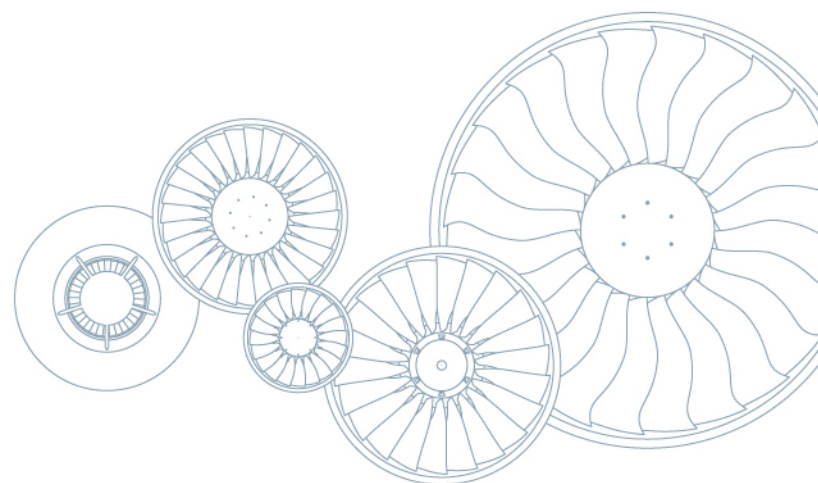




# Investor & Analyst Day 2014 MTU Aero Engines AG

Munich, November 25, 2014



## Agenda – MTU Investor and Analyst Day 2014

Time	Agenda	Speaker
<b>11:30 – 11:40</b>	Welcome	Michael Röger VP Investor Relations
<b>11:40 – 12:00</b>	Significant Milestones Achieved	Reiner Winkler, CEO
<b>12:00 – 12:40</b>	OEM Business – MTU Well Positioned In The Growing Engine Market	Michael Schreyögg, Chief Program Officer
<b>12:40 – 13:20</b>	The Geared Turbofan – A Successful Start Into Future Engine Generations	Dr. Rainer Martens, COO
<b>13:20 – 14:30</b>	Lunch Break	

## Agenda – MTU Investor and Analyst Day 2014

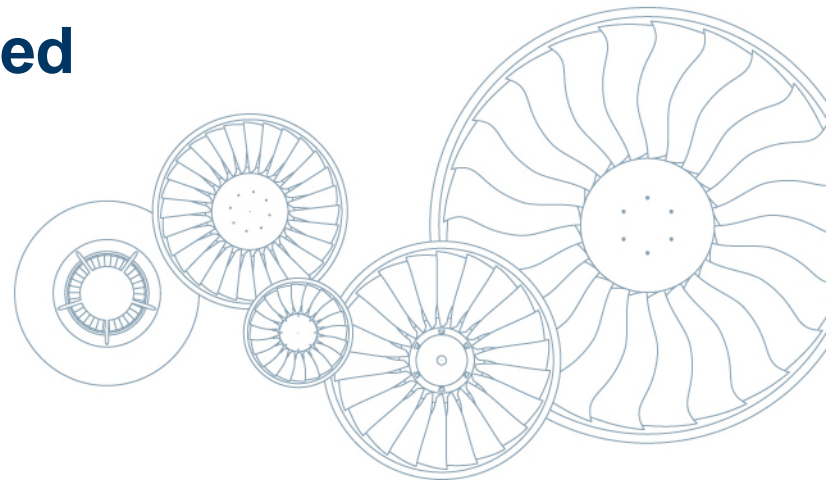
Time	Agenda	Speaker
<b>14:30 – 15:30</b>	Shop Tour – Blisk Manufacturing Hall / EJ200 Engine Test Cell	
<b>15:30 – 16:10</b>	MRO Business – Ready For A Changing Business Environment	Dr. Stefan Weingartner President MTU Maintenance
<b>16:10 – 16:50</b>	Financials And Outlook / Summary	Reiner Winkler, CEO
<b>16:50</b>	End Of Conference	



## Significant Milestones Achieved

Reiner Winkler, CEO

Munich, November 25, 2014



## The Pure Power Engine Family makes material progress





## Promising outlook for the aerospace market

- Record airliner order book of over 11,000 aircraft
- Record deliveries from Airbus and Boeing of over 1,350 aircraft expected for 2014
- Regional Jet/ Turboprop deliveries up 28% y-o-y
- Current airliner engine fleet of almost 40,000 (+4,6 % y-o-y)
- Positive development of growth indicators for 2014 (IATA estimate):

traffic growth: 5.9 %

airline profits: 18.0 bn US\$

**➔ MTU has achieved significant milestones to benefit from the perspectives of the growing market**



## OEM Business

- Over 6,000 GTF engines on firm order or optioned
- Successful first flight of A320neo in September
- V2500-E5 (powering the KC-390) achieved FAA engine certification
- Program share of 4% in the GE9X program
- Gulfstream G500/G600 powered by PW800
- Deliveries of A400M on track

➔ MTU is consequently following its growth path



# Success Story GTF

Over 6,000 engines ordered (incl. options and not announced orders)

Roughly 50% market share with A320neo / providing power for 5 platforms

PW1100G/ A320neo	PW1200G/ MRJ	PW1400G/ MS-21	PW1500G/ CSeries	PW1700G,W1900G/ E-Jet 2 <sup>nd</sup> Generation



## Commercial MRO Business

- Broad portfolio covering strongly growing engine types
- GE90 ramp-up on track
- GENx MRO contract signed
- Record quarter Q3 2014
- Contract wins in first 9 months 20% above prior year

➔ **MRO engine portfolio well positioned for the future business environment**







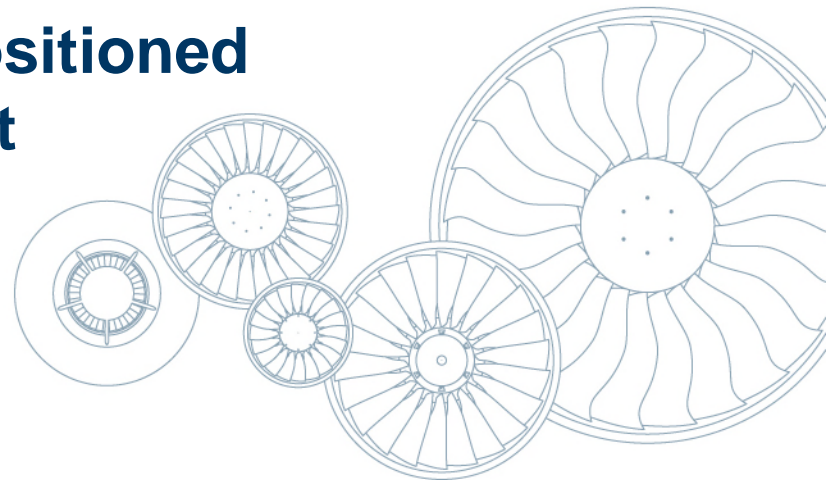
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## **OEM Business – MTU Well Positioned In The Growing Engine Market**

Michael Schreyögg,  
Chief Program Officer

Munich, November 25, 2014



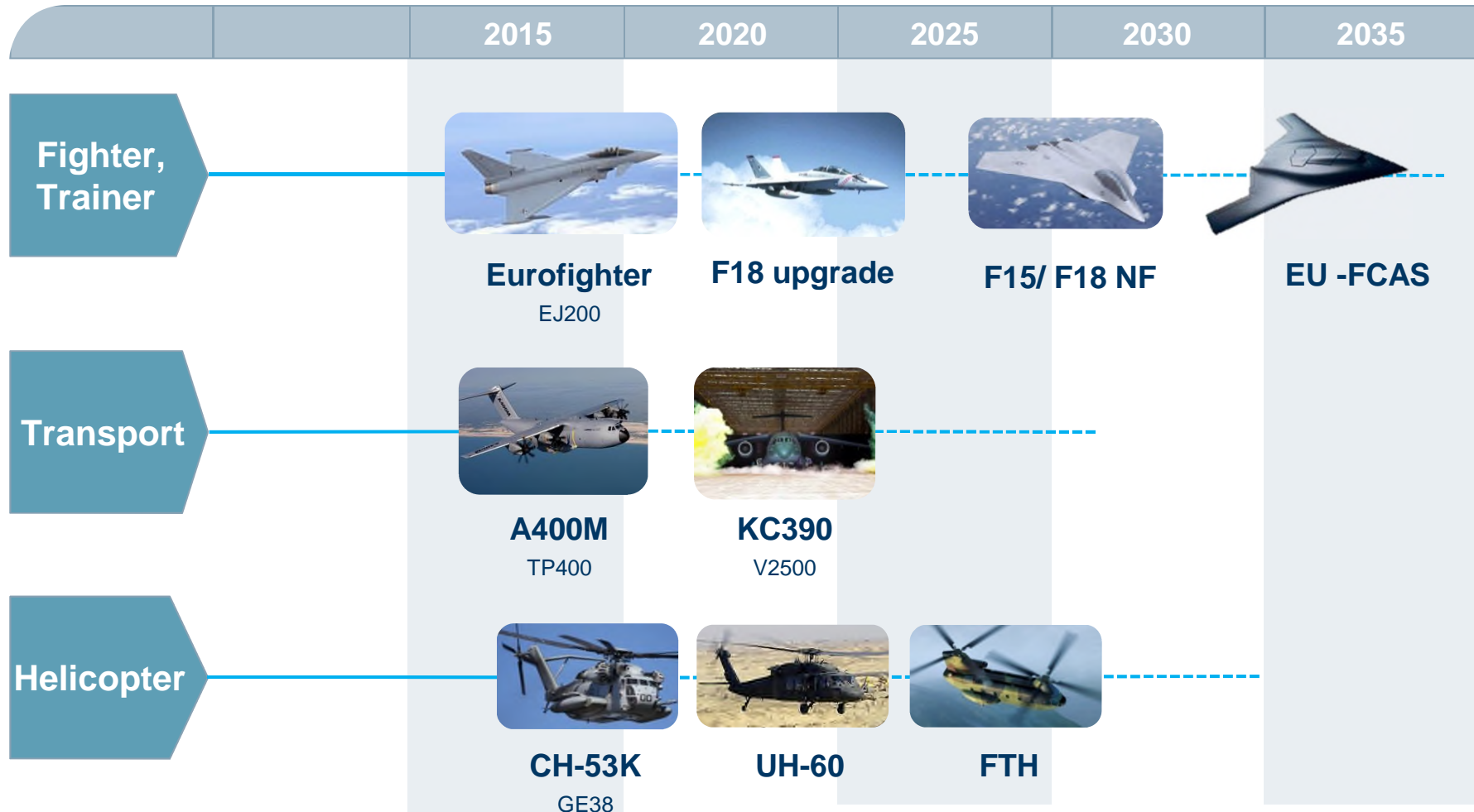


## Military Business - Status

- **EJ200 (Eurofighter):**
  - More than 1,100 production engines delivered
  - Main focus on increasing overhaul services
- **TP400-D6 (A400M):**
  - Excellent performance in first missions
  - First aircraft delivered to Air Forces in France, UK, Turkey
  - First Flight of German A400M took place Oct. 14, on plan for delivery scheduled end of November
- **GE38 (CH53-K):**
  - Achievement of first engine runs on the Ground Test Vehicle
  - Preparations for First Flight 2015 in place

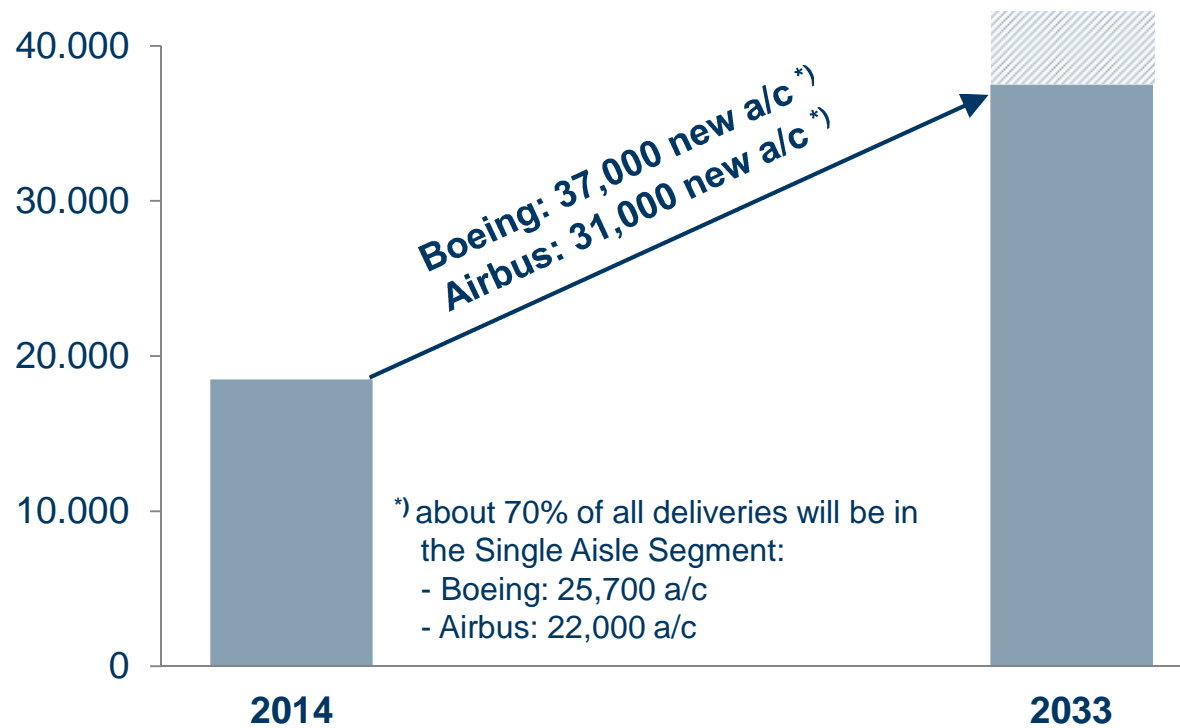


# Military Business - Outlook



## Commercial Business – Market Outlook Airbus and Boeing

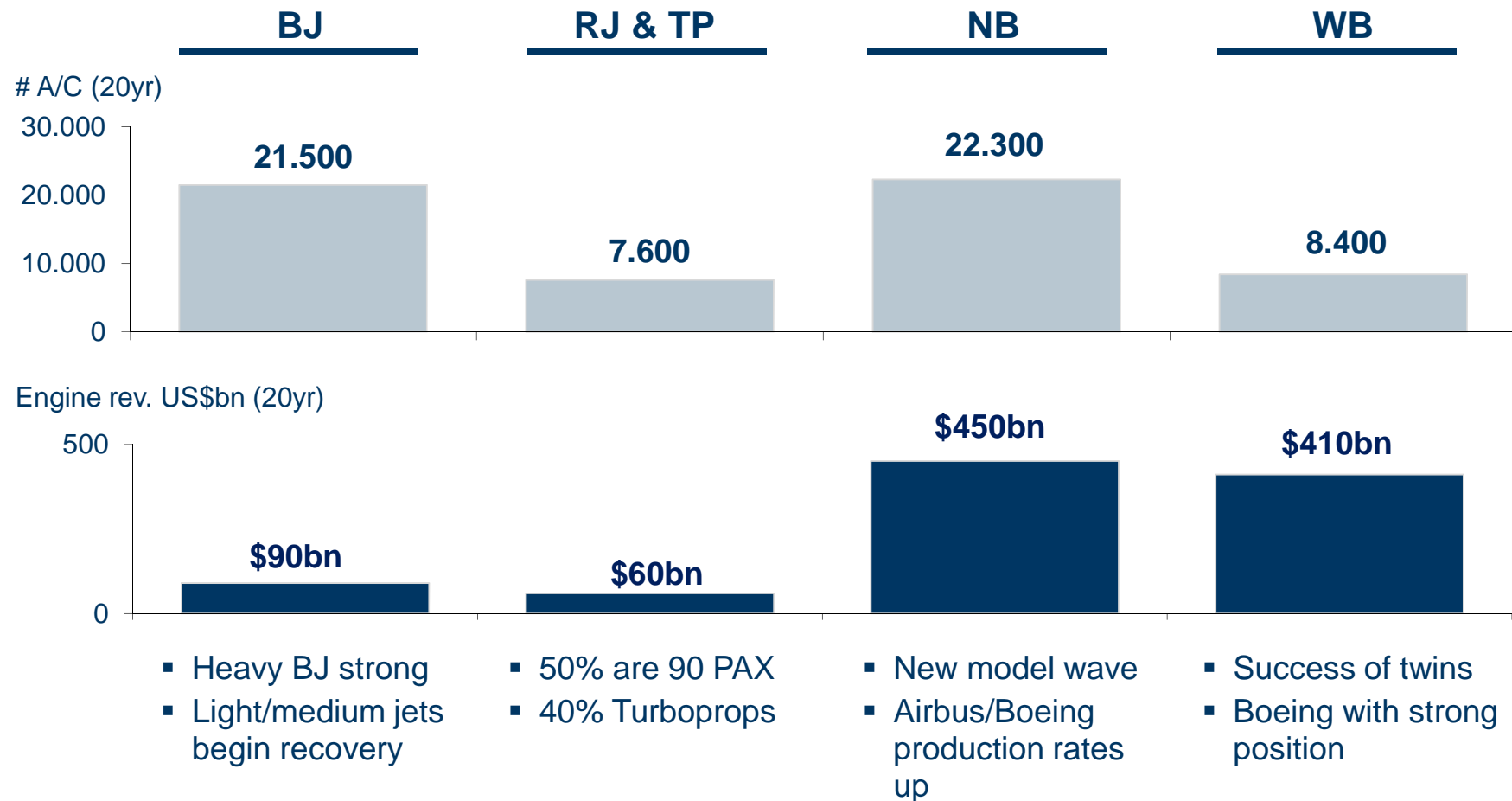
### Active Fleet over 100 PAX



Source: Dow Jones.de – Sep. 2014



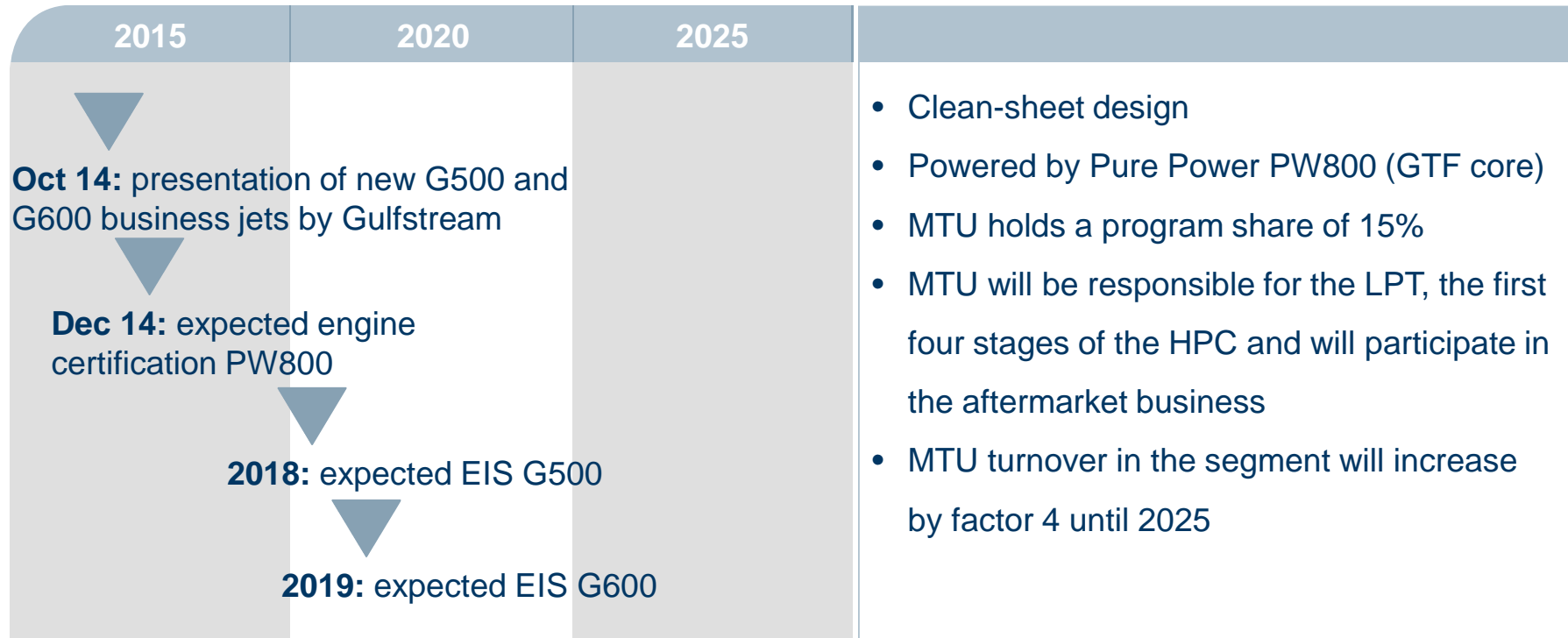
The next 20 years will require ca. 60,000 com. aircraft, generating \$1000bn of engine revenue. Thereof some 85% with NB/WB engines






Source: MTU June 2014



## New Business Jet Product Family



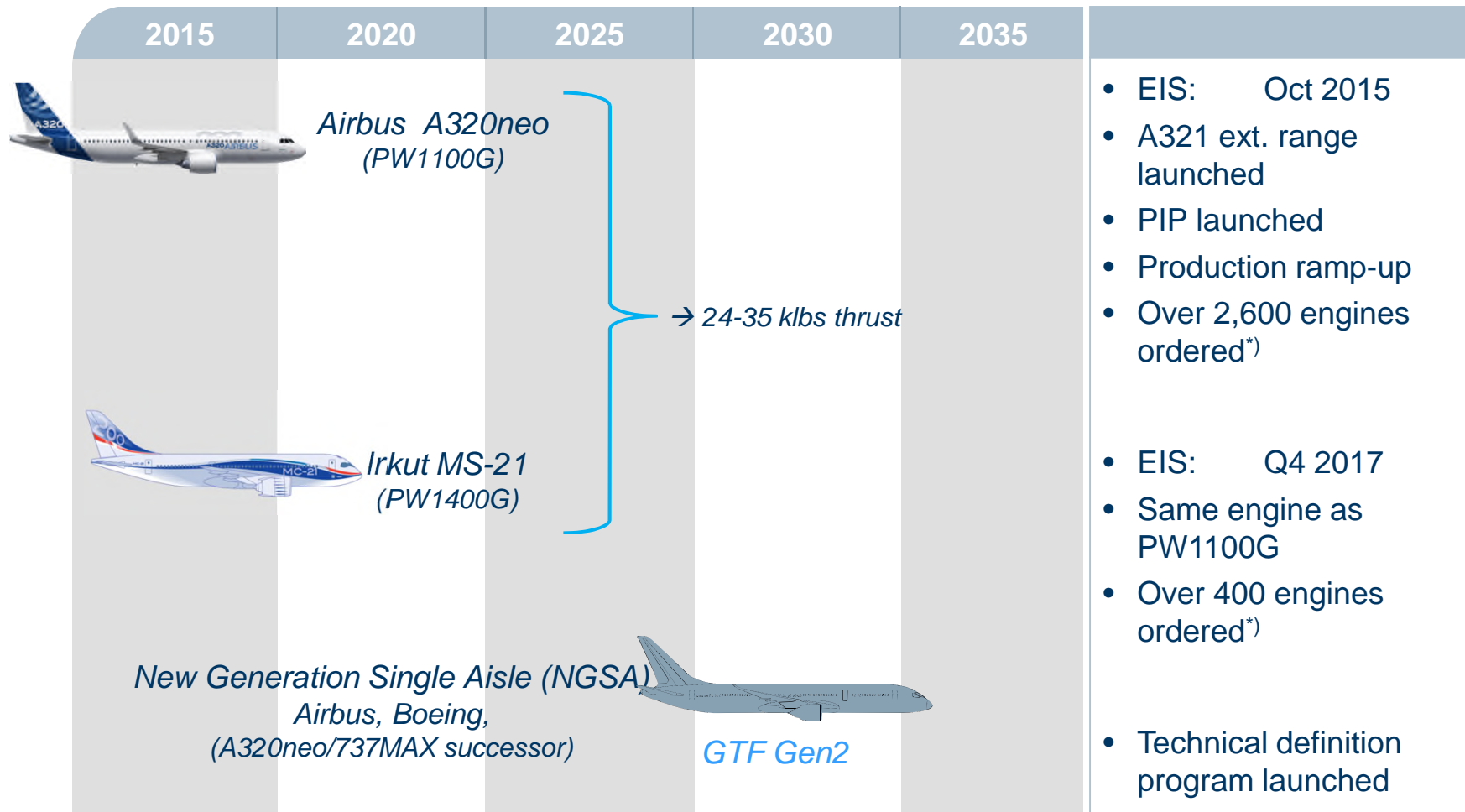
## Regional Jet Update

	2015	2020	2025	
		<i>Bombardier CSeries</i> (PW1500G)		<ul style="list-style-type: none"> <li>• EIS: Q3 2015</li> <li>• Flight test program resumed</li> <li>• Over 1,100 engines ordered*)</li> </ul>
		<i>Mitsubishi MRJ</i> (PW1200G)		<ul style="list-style-type: none"> <li>• EIS: Q2 2017</li> <li>• First roll out Oct. 25, 2014</li> <li>• Over 800 engines ordered*)</li> </ul>
		<i>Embraer E-Jet Gen2</i> (PW1700G/ PW1900G)		<ul style="list-style-type: none"> <li>• EIS: Q2 2017 (190)</li> <li>• Derived from PW1200G and PW1500G</li> <li>• Over 1,100 engines ordered*)</li> </ul>

\*) incl. options and not announced orders

Note: Mid of aircraft represents EIS

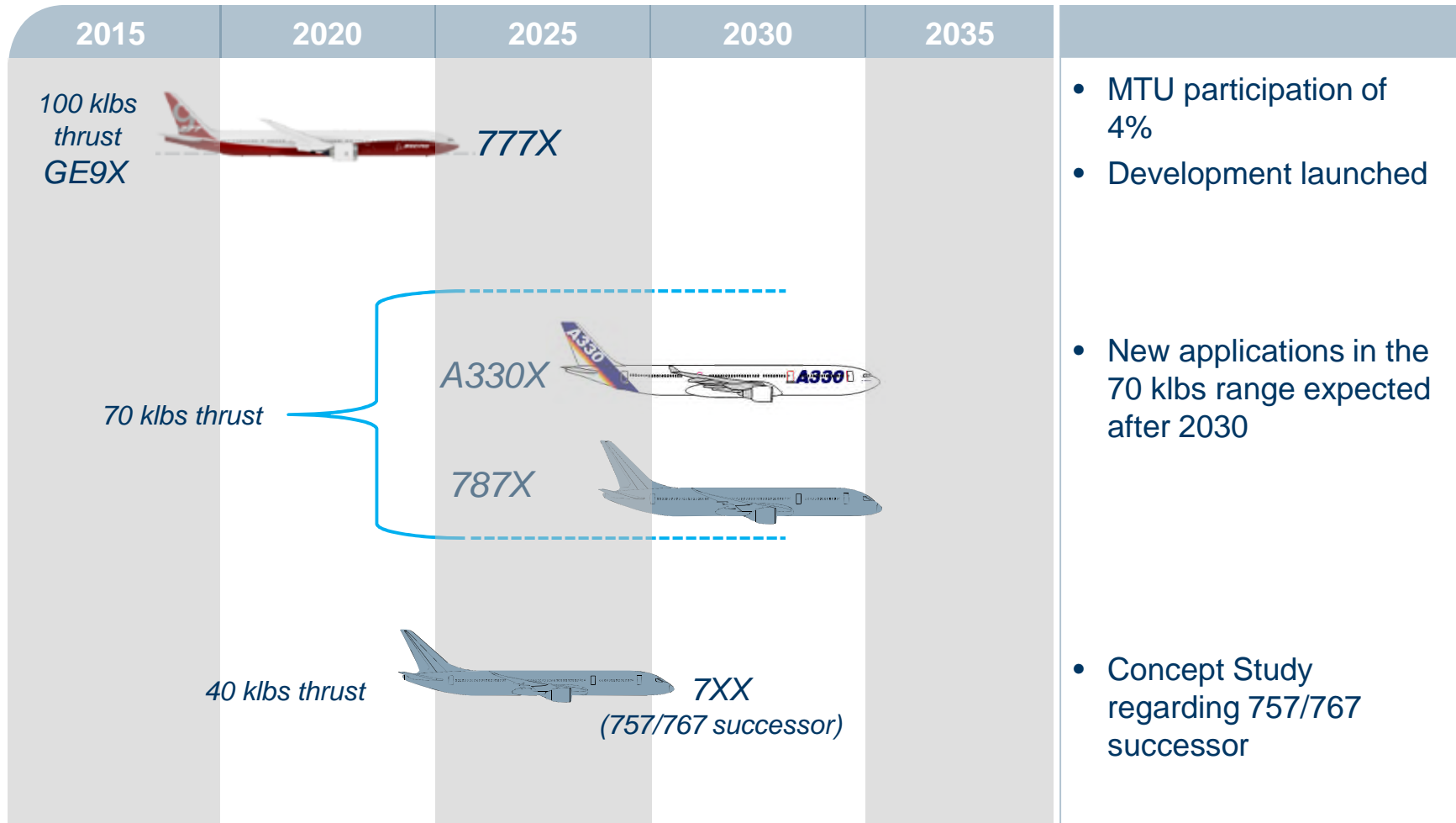
# Narrowbody Update



\*) incl. options and not announced orders

Note: Mid of aircraft represents EIS

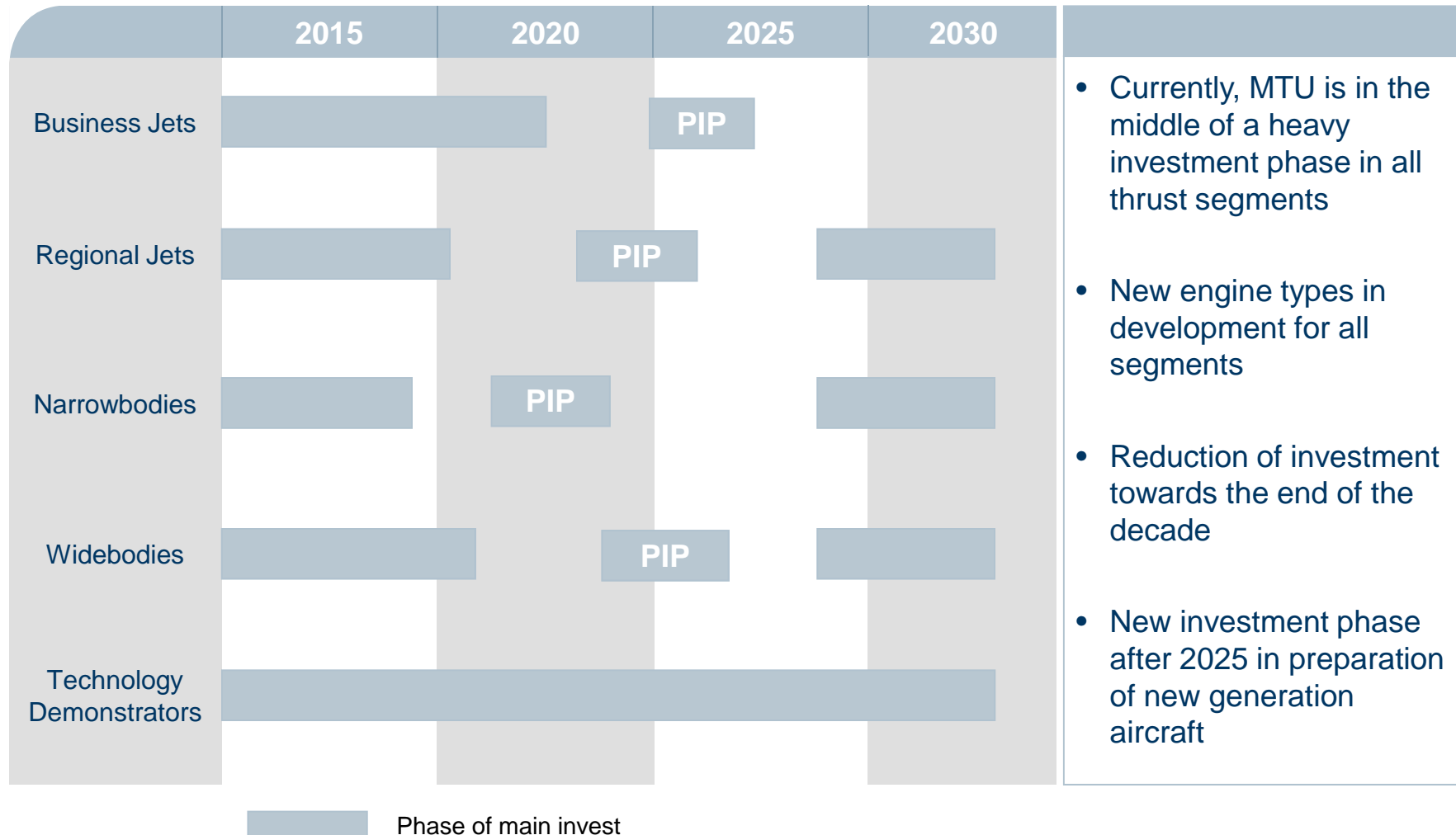
# Widebody Update



Note: Mid of aircraft represents EIS

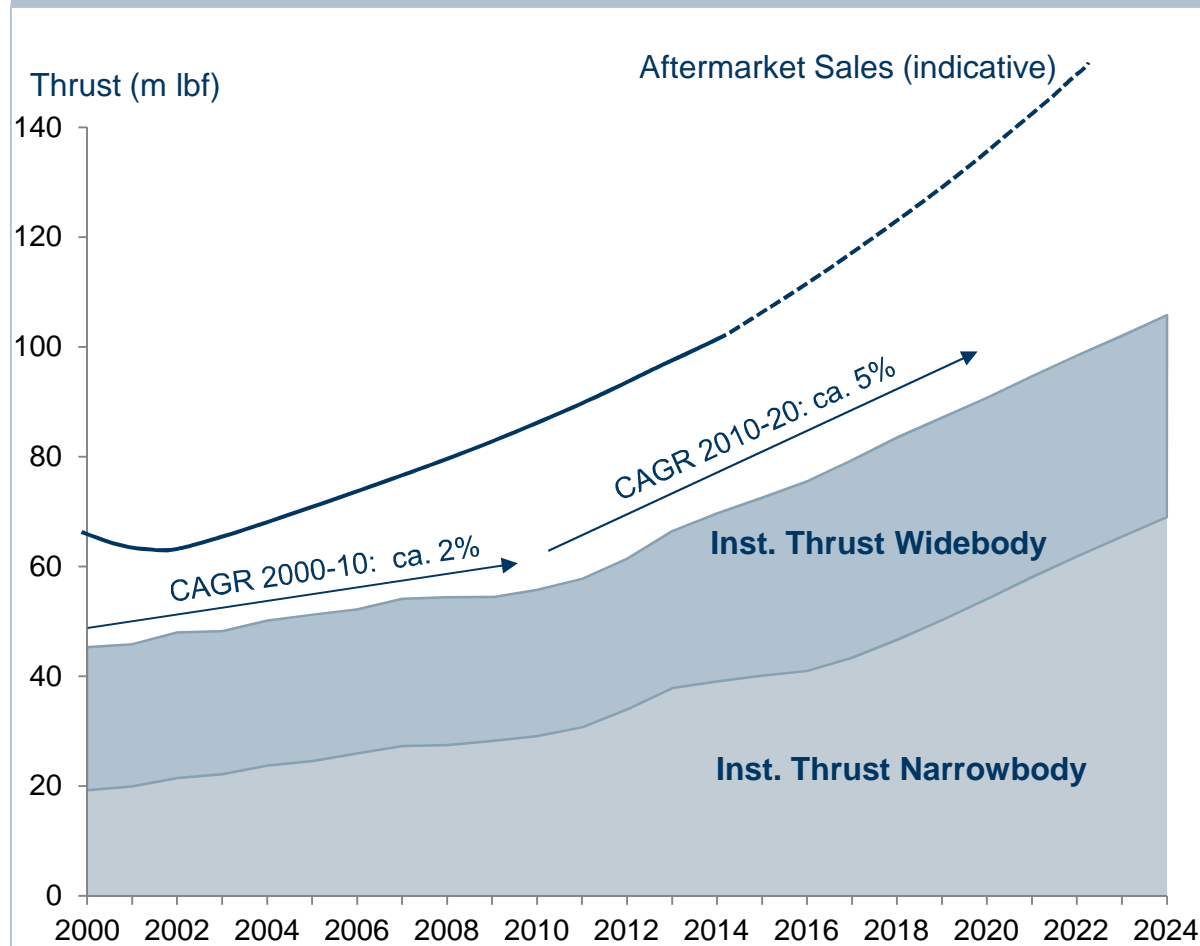


## Massive invest phase of MTU coming to an end



## MTU's engine participations show growth with strong momentum

MTU Installed Thrust and Aftermarket Sales Potential



- Growth of installed thrust accelerating since 2010
- Main driver for MTU is its strong position in the narrowbody and regional jet market
- Installed thrust reflects non-escalated aftermarket and spares sales potential

- ✓ **MTU's market position substantially improved with new participations**
- ✓ **MTU's installed thrust will lead to strong growth of aftermarket sales within the next years**

Source: MTU Oct 2014 Note: the fleet installed thrust is weighted with program shares (# in-service a/c x thrust x program share)

## Summary OEM Business

- Stable revenues in military business ✓
- Strong increase of total market expected ✓
- Market share gains in all segments for MTU ✓
- Investment phase is expected to come to an end ✓
- Increase in installed thrust ensures long term aftermarket growth ✓





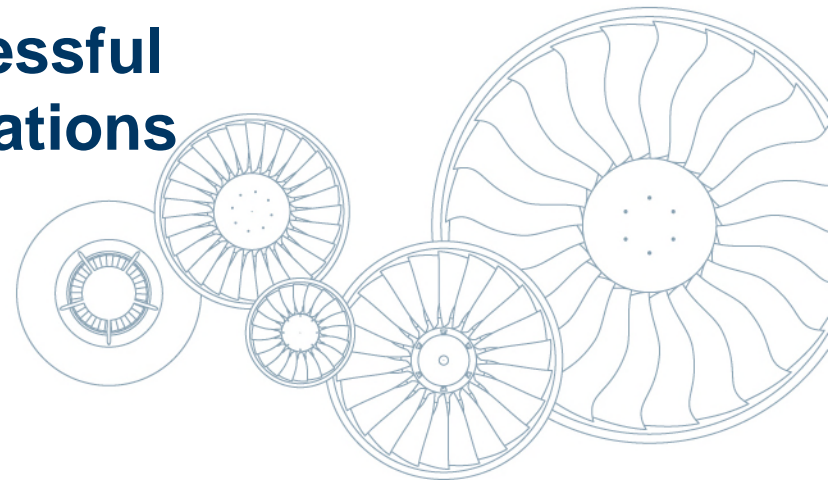
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# The Geared Turbofan - A Successful Start Into Future Engine Generations

Dr. Rainer Martens, COO

Munich, November 25, 2014







## Technical Milestones GTF Programs


Engine/ Aircraft	PW1500G/ C-Series	PW1100G/ A320neo	PW1200G/ MRJ	PW1400G/ MS-21	PW1900G PW1700G E-Jet 2 <sup>nd</sup> Gen.
					
First Engine to Test	✓	✓	✓	Q2 2015	Q1 2015 Q2 2016
Tested in Flying Testbed	✓	✓	✓	N/A	Q2 2015 Q2 2016
Engine Certification	✓	Q4 2014	Q4 2015	Q3 2015	Q4 2015 Q2 2017
First Flight	✓	✓	Q2 2015	2016	Q4 2015 Q3 2017
EIS / Aircraft Certification	Q3 2015	Q4 2015	2017	Q4 2017	Q2 2017 Q2 2019

R&D program for all GTF platforms well on track



## Production Ramp Up

		2009	2014 E	2019 E
Turbines		800	1100	2050
Compressors		200	270	1400
TCF		30	400	250
Engine Assembly		30	90	250
<b>Total</b>		<b>1060</b>	<b>1860</b>	<b>3950</b>



Yearly average increase by 14%

## Key Projects

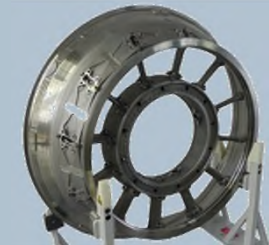
### New Blisk Shop

Status  
Progress



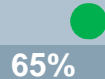
### Optimize Rotor and Stator Production Lines

Status  
Progress



### Extension of MTU-AE Polska

Status  
Progress



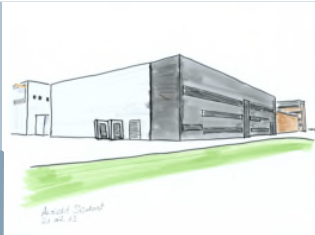
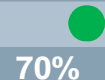
### Engine Assembly

Status  
Progress



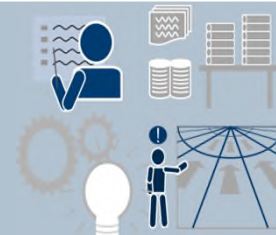
### Logistics Building

Status  
Progress



### Shop Floor Management

Status  
Progress



Projects are well on their way and will support the production ramp up

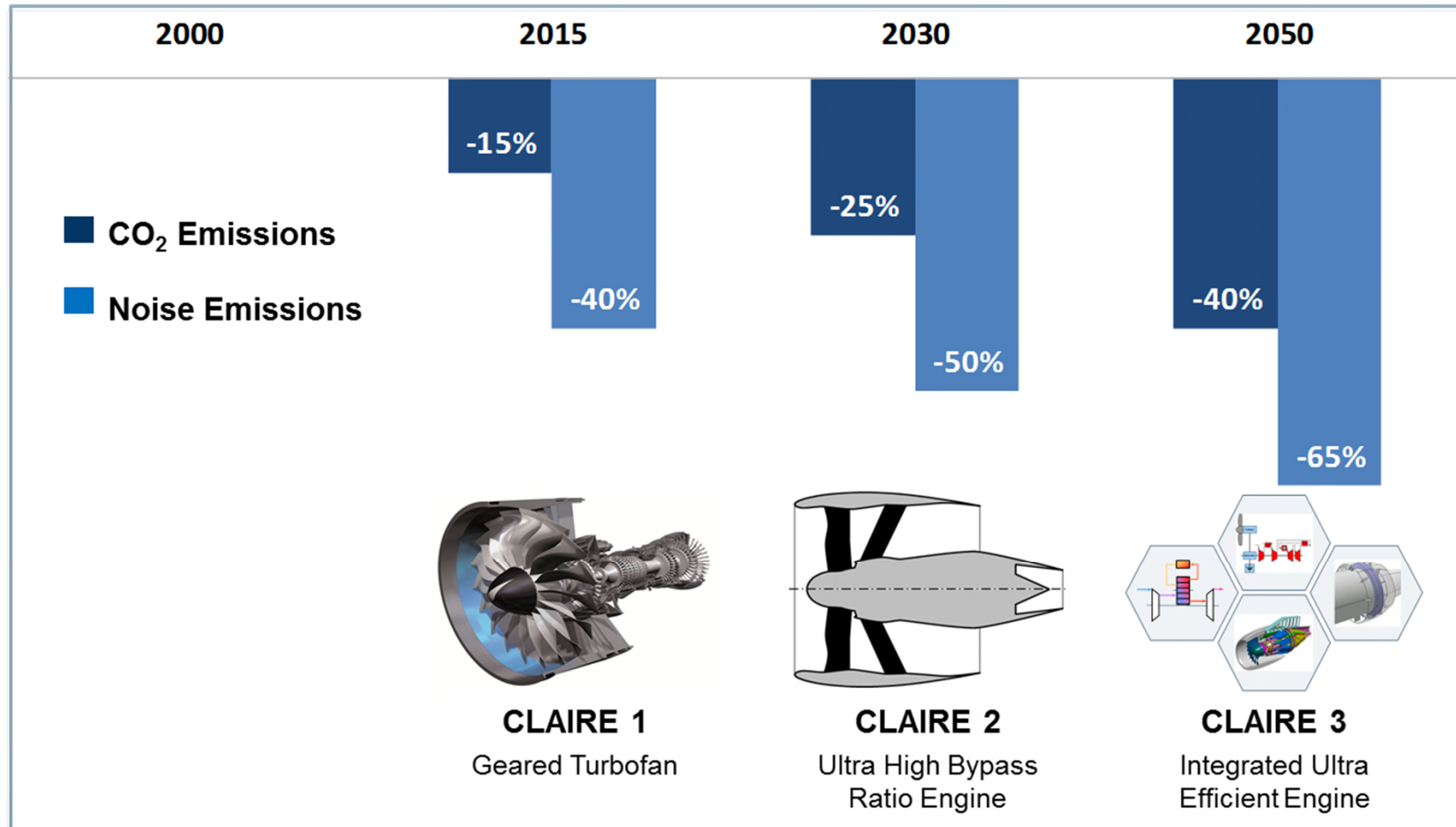
## Engine Upgrades and Preparation for Series

- To keep the aircraft attractive, engine upgrades are performed throughout the life of the engine. The purpose of these upgrades can be specific fuel consumption, durability, maintenance, thrust and costs
- The changes introduced by an engine upgrade typically involve module and component efficiencies, secondary air system and weight
- For the PW1100G engine a Performance Improvement Package (PIP) has been started to improve the specific fuel consumption by an additional 2% until 2019
- An upgrade in the thrust level of the GTF to 35 k lbs will secure its position for the A321 extended range version
- Preparation for Series: PCE, Manuals, EC's, Concessions, Maintenance Costs, Aftermarket and OEMRO

Ongoing activities to keep engines attractive

Workload for engineering remains high

# MTU Technology Roadmap - Clean AIR Engine, **CLAIRE** GTF – First Step is implemented



## GE9X Program – The Aircraft

### Boeing 777X

#### Characteristics

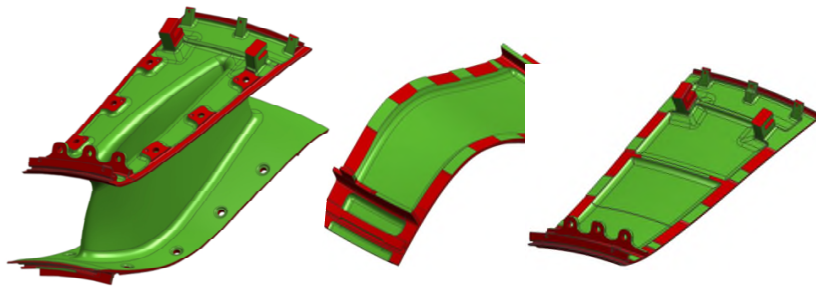
- 100,000 lb thrust
- 355 to 446 seats
- Exclusive engine GE9X
- Reduction in fuel consumption of 10% compared to 777-300ER
- 5% lower fuel consumption than any other twin-aisle engine in service in 2020
- 300 firm orders



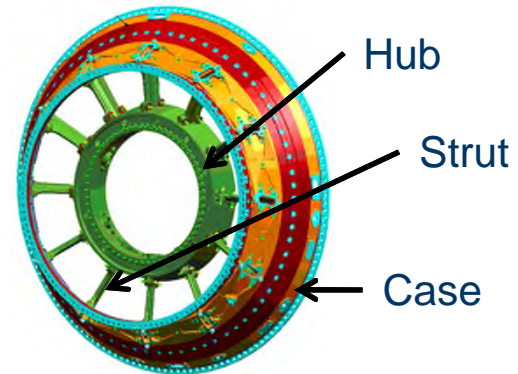


## GE9X MTU Program share

### Flow Path Hardware



### Hub Strut Case



### Bearing Housing

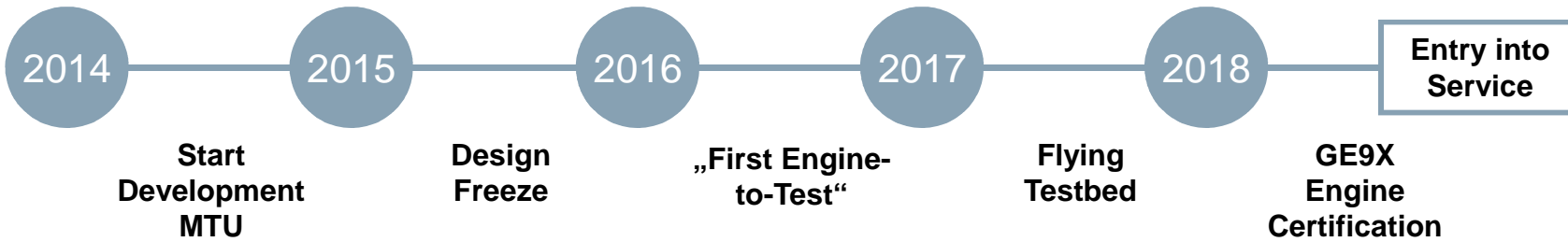


### Assembly Turbine Center Frame



## GE9X Level I Milestones

### Program Milestones



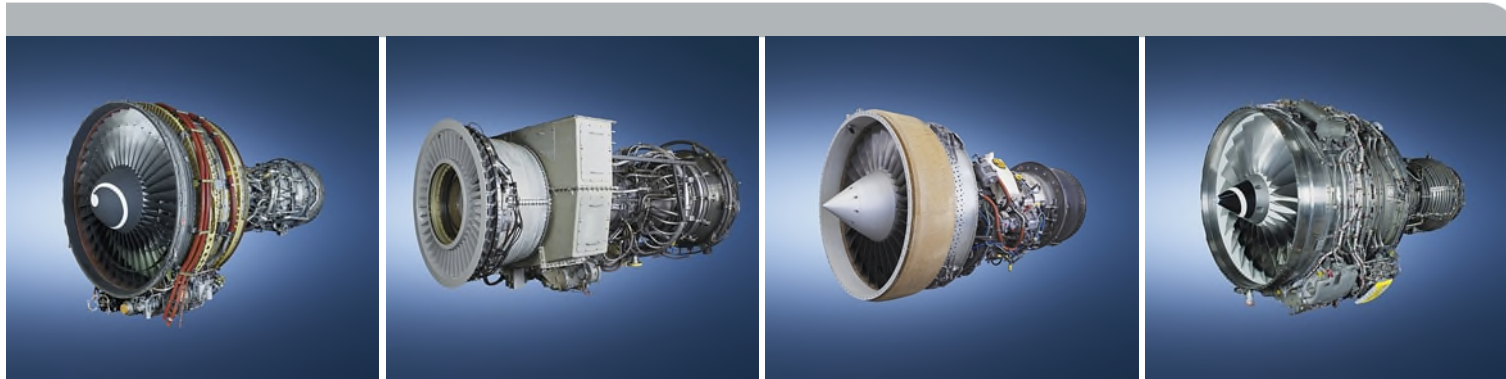
## Summary

- The Geared Turbofan is a very successful product
- Production ramp up is well on its way
- Projects to enable production are executed according to plan
- Technology roadmap for next generation engines is defined and executed
- GE9X engine program is launched

**The GTF has put MTU into an excellent position**



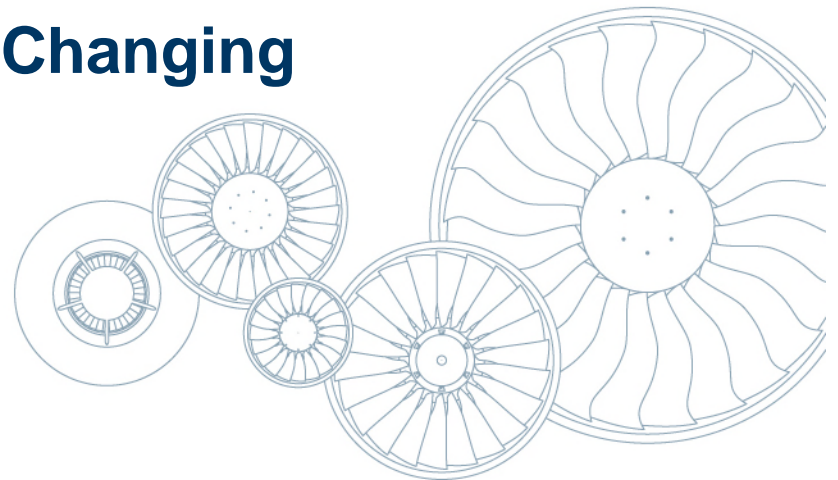
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## **MRO Business - Ready For A Changing Business Environment**



Dr. Stefan Weingartner,  
President MTU Maintenance

Munich, November 25, 2014

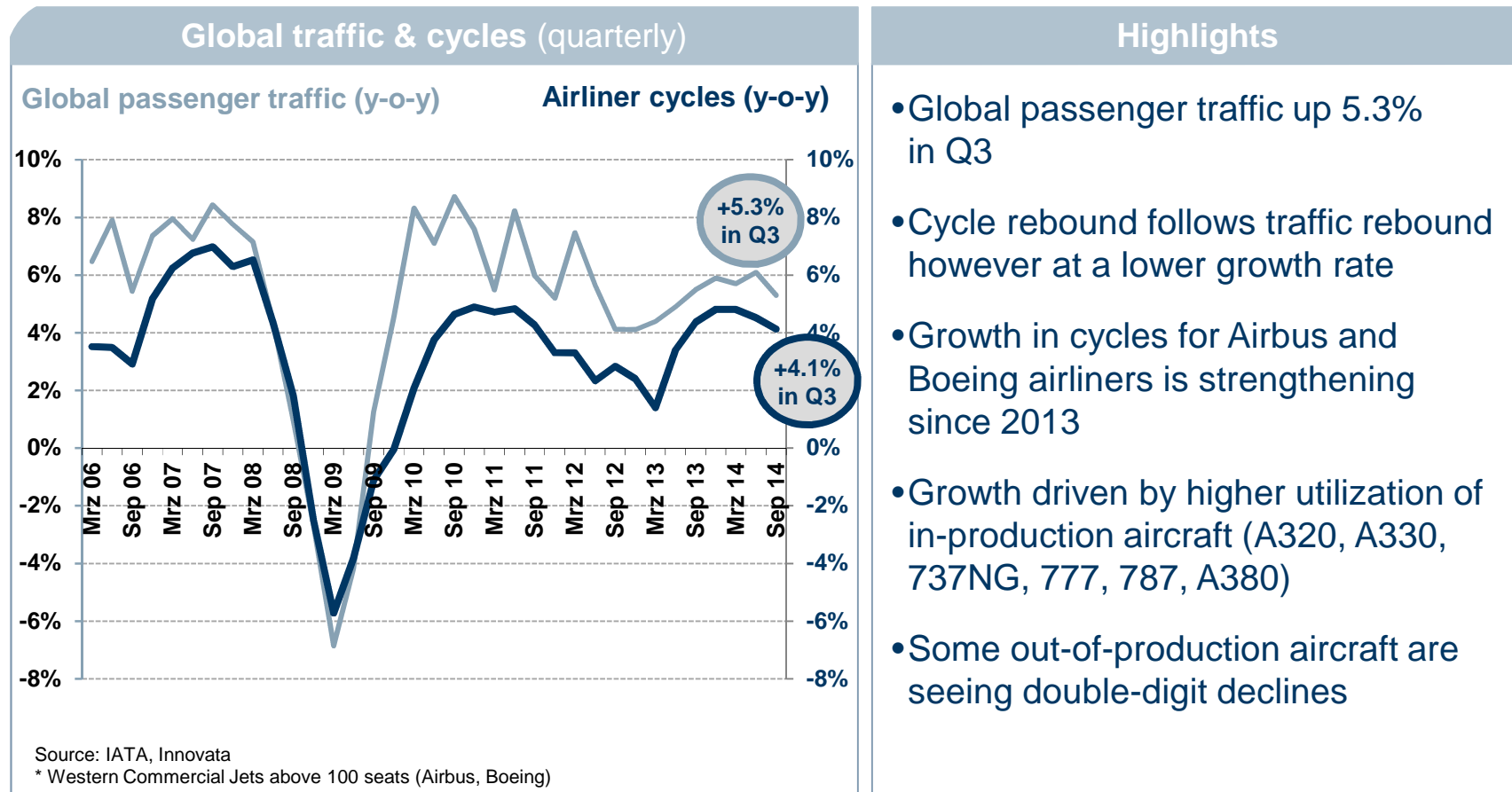




## Current market trends – per November 2014

	<b>GDP</b>	<b>+2.1%</b> → <b>+2.3%</b> 2013A      2014E	<ul style="list-style-type: none"> <li>• Disappointing Eurozone and emerging market slowdown delay recovery</li> <li>• Faster growth expected in 2015 (+2.9%)</li> </ul>
	<b>Freight traffic</b>	<b>+1.4%</b> → <b>+3.1%</b> 2013A      2014E	<ul style="list-style-type: none"> <li>• Cargo traffic begins recovery</li> </ul>
	<b>Passenger traffic</b>	<b>+5.7%</b> → <b>+5.9%</b> 2013A      2014E	<ul style="list-style-type: none"> <li>• Strong ongoing air travel demand</li> </ul>
	<b>Aircraft utilisation</b>	<b>+4.3%</b> → <b>+5.3%</b> 2013A      2014E	<ul style="list-style-type: none"> <li>• Strong growth in flight hours</li> <li>• Growth in cycles also rising (+3.5% to +4.4%)</li> </ul>
	<b>Airliner engine fleet</b>	<b>38,060</b> → <b>39,810</b> Sep 13      Sep 14	<ul style="list-style-type: none"> <li>• Active fleet growing strongly with +4.6% y-o-y</li> <li>• Double-digit growth for V2500, CFM56-5/7, GE90G</li> </ul>
	<b>Airline profits</b>	<b>+\$10.6b</b> → <b>+\$18.0b</b> 2013A      2014E	<ul style="list-style-type: none"> <li>• 5th year of profitability thanks to strong traffic, favorable fuel prices and US consolidation</li> </ul>
	<b>Fuel price (crude oil)</b>	<b>\$109</b> → <b>\$104</b> 2013A      2014E	<ul style="list-style-type: none"> <li>• Fuel prices on a downward trend (US\$ 80 in November 2014)</li> </ul>

## Passenger traffic and cycles grow strongly and steadily



## Market indicators per engine type

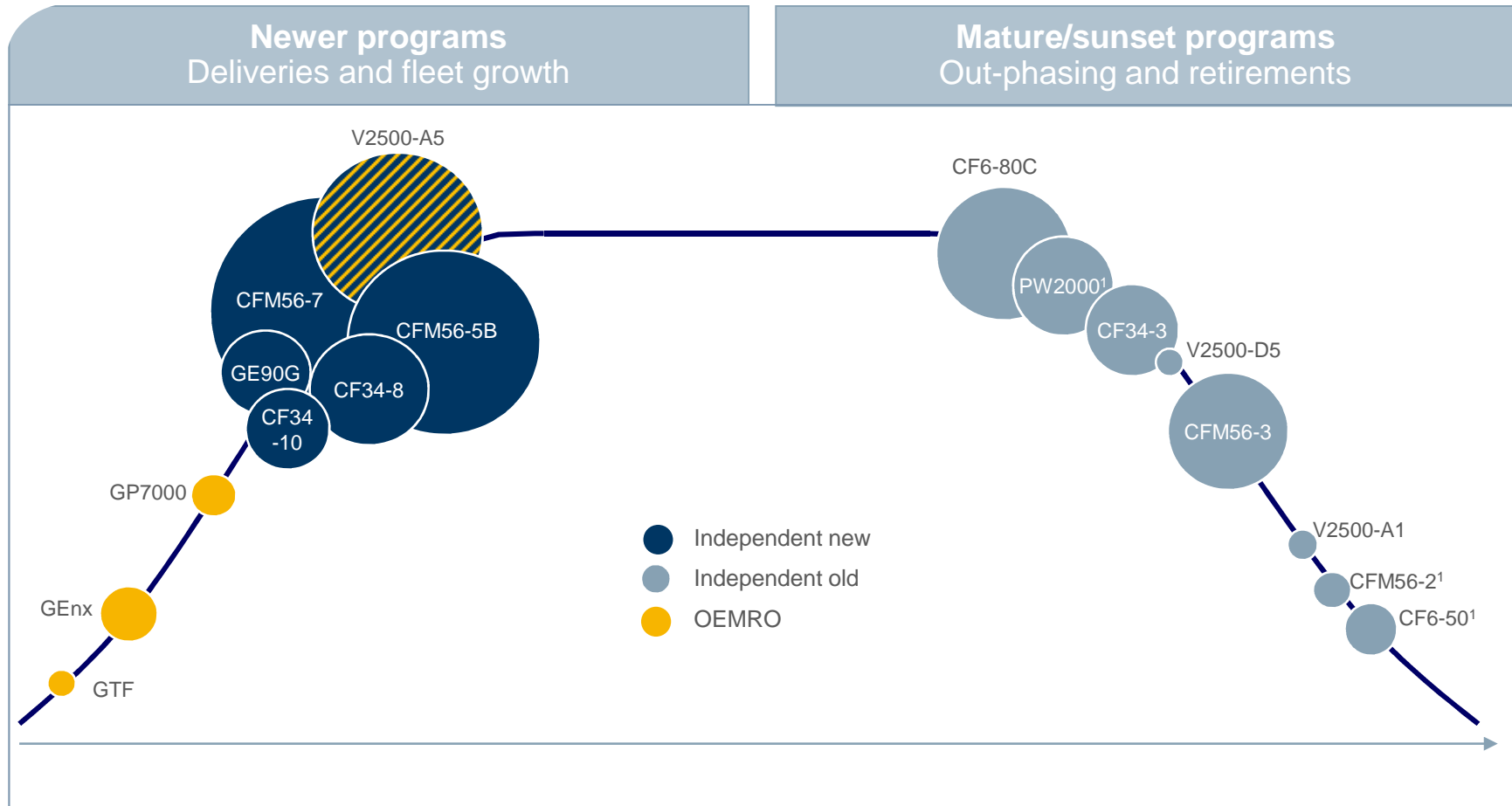
	Engine	Active fleet	Park rate	Y-O-Y as of Sept. 2014
⊘	Airliner engines	39,810 +4.6%	9.5%	Continued growth in fleet and hours
😊	V2500-A5	4,908 +11%	2%	Steady double-digit growth
😊	GE90G	1,334 +19%	0%	Stable production of 100 aircraft p.a.
😊	CFM56-5B/-7	15,786 +9%	1%	Strong growth
😊	CF34-8/-10E	3,432 +9%	2%	CF34-8 fleet up +11% (US re-fleeting), CF34-10 up +5%
😊	CF6-50 mil.	189 +0%	n/a	Very stable fleet and related MRO-demand
😐	CF6-80C2	2,563 -5%	12%	Fleet declines as storage rises
😞	PW2000 com.	620 -11%	22%	Storage continues to rise, hours declining faster
😞	CF34-3	1,288 -8%	25%	50-seaters being replaced by 70-seaters
😞	CFM56-3	2,020 -6%	25%	Fleet/hours decline (retirements, storage)
😞	CF6-50 com.	171 -6%	55%	Surplus from parked fleet strongly impacts MRO-demand

Source: Ascend, Innovata, MTU estimates 1) 3rd Quarter 2013

## MTU Maintenance successfully serves three market segments with distinct characteristics

Segment	Market characteristics
1 Independent old	<ul style="list-style-type: none"><li>• Decreasing fleet (retirements)</li><li>• Customers are Airlines or Lessors</li><li>• Limited OEM influence</li></ul>
2 Independent new	<ul style="list-style-type: none"><li>• Growing fleet (engines in production)</li><li>• Customers are Airlines or Lessors</li><li>• Growing OEM influence</li></ul>
3 OEMRO	<ul style="list-style-type: none"><li>• Fast growing fleet (engines in production or upcoming EIS)</li><li>• OEM is the only customer</li><li>• MTU is an OEM network partner</li></ul>

## Today: Diversified portfolio with a strong focus on newer engines in their growth phase (MTU MRO portfolio only)

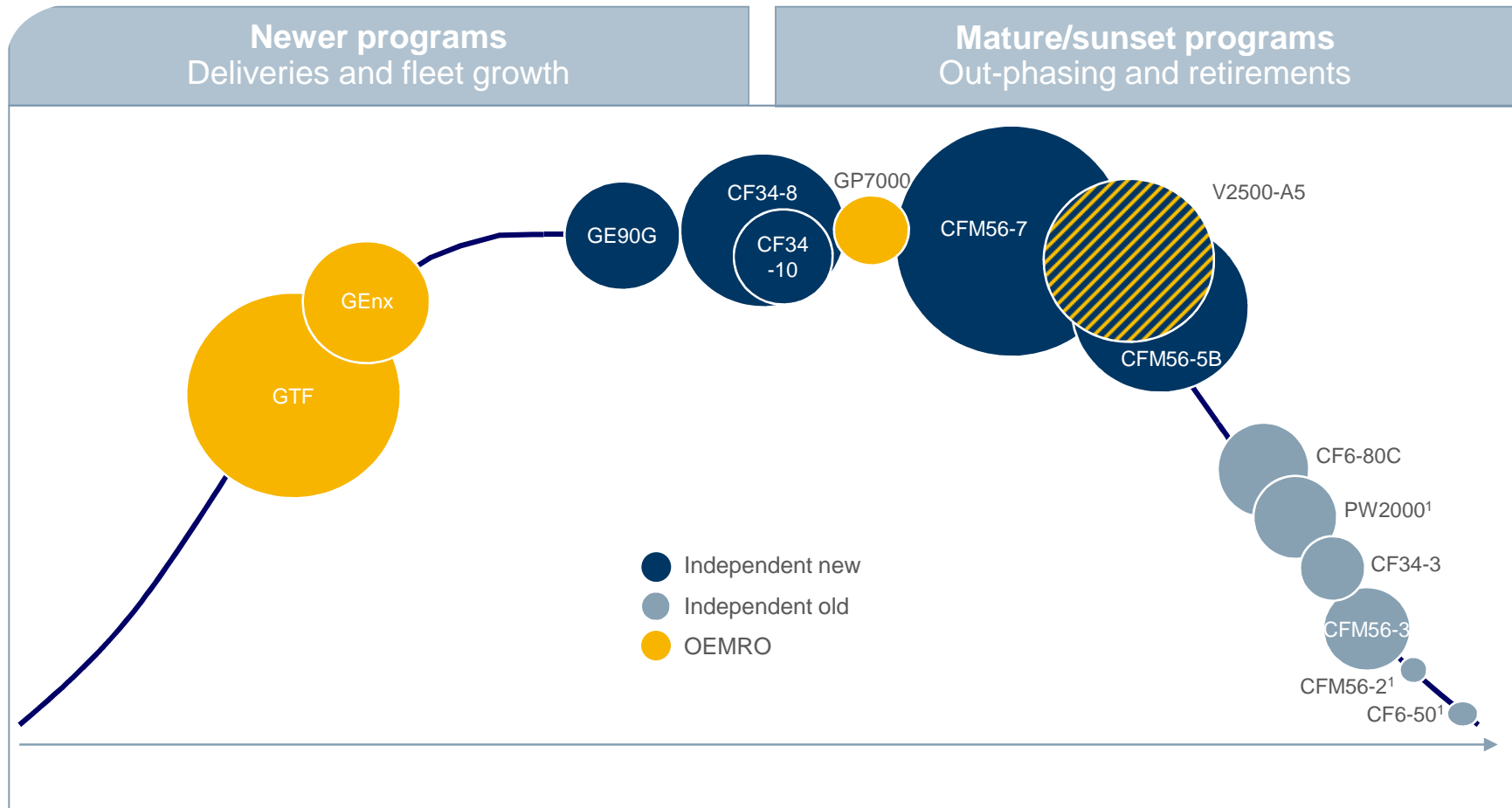


Source: MTU, October 2014 <sup>1</sup> including military applications.

Note: The bubble size represents the active engine fleet as of 2014.



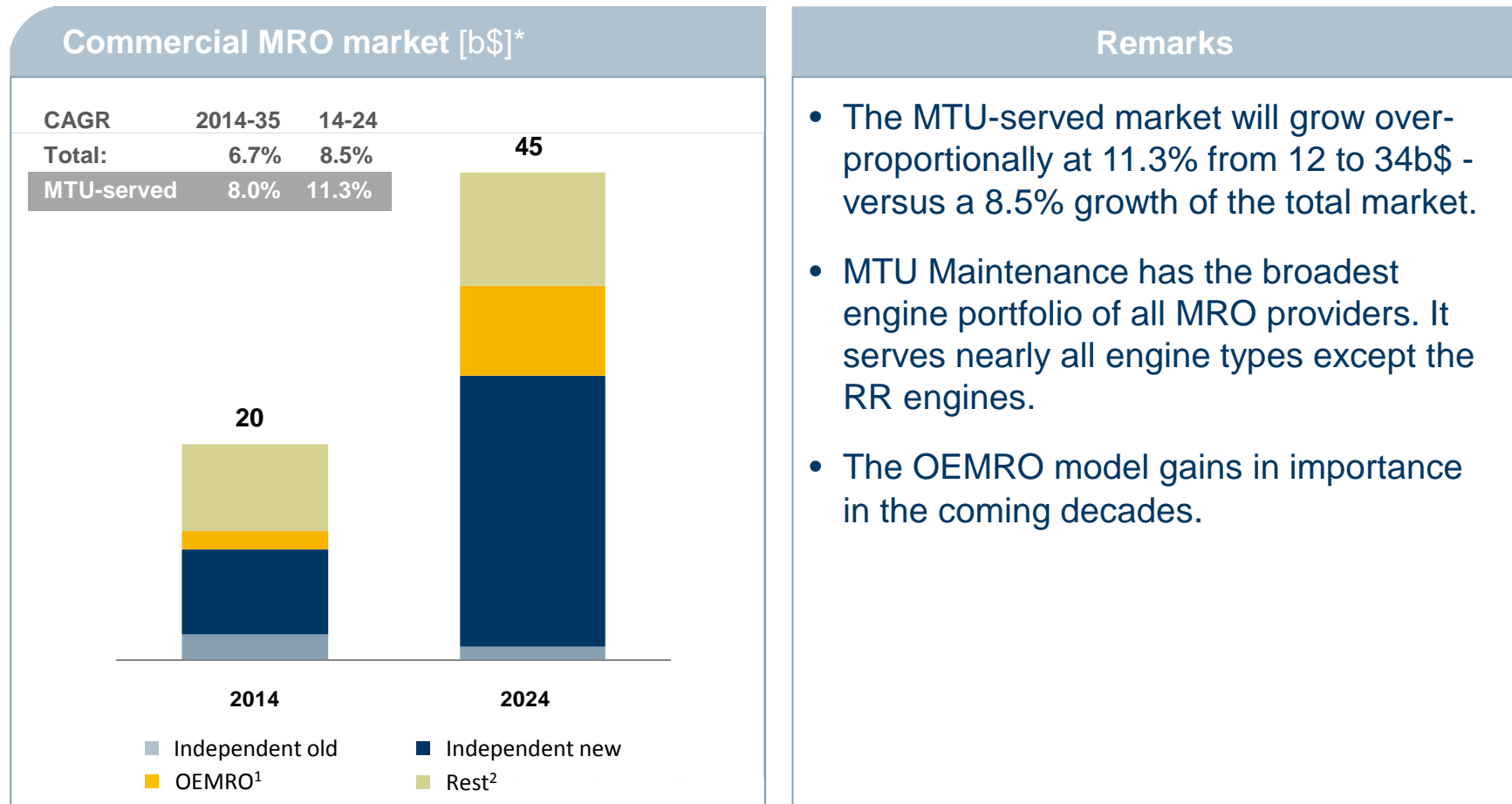
## 2024: MTU's MRO portfolio benefits from today's growth engines reaching maturity



Source: MTU, October 2014 <sup>1</sup> including military applications.

Note: The bubble size represents the active engine fleet as of 2024.

## Thanks to MTU's hybrid strategy and market coverage, its served market will grow over-proportionally at 11.3% over the next 10 years



<sup>1</sup> Including PW1100/1700/1900, GEEnX, GE-9X; <sup>2</sup> Mainly RR

Source: MTU, October 2014 \* Escalation included

# MTU Maintenance Unique Selling Proposition applies to all market segments

## DRIVERS



Operational parameters



Cycle length



Operating environment

## ENGINE OPERATIONS: Measures to defer /avoid shop visits\*



Procedure adjustments



On-site maintenance



Engine cleaning



Condition monitoring



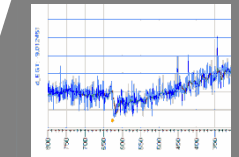
Instant power



Unscheduled (e.g. FOD)



LLP expiry



Hardware/performance



Optimized fleet/LLP management



Material management



MTUPlus repairs



Repair vs. replace



Tailored workscoping

## SHOP VISIT: Measures to reduce cost and/or maximize asset value\*

## TRIGGERS

\* Decision by airline and/or MRO

## MTU Maintenance has the largest MRO portfolio and is the only provider capable of covering/accessing all market segments ...

Segment	2014	Share of MRO Revenues*
1 Independent old	<ul style="list-style-type: none"> <li>• #1 independent for all types served</li> <li>• High market shares... up to market leadership</li> <li>• High repair depth and margins</li> </ul>	25%
2 Independent new	<ul style="list-style-type: none"> <li>• #1 independent</li> <li>• High market shares in large growing volume markets (e.g. 10% CFM56-7)</li> <li>• Alternative repair/workscoping solutions</li> </ul>	35%
3 OEMRO	<ul style="list-style-type: none"> <li>• High and growing V2500 IAE-FHA volume performed</li> <li>• GP7000 LPT MRO</li> <li>• Participation in GTF and GEnx MRO</li> </ul>	20%
IGT et al.		20%

## MTU Maintenance has unique abilities to offer both alternative custom-tailored products for all market segments

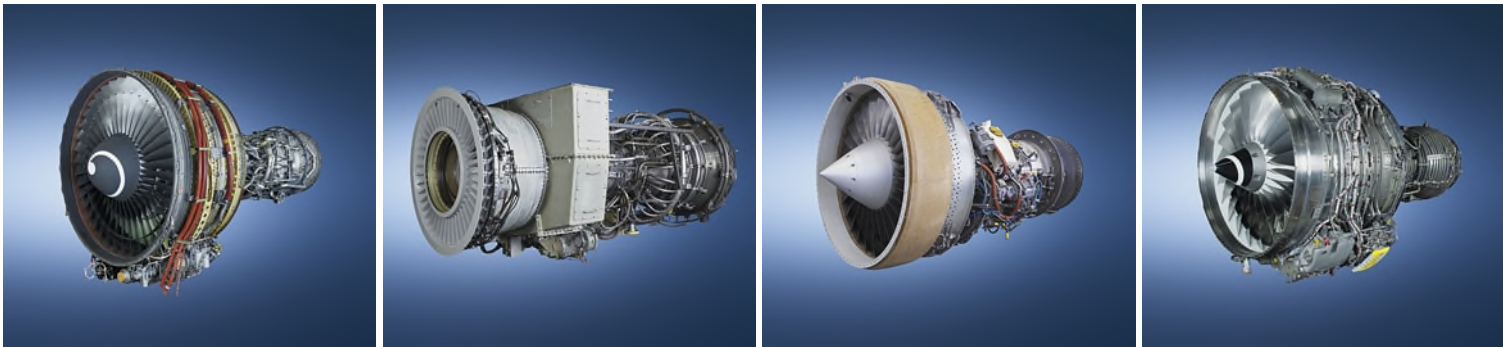
Segment	10 years outlook	Share of MRO Revenues*
1 Independent old	<ul style="list-style-type: none"> <li>• Niche segment (fast declining market)</li> <li>• Well positioned to gain market share</li> <li>• Growing role of MRO alternatives (MTU<sup>Plus</sup> Mature Engine Solutions)</li> </ul>	10%
2 Independent new	<ul style="list-style-type: none"> <li>• Keep or gain market shares as market matures</li> <li>• Benefit from migrations</li> <li>• Large/increasing shop visit volume</li> <li>• Growing EBIT contribution</li> </ul>	40%
3 OEMRO	<ul style="list-style-type: none"> <li>• Increasing volumes, focus on V2500 and GTF</li> <li>• MRO network optimized to also fulfill OEMRO requirements</li> </ul>	30%
IGT et al.		20%

## Summary and Outlook

- MTU's market coverage grows over-proportionally at 11.3% over the next 10 years
- MTU MRO's organic growth, thanks to its diversified portfolio with a strong focus on newer engines, reaching maturity in the coming decade
- MTU Maintenance will remain the MRO provider covering all market segments by offering customized services as independent and OEM network partner
- MTU Maintenance is well positioned to gain market shares and benefit from the market dynamics within the served market segments







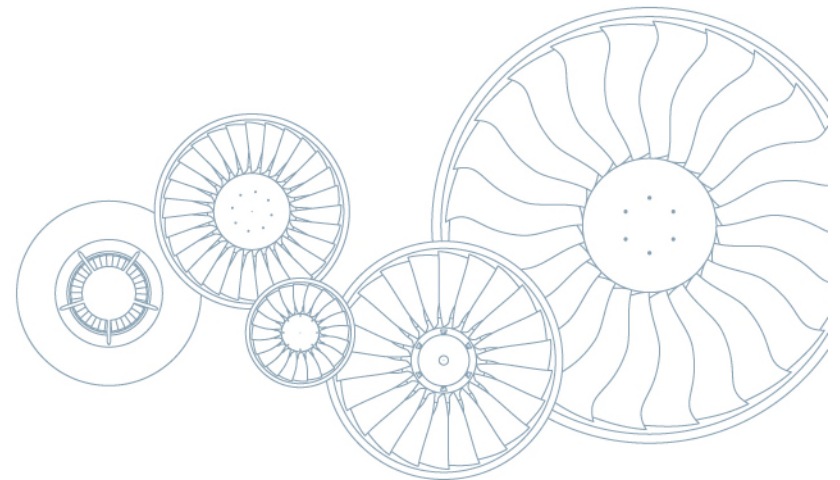
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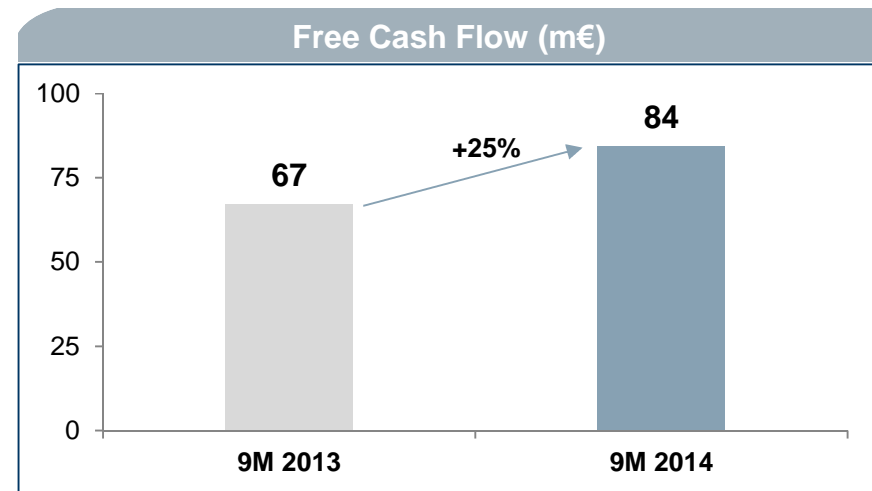
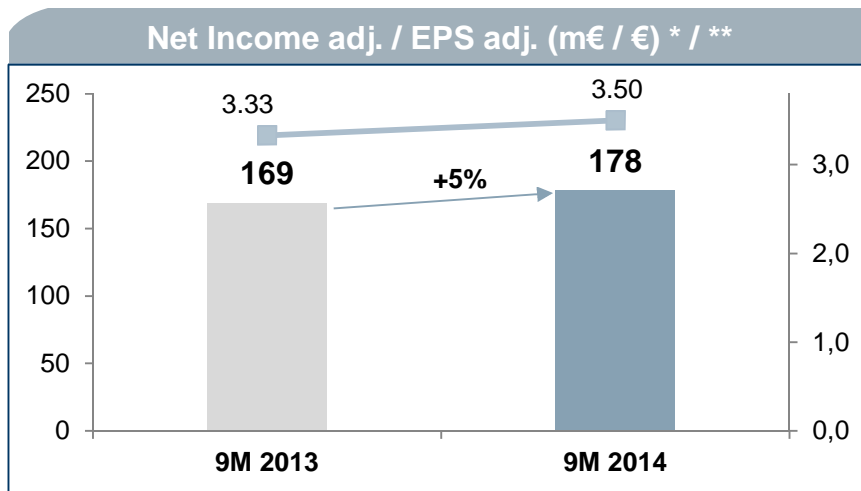
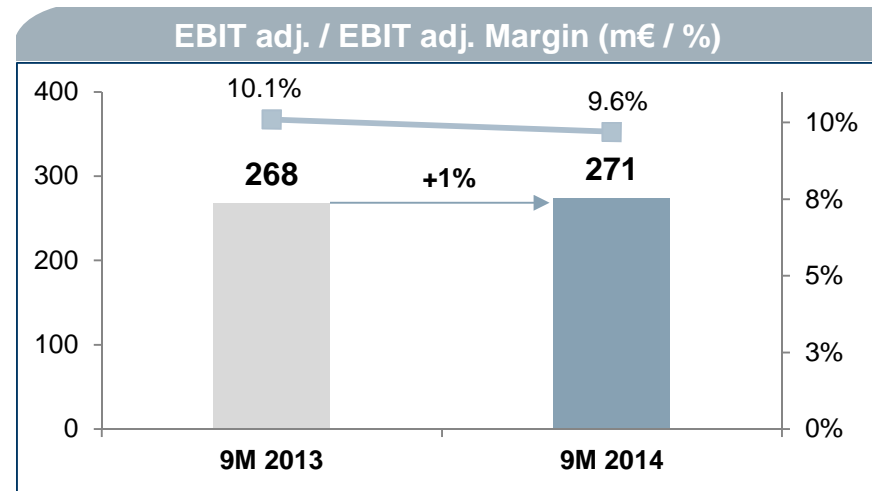
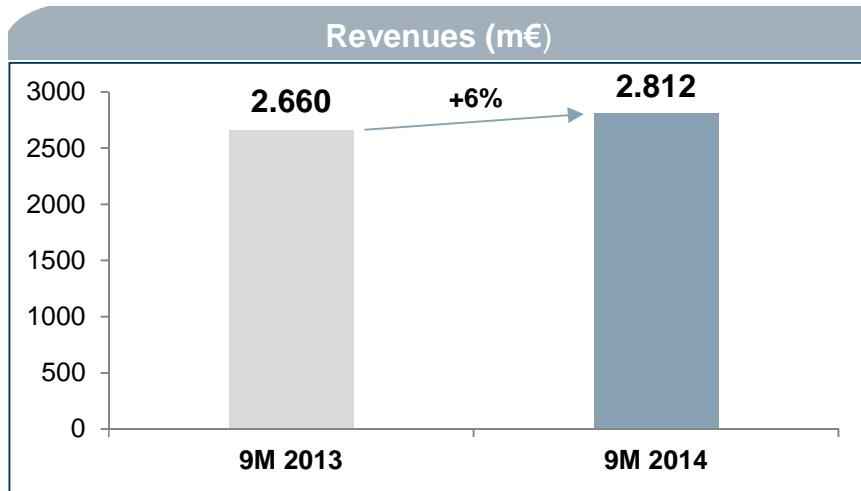
# Financials & Outlook

Reiner Winkler, CEO

Munich, November 25, 2014



## Financial Highlights 9M 2014



\* w/o market-to-market valuations of US\$, nickel and options and others \*\* New underlying tax rate of 30% for 2014

## Guidance 2014

in m€	FY 2013 adjusted for MTU Zhuhai	Guidance 2014 July	Guidance 2014 Update October
<b>Revenues</b>	3,574.1	~ 3,650	~ 3,750
<b>EBIT adj.</b>	373.1 10.4%	~ 375	~ 380
<b>Net income adj.</b>	235.7	~ 245	~ 250

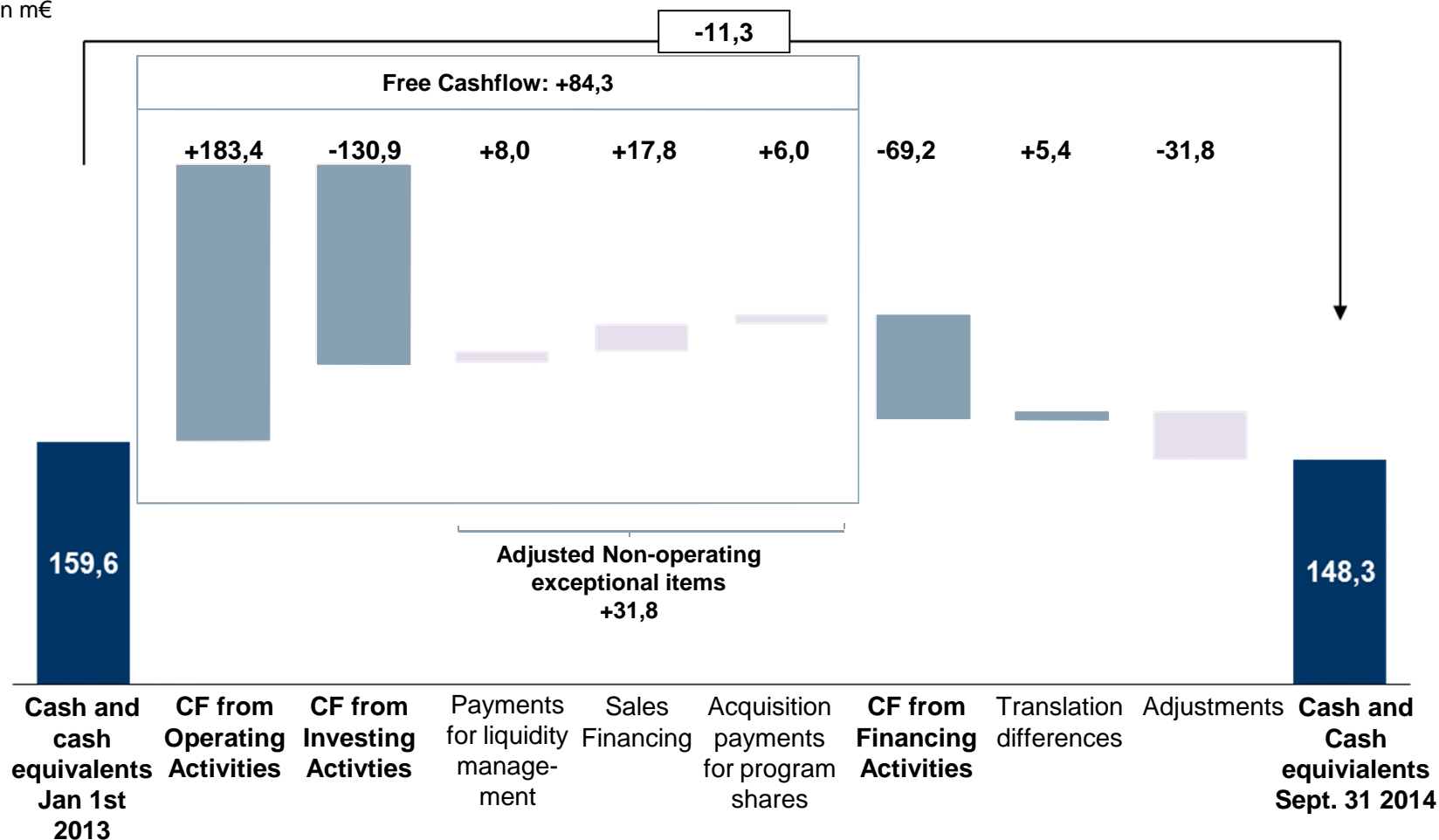
- Series revenues expected to increase in the low teens
- Spare parts revenues expected to grow high single digit
- Military revenues to remain flat on the level of 2013
- Commercial MRO revenues expected to be up low single digit
- Free Cashflow is expected at mid double digit (w/o acquisition payments for new programs)

## Definition of Free Cash Flow

- Free Cash Flow is determined by combining Cash Flow from Operating Activities and Cash Flow from Investing Activities
- Both components of Free Cash Flow are well-defined under IFRS
- MTU adjusts items which have a financing character or are related to acquisitions of program stakes and thus are not part of the operating performance of MTU:
  - Liquidity management
  - Sales financing
  - Acquisition payments for new engine programs
- All adjustments and breakdown fully disclosed in MTU's annual and quarterly reports
- In the future MTU will show a waterfall chart in the quarterly presentation to further improve transparency

## MTU's Cash development January – September 2014

in m€

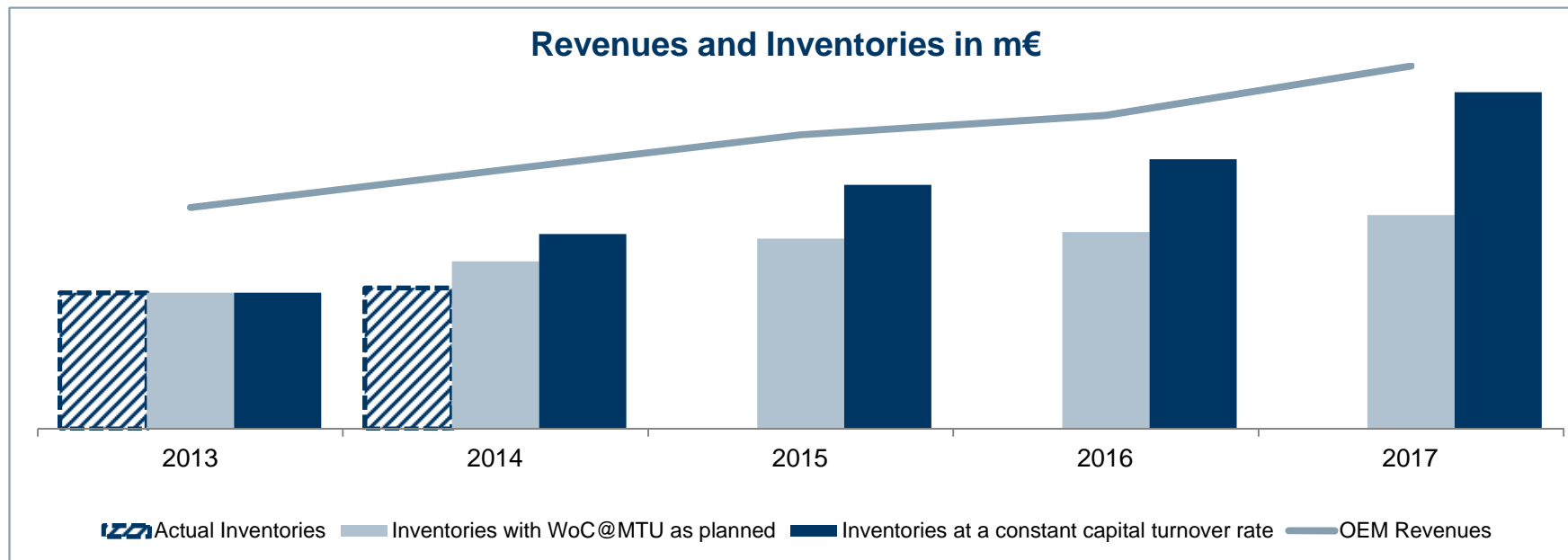




## Status „Cash for Future“ Project – FCF contribution Launched to Limit Impacts due to challenging Business Environment 2014- 2017

- Target to improve capital turnover rate from 3,5 in 2013 to 4,5 by 2017
- Capital turnover rate already expected to be around 4,4 in 2014

→ Target to limit inventory growth by 100 m€ on track



## „Cash for Future“ Project: Examples of Working Capital Optimization

**Integrated  
planning &  
coordination**

**Centralized Supply Chain Management Organisation**

**Improved  
production  
flow**

**Lead time reduction 3-4%  
in production and assembly**

**Reduced  
provisioning  
buffer**

**Optimization of inventory range**

**Training &  
Qualification**

**Comprehensive and customized qualification on  
WOC Management**

## New IFRS 15: Revenues from Contracts with Customers

- IFRS 15 targets alignment of IFRS and US-GAAP revenue recognition
- The new standard was commonly issued by FASB and IASB in May 2014
- In Europe it may be applied after EU endorsement (expected Q2/2015)
- Mandatory application in 2017 for EU and US
- Core principle: Revenue recognition shall reflect the expected pricing for exchanged goods or services

### **All existing contracts of MTU have to be examined**

#### **IFRS 15 might impact MTU's**

- **Treatment of sales concessions**
- **Treatment of FHA contracts**

## Head- and Tailwinds 2015

### Revenue Growth

Military:	Stable	⇒
New engine Sales (Com. OE):	High single digit	↑↑
Spare parts Sales (Com. Spares):	Mid single digit	↑
Commercial MRO:	High single digit	↑↑

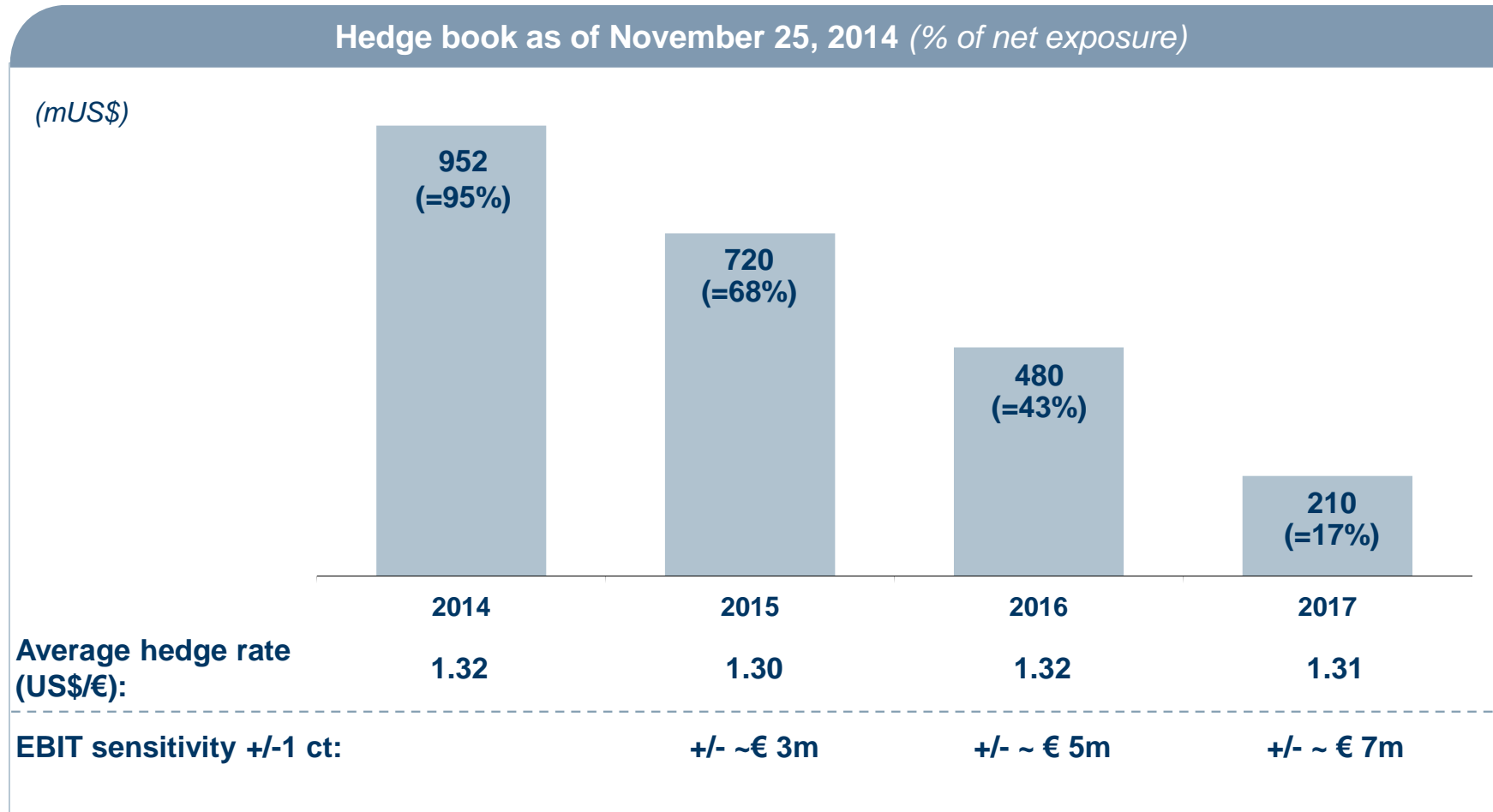
Slight tailwind from US\$ fx-rate

## Long term outlook 2014 - 2024

	Investment Phase 2014-2017	Consolidation Phase 2018-2024
<b>Revenues</b>	Military: → Com. OE: ↑↑ Com. Spares: ↑ Com. MRO: ↑↑	Military: ↘ Com. OE: ↗ Com. Spares: ↑↑ Com. MRO: ↑↑
<b>EBIT adjusted</b>	Moderate progression	Margin expansion
<b>Net Income adjusted</b>	Growth stronger than EBIT adj. (Falling tax rate)	Growth in line with EBIT adj.
<b>CCR*</b>	Low double digit %	High double digit %

\*) Cash Conversion Rate (CCR) defined as Free Cash Flow / Net income adjusted

## US\$ Exchange Rate / Hedge Portfolio





## Summary

- **GE9X participation** increases MTU's footprint in the widebody market
- **PW800 share** strengthens MTU's position in the future business jet market
- **R&D program** for all GTF platforms **on schedule**
- Projects for **production ramp up** well on track
- **Improvements of existing engine technology** will ensure MTU's ongoing success
- MTU **MRO well positioned** in changing business environment
- Efficiency program "**Cash for Future**" with higher impact on inventories
- **Free Cash Flow in 2014** significantly **better** than expected
- **Profitability** and **cash flow improvement targeted** by the end of the decade



**Thank you for your attention!**

## Cautionary Note Regarding Forward-Looking Statements

Certain of the statements contained herein may be statements of future expectations and other forward-looking statements that are based on management's current views and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in such statements. In addition to statements that are forward-looking by reason of context, the words "may," "will," "should," "expect," "plan," "intend," "anticipate," "forecast," "believe," "estimate," "predict," "potential," or "continue" and similar expressions identify forward-looking statements.

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