Capital Markets Day – Driving sustainable productivity

Agenda

11.00 - 11.30  Driving sustainable productivity  (Thomas Schulz)
11.30 - 12.00  Driving financial performance  (Lars Vestergaard)
12.00 - 12.20  Coffee break
12.20 - 12.50  Cement market and strategy  (Jan Kjaersgaard)
12.50 - 13.20  Mining market and strategy  (Manfred Schaffer)
13.20 - 14.10  Lunch break and casual conversation with management
14.10 - 14.30  Digital drives productivity  (Mikael Lindholm)
14.30 - 15.00  Regional perspective  (Deon De Kock)
15.00 - 15.15  Break
15.15 - 16.00  CEO wrap up  (Thomas Schulz) and Q&As  (All)
16.00 - 17.00  Drinks and casual conversation with management
A journey to become Productivity Provider #1
Profitable growth through sustainable offerings

Past
- Engineering based legacy
- Global direct sales
- Competencies focused on Capital

Present
- Leading supplier of productivity
- Engineering, products and services
- Strong digital foundation and offering of sustainable solutions

Future
- “We drive success through sustainable productivity enhancement”

Life-cycle provider
Sustainability
Digital

FLSmidth CMD 2019 | Driving sustainable productivity
Industry trends and drivers

**Demand drivers**
- Growing wealth
- Rising population
- Urbanisation
- Electrification and renewable energy

**Supply trends**
- Scarcity of natural resources
- Depleting ore grades
- Increased technical complexity
- More remote locations

**‘Political barriers’**
- Tariffs and subsidies
- Import and export limitations
- Sanctions and embargoes
- Currency fluctuation

**Industry trends**
- Sustainability
- Efficiency
- Innovation and digitalization
- Full service supply
Market outlook

**Mining**

- **Growth cycle**
- **Declining ore grades**
- **Focus on sustainable productivity**

**Cement**

- **Modest market growth**
- **Focus on operations efficiency and reducing the environmental footprint**

**Forecast**

Source: Bloomberg, FLSmidth analysis
Our value proposition

Mining – copper cost curve (US cents/lb)

Cement – 2019 Free cash flow

Source: On Field
Competitive landscape

MINING

Exploration → Development → Extraction → Minerals material handling → Comminution → Beneficiation & Recovery → Refining & Smelting

- FLSmidth
- Metso
- Outotec
- ThyssenKrupp
- CITIC Heavy Industries
- Various others

CEMENT

Crushing → Material handling → Grinding → Pyro processing → Clinker cooling → Cement handling & packing

- FLSmidth
- ThyssenKrupp
- KHD
- Sinoma
- Various others

Single equipment
Growth outlook at previous Capital Markets Day
June 2017

Structural growth in our industries

Cement
3-4%

Mining
4-5%

Self-initiated growth

Cement
2-3%

Mining
3-4%

Combined growth

Cement
5-7%

Mining
7-9%

Growth rates per annum over the cycle

Cement
5-7%

Mining
7-9%

Growth Q2 2017 - Q3 2019

Cement
+8%

Mining
+9%

Average quarterly growth in order intake

Average quarterly growth in revenue
Cement -2%, Mining +7%
Financial performance

![Financial performance chart with data points and annotations]

- **Growth**: Selective
- **Gross margin**: Improve
- **SG&A costs**: Under control
- **Cash**: Focus to keep on track

Data points for years 2013 to 2019 with metrics such as EBITA margin, SG&A costs, and cash guidance.
Margin improvement is expected both medium and long term

- Full-year 2019 guidance of ~8%
- Medium-term target of ~10%
- Long-term target of 10-13% maintained
Strategic focus – sustainable profitable growth

ILLUSTRATIVE

- Profitability
  - Service: From to
  - Products: From to
  - Projects: From to

- Business model
- Organisation
- Digitalization
- Sustainability
Our earnings model

Vision: We drive success through sustainable productivity enhancement
The new structure provides many benefits and highlights opportunities

**Opportunities**
- White spot targeting
- Better and faster service
- Shorter delivery and quotation time
- Improved wear parts portfolio
- Go-to-market and service based on installed base insights
- Full flowsheet offering to all customers
Digitalization brings large opportunities

- Equipment lasts longer and performs better, reducing CAPEX spend
- Condition monitoring and predictive maintenance reduce OPEX spend

New data-based opportunities
Increase sales and market coverage through new, digitally enabled premium equipment

Increase wallet share on existing equipment through connectivity and closer customer relations

Equipment
Services
Connected Equipment
Smart Services
New bus.
## Sustainability as a business opportunity

**Our impact across the value chain**

<table>
<thead>
<tr>
<th>Impact</th>
<th>Ambition</th>
<th>Control by FLSmidth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliers</td>
<td>Medium</td>
<td>Partial</td>
</tr>
<tr>
<td>FLSmidth</td>
<td>Small</td>
<td>Above industry standards</td>
</tr>
<tr>
<td>Customers</td>
<td>Large</td>
<td>Best-in-class</td>
</tr>
<tr>
<td></td>
<td>Indirect</td>
<td></td>
</tr>
</tbody>
</table>

- **FLSmidth’s annual CO₂ footprint** (scope 1 & 2) equals **one month** of operation for an average newer European cement plant (3,500 tpd)
- **FLSmidth’s annual water consumption** equals **two weeks** of operation for a copper mine (100,000 tpy)
We drive success through sustainable productivity enhancement

Our sustainable ambition for 2030:

Towards zero emissions in mining and cement
Sustainability and digitalization expand the gap between premium and mid-market
A journey to become Productivity Provider #1
Profitable growth through sustainable offerings

Past
- Engineering based legacy
- Global direct sales
- Competencies focused on Capital

Present
- Leading supplier of productivity
- Engineering, products and services
- Strong digital foundation and offering of sustainable solutions
- “We drive success through sustainable productivity enhancement”

Future
- Life-cycle provider
- Sustainability
- Digital

Regions
Key messages

- Enhanced **data transparency** enabling a better assessment of performance in profit and cash

- Driving performance and service growth through **benchmarking** across regions and industries

- Maximising synergies from **simplified footprint**

- Driving **back office efficiency** through global functional cost owners and consolidation

- Strong focus on **cash conversion**
Driving performance through two industries and seven regions

BEFORE – 4 main P/L

Cement

Customer Services

Minerals

Product Companies

Projects & Engineered Products

Service

Projects & Engineered Products

Products

Sales & O&M regions

Sales & service regions

Sales regions

Sales & service regions

Countries

Group Functions

Customers

AFTER – 2 main P/L

Cement

Mining

Life-cycle ownership

Life-cycle ownership

Regions

Digital

Group Functions

Focus today

Customers
## Enhanced data transparency

Better assessment of types of business and implications for profit and cash

Industry ownership of lifecycle offering

<table>
<thead>
<tr>
<th>Type of business</th>
<th>Gross margin</th>
<th>Working capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projects</td>
<td>Low</td>
<td>Low to negative</td>
</tr>
<tr>
<td>Products</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spare parts</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Wear parts</td>
<td>Medium / High</td>
<td>High</td>
</tr>
<tr>
<td>Services</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Upgrade &amp; retrofit</td>
<td>Medium</td>
<td>Low</td>
</tr>
</tbody>
</table>

Revenue split YTD 2019

- Projects: 33%
- Products: 13%
- Service: 54%

*Indications are relative to FLSmidth*
Regional benchmarking
Data to drive service growth in all regions

Service
- Grow recurring business
- Targets based on market potential, not previous growth rates
- KPI: Growth in order intake

Capital
- Growth targets based on hotlist and potential
- Industries provide global pool of resources for project execution
- Product line management centralised in industries
- Profit above growth in Cement
Benchmarking contribution margins across regions

- Contribution margins are split into six order types on both revenue and order intake (Backlog)
- Ability to benchmark contribution margins across regions by order types
- Mix impacts can be eliminated in performance management discussions
- Regional difference can be used to improve and learn from each other
Benchmarking across regions and industries

Main KPI Group / Industries
- Order intake
- EBITA
- CFFO / NWC

KPIs sales regions
- Order intake by industry
  - Service
  - Capital
- Business result (excluding global costs)
- Regional SG&A cost
- CFFO / NWC
Procurement focus areas to support offering types
Leveraging category management and efficiency from global structure across both industries

- **Product line procurement**
  - Support PLM in standardisation and modularisation of products
  - Shared components, uniform quality and shorter lead times
  - Agile and flexible supply chain incl. manufacturing for fast response

- **Project management procurement**
  - Early involvement in sales phase
  - Coordinated purchase, logistics, expediting and quality control
  - Efficient use of local regional low cost sourcing for steel structures etc.
  - Leveraging of Product line procurement for fast track of long lead items

- **Aftermarket procurement**
  - Speed
  - Regional suppliers for engineered parts and global for repetitive parts
  - Pricing models
  - Distribution centers for standard spare- and wear parts
FLSmidth Qingdao assembly center
Strategic location to serve global customers with competitive quality products, spare- and wear parts and improve DIFOT

More than 30 strategic Mining and Cement products with associated spare- and wear parts have been moved to Qingdao with new developed supply chain and BOT automation

Synergies from simplified footprint

Consolidate assembly into centres in China and India

Enhance external supplier and distribution network

Consolidate regional footprint
Higher efficiency through Digital

Product knowledge + Connected products + Advanced analytics

Better, data-driven sales leads

Higher share of wallet

Better forecasting & prediction of required parts

Lower inventory
Higher efficiency through Digital

More automation
= higher efficiency
= improved quality
= better compliance

Processed 10,000 purchase order lines per month (20% of total lines) in October 2019

Average TAT (turnaround time) for converting requisition to purchase order is < 12hrs

Average process time to create a PO is between 5-14 minutes
Driving efficiency in back office

Global functional cost owners

- Optimise across region, industry and Group
- Drive structural improvements
  - Shared services
  - Centres of excellence
  - BOTs

Regions

- Consolidate ERP in regions
  - E.g. North America: 6 into 1 (2 more in 2020)
- Consolidate skills into regional HUBs
SG&A managed tightly throughout the organisation

Administration costs
- Increased investments in digitalization
- Common ERP enables more shared services
- Ambition to manage independently of revenue in growth periods
- Site consolidation a substantial enabler

Sales
- Continued white spot investments
- Industries to provide technical sales support to regions to enable scale benefits
- Shared service centre drives efficiency in sales support
Strong focus on cash conversion

- We delivered strong cash generation during the mining downturn (2014-2017)
- 2018 was an exception, partly due to our sold-off bulk material handling business
- We are committed to continuing the strong track record of high cash conversion
- Our target is to keep CFFI at or below the level of depreciations and amortisations less IFRS 16 leases and purchase price allocations

* Continued business only from 2015 and onwards
** Average cash conversion 2014-2018 adjusted for change in net working capital and provisions
Depreciations and amortisations
Low share of in-house manufacturing – target to keep investments below D and A

![Graph of CFFI and Depreciations – Tangible assets](image1)

![Graph of CFFI and Amortisations - Intangible assets](image2)
Lifetime of a warranty provision

Warranty provisions

- Estimated based on historical realised costs
- "Additions" based on percentage of completion for projects and at shipment for invoicing principle (proportional to revenue)
- "Used" is independent of current revenue and based on claims for finalised projects
- "Reversals" are independent of current revenue and based on expiry of warranty period

Other provisions

- For example disputes and tax risks
- Build up when risk occurs
The benefits of supply chain financing

Supply chain financing

- The effect on trade payables (net working capital) from the SCF program is calculated daily and included in FLSmidth's liquidity buffer.

Example:

- Industry standard
- Loyalty programme with core suppliers
- Extended credit at no cost
- Utilising the difference in credit quality
Strong maturity profile on debt facilities

- Primary funding facility is a DKK 5bn RCF from Core banking group:
  - Danske Bank, Nordea, HSBC, Handelsbanken, Commerzbank and BNP
- Extension options (2 times 1 year)
- Strong support from core banking group and other banks
- Pari passu amongst banks

Maturity of funding facilities

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The road to higher profitability

Q3
- Mining project cost overruns of DKK 70m
- Lower margin in mining backlog
  - DKK 120m in 2020 or 1% on mining EBITA
- Under absorption

Activities to bring EBITA back on track
- Consolidate project execution into HUBs
- Business improvement initiatives
- Service growth
  - Order intake is DKK 450 higher than revenue

How do we get to higher EBITA margins?
- Prioritise service growth
- Mining capital margin
- Grow topline
- Operating leverage (manage SG&A)
- Efficiencies (footprint and scale)
Key highlights

- Enhanced data transparency
- Efficient back office
- Footprint optimisation
- Driving performance through benchmarking
- Focus on cash conversion
Key messages

- The market provides underlying stable growth in cement demand driven by GDP growth, urbanisation and infrastructure investments.

- **Industry transformation** from traditional stand-alone technologies to fully integrated, digitalized manufacturing to optimise cash, profitability, labour intensity and to cope with sustainability demands.

- FLSmidth in strong position as **Productivity Provider #1** to address industry need for integrated sustainability and digitalization solutions.

- The strategy to grow Service, Upgrades and Products – and a selective focus on premium Projects – will drive a more stable and higher-margin portfolio with a larger service share, profit above growth.
Cement is fundamentally an attractive industry

- Most emerging markets still have a consumption level significantly below the peak
- Economic and political factors influence the timing and location of market activity

Note: Highlighted countries are illustrative examples of potential growth and do not represent a particular analysis; Some countries omitted due to small size.
Source: Global Cement Review; Global Cement Directory; World Bank; OnField Research; FLSmidth analysis.
FLSmidth has a good opportunity to grow – particularly in Service

Cement Projects, Products and Service available market estimate (2018, DKK bn)

- Large untapped accessible market in Parts, Services, Upgrades and Retrofits – both on own and competitor installed base
- Potential to maintain market share in projects and capture more product opportunities
- The demand for sustainability solutions is a potential for FLSmidth entering into new markets with customers that are today not part of the accessible market

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 Western suppliers in capital and FLSmidth + portion of competitor installed base in Service. Source: FLSmidth analysis
Industry trends with strong focus on sustainability

- Historical capacity expansion has led to regional overcapacity
- Surplus capacity has resulted in regional pressure on cement prices and margins
- Increased difficulties in attracting skilled labour and talent
- Ongoing and increased focus on sustainability from regulators, societies and investors
Selected elements

Cement strategy

- **Service**
  - Integrated lifetime offerings
  - Customer proximity through strong regions

- **Capital**
  - Boost products by configure-to-order and sustainability
  - Selective approach on premium projects

- **Sustainability**
  - Clear ambition to drive the cement industry towards carbon-neutrality and zero emissions

- **Digitalization**
  - Condition monitoring facilitating intelligent preventative maintenance, data analytics and process optimisation

Strong focus on cash and profitability through productivity sustainability and digitalization
Service: Multiple regions with high activity create a solid business potential

- India, CIS and Southeast Asia will be a growth engine with strong activity
- Modest demand growth and high utilisation levels in parts of Europe and Americas
- Sub-Saharan Africa likely to become more active through Chinese ‘One Belt One Road’ investments
- Our regional setup provides closer customer proximity and white spot coverage

Areas where the combination of installed base size, sustainability focus, expected demand growth and utilisation increase can create opportunities in service

Global capacity utilisation (excl. China)

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2018</th>
<th>2023E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilisation</td>
<td>68%</td>
<td>62%</td>
<td>65%</td>
</tr>
</tbody>
</table>

Source: FLSmidth analysis; OnField Research; CW Research
**Capital: Larger projects driven by local dynamics, products also by sustainability and productivity**

### Cement demand
- Overall, **moderate demand growth** is expected short-term, with some **strong geographical pockets**
- **Political and economic uncertainty** impact investment appetite in construction and infrastructure
- The increase in demand is expected to lead to **regional cement price increases** – improving appetite for capital investments

### Opportunities for capital:
- Investments in new capacity projects are expected in **select geographical pockets**
- The products business is supported by projects, need for **replacements in the installed fleet** as well as sustainability-driven impacts
Sustainability deep-dive: Regulations and CO₂ allowance prices are ramping up

Many countries already adopting carbon tax or emission trading schemes

ETS and/or carbon tax adopted or scheduled

Source: World Bank carbon pricing dashboard; Markets Insider

EU: Surge of CO₂ allowance price can create a large extra cash cost for cement production

1t of cement produces 600-700kg CO₂

⇒ 17EUR additional cash cost today for each ton of cement
Potential environmental and business impact

What if the cement industry would reduce its CO₂ footprint by using FLSmidth equipment and solutions?

Global CO₂ footprint
- 2.6bn t/year
- 2.3bn t/year

CO₂ emissions per ton of Cement
- 600-700kg
- 500-600kg

Cement industry share of global CO₂ emissions

<table>
<thead>
<tr>
<th>Impact of 1% difference</th>
<th>CO₂ reduction per year</th>
<th>Equivalent to</th>
</tr>
</thead>
<tbody>
<tr>
<td>8%</td>
<td>7%</td>
<td>300 Mt</td>
</tr>
</tbody>
</table>

- 485,000 km² of forest could absorb = an area larger than Germany
- 258M households’ annual electricity use powered by fossil fuels
- DKK 40m annual savings on CO₂ spend in a 6,000 tpd cement plant
Our main sustainability ambition in Cement is to enable our customers to become carbon-neutral.

How could a cement producer become carbon-neutral?

<table>
<thead>
<tr>
<th>What generates the CO₂?</th>
<th>What are the levers to address the issues?</th>
</tr>
</thead>
<tbody>
<tr>
<td>13% Power supply</td>
<td>Renewable power</td>
</tr>
<tr>
<td>32% Burning fuels – heat generation (coal, coke or gas)</td>
<td>Alternative fuels</td>
</tr>
<tr>
<td>55% Process emissions (high-temperature calcination)</td>
<td>Cement producers drive carbon-neutral cement production</td>
</tr>
<tr>
<td></td>
<td>FLSmidth provides key technology and solutions</td>
</tr>
<tr>
<td></td>
<td>Low-emission products</td>
</tr>
<tr>
<td></td>
<td>Clinker substitution</td>
</tr>
<tr>
<td></td>
<td>Carbon capture &amp; offsetting</td>
</tr>
</tbody>
</table>

What generates the CO₂?

- **Power supply**: 13%
- **Burning fuels – heat generation (coal, coke or gas)**: 32%
- **Process emissions (high-temperature calcination)**: 55%

What are the levers to address the issues?

- **Renewable power**
- **Alternative fuels**
- **Clinker substitution**
- **Carbon capture & offsetting**
- **3rd party collaboration**
- **High-efficiency products**
- **Low-emission products**
- **FLSmidth provides key technology and solutions**

How could a cement producer become carbon-neutral?

- Cement producers drive carbon-neutral cement production
- FLSmidth provides key technology and solutions
- 3rd party collaboration
- Renewable power
- Alternative fuels
- Carbon capture & offsetting

Our main sustainability ambition in Cement is to enable our customers to become carbon-neutral.

Cement producers drive carbon-neutral cement production

FLSmidth provides key technology and solutions

3rd party collaboration
FLSmidth portfolio strongly supports the sustainability ambition

Calciner upgrades/replacements, incl. ow-NOx calciner, SCR solutions, SNCR, filter conversions, forthcoming technologies

Energy efficiency

Clinker substitution

Emissions

Grinding systems, coolers top cyclones, burners, fan upgrades, power efficiency upgrades in other key equipment

Clay calcination, blending systems

Alternative fuels

Hot disc, bypass & dust washing, AF handling/dosing/storage/drying, ash compensation, forthcoming technologies

Process optimisation

Automation upgrades, robotised labs, remote monitoring

Grinding systems, coolers top cyclones, burners, fan upgrades, power efficiency upgrades in other key equipment

Clay calcination, blending systems

Automation upgrades, robotised labs, remote monitoring
## Sustainability drives business opportunities for FLSmidth in all business areas

<table>
<thead>
<tr>
<th>Upgrades</th>
<th>▪ Reduction of carbon and other emissions is a significant business opportunity requiring integrated upgrades and retrofits</th>
</tr>
</thead>
</table>
| Products | ▪ Increased focus on work environment generates business in packaging and filtering  
▪ Energy efficiency and process optimisation supports most product lines including digital solutions and automation |
| Services | ▪ More advanced operations require intelligent preventative maintenance and spare part solutions for the full plant  
▪ Remote monitoring, data analytics and process optimisation |
| Projects | ▪ More demanding environmental regulation can make new brown- or greenfield lines more attractive than lifetime extensions  
▪ Tighter CO₂ regulation can drive increased demand for grinding stations |
Optimising operations through Digital

Increasing share of alternative fuels leads to higher process variability

Advanced process control systems stabilise and optimise process

Multi-objective control

→ Enables up to 100% alternative fuels
→ 2-5% reduction in emissions
→ 2-6% production increase while maintaining product quality
Optimising operations through Digital

- Process knowledge
- Cloud and analytics platform
- Real-time monitoring and finetuning
- Optimisation solutions
- 24/7 remote service centre
- Data science

Implemented for >200 plants globally
Cement revenue and EBITA margin

Revenue

2019 Market growth Projects White Spots New Technology Service

1-2%\(^1\) 1-2%\(^1\) 2-4%\(^1\)

1) Average annual growth rate over the cycle

Size of bars does not reflect relative share

EBITA-%

2019 Mix Margin Operating leverage Mid-Term

7-8%

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Thank you
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

**Global Run of Mine Production**

Sources: GlobalData, Fitch Ratings
Mining market development example: Copper focus

Economic downturn puts pressure on copper prices

10.6% YOY increase in Chinese concentrate imports from January to August.

8% forecast price decline in 2019

Copper discoveries few and far between

Industry Head Grade Trends (Weighted Paid Copper)

Demand will outstrip supply in 2022
FLSmidth has a large opportunity to grow in Service

**Estimated Mining CAPEX**
(SUSTAINING AND EXPANSION) AVAILABLE MARKET ESTIMATE (2018, DKKbn)

- **Available market**: ~120
- **Accessible market**: ~55
- **Capital accessible market**: 15-20
- **Service accessible market**: 35-40

**Estimated Market Shares**
(TOTAL AVAILABLE MARKET)

- **FLSmidth Mining Capital, Products and Services**: 34%
- **Main peers**: 79%
- **Others**: 55%

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.
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’**
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

WEAR PARTS GROWTH

- 2017
- 2018
- 2019 Est
- 2020 FC

+7% p.a.  +10%
Delivering customer productivity through connected products and bundled services

Focus of this presentation

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

Customer productivity
Increasing uptime through digital

**Connected product**

- Sends data

**Cloud and analytics platform**

- Analyses & predicts
- Triggers alert

**24/7 remote service centre**

- Orders parts
- Schedules service visit

**Order handling**

- 24/7 remote service centre

**Field service engineer**

- Requests remote assistance if needed

**Real-time asset report**

- Cloud and analytics platform

**Order handling**

- 24/7 remote service centre

6 November 2019
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>
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</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>• Smart tailings flowsheet (reduction of fines)</td>
<td></td>
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</tbody>
</table>
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

<table>
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<tbody>
<tr>
<td>Testing pilot plant and optimisation</td>
<td>1st full-scale pilot and demo plant</td>
<td>Commercialisation and market penetration</td>
</tr>
</tbody>
</table>

- 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 - 2020
- Commercialisation and market penetration

- Potential savings in water costs in a typical mine: USD 81m/year → USD 1.2 bn over 15yrs mine life
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Rapid Oxidative Leaching – a process for handling ‘difficult (oxide)’ and ‘polluted (arsenic)’ ores

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</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>

**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

- 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
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

Fully Mobile crushing system operating directly with the shovel on the bench. No trucks needed!
Mining revenue and EBITA margin

Revenue

- 3-4\(^1\)
- 3-4\(^1\)
- 6-8\(^1\)

EBITA-%

- 11-13%

1) Average annual growth rate over the cycle

Size of bars does not reflect relative share
Thank you
Mikael Lindholm, Group CDO

DIGITAL DRIVES

PRODUCTIVITY

6 November 2019
Accessing 137 years of installed base

- Connects products and plants to FLSmidth’s digital infrastructure
- Seamlessly integrates with FLSmidth’s control systems, making existing data and signals available
- Easy to retrofit
SiteConnect
Insights on the go

- **Full transparency** on machine, process, and plant KPIs, in real-time

- **Mobile notifications** when user-defined events occur, e.g. downtime and production shortage

- **Compare performance between assets and plants** to identify higher/lower performing equipment
Key messages

- **Process optimisation** and **asset health** are key areas to drive **productivity** and **sustainability** for our customers – FLSmidth is enabling our customers to use this opportunity through digitalization.

- FLSmidth is leveraging digital to **differentiate our premium offering** and **capture a larger part of the service business**.

- We are driving **innovation in digital** and extending our access to new technology, talent and competences in Cement and Mining.
Today’s focus:
Our offerings and solutions

Focus areas

Offerings and solutions
Customer experience
Business operations

Enablers
Data and systems foundation
Culture and capabilities
Our digital solutions target three levels

**Product level**

**Flow-sheet level**

**Plant level**
Our digital business offerings

Plant control
Process optimisation

Digital Services
Operational insights / KPIs
Remote monitoring
Remote optimisation
Remote troubleshooting
Predictive maintenance
...

Plant

Cloud

Machines

Machine control
Machine optimisation
Autonomous operations
Condition monitoring
Outlook: full end-to-end integration
Part of a greater ecosystem

Integration upstream and downstream adjusting production to balance supply and demand

Building and orchestrating an ecosystem, leveraging platforms and blockchain
Cement and Mining catch up in digital adoption - many other industries to learn from

Stage 1
Digital impact mostly in operations and cost reductions, still limited digital disruption

Stage 2
Digital engagement with customers increasingly important, personalisation using advanced data analytics

Stage 3
Advanced technologies and data analytics consistently deployed to find competitive advantages

Industries:
- Construction
- Oil & Gas
- Pharma
- Transport & Logistics
- Healthcare
- Education
- Airlines
- Auto
- Banking
- Retail
- Telco
- Media
- Industrial Processing
- Transport & Logistics
- Healthcare
- Education
- Airlines
- Auto
- Banking
- Retail
- Telco
- Media
Digitalization is a productivity opportunity

Value for our customers

Potential economic impact of sized applications in Mining in 2025 ($bn)

- Operations management
- Equipment maintenance
- Health and safety
- Equipment supply
- Human productivity

<table>
<thead>
<tr>
<th>Category</th>
<th>Economic Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total industry economic impact:</td>
<td>USD 370bn</td>
</tr>
<tr>
<td>Productivity opportunities for customer operations</td>
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</table>

5-10% higher yield
10-20% increased availability
10-25% cost reduction in maintenance

Source: McKinsey
Cannibalisation is a business opportunity

Equipment lasts longer and performs better, reducing CAPEX spend
Condition monitoring and predictive maintenance reduce OPEX spend

New data-based opportunities
Increase sales and market coverage through new, digitally enabled premium equipment
Increase wallet share on existing equipment through connectivity and closer customer relation
Value creation: previously the product was the end of the user experience – now it is the starting point

"Traditional" equipment sale

- Design
- Manufacture
- Sell

Purchase occasion

Reactive support in case of problems with the product

Solution selling with connected equipment

- Operational performance improvements
- Trouble shooting 24/7
- Asset health
- Upgrades

6 November 2019 FLSmidth CMD 2019 | Digital powers Productivity
FLSmidth’s unique position
Combining product, process, service and digital

PRODUCTIVITY
(e.g. throughput)

Current performance
+10-20%
Mechanical & operational improvements
Digital (APC, AI, Predictive Maintenance)

Product, service, process knowledge
Improve maintenance and operational procedures

+ digital and analytical knowledge
Data-driven optimisation and finetuning, implementation through control systems
Example: Flotation optimisation in Mining
Improve recovery & reduce reagents consumption

“Smart Flotation” package
- Improves recovery
- Delivers higher grade product
- Enhances flexibility
- Reduces use of reagents
- Improves control

Economics
- Recovery rate up 3.0% → up to DKK 20m revenue increase p.a.
- Reagents consumption reduced by up to 25%

☑️ Productivity
☑️ Sustainability
☑️ Service opportunity for FLSmidth
Example: Fabric Filter optimisation in Cement
Reduce power consumption and increase bag life

EVO II machine control system
- Reduces fan power and compressed air consumption
- Extends filter bag life
- Enables remote filter monitoring and fine-tuning
- Easy to retrofit

Economics
- 10-15% energy savings\(^1\)
- 25% longer bag life
- Bundling with service contracts and filter bags

Productivity

Sustainability

Service opportunity for FLSmidth

1. Energy savings depending on filter size
Number of connected assets grows continuously

**Status**
- >750 assets connected last 12 months
- >200 plants served with remote monitoring and optimisation service packages

**Outlook – next 3 years**
- All new equipment is connected
- 25% of installed base retrofitted
Driving innovation in Digital
Access to new technology, talent and capabilities

**Partnerships**
Partner with market-leading providers of digital technologies and solutions to **pilot and scale** applications

**Intrapreneurship**
Identify and incubate new business models based on **expertise at the core of our business**

**Investments**
Invest in **edge and transformational technology models** that will be relevant for FLSmidth in the future

**Focus technologies**
- Artificial Intelligence
- Data Analytics
- Internet of Things
- Blockchain
- Sensors & Components
- Adv. Materials & Chemicals
- Robotic Systems
- Resource Productivity
Thank you
Deon De Kock, President Sub-Saharan Africa & Middle East

A REGIONAL PERSPECTIVE
Implementation of Productivity at Work: Two industries, seven regions, one digital approach

BEFORE

Cement
- Projects & engineered Products
- Sales & O&M regions

Customer Services
- Service
- Sales & service regions

Minerals
- Projects & engineered Products
- Sales regions

Product Companies
- Products
- Sales & service regions

GROUP FUNCTIONS
- Countries
- Customers

AFTER

Cement
- Life-cycle ownership
- Regions
- Sales & service ownership
- Digital
- Group Functions

Mining
- Life-cycle ownership

Customers
Sub-Saharan Africa & Middle East

SSAME REGION

~ 800 employees in 24 locations

3 manufacturing & assembly plants

15 Sales & Service units in 8 countries

More than 60% of Customer Facing

MINING

395 Operational mines

1 Billion tons p.a.
Minerals processed

Share of global production:
Coal – 4%
Gold – 14%
Diamonds – 50%

14% FLSmidth share of installed base

CEMENT

289 Cement plants

269M tons p.a.
Cement production

468M tons installed capacity

7% share of Global production

18% FLSmidth share of installed base

Figures are 2018 estimates based on external sources and FLSmidth analysis
Immediate impact from new way of working

- Focused on “white spot” coverage and total FLSmidth installed base
- 4-Tier Sales and service organisation
- Sales force mobilisation and extensive product training
- Field service capacity and frontline expertise strengthened
- Direct sales channels and optimised sales hubs
- Increased number of customer-facing team members
- Shared strategic support functions throughout SSAME
- Closed down 1 non-core plant and DOUBLED Super Center capacity
Direct sales channels in Ghana and West Africa

Established: 2018
Head Office: Accra
# Employees: ~15
General Manager: Joseph Appiah-Kubi
Market and opportunity for growth
Ghana & West Africa

Market information
- Gold – 5 top-tier companies active
- Cement – 2 top-tier companies active
- Demand & opportunity for OEM support
- More than 60 active mines
- Increased exploration activities
- Significant FLSmidth installed base
- Cement - Competitor installed base
- Increased production, recommissioning

Investment into local presence and resources
- Clients expect local expertise, better lead times & on-site service
- Minerals Counsel & Legislation

Accessible Market: Continued growth
Target: 40% Growth in OI
Run Rate: 60% Growth in OI
First full year in operation

Beyond 2021
2020
2019
2018
Covering the “white spots”

Saudi Arabia

Established: 2018  
Head Office: Al-Khubar  
# Employees: ~ 50  
General Manager: Abdullah Al-Muhaisen
Closer relationships with Yanbu Cement
Saudi Arabia

FLSmidth Plant Management Contract.
Staff Complement
33 people

Joint Venture Training Academy
Yanbu Cement Co & FLSmidth
Market and opportunity for growth
Saudi Arabia

Market information
- Vision 2030 – Kingdom of Saudi Arabia
- Mining 3rd pillar of economy - $400 bn
- Gold 3-fold increase to 1m ounces p.a.
- Phosphate add 3mtpa. Top 3 Global
- Stable cement production
- Small installed base for mining
- Cement - Competitor installed base
- World class local cement producers

Investment into local presence and resources
- Client demand, local legislation & more open business environment
- Big opportunity, first mover gains

Accessible Market: Continued growth
Target: 50% Growth in OI
Run Rate: Double OI
First half-year of Operations
Beyond 2020
Digitalization – Working closely with customers in South Africa

BULK EXPERT SYSTEM
Train Load Out Station & Unmanned Stockyard Solution
Postmasburg, South Africa

- Control and optimisation of the train loading process
- Stockyard Bulk Expert for two stackers and one reclaimer
- Currently being commissioned

Reflux Classifier Modular Plant
Sibanye Stillwater Watererval UG2 Site, Rustenburg - RSA

- First unit installed at Glencore/Impala
- Data collected Mar-Sep 2019
- Integrated monitoring on mobile app

IOT – Field agents
Cement Plant Lichtenburg – RSA

- Field Agent & Broker PC installed August 2019
- Recording plant data since October 2019
Sustainability
Waste chrome recovery project
POSITIONED AS SUSTAINABLE PRODUCTIVITY PROVIDER #1

New way of work successfully implemented

Staffed with due regard – Regions & Industry

“White spots” being covered with customer focussed organisation

Positioned to offer life-cycle support and full offering

Strong Service business growth

Great Team with Fighting Spirit in 7 Regions
Final word… from our customers!

“Happy to see new technologies presented, didn’t know what FLS was doing or if there are any new developments in the cement industry.

Today interactions are much more frequent and more offerings of solutions and services are exchanged, new or different faces are reduced significantly”

Cement customer, PPC, South Africa.

“Dealing with regional team support business relation with faster reply and customize solution based on local experience.”

Cement Customer, Rak White Cement, United Arab Emirates

“We believe this a good strategy. This was long overdue. We always wanted to talk to only one office for all our products and your entire (FLSmidth) offering.”

Mining customer, AngloGold Ashanti Head office, South Africa.

“We till the new way of working, I was not aware of all the products FLSmidth offered.”

Mining customer, Senet Head office, South Africa.
Thank you
FLSmidth has a large growth potential - particularly in service

**Mining**
Estimated Mining CAPEX (sustaining and expansion) available market estimate (2018, B DKK)

- Available market: ~120
- Accessible market: ~55
- Capital accessible market: 15-20
- Service accessible market: 35-40

Future potential: 55% (Mining)

**Cement**
Cement Projects, Products and Service available market estimate (2018, B DKK)

- Available market: 95-100
- Accessible market: 35-45
- Capital accessible market: 15-20
- Service accessible market: 20-25

Future potential: ~60% (Cement)

FLSmidth CMD 2019 | CEO Wrap up
We drive success through sustainable productivity enhancement

Our sustainable ambition for 2030:

**Mission Zero**

Towards zero emissions in mining and cement
A strong digital foundation
Digitalization is a big productivity driver and a big opportunity for FLSmidth to increase wallet share

Status – over the last year
>750 assets connected
>200 plants served with remote monitoring

Outlook – next 3 years
Every new piece of equipment is connected
25% of installed base retrofitted
Enhanced data transparency to drive financial performance
An organisation which supports increased sale of products and services

Examples of white spots

Ghana & West Africa
- Ghana
  - Accessible Market: Continued growth
  - Target: 40% Growth in OI
  - Run Rate: 60% Growth in OI
  - First full year in operation

Saudi Arabia
- Accessible Market: Continued growth
  - Target: 50% Growth in OI
  - Run Rate: Double OI

Groups Functions
- Digital
- Projects
- Services
- Products
- Regions
- Mining
- Cement

Customers
Mining revenue and EBITA margin

Revenue

- 3-4%¹
- 3-4%¹
- 6-8%¹

EBITA-%

- 11-13%

¹) Average annual growth rate over the cycle

Size of bars does not reflect relative share
Cement revenue and EBITA margin

Revenue

- 2019 Market growth: 1-2%^1)
- Projects: 1-2%^1)
- White Spots: 2-4%^1)
- New Technology: 7-8%
- Service: 7-8%

EBITA-%

- 2019 Mix: 1-2%^1)
- Margin: 7-8%
- Operating leverage: 7-8%
- Mid-Term: 7-8%

1) Average annual growth rate over the cycle

Size of bars does not reflect relative share
Group targets

- Revenue growth above market
- EBITA margin 10-13%
- ROCE >20%

Average for the period

Forecast

Size of bars does not reflect relative share
A journey to become Productivity Provider #1
Profitable growth through sustainable offerings

Past
- Engineering based legacy
- Global direct sales
- Competencies focused on Capital

Present
- Leading supplier of productivity
- Engineering, products and services
- Strong digital foundation and offering of sustainable solutions

Future
- "We drive success through sustainable productivity enhancement"

Sustainability
- Life-cycle provider

Digital

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