at-the-face-mining) **to the processing plant** (overland and stockpiling) and **around the plant** (in-plant). After processing, the **waste material** is transported and deposited in designated areas (dry stocking)
- **FLSmidth Minerals offers** large scale, customised, integrated and energy-efficient material handling solutions which is a **technological, economic and environmental alternative to traditional conveying methods** (such as trucks) requiring less man-power and fuel

FLSmidth Minerals

- more than just an equipment supplier!



Case Studies – Plant Systems



DORR-OLIVER EIMCO • MVT
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February 2008: Complete solutions

The Balla Balla project in Australia

- A contract worth over **AUD 170m** from **Aurox Resources Limited** in Australia to supply a complete minerals processing plant for the treatment of magnetite iron ore
- This contract to supply a **complete minerals processing plant**, is validation of the One Source One Partner concept that FLSmidth offers the industry and the benefits such a model can generate in terms of technology, performance synergies and schedule savings
- By choosing the FLSmidth model, Aurox will **reduce the project time** by approximately six months



March 2008: Strategic partnership

Xstrata Copper and Bechtel select FLSmidth Minerals

- **Xstrata:** One of the worlds largest mining companies
- **Bechtel:** One of the world's largest consultants to the mining industry
- Awarded long term agreement on **strategic partnership** to develop and supply critical process components for:
- **6 complete copper plants** over a five – six year period



October 2007: “At the Face Mining” solution

Fortesque Mining Group in Australia

- FLSmidth Minerals successfully executed the **strategy of “packaging”** group-products into **integrated solutions**
- **RAHCO** in joint efforts with **MVT** and **KOCH** sold a mobile overburden materials handling system with a capacity of 16,000 metric t/hour to world leader Fortesque Metals Group, Australia
- **Synergies** demonstrated by the contract value of 3 x RAHCO’s total sales in 2006



April 2008: Complete solutions

- A contract worth over **US 250m** from **Southern Copper** in Peru to supply a complete dry minerals processing plant for the treatment of oxide copper ore
- This contract to supply a **complete dry minerals processing plant**, was driven by the current lack of engineering resources available. FLSmidth offered engineering services and proprietary equipment for one of the world's largest copper oxide processing plants
- By choosing the FLSmidth model, Southern Copper will **reduce the project time** by approximately eight months

The Tia Maria project in Peru



- **FLOTATION** – A 300 Cu M cell has been fabricated and is being tested at the Kennecott Copper operation outside of Salt Lake City. Both self induced and forced air mechanisms will be trialed
- **THICKENERS** – A 40 M diameter deep cone thickener, largest in the world, will start up in March of 2009 in Mongolia
- **PUMPS** – Krebs is continuing to fill in their product offering by designing different types of pumps for more applications as well as designing larger pumps
- **MATERIAL HANDLING** - The successful start up of the FMG waste removal system will open up a totally new market to FLSM – At The Face Mining. A focus on obtaining the technology for large, long distance conveying has been fulfilled with the acquisition of Conveyor Engineering enhancing future sales in copper and iron ore. Material Handling products are the single fastest growing segment of our business and have a potential market in all new projects in many industries
- **HIGH PRESSURE GRINDING ROLLS** – This technology is finding acceptance in Mining applications and FLSmidth Minerals needs to develop much better surface technology than it currently has to become a significant force in this market

Important investor points

- **Market signals**
 - Metal prices stabilizing
 - Mining capex does not go to zero
 - “Go-Get” hotlist of potential new orders, while smaller, is still considerable
- **Type metals / minerals**
 - We are not dependant on any one or few metals / minerals
 - However, some metals have been more important than others historically
 - Non-metallic minerals gaining importance
- **Flexibility of the cost structure**
 - Limited in-house manufacturing/capital employed
 - Resources can be shifted between cement and minerals



- The **future** is not what it used to be
– we will have to be at our best, we need to rise to the challenge
- The '**One Source - One Partner**' concept has been well-received by our customers and opens up for new avenues of growth
- Diversity in **order intake** bodes well for stable **turnover, profitability, and future growth** in the coming months and years



- Today, there are 6.7 billion people sharing the planet. By mid-century, estimates point to more than **9 billion people**, rapidly overwhelming infrastructure and creating unprecedented competition for minerals, cement, power, water and forest products
 - The focus on **global warming** will redirect focus from the “fuels from hell” – coal, oil, and natural gas to “fuels from heaven” – wind, hydroelectric, tidal and solar creating new and vast opportunities for new uses of minerals
 - **The global recession has slowed down demand, but rising demand is the new normal. Growth is not negotiable**
- Thomas Friedman, *Hot, Flat and Crowded*



- The **middle class** in poor countries is the fastest growing segment of the world's population. While the total population of the planet will increase by 1 billion people in the next 12 years, the ranks of the middle class will swell by as many as 1.8 billion.

- Moisés Naím, *Foreign Policy*



Questions?

