Key messages

- Mega-trends provide a **positive outlook** for the Mining Industry

- Our understanding of the Mining Customers’ **Sustainable Productivity** challenges creates new business opportunities

- The Mining strategy, through innovative technologies and products, digitally assisted services and customer intimacy, will provide ample **growth opportunities for FLSmidth**

- The successful execution of our strategy will provide **more stable sustainable profitable growth**
Global trends provide a positive outlook for the mining industry

- Global production is estimated to increase by 4.2% CAGR by 2025
- CAPEX will continue to recover, supported by ongoing brownfield spend
- Stable demand and supply for most metals mean less need to initiate large greenfield projects
- “Social licence to operate” is increasing focus on sustainable productivity
- Shift of new mine developments to geographies with historically higher geopolitical risks
- Ore grade decline continues, requiring more investments in production capacity
- Commodity cost curves to remain above incentive levels for main commodities
- Mining companies have a strong cash position and liquidity, and therefore capacity to invest
Mining market development example: Copper focus

Economic downturn puts pressure on copper prices

But Chinese imports of concentrate continue to rise

Copper discoveries few and far between

Industry Head Grade Trends (Weighted Paid Copper)

Demand will outstrip supply in 2022

The information contained or referenced in this presentation is proprietary to FLSmidth and is protected by copyright law.

FLSmidth CMD 2019 | Mining market and strategy
FLSmidth has a large opportunity to grow in Service

**ESTIMATED MINING CAPEX**
(SUSTAINING AND EXPANSION) AVAILABLE MARKET ESTIMATE (2018, DKKbn)

<table>
<thead>
<tr>
<th></th>
<th>Available market</th>
<th>Accessible market</th>
<th>Capital accessible market</th>
<th>Service accessible market</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>35-40</strong></td>
<td>~120</td>
<td>~55</td>
<td>15-20</td>
<td>35-40</td>
</tr>
<tr>
<td><strong>34%</strong></td>
<td>55% Future potential</td>
<td>79%</td>
<td>74% Future potential</td>
<td>78% Future potential</td>
</tr>
<tr>
<td><strong>11%</strong></td>
<td></td>
<td>21%</td>
<td>26%</td>
<td>22%</td>
</tr>
</tbody>
</table>

Note: Capital incl. Projects and Products; Service incl. Spare parts, Wear parts, Services, Upgrades and Retrofits; Accessible market definition varies by segment and is on a high level based on FLSmidth technology and offering.

Source: FLSmidth analysis

**ESTIMATED MARKET SHARES**
(TOTAL AVAILABLE MARKET)

- **FLSmidth Mining**
  - Capital, Products and Services
- **Main peers**
- **Others**

6 November 2019  FLSmidth CMD 2019 | Mining market and strategy
Our understanding of mining customers’ productivity and sustainability challenges creates new business opportunities

- **Drop of ore grades** (increase in ROM production) requires optimised process and increased efficiencies
- **Ageing machinery and high utilisation rates** drive the need for replacements and service intensity
- **Digitalization** becomes a key tool for asset health management and improved minerals processing
- **Focus around “Social license to operate”** is increasing attention on miners’ environmental footprint
- Financing of projects and **access to capital** contingent on sustainable practices
- Cost and discharge of **waste and water** are under heavy scrutiny, negatively affecting operations
Selected elements

Mining strategy

Capital Projects
- Improved project execution
  - Project hubs concept

Service
- Wear parts business
  - Expansion of mill liner offering

Digitalization
- Process optimisation and asset health
  - Connected equipment
  - Service response and uptime

Sustainability
- Technological potential
  - Water recycling and Tailings management
  - Reduced energy and pollution
Current challenges in mining capital projects execution

Project execution close to customers, but through many locations
- Fragmented, sub-optimal project organisation
- Resource availability and competence issues
- Difficulties with global overview and control

More projects executed in phases (Stop-and-Go) and delayed contract completion
- Slow and unpredictable customer decisions
- Interrupted workflow and resource absorption issues
- Customers not eager to take-over equipment and plants

- Project margin erosion from higher execution costs
- Re-assessment of margin expectations from backlog
- Improvement by consolidation of sites and resources
Capital projects: New execution model will drive focus and increased profitability

- **Cyclicality in Mining Capital** business will continue, need model to better manage **volatility and fluctuating** impacts to our business mix

- Professional global project execution requires **availability of competence resources**, difficult with too many locations

- We are streamlining project execution through:
  - **Western, Central and Eastern Hub**: Critical mass of project management, engineering, procurement capabilities
  - **Adding crucial resources** for commercial, risk and claim management in Hubs
  - **Regional “satellites”** focusing on day-to-day interaction with the customer and local suppliers
  - **Global pool** of mobile experts for critical tasks

**IMPROVED PROJECT MARGIN BY BETTER EXECUTION THROUGH RESOURCES WITH ‘RIGHT SKILL SET’**

- WMH - Western Mining Hub
- SMH - Support Mining Hub
- CHM - Central Mining Hub
- EMH - Eastern Mining Hub

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Project Execution Hub</td>
<td>Satellites</td>
<td>Global Support Hub</td>
<td></td>
</tr>
</tbody>
</table>
Service: Implementing a global strategy that enhances customer wear liner productivity

- Establishment of in-house engineering excellence and metallurgical expertise for metallic and composite wear liners
- Ability to prototype and validate customised solutions through a 1st Article Liner Foundry
- Increased in-house production capabilities coupled with strategic supplier agreements
- Product line expansion of composite liner technology
- Utilisation of global service centre footprint to assure sufficient local availability of products

With over 500 mills and large gyratory crushers globally installed, FLSmidth is well positioned to take leadership position in this > 10 bn DKK per annum market
Delivering customer productivity through connected products and bundled services

- Connected products
- Digital customer engagement
- Asset health
- Performance optimisation

Focus of this presentation

Customer productivity
Increasing uptime through digital

**Connected product**
- Sends data
- Schedules service visit

**Cloud and analytics platform**
- Analyses & predicts
- Triggers alert
- Real-time asset report

**24/7 remote service centre**
- Orders parts
- Schedules service visit

**Order handling**
- Orders parts

**Field service engineer**
- Requests remote assistance if needed

**Additional Text**
- 6 November 2019
- FLSmidth CMD 2019 | Mining market and strategy
Increasing uptime through digital

- **Remote support** for our field service technicians
- **Access to FLSmidth experts** across the globe
- **Faster resolution** of incidents and **reduced cost** of service delivery
# Sustainability & Productivity

## Technological potential

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Early waste rejection</td>
<td>Bulk ore sorting</td>
<td>New Milling Technology</td>
<td>Energy recovery</td>
<td>Coarse flotation</td>
<td>High performance deep cone thickeners</td>
<td>New continuous pressure filtration technology</td>
<td>Ecotails</td>
</tr>
<tr>
<td>Insitu processing</td>
<td>Stockpile management</td>
<td>Wear technologies (composites)</td>
<td>Wear &amp; Lifetime</td>
<td>Dry processing</td>
<td>Paste plants</td>
<td></td>
<td>Smart tailings flowsheet (reduction of fines)</td>
</tr>
<tr>
<td>Semi-mobile Processing</td>
<td>IPCC</td>
<td>Displacement pumps</td>
<td>Displacement pumps</td>
<td>Reflux tech</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4. Pumps, valves and cyclones
- High performance deep cone thickeners
- Paste plants

### 5. Beneficiation and recovery
- Energy recovery
- Displacement pumps

### 6. Thickening
- Coarse flotation
- Reflux tech

### 7. Filtration
- Dry processing
- ROL

### 8. Tailings management
- Wear & Lifetime
- Displacement pumps

### 1. Extraction
- Early waste rejection
- Insitu processing
- Semi-mobile Processing

### 2. Minerals material handling
- Bulk ore sorting
- Stockpile management
- IPCC

### 3. Comminution
- New Milling Technology
- Wear technologies (composites)

### 4. Pumps, valves and cyclones
- Energy recovery
- Wear & Lifetime
- Displacement pumps

### 5. Beneficiation and recovery
- Coarse flotation
- Dry processing
- Reflux tech

### 6. Thickening
- High performance deep cone thickeners
- Paste plants

### 7. Filtration
- New continuous pressure filtration technology
- Ecotails

### 8. Tailings management
- Smart tailings flowsheet (reduction of fines)
Towards zero-H$_2$O
How can a mine become water-neutral

**CURRENT**

Large paste thickeners
Retain 30wt% water
Smaller tailing dams downstream
Reuse of tailings in mine backfill

**2020**

Advanced large-scale filter presses
Retain 15wt% water
DST downstream
Industry adapting slowly

**2025**

Dry grinding and dry classification presses
Retain 10wt% water
Leverage experience from cement industry to develop new technology
DST downstream

**2050**

Dry mineral separation
Zero H$_2$O
No wet flotation
Breakthrough technology to be discovered
Dry waste downstream
Dry Stack Tailings are a step change in water management

| 2016 - 2017 | 2018 - 2020 | 2021 -  
| Testing pilot plant and optimisation | 1st full-scale pilot and demo plant | Commercialisation and market penetration |

- Potential savings in water costs in a typical mine: USD 81m/year → USD 1.2 bn over 15yrs mine life
- Estimated addressable market of 1.3-2 bn DKK (approx. 50:50 split CAPEX and OPEX) per year
- The <20 ktpd filtered tailings market is active; FLSmidth is winning projects
- Systems for Filtered Paste plants (Hindustan Zinc, Lundin Gold)
- Supply of world’s largest Paste Thickener system to Kazakhstan
- Collaboration with key customer on tailings (incl. a first order for 30 disc filters in Brazil)
- Continue development of filtration technologies for large scale tailings operations (>200.000 tpd)
- Work on full-size plants for dry stacking of tailings and eliminate the risks from wet Tailings Storage Facilities / Dams

2016 - 2017
Testing pilot plant and optimisation

2018 - 2020
1st full-scale pilot and demo plant

2021 -
Commercialisation and market penetration
Rapid Oxidative Leaching – a process for handling ‘difficult (oxide)’ and ‘polluted (arsenic)’ ores

### Addressable market:
- **Conversion of oxide to sulphide (50% of plants)** – CAPEX USD 1 bn over 10 yrs
- **10% of mines containing high arsenic** – CAPEX USD 1.5 bn over 10 yrs
- **Total estimated potential for RoL 1-2 bn DKK per year**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>Pilot plant</td>
</tr>
<tr>
<td>2018 - 2019</td>
<td>1st Demonstration plant</td>
</tr>
<tr>
<td>2020 - 2021</td>
<td>Full-scale project</td>
</tr>
</tbody>
</table>

- Successful completion of pilot plant testing
- Development, supply and start-up of demo plant in Peruvian Copper operation
- Continuation of testing for gold and other applications
- Realisation of full-size plant and proof of feasibility
- Commercialisation of applications in copper
- Demo plant in gold application and proof of technology

2017: Pilot plant
2018 - 2019: 1st Demonstration plant
2020 - 2021: Full-scale project
Energy savings and CO₂ reduction by
In-Pit Crushing and Conveying (IPCC) systems

- **Market / Application**
  - Deeper mines and higher production rates require more efficient material transportation
  - Market potential: 1-4bn DKK per year (<10% of conventional truck & shovel operations)

- **Highest grades of digitalization**
  - Continuous flow technology
  - IPCC systems are always semi or fully automatic

- **Direct reduction of environmental footprint**
  - Reduced CO₂ emissions through electric drives and limited use of diesel-powered trucks in mines
  - Water savings through less dust suppression

- **Reduced operational costs**
  - Less operations and maintenance personnel required
  - Less supporting logistics required, no haul-road maintenance

- **Increased safety**
  - Less mobile equipment and less room for human error
Mining revenue and EBITA margin

Revenue

<table>
<thead>
<tr>
<th>Year</th>
<th>Market growth</th>
<th>White Spots</th>
<th>New Technology</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>3-4%¹</td>
<td>3-4%¹</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

EBITA-%

<table>
<thead>
<tr>
<th>Year</th>
<th>Mix</th>
<th>Margin</th>
<th>Operating leverage</th>
<th>Mid-Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹) Average annual growth rate over the cycle

Size of bars does not reflect relative share
Thank you