MTU Aero Engines AG – Investor & Analyst Day 2020
Agenda

1. MTU’s Market Environment | COVID-19  
   Reiner Winkler | Chief Executive Officer (CEO)

2. Product Portfolio | Opportunities  
   Michael Schreyögg | Chief Program Officer (CPO)

3. Technology Roadmap | Cost Leadership  
   Lars Wagner | Chief Operating Officer (COO)

4. Financials | Outlook 2021  
   Peter Kameritsch | Chief Financial Officer (CFO)

5. Executive Summary  
   Reiner Winkler | Chief Executive Officer (CEO)

Q&A Session
MTU´s Market Environment | COVID-19

Reiner Winkler | Chief Executive Officer (CEO)
An entire industry is on the test bench.
Flights matter more to our business than headline traffic figures

### Passenger traffic and capacity
YTD, Jan – Sep

<table>
<thead>
<tr>
<th></th>
<th>Global</th>
<th>International</th>
<th>Domestic</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPK</td>
<td>-65%</td>
<td>-72%</td>
<td>-51%</td>
</tr>
<tr>
<td>ASK</td>
<td>-56%</td>
<td>-66%</td>
<td>-38%</td>
</tr>
</tbody>
</table>

- RPK ■ ASK

- Capacity (ASK) is not performing as bad as traffic (RPK)
- Domestic markets have been a focus for many airlines as the global pandemic continues to batter international travel

### Passenger aircraft flight cycles
YTD, up to CW 44

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Single-aisle</th>
<th>Twin-aisle</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPK</td>
<td>-48%</td>
<td>-47%</td>
<td>-53%</td>
</tr>
<tr>
<td>ASK</td>
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</tbody>
</table>

- Flights or cycles are important to MTU's business
- Flight cycles from passenger aircraft about 50% below 2019 levels

Source: IATA, FlightRadar24
Global passenger flights have plateaued since August, Asia, led by China, recovers faster

**Worldwide flight cycles year-on-year by week**

- **World**: -48% (Passenger), +16% (Cargo)
- **Asia (incl. China & Asia-Pacific)**: -42% (Passenger), +30% (Cargo)
- **Europe**: -60% (Passenger), +6% (Cargo)
- **North America**: -43% (Passenger), +14% (Cargo)

*Cargo: Traffic from purpose-built cargo aircraft, excluding belly freight and passenger models
Source: FlightRadar24, MTU
Domestic passenger flights in China have now recovered – so have V2500 and GTF there

△ Flights year-on-year by week

Market development

- China Southern Airlines became first of “Big 3” to return to operating profit in last quarter with ~40% revenue decline; other carriers narrowed losses.
- China’s October 2020 Purchasing Manager Index (PMI) reaches highest level in ten years (51.4), indicating strong pace of Chinese economic recovery. Values >50 indicate economic expansion.
- Infection cases edging up on very low level – recent reports of 30-50 new cases on most days. Only 4 new deaths in last 50 days per WHO data.

*Cargo: Traffic from purpose-built cargo aircraft, excluding belly freight and passenger models
Source: FlightRadar24, MTU
Latest MTU engine models are recovering the fastest

Development of flights with PW1100G-JM

Development of flights with GEnx-1B/-2B

Source: FR24 tracked flights year-on-year by week 2019 vs. 2020; Number of flights from 2020

Source: FR24 tracked flights year-on-year by week 2019 vs. 2020; Number of flights from 2020
MTU benefits from an above-average share of engines in freight service

Cargo flights until CW44 vs. 2019

- In the absence of belly capacity, dedicated freighters saw a jump in flight activities with +16% y-o-y
- Only 9% of freighters are parked compared with 33% for passenger aircraft (September 2020)

Airliner fleet breakdown by usage

- 35,000 aircraft* in service in September 2020 of which 14% is exclusively cargo service
- 10,000 aircraft with MTU engines with a higher share of engines in cargo service (22%)

MTU engines on dedicated freighters

- 2,200 MTU freighter engines have remained in service since 2019, mostly on Boeing 757, 767, 747
- Even modern passenger Boeing 787s were employed as "preighters" to carry cargo on the main deck

Source: IATA, Cirium Fleets Analyzer | *Airbus and Boeing passenger and freighter aircraft

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The pandemic is going to keep interest rates and oil prices low, supporting our industry

- US interest rates are being reduced, supporting the OE backlog
- Lessors can use their credit rating to access cheap capital and acquire aircraft owned by distressed airlines through sales and lease back deals

US interest rates (fed fund rate upper bound) [in %]

- After OPEC+* nations restrained their production and major economies gradually lifted Covid-19 restrictions, Brent crude prices stabilized at $40 – 45/barrel
- IATA estimated in June 2020 that lower fuel prices should save airlines over $100bn in 2020, helping cushion the blow of a forecasted $400bn drop in revenues this year
- The situation is helpful, slowing down retirements of mature engine fleets

Oil price

Source: Bloomberg

Source: US Energy Information Administration | *OPEC incl. Russia

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As airlines deferred orders, airframers have adjusted rates A320 to make up majority of 2020 industry deliveries

- The order backlog has declined by 5% from 13,100 to 12,500 aircraft* in the first 9M of 2020. Single-aisles make up 86% of the backlog and A220/A320 make up 60% of the single-aisle backlog. GTF makes up ~45% of Airbus single-aisles
- 4% (or ~500 aircraft) of the order backlog was cancelled (80% 737MAX)
- 400 new orders were placed with 90% A220/A320

Monthly rate

<table>
<thead>
<tr>
<th>Aircraft</th>
<th>2019</th>
<th>Adjusted rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>A220</td>
<td>4</td>
<td>2+</td>
</tr>
<tr>
<td>A320</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>A330</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>A350</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>737</td>
<td>52/42</td>
<td>Restart</td>
</tr>
<tr>
<td>787</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>767</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>777</td>
<td>5/777X 2021</td>
<td>2/777X 2022</td>
</tr>
<tr>
<td>747</td>
<td>0.5</td>
<td>0.5, EoP 2022</td>
</tr>
</tbody>
</table>

- Airframers rapidly adjusted rates, limiting the blow to in-service fleets, an unprecedented reaction compared to past downcycles
- 700 completed aircraft are in Boeing and Airbus’ current inventory
- Forecasters see between 600 and 800 Airbus and Boeing deliveries for 2020 depending on 737MAX restart. Aircraft with MTU engines to make up ~330 units

Source: Cirium Fleets Analyzer, Airframers’ announcements | *Airbus and Boeing passenger and freighter aircraft

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Positive implications for MTU are derived from trends and strategies in the leasing market

Positive effects from the leasing market

- Lessors **own >50%** of commercial airlines’ narrow-body fleet and share will increase
- Lessors have access to capital markets and **provide a “capital lifeline”** to the airline industry
- New order cancellations centered on MAX aircraft and new order deferrals help **balance demand and supply**
- Sale and lease back deals as well as rental deferrals support airlines in **keeping existing fleets**
- Lessors maintain **sufficient liquidity** by issuing bonds
- Lessors directly and indirectly **order MRO regularly** through lease return shop visits and MRO after repossession
Positive implications for MTU are derived from trends and strategies in the leasing market

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1</td>
<td>Lessors support airlines to keep existing fleets (and lease contracts) running through rent deferrals, contract renegotiations and new order cancellations. &lt;br&gt; Parked fleets expected to be reactivated, supporting <strong>profitable MRO demand on older A/C</strong>, delaying tear-downs.</td>
</tr>
<tr>
<td>2</td>
<td>Lessors are <strong>PMA-unfriendly</strong> (safeguard asset value). &lt;br&gt; <strong>Less PMA risk</strong>, more OEM spare parts.</td>
</tr>
<tr>
<td>3</td>
<td>Lessors are <strong>risk-averse</strong> and demand high lease return conditions and high build up goals during shop visits. &lt;br&gt; <strong>Higher MRO volume</strong>.</td>
</tr>
<tr>
<td>4</td>
<td>Airlines <strong>avoid MRO</strong> due to cash constraints and eventually go into <strong>insolvency</strong>. &lt;br&gt; Lessors repossess A/C and <strong>MRO volume ordered by lessors</strong> absorbs some lost airline MRO volume.</td>
</tr>
</tbody>
</table>
MTU expects an early recovery in single-aisle cycles

Single-aisle aircraft cycles [Millions]

Recovery driven by single-aisles
- Return to 2019 global traffic levels expected between 2023 and 2024 but earlier for domestic travel
- Strong MTU presence in the narrow-body market
- Despite general pessimism exacerbated by a 2nd wave in parts of the world, there are some positive developments:
  - First reports on the low-risk of COVID-19 transmission onboard
  - Travel bubbles or corridors are being formed in parts of the world to restart travel between neighboring countries (AUS-NZ, SIN-HK)
  - From 220 vaccine possibilities, 12 are in phase 3 and 6 approved for early or limited use
  - BioNTech/Pfizer announce breakthrough in vaccine development – study suggests ~90% efficacy
- The fundamentals that have driven air travel growth in the past decades, despite periodic shocks, remain intact
Industry is ready, but not yet cleared for take-off.
Product Portfolio | Opportunities

Michael Schreyögg | Chief Program Officer (CPO)
We benefit from a robust product portfolio.
MTU's business segments affected differently by the corona crisis

**Military OEM business**

- 2019 revenues: €0.5bn (9%)
- No COVID-19 impact

**Commercial OEM business**

- 2019 revenues: €1.5bn (33%)
- Impact on new engine business and spare parts
- Lower aircraft production rates

**Commercial MRO business**

- 2019 revenues: €2.7bn (58%)
- Less shop visit demand
- High storage rates
- Acceleration of GTF work
EJ200 remains by far the most important fighter revenue contributor in the coming years

Expected EJ200 engine deliveries 2020 – 2029 driven by national and international export campaigns

Highlights

- Fighter revenue share ~80%* in 2020
- German order for replacement of Tranche 1 Eurofighter signed in November
- Decision about Germany’s Tornado fleet expected for 2024
- Additional fighter export campaigns (e.g. Switzerland: Promising flight test campaign)
- Enhancement programs started (e.g. Digital engine control and monitoring unit NG)

*incl. EJ200, RB199, F414,F404,/F110, Larzac, others
MTU’s participation in the FCAS engine program secures future revenue growth

Volume of 1,000+ engines expected

Highlights

• Biggest European defense program
• Concept phase contracted in 2019, ongoing
• Decision on funding of next technology projects in Q1 2021
• Engine and A/C demonstrator by ~2026
• First prototype expected by ~2031
• Entry into service expected by ~2040
• JV agreement with Safran expected to be signed by year end
• ITP to join as program partner
• FCAS technology as enabler for commercial engine platforms

Source: Airbus_Media
Passenger air traffic down by 66% in 2020. A return to 2019 levels not expected before 2023/24. Nevertheless, there are many reasons why air traffic will rebound.

### Situation today…

<table>
<thead>
<tr>
<th>Metric</th>
<th>Dec. 2019*</th>
<th>Sep. 2020*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue Passenger Kilometers (RPK)</td>
<td>+4.2% YTD</td>
<td>-64.7% YTD</td>
</tr>
<tr>
<td>Available Seat Kilometers (ASK)</td>
<td>+3.4% YTD</td>
<td>-56.2% YTD</td>
</tr>
<tr>
<td>Passenger Load Factors (PLF)</td>
<td>82.6% YTD</td>
<td>66.7% YTD</td>
</tr>
</tbody>
</table>

### But …

20-year market outlook:

- GDP growth: 2.5%
- Traffic growth: 4.0%
- Fleet growth: 3.2%

2 billion out of 7.8 billion people worldwide have flown on an aircraft.

* Source: IATA

* Source: Boeing Commercial Market Outlook 2020 – 2039
The recovery of the commercial aviation market can be divided into 3 phases

**Crisis phase – year 2020**
- Traffic down 66%, slow recovery since Q2
- High storage rates
- Airlines in cash preservation mode
- MRO spending minimized by cycling aircraft in/out of storage
- Postponement of new deliveries

**Restart phase – years 2021-23**
- Air traffic begins recovery
- Modern and efficient aircraft return to the market faster
- Rising green-time engines and used parts availability from excess fleets (retirements)
- Growing MRO demand
- Rising number of aircraft deliveries

**Growth phase – years 2024+**
- Traffic growing above 2019 levels
- Growing aircraft orders
- New aircraft platforms launched
- Additional MRO and OEM capacity required for growing demand

MTU’s flexibility, diversified customer base and product portfolio are its basis for recovery
The market for commercial series is adjusting immediately to the impact of pandemic

<table>
<thead>
<tr>
<th>Segment</th>
<th>Trend next 5 years</th>
<th>Market dynamics/MTU impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wide-body</td>
<td></td>
<td>• Trends center on aircraft downsizing and capturing freight demand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MTU has limited exposure to new wide-body engine production</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 787 production rate to recover to lower level → partially offset by higher market share of GEnx</td>
</tr>
<tr>
<td>Narrow-body</td>
<td></td>
<td>• Narrow-bodies to benefit from more rapid recovery of domestic traffic (2022 back to 2019 levels)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A320 production rate to rise from 40 to 60 aircraft per month</td>
</tr>
<tr>
<td>Regional Jets</td>
<td></td>
<td>• Regional Jets to benefit from faster recovery of domestic markets as well</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Good positioning of A220 as small narrow-body allowing rightsizing where demand is too low for large narrow-bodies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• E2 Jets with GTF to dominate future RJ market, replacing CF34-powered CRJ and E1 jets</td>
</tr>
<tr>
<td>Business Jets</td>
<td></td>
<td>• Business Jets also affected by COVID-19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Production rates for large Business Jets (G500/600) have decreased slightly, medium Business Jets suffer more reductions</td>
</tr>
<tr>
<td></td>
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<td>• MTU well positioned in the large and medium Business Jet segment (Gulfstream G500/G600 and Latitude)</td>
</tr>
</tbody>
</table>
MTU's spare parts business shows resilience to COVID-19 impacts due to its high proportion of military, freight and narrow-body engines

<table>
<thead>
<tr>
<th>Segment</th>
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<th>Market dynamics/MTU impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Passenger</td>
<td></td>
<td>• Slow recovery weakens wide-body passenger market</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• High retirement risk for older wide-body platforms (e.g. PW4000-112”) especially quads (747/CF6, A380/GP7000)</td>
</tr>
<tr>
<td>Freighter and Military</td>
<td></td>
<td>• Freight traffic has led to a stabilization of the CF6-80 fleet, maintaining spare parts demand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ~50% of CF6-80C engine fleet in freighter, military or executive service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• High visibility of PW2000 aftermarket thanks to its high military portion (C17~ 2/3 of total PW2000 engine fleet)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Currently no replacement options available for 757 passenger aircraft (NMA shelved)</td>
</tr>
<tr>
<td>Domestic Passenger</td>
<td></td>
<td>• Quicker recovery of domestic traffic → narrow-body aircraft return to the market faster</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• V2500 key revenue driver in terms of spare parts business</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• V2500 limited risk to be retired due to its young age</td>
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<td></td>
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<td>• In 2021: beginning transition from GTF retrofits to mixed work scopes</td>
</tr>
<tr>
<td>IGT, Business Jets</td>
<td></td>
<td>• Segment less impacted by COVID-19 than passenger travel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• IGT demand to follow general economic recovery (power generation, oil and gas markets)</td>
</tr>
<tr>
<td></td>
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<td>• Business Jet demand to recover within timeframe</td>
</tr>
</tbody>
</table>
Further significant increases of GTF MRO within the aftermarket network are imminent

GTF engine highlights*

- In service: 850+ aircraft
- Flight hours: 6.6 million+
- Gallons of fuel saved: 370 million+
- Metric tonnes of CO2 avoided: 3.5 million+

Highlights

- Key technical improvements on >95% of the in-service PW1000G engine fleet to be implemented by year end**
- Decline in regular MRO work leads to increased GTF shop visit capacities during the crisis
- Low pressure turbine retrofits to be nearly fully completed in 2020
- Proactive replacements of hot section parts to further improve reliability and on-wing time planned for 2021
- Slow increase of regular shop visits in 2021/22

Accelerating GTF upgrades improves profitability of long-term service agreements

* Source: [www.pwgtf.com](http://www.pwgtf.com) – GTF Fast Facts October 2020

** Source: Flight Global 30 Oct. 2020 – Crisis helped engine OEMs clear modification backlog
Limited impact on MRO revenues based on a diversified product portfolio and market access

Strong contract wins for our independent MRO business even in difficult times

MRO revenues in 2016 – 2020 (in m US$)

Independent MRO campaign wins 2016 – 2020 (in bn US$)

MTU Maintenance Zhuhai 100%

MRO revenues reported

* FY2019 reporting change in MRO revenues due to change in the contracting and invoicing process at our MTU Zhuhai facility

** CAGR w/o MTU Zhuhai
A sustainable MRO order book secures future growth and strengthens resilience to external influences

MRO order book highlights*

<table>
<thead>
<tr>
<th>Highlight</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>80% Narrow-body engines</td>
<td></td>
</tr>
<tr>
<td>54% OEMRO orders</td>
<td></td>
</tr>
<tr>
<td>17% Cargo-, state-, military, and IGT customers</td>
<td></td>
</tr>
<tr>
<td>&lt;10% Critical order volume</td>
<td></td>
</tr>
</tbody>
</table>

* Based on MRO orderbook per Sept. 2020 (w/o MTU Zhuhai)

Highlights

- 80% is dominated by narrow-body engines (V2500, GTF, CFM56)
- Low widebody exposure – predominantly cargo
- 54% is related to OEMRO participation with access to new engine programs
- Strongly increasing GTF business
- 17% is secured by cargo, state and military customers and IGT business
- <10% of the order volume originates from financially weaker customers
- Additional order volume from MTU Zhuhai for V2500, CFM56 and LEAPx
- High proportion of longer term contracts but flexible MRO network to harvest short term market opportunities
- Strong engine portfolio in terms of product lifecycle

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Long-term MRO strategy with clear focus on future profitable growth remains valid

Customer-focused service and product portfolio

- Customers value MTU’s know-how, reliability and high-quality standards
- Financial strength and willingness to invest in long-term contracts and partnerships
- High flexibility to react to market trends & opportunities
- Supporting customers during the crisis (flexibility, cash optimization, ramp-up plan)
- Strong OEM alignment

Next level digital maintenance solutions

- Engine Fleet Management (CORTEX)
- Enrich customer experience by combining innovative MRO services within one platform
- AI* optimization of shop visits, workscopes and material mgt. to reduce airline CASM**
- Combination of on-wing data with predictive maintenance planning
- Simulate COVID effects on re-start scenarios
- Innovative and interactive B2B customer tools

Expansion of MRO network structure with focus on best-cost

- Capacity share in best cost countries to increase from 40% to 60%
- EME Aero in operation since Dec 2019
- MTU Maintenance Zhuhai:
  - 2nd expansion – initial capacity 250 SVs
  - Long-term expansion concept under development
- MTU Serbia – expand profitable in-house repair capabilities

Continuous innovative development of our core competencies strengthens our competitive advantages in the MRO market

*) AI = artificial intelligence  **) CASM = cost per available seat mile
With our Technology Roadmap we are well positioned to participate in potential new aircraft platforms

<table>
<thead>
<tr>
<th>AIRBUS</th>
<th>BOEING</th>
<th>COMAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>A350–1000 stretch?</td>
<td>A330neo successor</td>
<td>H2-powered concept(s)</td>
</tr>
<tr>
<td>A321neo XLR</td>
<td>NGSA Airbus</td>
<td>NGSA Boeing</td>
</tr>
<tr>
<td>A220 stretch?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>777-9 stretch?</td>
<td>787 successor</td>
<td></td>
</tr>
<tr>
<td>777-9/8/8F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C929</td>
<td></td>
<td>Widebody</td>
</tr>
<tr>
<td>MS-21</td>
<td></td>
<td>Narrowbody</td>
</tr>
</tbody>
</table>

Source: MTU

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Diversified approach in product strategies and partnerships – a fundament for future performance.
Technology Roadmap | Cost Leadership

Lars Wagner | Chief Operating Officer (COO)
Adaption of production facilities and future engine technologies.
Geared turbofan engines are setting new economical standards

First geared turbofan (GTF) engine generation

-16% reduction in fuel burn

-75% reduction of noise footprint

Fewer emissions

$\text{CO}_2 / \text{NO}_X$

MRO cost savings

25% fewer stages, 45% fewer blades, lower operating temperature

Production re-Ramp-Up (GTF/ GTF Gen2/ NEFE)

Source: P&W

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MTU is using the time generated by the COVID crisis to prepare for the ensuing re-Ramp-Up.
Automation in engine manufacturing

We constantly increase our level of automation

**Reduction of costs**
- Increased operating times
- Higher level of automation
- Separation of man and machine
- Optimized space utilization

**Adaptivity to volatile markets**
- Highly flexible lot sizes (down to 1)
- Streamlined production chains
- On-demand manufacturing

**Reduction of turnaround time and working capital**
- Fewer workplace rotations
- Fewer interruptions
- Higher transparency and controlling possibilities
- Increased reliability

Preparation for re-Ramp-Up

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MTU as role model for automation in aero engine manufacturing

Progressive automation at MTU

- **2012**: Semiautomated Flow path hardware
- **2015**: Fully automated Manufacturing of blisks
- **2017**: Semiautomated HSG line manufacturing RZE LPT blade
- **2019**: Fully automated Turbine blade manufacturing
- **2021**: Fully automated Manufacturing of blisks
- **2021**: Fully automated Bearing chambers
- **2022**: Fully automated Rotor disks
- **2023**: Automated ECM manufacturing
  - Fir tree slots
Rotor2

Manufacturing 4.0

Fully automated rotor manufacturing

Main benefits

• High degree of automation:
  – Chained Production System for Milling and Turning
  – Automated Parts and Tool Set Up
  – Closed Door Machining
• Reduced cost and lead time
• Advanced process monitoring
Electrochemical machining (ECM)

Manufacturing 4.0

Alternative to cutting – ECM removes metals through electric currents in conductive solutions

Main benefits

- Reduced cost
- No tooling wear
- Improved surface quality
- Lower tolerances
- Advanced process monitoring
- Parallel processing
- High degree of automation
Our future approach
MTU’s leading technology roadmap

Maturity

Gas turbine

Evolutionary Gen2 GTF development

Revolutionary engine concepts

Drop-in – no infrastructure change: SAF

Not drop-in – new infrastructure required: LH2

Parallel hybrid electric concepts: enabling technology

Electric propulsion

Batteries

Flying fuel cell

Application

Urban mobility

Short-range

Long-range

Short-range

Mid-range

Mid-range

Long-range

Short-range

Mid-range

Urban mobility

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## New concepts

<table>
<thead>
<tr>
<th>Evolutionary</th>
<th>Revolutionary</th>
</tr>
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<tbody>
<tr>
<td>Gen2 GTF</td>
<td>WET engine</td>
</tr>
</tbody>
</table>

**Evolutionary: Gen2 GTF**

- At least -10% fuel burn, -10% dB noise ¹)

**Revolutionary: WET engine**

- At least -15% fuel burn, -80% NOx ¹)

**Revolutionary: Flying Fuel Cell**

- -100% CO2 and NOx ¹)

¹) w.r.t. to current GTF engine
New European Fighter Engine – NEFE

Military technology development

Key enabler

- Variable cycle engine technology
- World class components: LPC, HPC, LPT
- High-temp, low-weight materials
- Integrated aircraft/engine heat management
- Fully digitalized design and aftermarket processes
- Technology platform for next generation civil engines

MTU & Safran plus ITP are committed to jointly developing a new fighter engine
MTU operations and technology are prepared for future challenges.
Financials

Peter Kameritsch | Chief Financial Officer (CFO)
We remain attentive and continue to act with foresight.
Outbreak of COVID-19 – Short-term cost measures

The emerging crisis triggered various reactions to immediately reduce cost in the short-term

Personnel cost

- Short-time work or comparable programs
- Hiring freeze
- Reduction of temps
- Cancellation of all 40h contracts
- No 2020 bonus

Expense reduction

- Cut operational expenses by 30%
- Return of leased-in assets
- Cut R&D by 25-30%

November 19, 2020

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Outbreak of COVID-19 – Short-term cash flow measures

The emerging crisis triggered various reactions to immediately limit short term cash drain

Reduce cash outflow

- Reduction of 2020 Capex budget by 50%
- Postponement of MTU Serbia
- Suspension of dividend proposal

Intensifying working capital management

- Adjustment of supply chain to reduced demand
- Negotiations on payment terms
- Stepping up receivables management

€-300M
Measures to secure a liquidity buffer were initiated instantly to counter growing uncertainties

- Issue of €100M promissory note
  - Due 10 July 2021
  - Variable interest

- Increase RCF by €100M to €700M
  - Due 11 May 2021
  - Two six-month extension options
  - Variable interest

- Placement of €500M euro bond
  - Due 1 July 2025
  - Coupon 3.0% p.a.

Careful and timely reaction secured liquidity to steer through this crisis!
Debt Maturity Profile – Diversified and no immediate action required

Nominal €M

- MTU maintains a diversified refinancing mix
- **2021 only €130M** to be redeemed (Promissory Note & Loan)
- **€600M revolving credit facility** to be extended in 2023
- **€100M revolving credit facility increase** expires May 2021
Key capital structure considerations – No principal change in MTUs targets

Targets

- No new equity
- Shareholder returns – reinitiate dividend payments
- Maintain flexibility for investment in new programs
- Keep investment grade rating
- Net debt/EBITDA will range between 0.5-1.5

Conclusion

- Solid financial health
- Crisis has proven resilience
- Targets remain in place

MTU continues to be a reliable partner for the industry as well as for the capital market.
Outbreak of COVID-19 – Adjust capacity to mid-term market scenarios

Market scenarios for the coming years identified a gap between capacity need and demand:

- Reduced demand for new engines
- Reduced number of shop visits
- Higher level of automation

Restructuring program initiated – to be finalized end of 2021

- Provision of €34M booked in Q3 2020
- Cash outflow expected from 2020 to 2022
- Full cost savings from 2022 onwards

Instruments to achieve capacity reduction:

- Sustained reduction of temporary staff
- Reduction of 40h contracts
- Early retirements
- Voluntary agreements

Rightsizing capacity while being prepared for future developments

-10 to -15 % capacity in high-cost locations
Guidance 2021
The year 2021

Only an interruption in growth path

Commercial OEM business

- **NB** production rates reduced
- **WB** production rates lowered
- **RJ** deliveries to grow at slower pace
- **BizJet** production remains largely stable
- **Spare parts** demand to grow from actual levels – main programs remain V2500, CF6 and PW2000
- **GTF** engines start to contribute to spares revenue
The year 2021

Only an interruption in growth path

Military

- No COVID-19 impact
- EJ200 deliveries to increase in 2021
- Aftermarket & Support Volume for fighter aircraft to grow
- Funded technology for FCAS engine
The year 2021

Only an interruption in growth path

Commercial MRO

• *Strong freighter demand remains* driving SVs for CF6, PW2000

• *Recovery in NB MRO continues*

• *Volume and share of GTF MRO* to increase significantly within aftermarket network

• *Expansion program*
  – *MTU Serbia*, start construction
  – *Expansion of Zhuhai* completed
The year 2021: Turnaround from industries downfall

Strong pre-COVID Q1 2020 makes direct comparison difficult

2021 main drivers

<table>
<thead>
<tr>
<th>Sector</th>
<th>Outlook</th>
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<tbody>
<tr>
<td>Military</td>
<td>Slightly up</td>
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<tr>
<td>Commercial OE</td>
<td>Stable</td>
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<tr>
<td>Commercial Spares</td>
<td>Slightly up</td>
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<tr>
<td>Commercial MRO</td>
<td>MRO up in 20 percent range</td>
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<tr>
<td></td>
<td>GTF contribution strongly growing</td>
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Revenue Headwind from weaker US$
We are ready for 2021.
Executive Summary

Reiner Winkler | Chief Executive Officer (CEO)
Executive Summary

1. Aerospace & Defence sector hit hard by COVID-19 but not all market segments were impacted to the same extent
2. MTU reacted sober and reflected on emerging crisis
3. Business mix provides islands of stability until sustainable recovery kicks in
4. Orderbook has rarely seen cancellations in OEM business and we achieved a considerable volume in new MRO contracts
5. We continue to invest in our future with industry leading manufacturing technology and next generation technologies
6. We have used the COVID crisis to further accelerate our innovation & digitalization efforts
7. Rightsizing capacity while securing financial health sets ground for future success
8. Potential M&A opportunities will be evaluated but the focus remains on organic growth
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