



# GE Investor Meeting at the Paris Air Show

David Joyce, GE Aviation CEO

Alec Burger, GE Capital Aviation Services CEO

**20 June 2017**

**CAUTION CONCERNING FORWARD-LOOKING STATEMENTS:**

This document contains "forward-looking statements" – that is, statements related to future events that by their nature address matters that are, to different degrees, uncertain. For details on the uncertainties that may cause our actual future results to be materially different than those expressed in our forward-looking statements, see <http://www.ge.com/investor-relations/disclaimer-caution-concerning-forward-looking-statements> as well as our annual reports on Form 10-K and quarterly reports on Form 10-Q. We do not undertake to update our forward-looking statements. This document also includes certain forward-looking projected financial information that is based on current estimates and forecasts. Actual results could differ materially.

GE Aviation

# GE Aviation leadership



**DAVID L. JOYCE**  
Vice Chair, GE Company,  
President & CEO, GE Aviation



**COLLEEN ATHANS**  
Vice President and  
General Manager  
**Supply Chain**



**MOHAMMAD  
EHTESHAMI**  
Vice President and  
General Manager  
**GE Additive**



**TONY MATHIS**  
Vice President and  
General Manager  
**Military Systems**



**JEAN  
LYDON-RODGERS**  
Vice President and  
General Manager  
**Services**



**SHANE WRIGHT**  
Vice President and  
Chief Financial Officer  
**Finance**



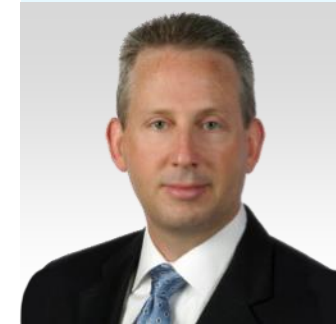
**ALAN CASLAVKA**  
Vice President and  
General Manager  
**Avionics**



**BILL FITZGERALD**  
Vice President and  
General Manager  
**Commercial Engines**



**BRAD MOTTIER**  
Vice President and  
General Manager  
**BGA & Integrated  
Systems**



**JAMIE REGG**  
Senior Executive  
**Communications &  
Infrastructure**



# The GE Aviation story

**Market and business update**

David Joyce

**Commercial Engines**

Bill Fitzgerald

**Services**

Jean Lydon-Rodgers

**Military**

Tony Mathis

**Business & General Aviation**

Brad Mottier

**Wrap**

David Joyce



# Market and business update

An aerial view of a coastline seen from an airplane window. The sky is a deep blue with wispy clouds. The land below is a lighter blue, showing a coastline with mountains and a bay. The airplane's wing and engine are visible in the bottom left corner. Two horizontal blue lines are drawn across the middle of the image.

David Joyce  
President & CEO

# New since Farnborough

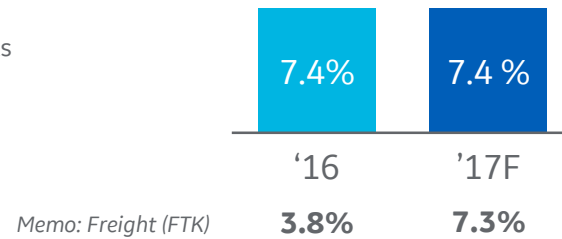
- GE and JVs surpass 65,000 installed engines ... \$150B+ backlog
- 30,000<sup>th</sup> CFM56 engine delivered ... LEAP a resounding success
- \$1B USAF award for adaptive cycle engine development
- \$102M US Army award for ITEP preliminary design
- HondaJet in service and Passport<sup>™</sup> certified
- Avio Aero third-party backlog commitments up 10%
- GE announces launch of GE Additive
- Acquired AirVault and announcing 30 new digital technologies at the show



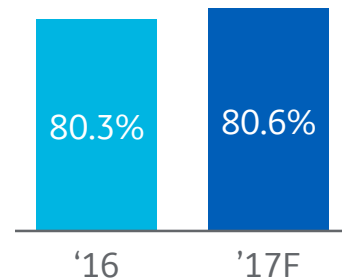
# Aviation commercial environment



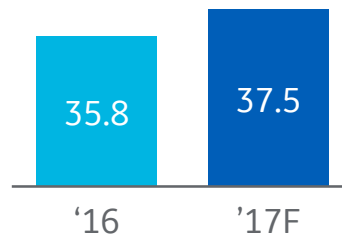
**Demand**  
% change,  
(IATA), RPKs



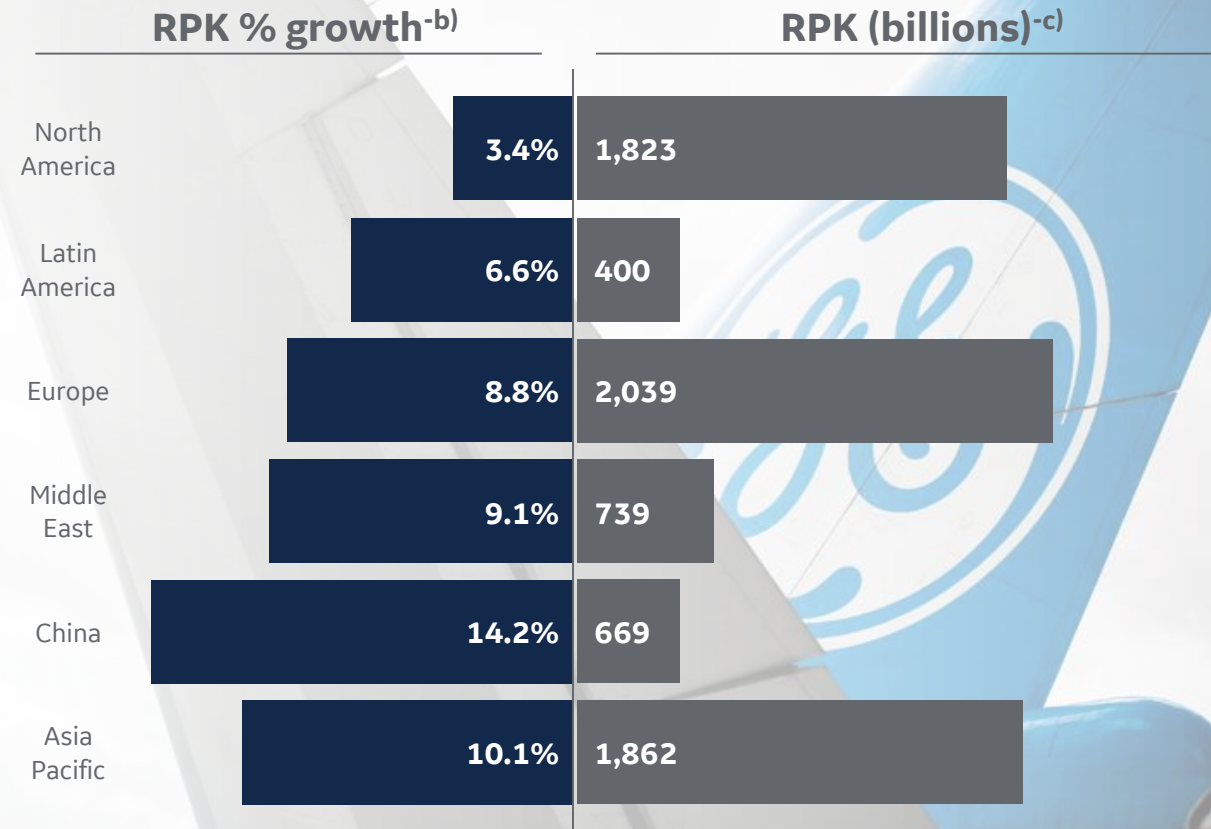
**Load factors**  
% PLF (IATA)



**Departures<sup>-a)</sup>**  
Millions of (IATA)



## Strong start to '17 ... +8% PAX growth



Source: IATA, EIA, GE Analysis

(a- Aircraft Departures - June '17 IATA Economic Performance of the Airline Industry

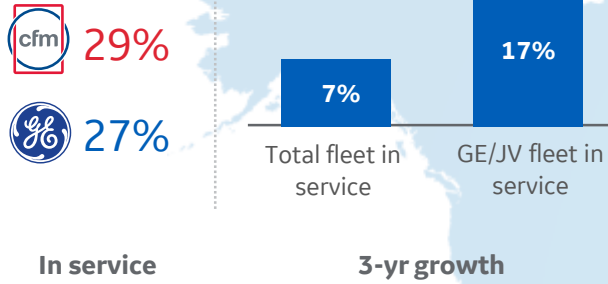
(b- RPK April YTD YTD% change

(c- April YTD world share %, applied to RPKs from '17 semi-annual financial outlook report,

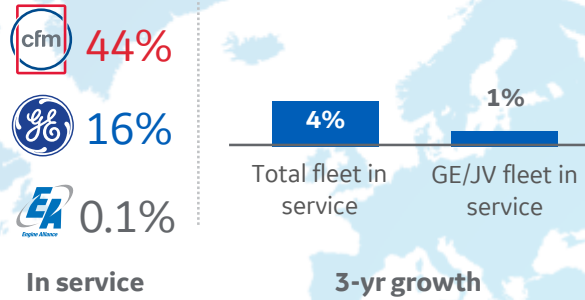


# Strong global position <sup>(1)</sup>

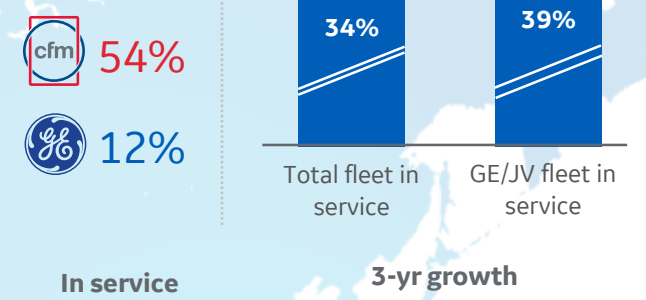
## North America ... \$32B backlog



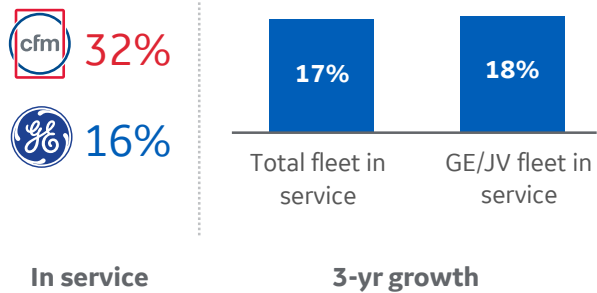
## Europe ... \$19B backlog



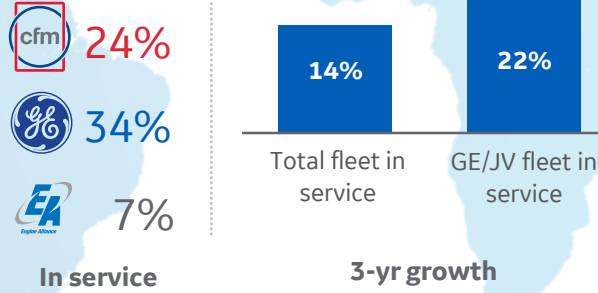
## China ... \$14B backlog



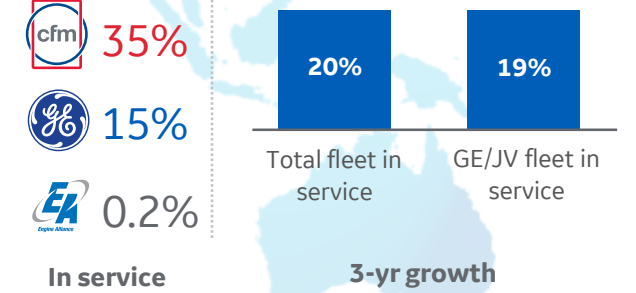
## Latin America ... \$9B backlog



## Middle East ... \$54B backlog



## Asia ... \$21B backlog



<sup>(1)</sup>Commercial scheduled service engine backlog

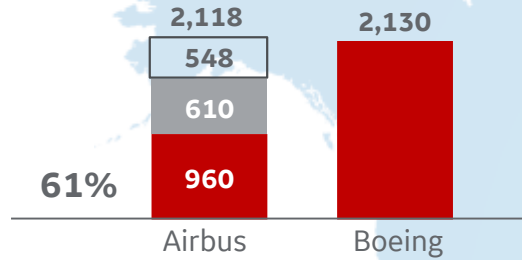
CFM is a 50/50 JV between GE and Snecma  
EA is a 50/50 JV between GE and Pratt & Whitney

# LEAP ... clear leader

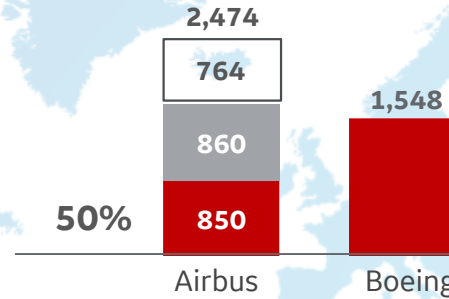
(# engines ordered)

LEAP GTF Engine unannounced

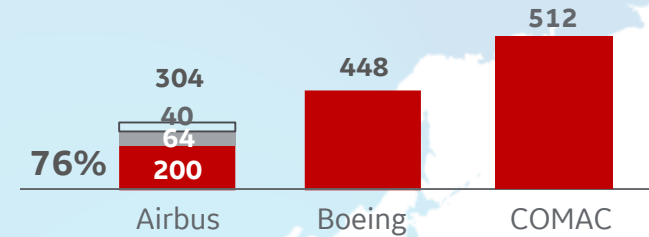
## Americas



## Europe



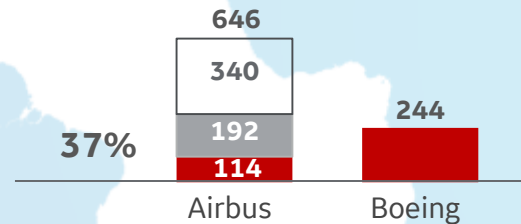
## China<sup>a)</sup>



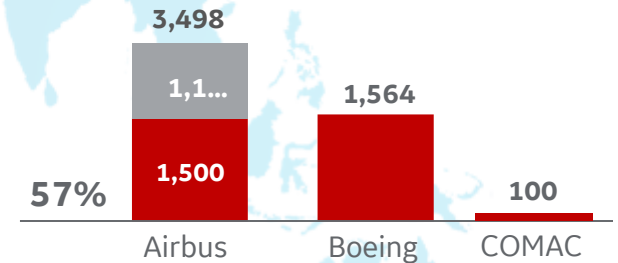
## Africa



## Middle East



## Asia



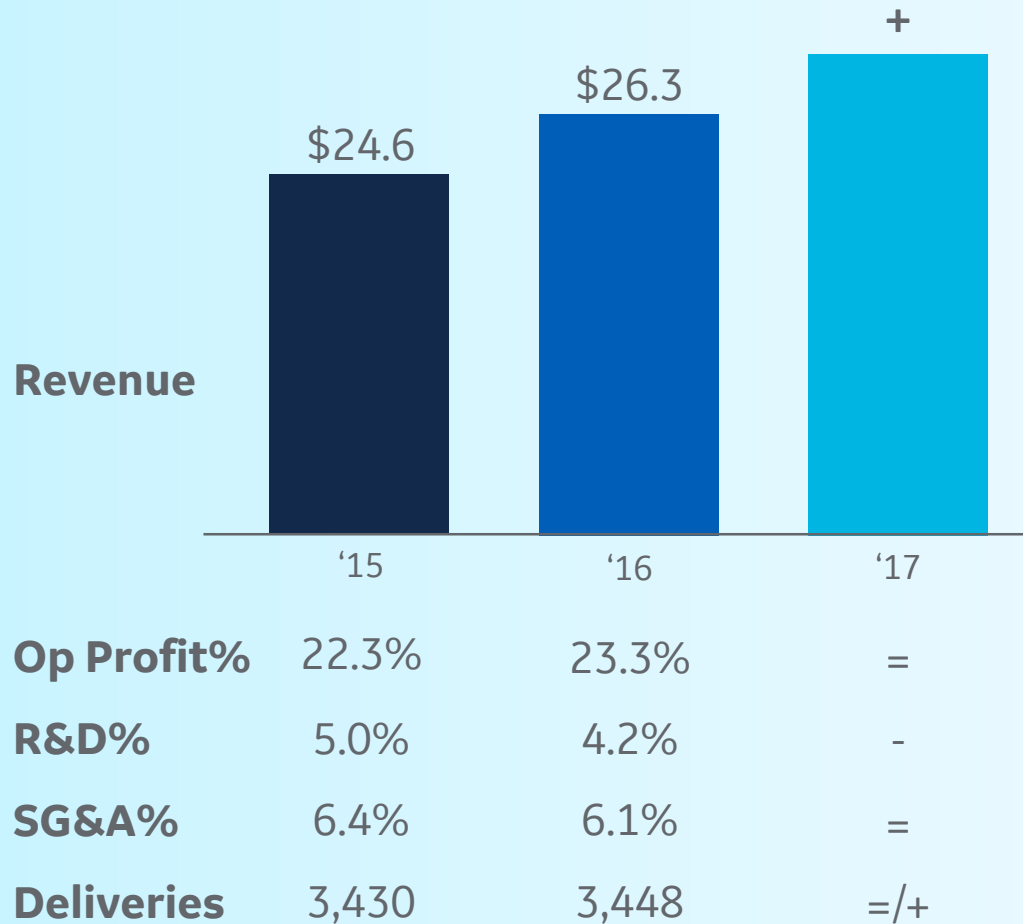
### Global win rates

Airbus A320neo family – 56%  
 Boeing 737MAX family – sole source  
 COMAC C919 family – sole source



# Aviation financial results ... delivering today and securing tomorrow

(\$ in billions)



## Accomplishments

- Sustained 7% organic revenue growth for 5 years
- Unprecedented commercial installed base growth at 5% CAGR over 5 years ... 12% backlog CAGR
- Demonstrated strong product leadership thanks to continued R&D investment
- 3% increase in deliveries during a significant Supply Chain transition
- Vigilant cost control and lean structure



# Commercial Engines

The commercial product portfolio... a winning transformation



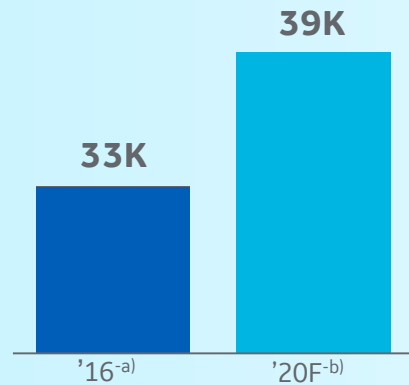
**Bill Fitzgerald**  
Vice President,  
Commercial Engines



# Securing the next generation

## Installed fleet

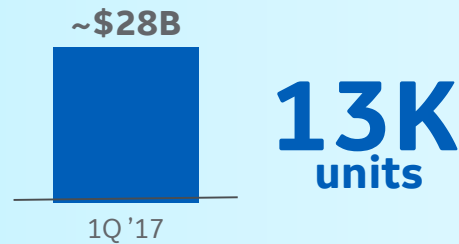
GE and JV engines<sup>-a)</sup>



## Widebody



## Commercial Engine Backlog



## Narrowbody and regional



(a- GE comm'l installed base 11,133; JV comm'l installed base 21,716  
 (b- GE comm'l installed base 11,749; JV comm'l installed base 27,394  
 (c- CFM is a 50/50 JV between GE and Snecma  
 (d- EA is a 50/50 JV between GE and Pratt & Whitney





LEAP

1<sup>st</sup>

- In win rate on A320neo family
- A321 in service
- To fly on A319neo
- In acoustics ... best in class noise levels
- In daily utilization
- With lease customers



EIS August 2016



EIS May 2017



Flight Testing May 2017

### Airfinance Journal

2017 Engine poll

- #1 Residual Value
- #1 Remarketing Potential
- #1 Investor Appeal



# LEAPing into service

## Airbus A320neo

**124**

engines in service  
vs 108 PW1100Gs

**13**

customers

**9+**

flight hours per day



## A321neo

first delivery April 20th



UPCOMING DELIVERIES:

**easyJet**

**novair**

## Boeing 737MAX

**4**

engines in service



**7**

flight hours per day

**737-9**

first flight April 13th



**737-10X**

offered with LEAP 1B

UPCOMING DELIVERIES:

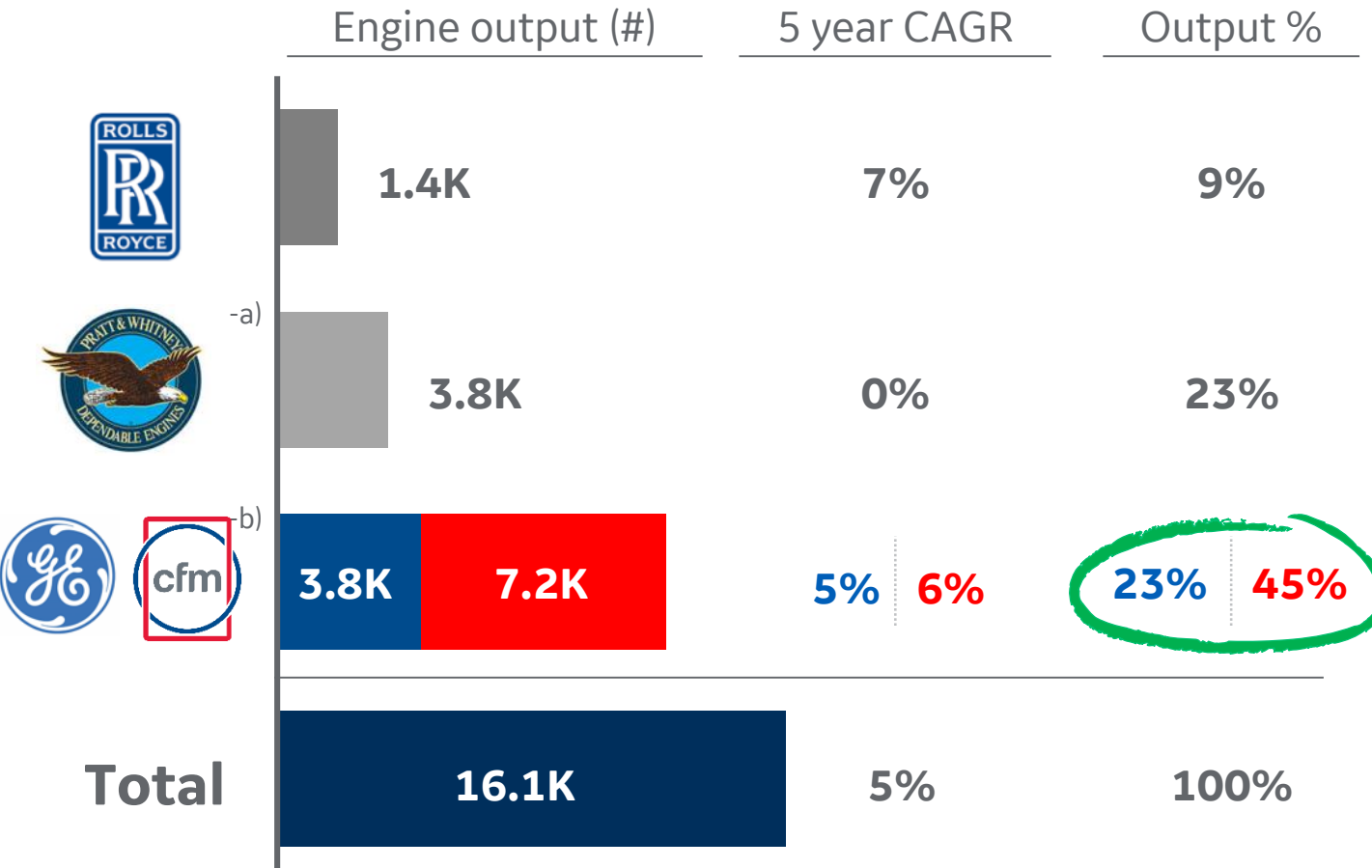
**norwegian**



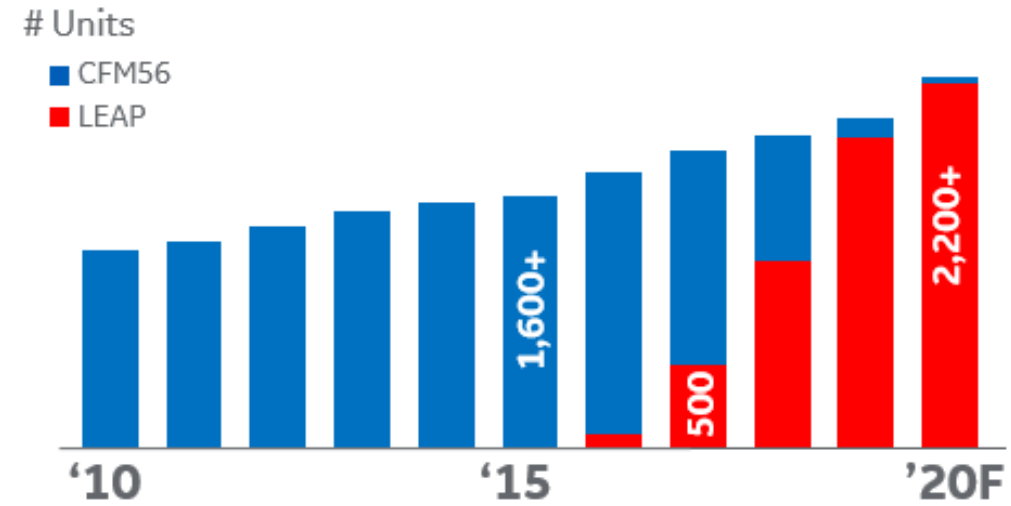
Surpassed GTF in delivered aircraft ... utilization 10% better than competition



# LEAPing into rate production



## CFM / LEAP production profile



- ✓ 90% of parts dual-sourced
- ✓ ~\$1B invested in new manufacturing
- ✓ Proactive supplier actions ... run at rate testing

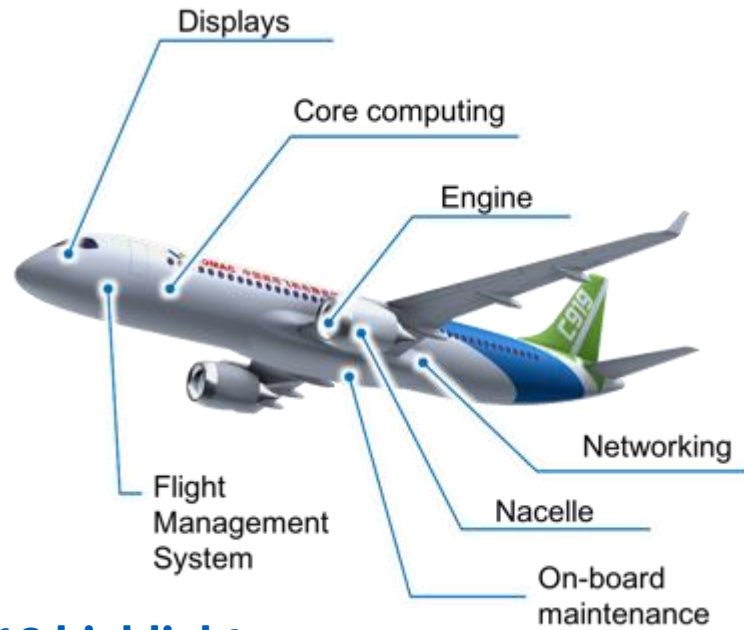
**GE / CFM most experienced in high rate production**



(a- includes Engine Alliance JV and IAE JV.

(b- includes CFM International and Engine Alliance JVs. CFM is a 50/50 JV between GE and Snecma. Engine Alliance is a 50/50 JV between GE and Pratt & Whitney.

# LEAPing ahead with COMAC



## C919 highlights:

- Backlog: **570** aircraft
- Total content: ~\$12M/aircraft<sup>a)</sup>
- Entry into service: **2019**

(a- Aviage + GE + CFM)

LEAP is a registered trademark of CFM International, a 50/50 joint venture with Snecma



*"China's New Jetliner, the COMAC C919, Takes Flight for First Time"*

**The New York Times**

*"China's 1st big passenger jet completes maiden flight"*

**CNN Money**

*"China's C919 Passenger Jet Makes Maiden Flight in Challenge to Boeing, Airbus"* **NBC NEWS**

**Launch customer**  **中國東方航空**  
**CHINA EASTERN**



2011  
G E n x



2016  
L E A P



2020  
G E 9 X

# GE9X ... simply the best in class

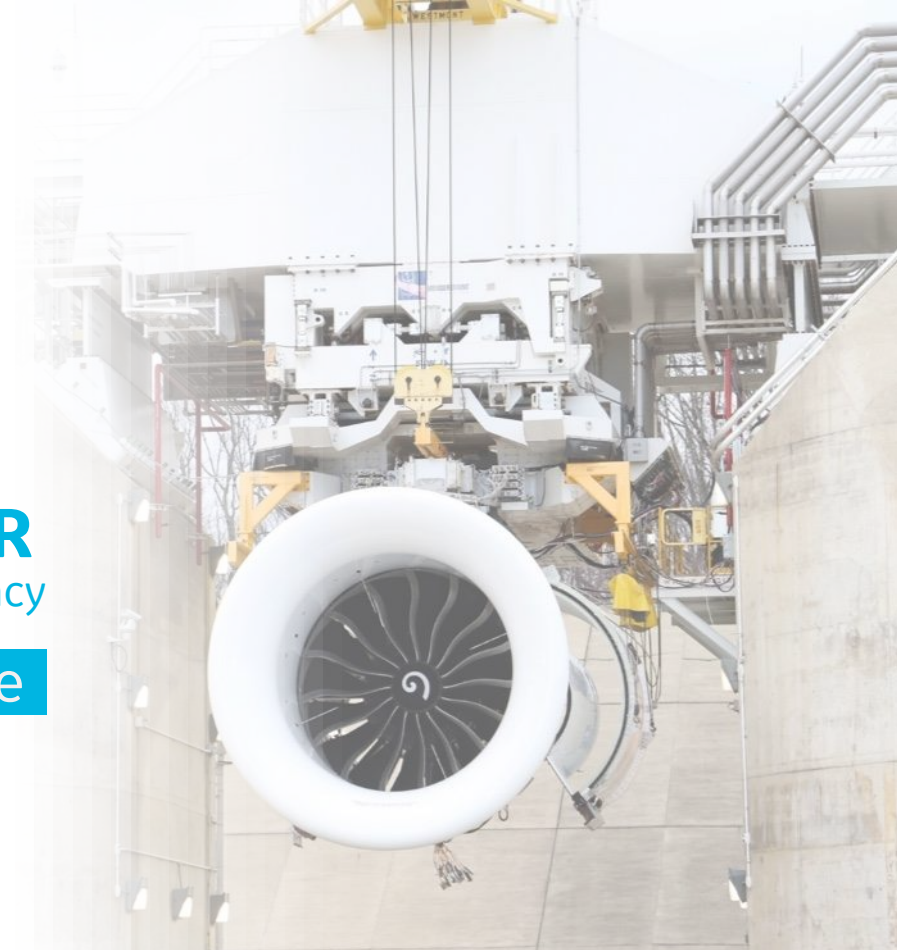
**Sole source** on 777X

**BEST** architecture, aero and materials technology in **industry**

Certification testing **underway**

**650+** engines on order

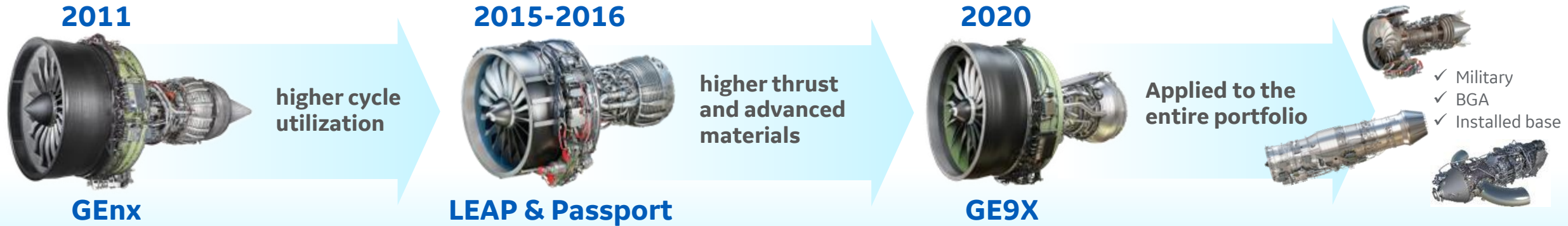
**5%**  
**BETTER**  
fuel efficiency  
**vs. ANY engine**  
I N C L A S S



 <b>Fan blades</b>	 <b>Compressor</b>	 <b>Combustor</b>	 <b>CMCs</b>
<b>16</b> BLADES	<b>27:1</b> PRESSURE ratio	<b>25-30</b> % REGULATORY margin NOx	<b>15-25</b> % LESS cooling



# Only GE ... transformational technology for our customers



**EXPERIENCE**  
Delivering technology with customer confidence

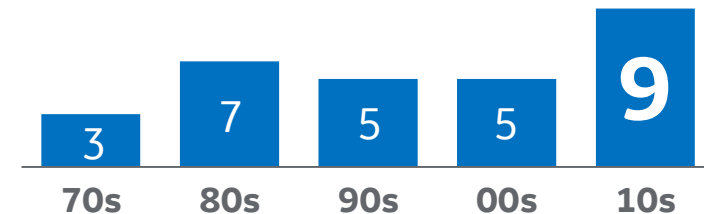
**39K**  
ENGINES  
By 2020

**120M**  
HOURS  
By 2020

## Enabling ...

- Engineering productivity 10%+
- Manufacturing technology readiness
- Supply chain efficiencies

## Civil engine launches



LEAP is a trademark of CFM International, a 50-50 JV between Snecma and GE  
 Technology experience (engines/hours): CFM: ~4,000/~30MM, GE: ~2,000/~30MM  
 Commercial launches: 19 GE, 9 CFM, and 1 EA



# Services

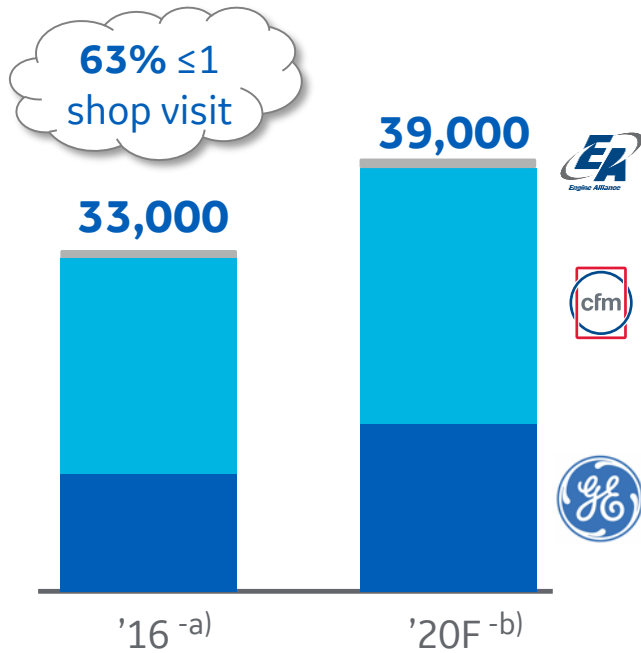
Delivering world-class services and full product support



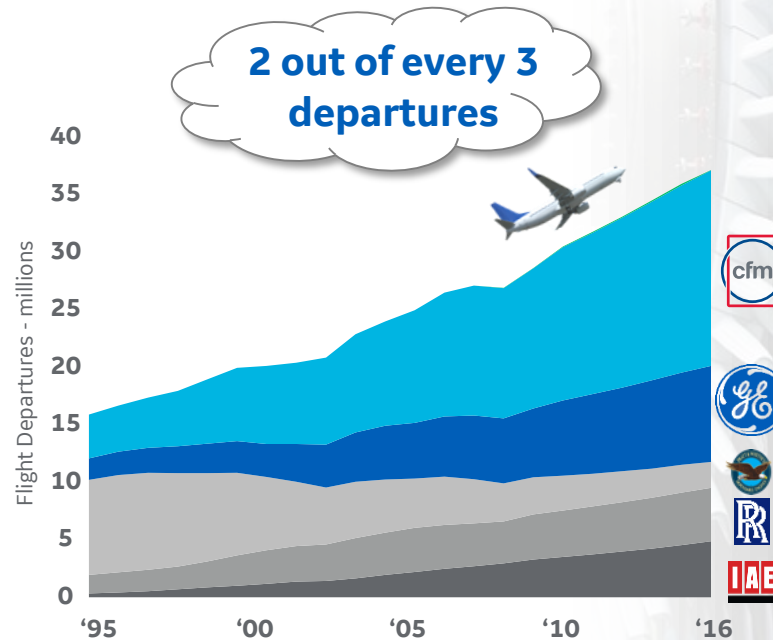
Jean Lydon-Rodgers  
Vice President, Services

# Services ... industry leading portfolio

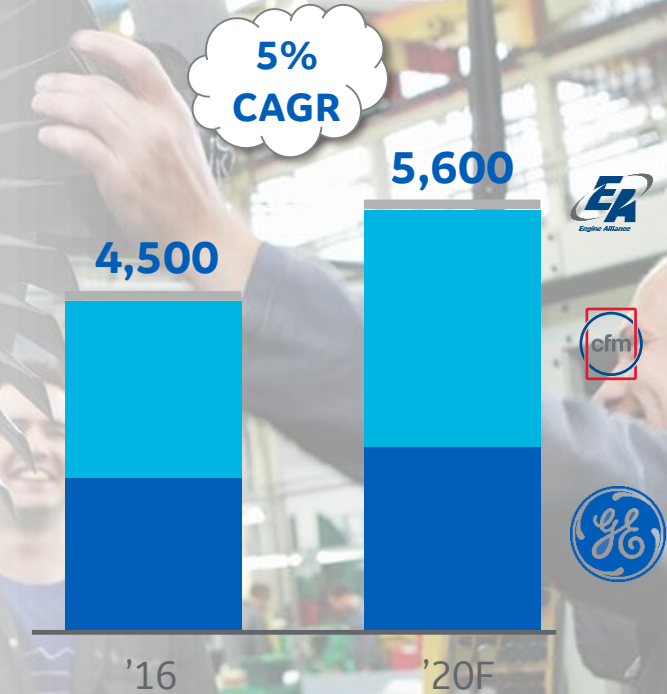
**Installed Base**  
(GE and JV engines)



**Commercial departures**



**Total fleet shop visits**



**Young, growing fleet**

**High utilization**


**Strong demand**





(a- GE comm'l installed base 11,133; JV comm'l installed base 21,716, (b- GE comm'l installed base 11,749; JV comm'l installed base 27,394, CFM is a 50/50 JV between GE and Safran Aircraft Engines Engine Alliance is a 50/50 JV between GE and Pratt & Whitney

# Our services strategy ... better value

## TECHNOLOGY...

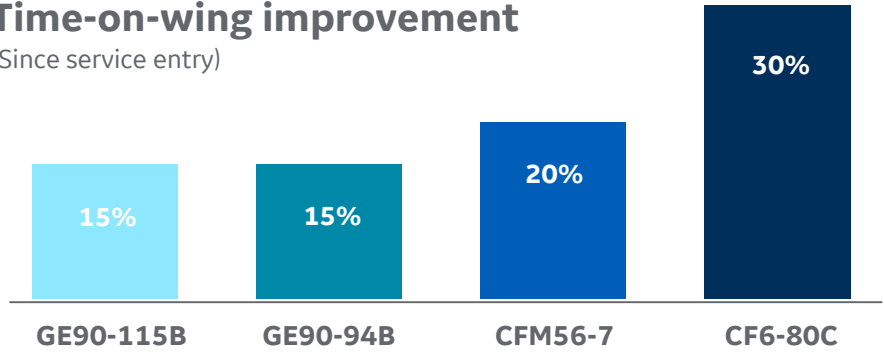
 Upgrades at maintenance events

 Improved fuel efficiency, durability, reliability

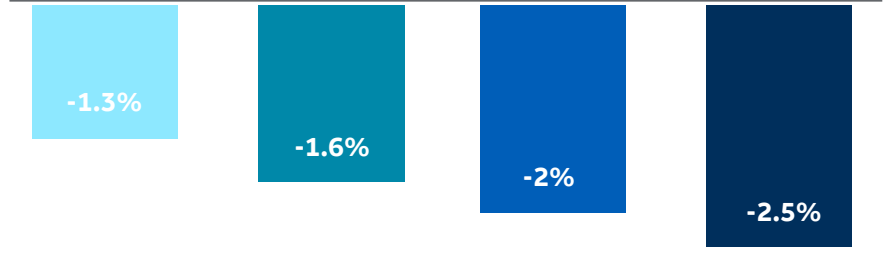
 Grows product preference through the lifecycle

## CUSTOMER VALUE ...

**Time-on-wing improvement**  
(Since service entry)



**Fuel consumption reduction**  
(Since service entry)



## CUSTOMER CONFIDENCE ...

**\$121B**  
1Q'17 backlog



CFM is a 50/50 JV between GE and Sanfran Aircraft Engines  
GP7000 is a product of EA, a 50/50 JV between GE and Pratt & Whitney



# ... throughout the lifecycle

## Customer Needs:

- Risk transfer
- Cash flow
- Predictability
- Productivity
- End of life optimization
- High residual value

ENGINE  
DELIVERIES

PARTS AND  
SERVICES

EIS

40+ Years

Transitions

TrueChoice™

Product Suite:

Overhaul  
Material  
Flight hour



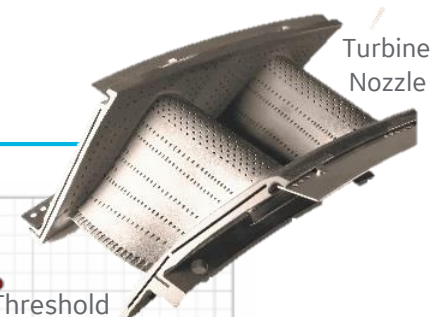
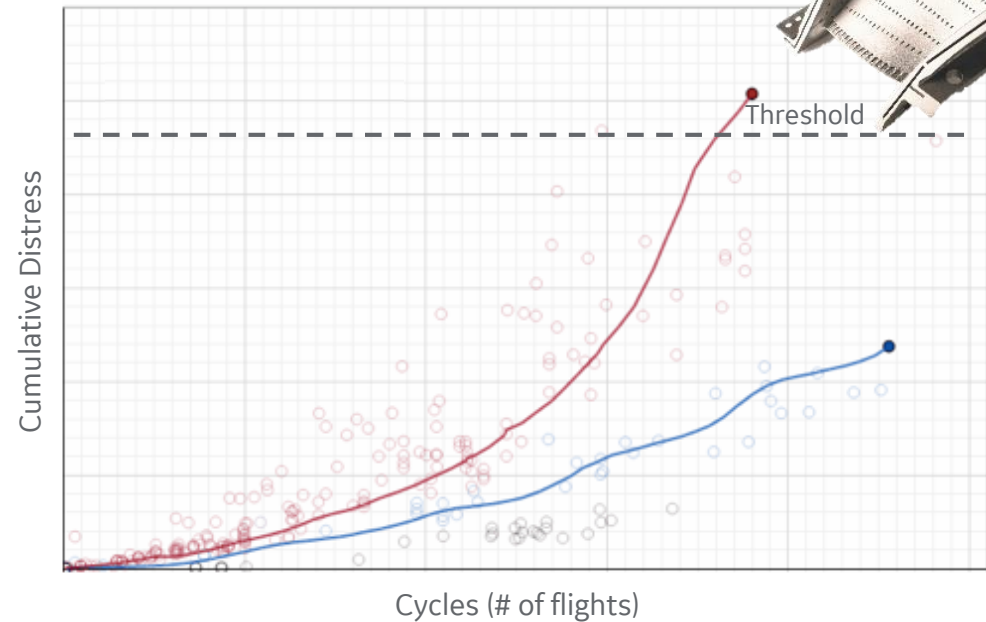
... with the most advanced capabilities

## 100M flight records per year



= Extreme variation in duty cycle

## Analytics based maintenance

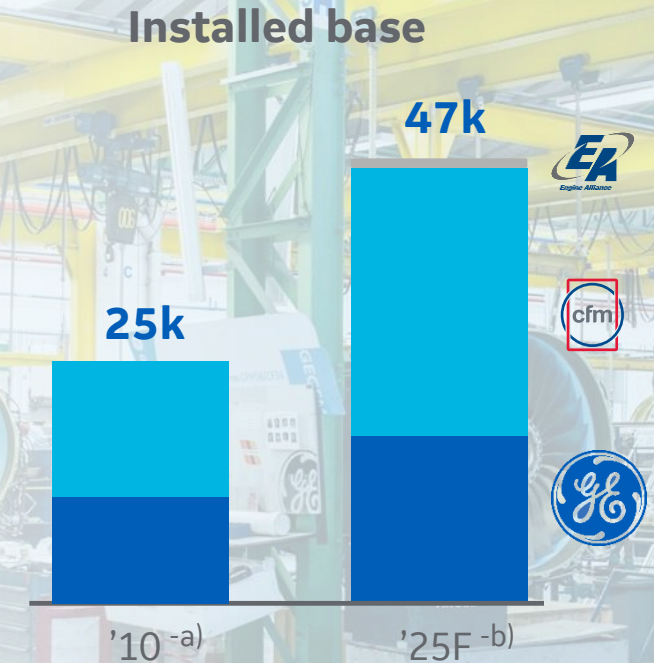


= Better predictability & planning



# Only GE ... installed base, backlog, future portfolio

- Young, fleet... best positioned for growth
- Strong commercial backlog ... \$121B
- Industry-leading technology upgrades... keeping fleets flying
- TrueChoice™ ... responsive to customers' evolving needs
- Analytics ... productivity for GE and our customers



(a- GE comm'l installed base 9,253; JV comm'l installed base 15,366  
(b- GE comm'l installed base 11,879; JV comm'l installed base 34,932  
CFM is a 50/50 JV between GE and Snecma



# Military

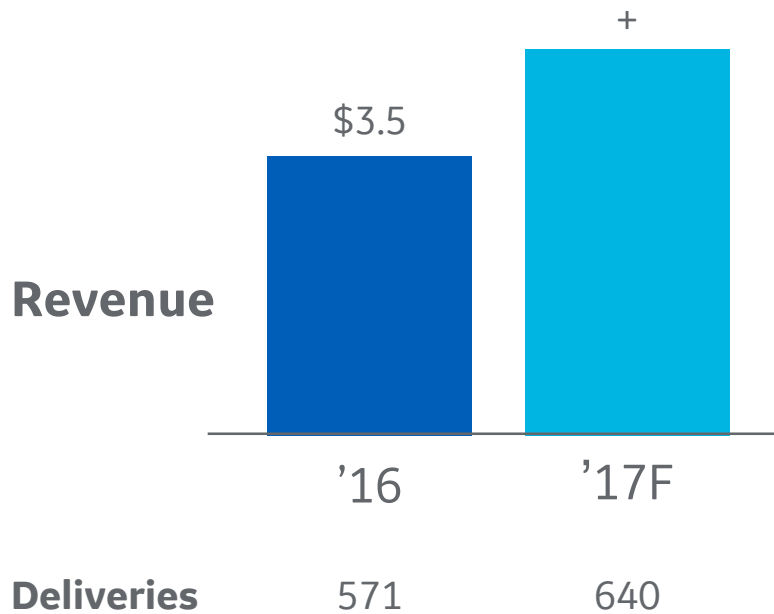
Delivering today ... with a bright future

**Tony Mathis**  
Vice President,  
Military Systems



# Military engines ... strong portfolio with growth

(\$ in billions)

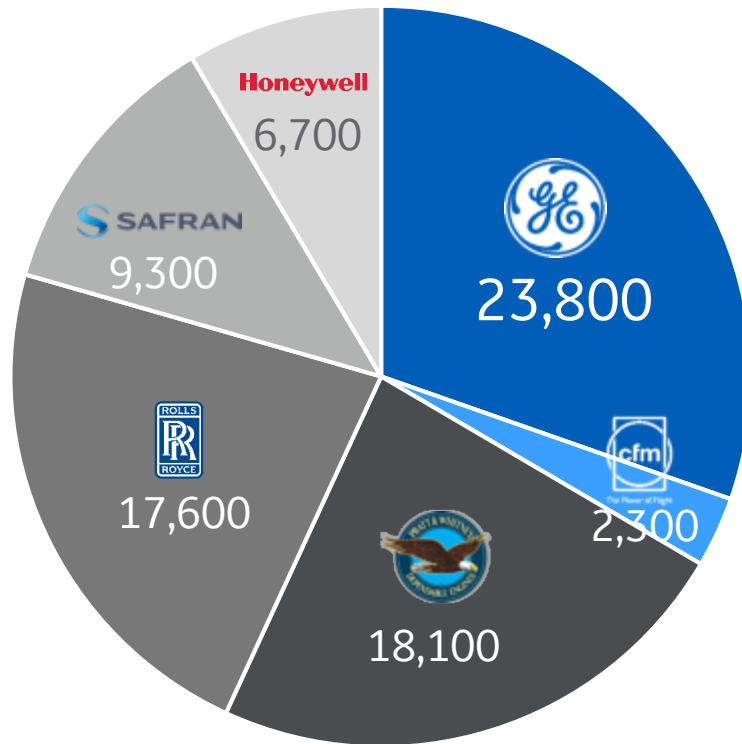


- Global threats driving international modernization.
- U.S. budget favorable to readiness and equipment growth
- Terrific leverage on tech investments enabling affordable upgrades
- Transitioning 700+ engineers to military development programs



# A well positioned military business ...

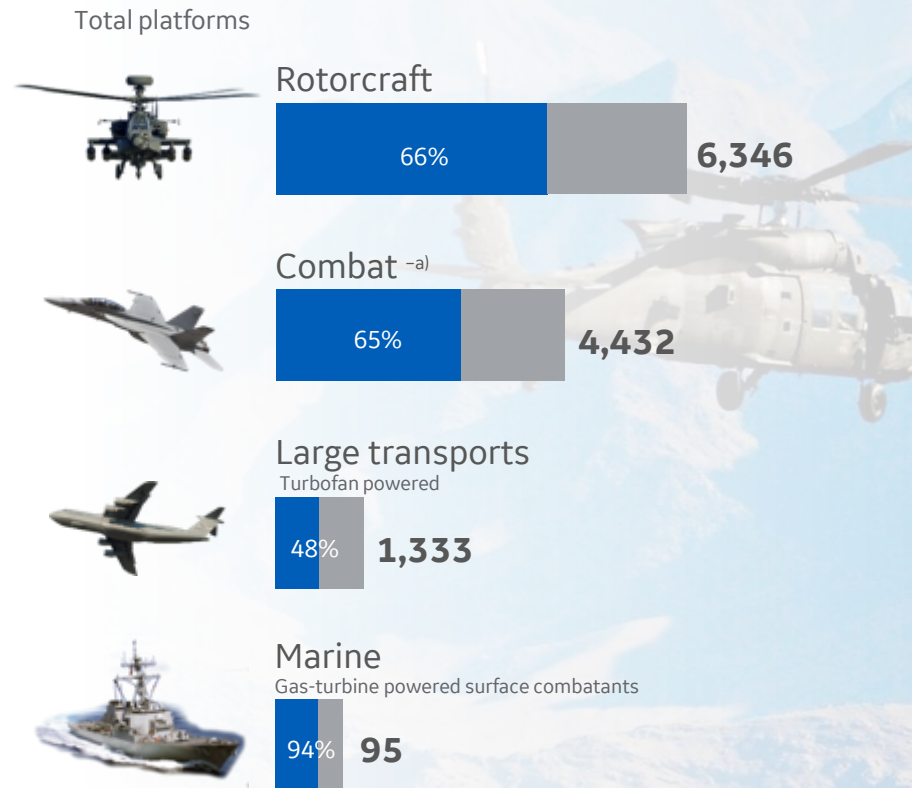
## Global installed fleet



Notes:

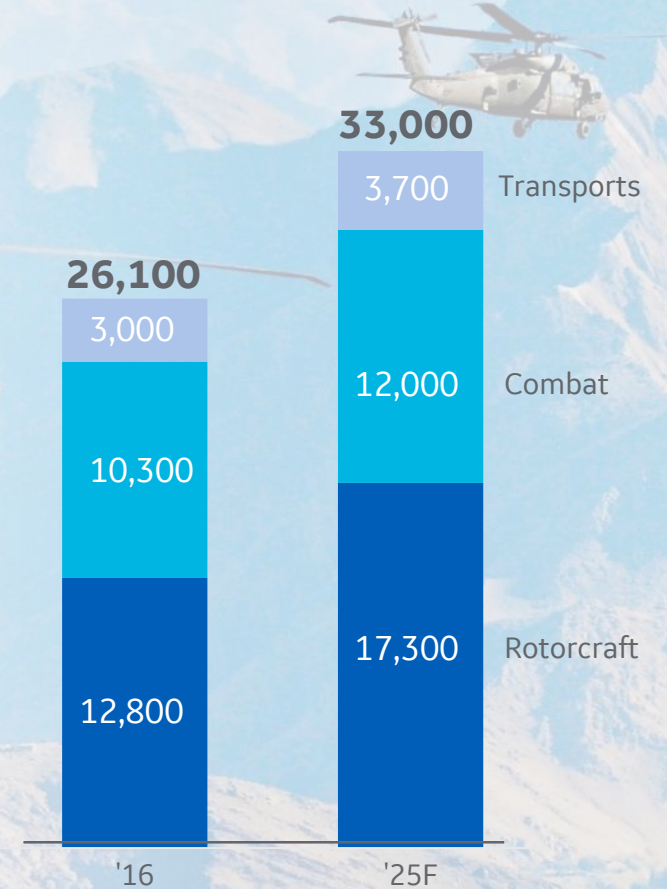
1. Includes only aircraft engines (combat, rotorcraft, tankers)
2. CFM is a 50/50 Joint Venture between GE and Safran
3. Includes only primary Western aircraft engine manufacturers of fleets >5,000
4. Excludes marine gas turbines (1400 GE units)
5. Excludes commercial helicopter engines (1200 GE units)

## Power for U.S. DoD



(a- includes combat trainers and bombers)

## 10 year installed base growth



# Expanding the core and winning globally

## USAF Trainer (T-X)

F404 engine of choice with prime contenders



**\$5B**  
program value

## Combat for India

F404/F414/F110 contender for light multi-role fighters plus indigenous fighters

**\$10B**  
programs value



## Indigenous for Korea

F414 for twin multi-role



**\$3B**  
program value

## Indigenous for Sweden

F414 for Gripen next gen



**\$2B**  
program value

## Indigenous for Turkey

F414/F110 for twin multi-role



**\$3B**  
program value



# Affordable upgrades for fleet sustainment

## PROGRAM

## OPPORTUNITY

## VALUE PROP

**Black Hawk/Apache**  
T700-701D/401D



Total engines

9,100

- **5%** more power
- **2-3X** core life
- Army funded development

**KC-135**  
F108 (CFM) C-PUP



1,515

- **1.5%** better fuel burn
- **>600** fewer shop visits
- Life savings of **\$1.5B**

**B-1B Lancer**  
F101 SLEP



294

- Shop visits reduced **30%**
- **1.5%** SFC improvement
- Life savings up to **\$2B**

**Super Hornet/Growler**  
F414 Enhanced Engine



1,730

- More systems power
- **1.5X** hot section Life
- **18%** thrust increase

CFM is a 50/50 JV between GE and Safran



# Defining next generation propulsion

## Rotorcraft



Black Hawk

T901

Under design contract: \$102MM

**\$20B**  
program value

## Advanced Combat Engines



Joint Strike Fighter

XA100

Adaptive cycle a differentiator ...  
Under contract: \$1B

**\$100B**  
program value

## Heavy Lift



King Stallion

T408

In production ... largest turboshaft  
in US Military

**\$15B**  
program value



# Promising future for the military business

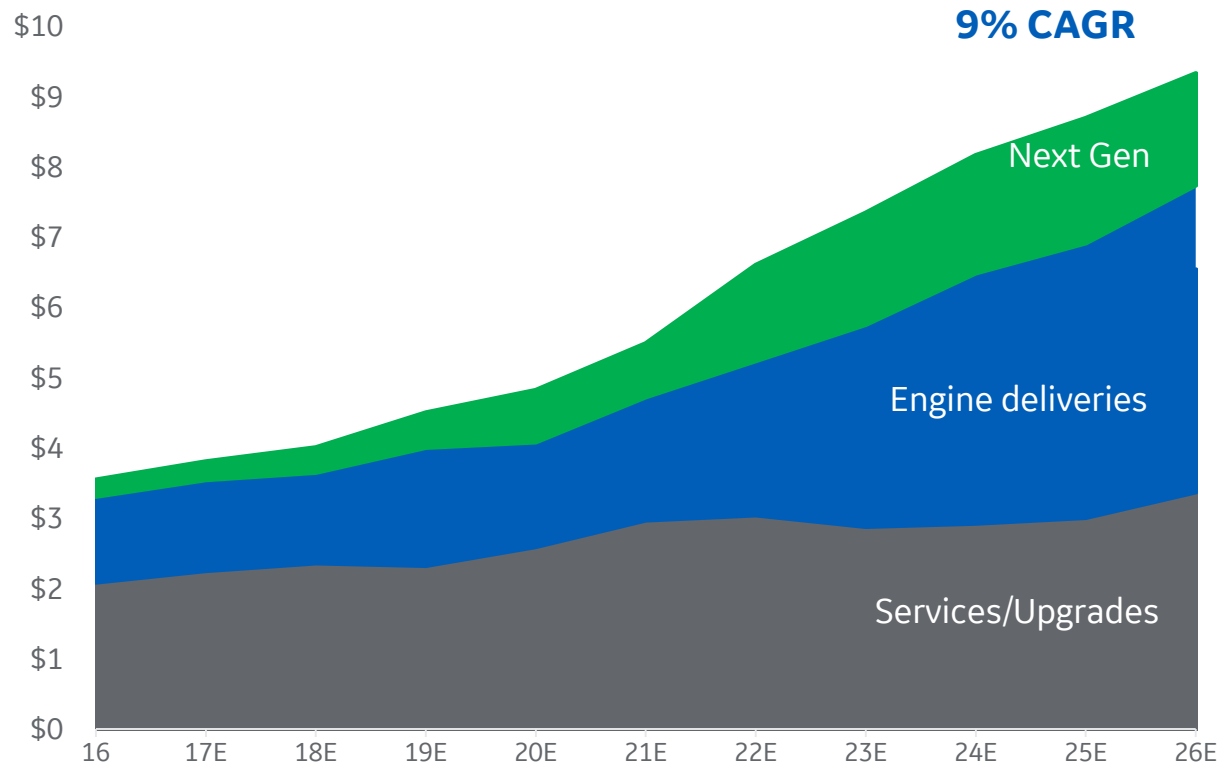


Advanced Fighter

Advanced Helicopter



## Sales growth (\$ billions)



- A strong portfolio in service ... and growing
- Applying new technologies to upgrades
- Well-positioned for next-generation opportunities with technology investments
- Trained technologists experienced in delivering growth



# Business and General Aviation

A growth initiative

**Brad Mottier**  
Vice President, BGA &  
Integrated Systems



# BGA ... extending our technology leadership

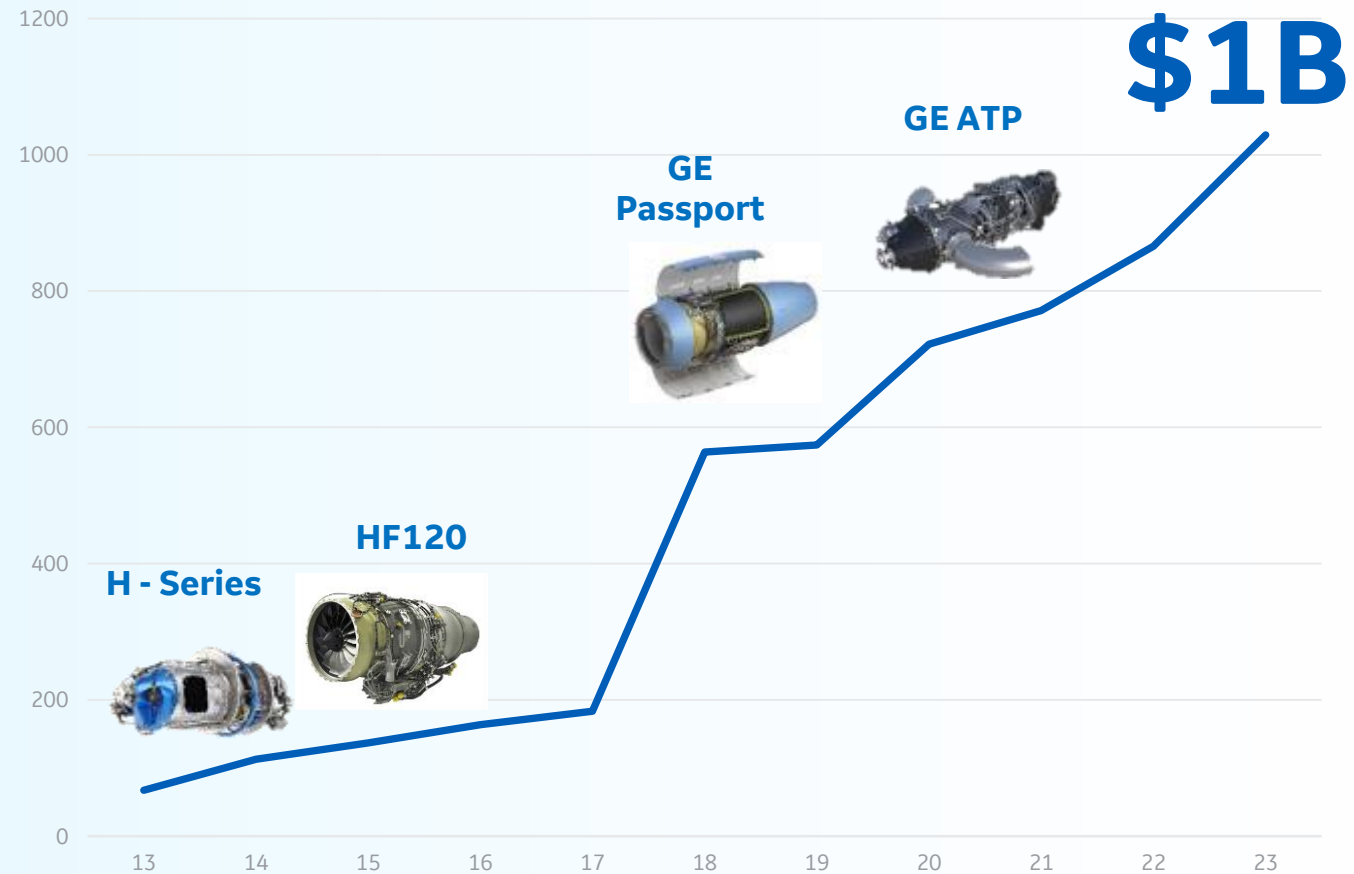
## SEGMENT OVERVIEW

- **416K+ General Aviation** aircraft worldwide
- **~25 million hours** and **166 million passengers** annually
- A reach of more than **10 times the number of U.S. Airports** than commercial travel

## A GROWTH INITIATIVE

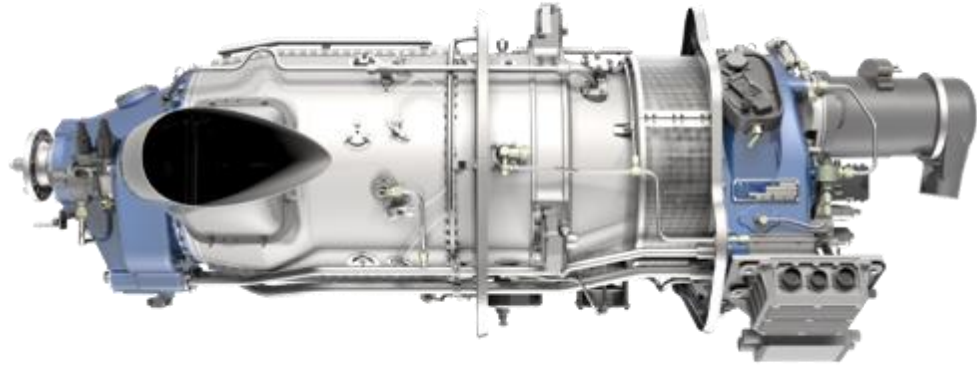
	2016	2023	
Customers	1480	2450	<b>1.7X</b>
Engines in service <sup>-a)</sup>	4473	7076	<b>1.6X</b>
Sales	\$0.1B	\$1B	<b>&gt;10X</b>

Our entry into service story



(a- excludes BGA helicopters & shift twins)

# Creating the next generation of turboprops



## H Series

UP TO

**10%**

BETTER

fuel efficiency

**16**

APPLICATIONS

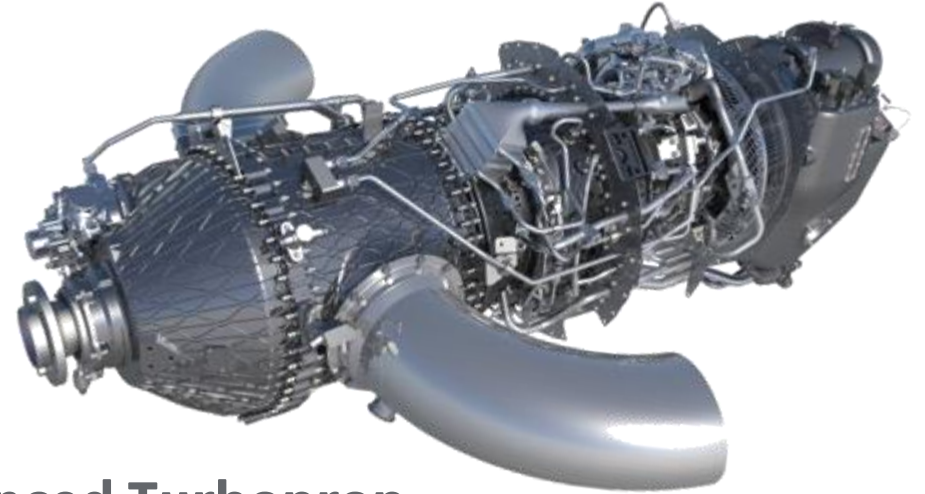
and growing

**4000**

HOURS

between overhauls

**Lowest overall cost of ownership  
in its class**



## Advanced Turboprop

**\$18**

BILLION

20-year market opportunity

**15%**

BETTER

fuel efficiency

**10%**

MORE

POWER

**First all-new BGA turboprop engine  
in 30 years**



# Business jets ... redefining performance in two segments

**FASTEST** to altitude

## HF120



### 90%

IN SERVICE

on services agreements

### 5,000

HOURS

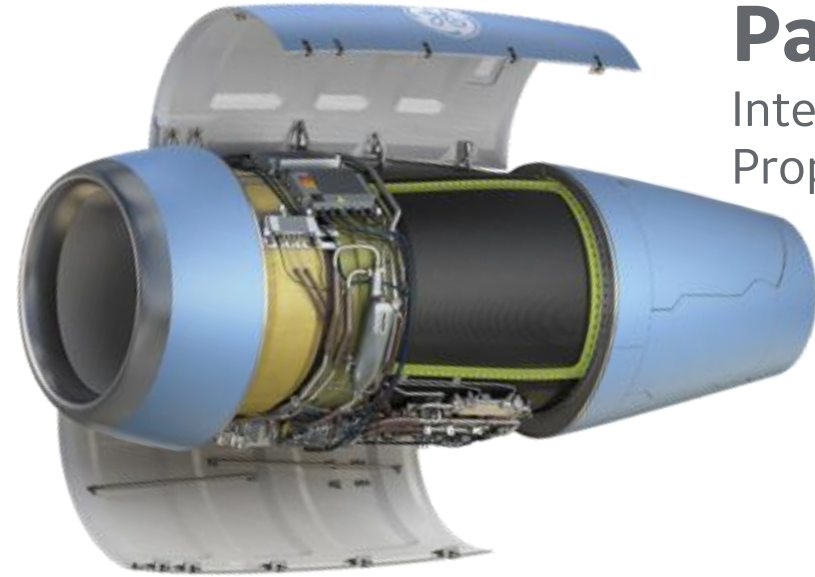
between overhauls

**First in the GE Honda family of engines**

**LONGEST** range

## Passport™

Integrated  
Propulsion System



### 8%

BETTER

fuel efficiency

### 75%

TARGETED

for services agreements

**Leveraging the GE Store and LEAP technology**





# Wrap

David Joyce  
President & CEO

# At the show: the Digital value prop

## Here at the show



- Adding our latest product ... introducing AirVault
- Announcing 30 new Digital technologies



## Customer collaboration

# 5 global

collaboration centers to support  
16 customer and airline collaborations



**43%** Decrease in disruptions<sup>a)</sup>

**12** additional days of utilization<sup>b)</sup>

flydubai

### Revenue protection

- Ticket revenue
- Ancillary revenue
- Brand Value

### Cost reduction

- Hotels and meals
- Rebooking

(a- Unscheduled engine removals 1H2016  
(b- Analytics based inspection 1H2016)

# At the show: GE Additive



## News at the show:

- Customer Collaboration centers in Munich and Pittsburgh
- Stryker strategic partnership announced in the last seven days ... more to follow
- New ATLAS machine ... larger build volume launching in November 2017



**CONCEPTLASER**  
A GE Additive Company



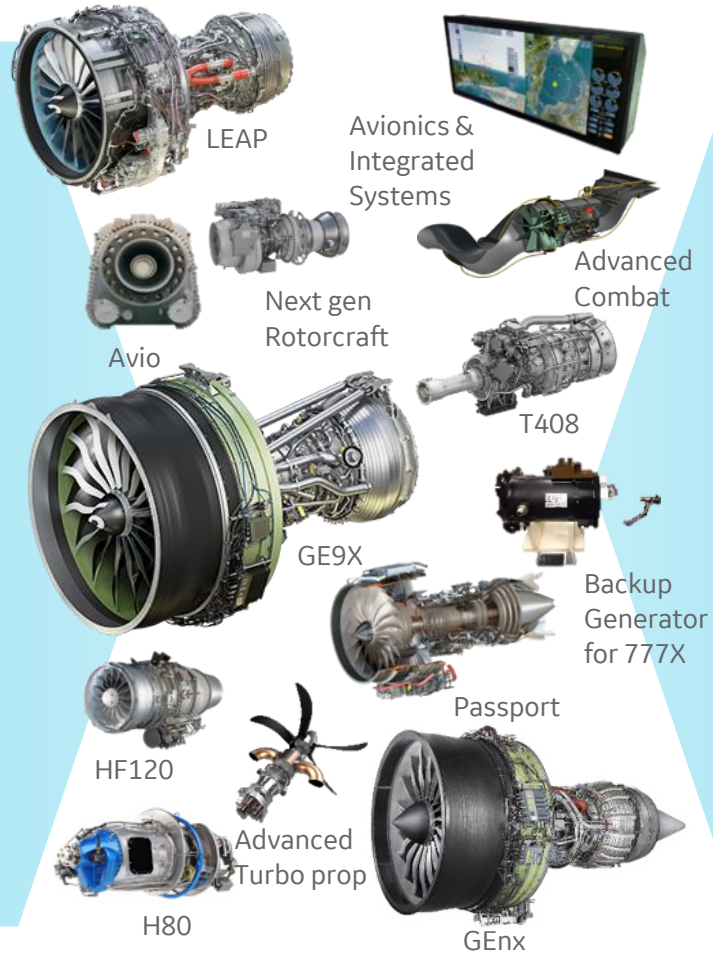
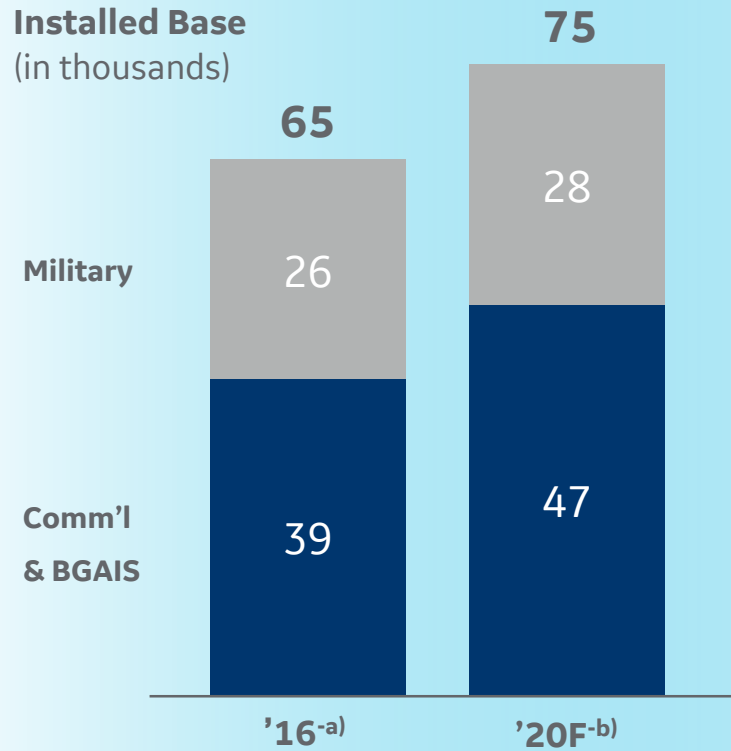
**Arcam**  
A GE Additive Company



# Only GE

## GE Aviation

Installed Base  
(in thousands)



## The GE Store



CFM is a 50/50 JV between GE and Safran  
EA is a 50/50 JV between GE and Pratt & Whitney

(a- GE comm'l installed base 11,133; JV comm'l installed base 21,716  
(b- GE comm'l installed base 11,749; JV comm'l installed base 27,394)



# A great GE business

- That invests and delivers
- Unprecedented growth ... installed base and services backlog
- A commitment to technology leadership
- Investments in all segments securing product positions
- Digital & Additive ... new frontiers for GE's industry leadership
- Built on a simple, competitive cost structure



# GE Capital Aviation Services (GECAS)

# GECAS... a leader in aviation finance

## Premier player

- ✓ 50 years in aviation finance ... an industry leader
- ✓ Large & diverse aircraft asset base ... ~\$45.3B balance sheet, ~1,500 owned aircraft
- ✓ Broad product offerings with deep domain
- ✓ Global market presence with 26 offices around the world

## Active part of GE Store



New product campaigns, customer solutions



~85% of fleet powered by GE/CFM



Strong & complementary customer relationships



GE Aviation and GECAS ... unparalleled industry expertise



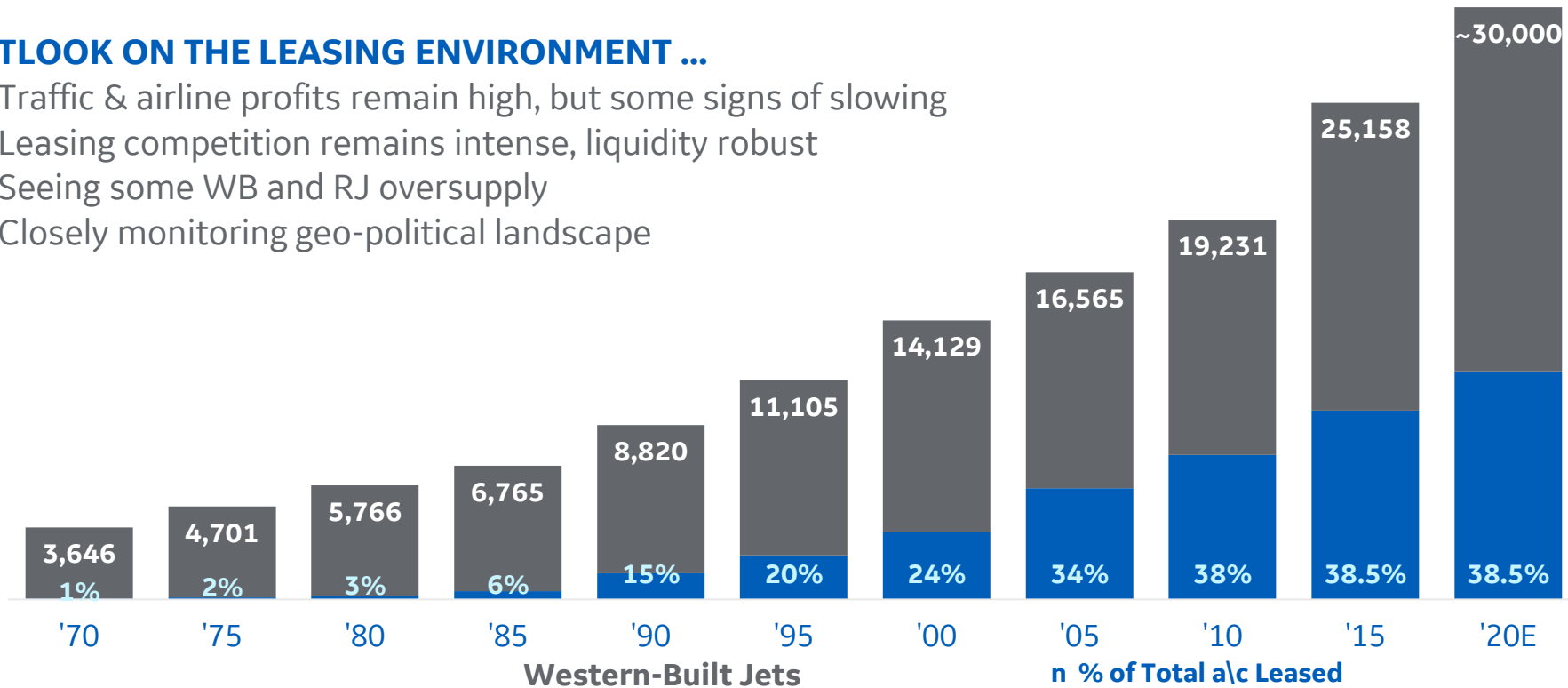
# Industry poised for long term growth

OEMs forecast fleet doubling in 20 years from 2015

**LONG TERM GROWTH OUTLOOK DRIVEN BY A HUGE EMERGING GLOBAL CONSUMER BASE ... MORE NEW FLYERS, MORE TRAFFIC GROWTH, MORE AIRCRAFT DEMAND**

## OUTLOOK ON THE LEASING ENVIRONMENT ...

- ✓ Traffic & airline profits remain high, but some signs of slowing
- ✓ Leasing competition remains intense, liquidity robust
- ✓ Seeing some WB and RJ oversupply
- ✓ Closely monitoring geo-political landscape

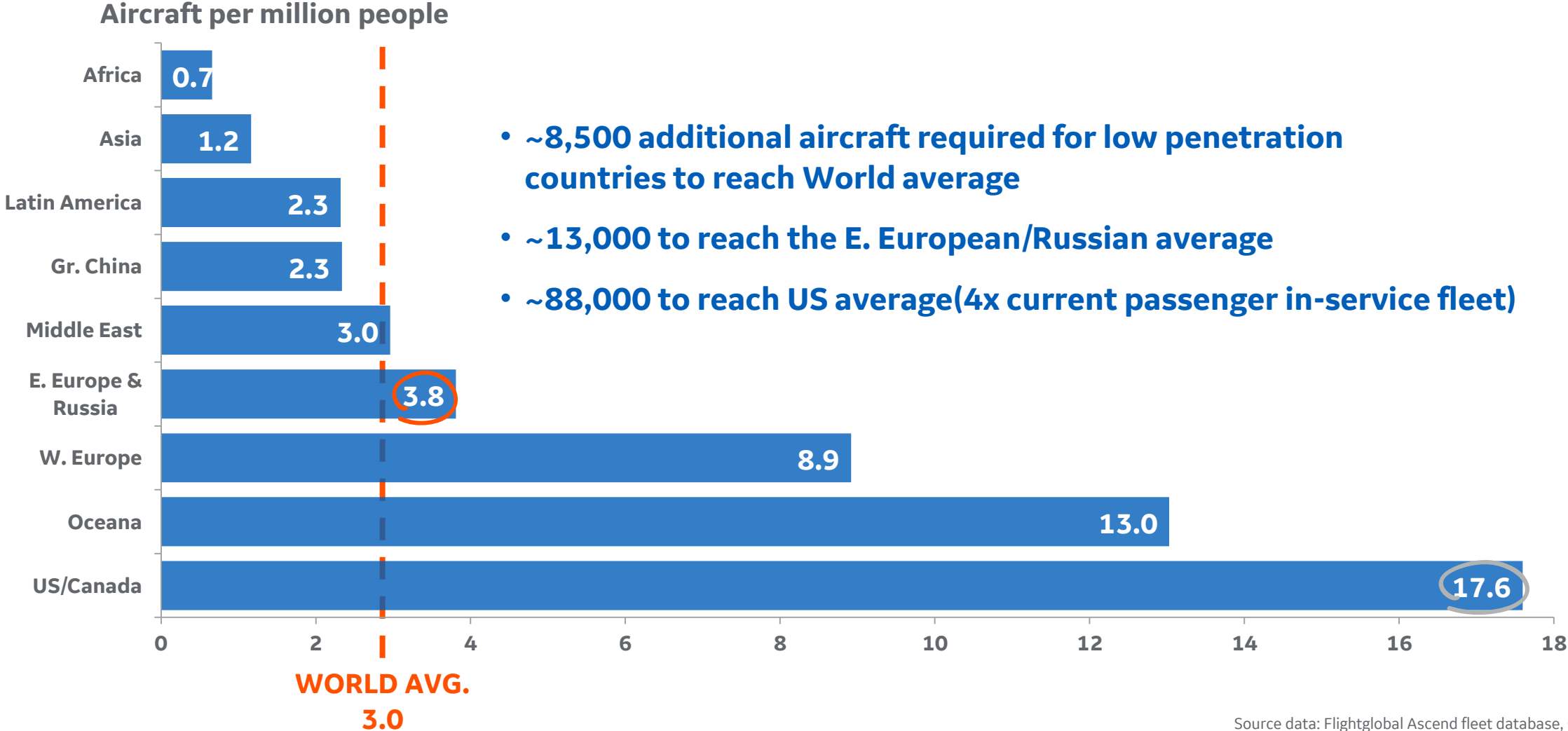


**2016 INTRODUCED 200MM+ MORE AIR PASSENGERS WITH ~100MM+ OF THOSE IN ASIA**

Ascend fleet and leased data '70-'15  
 2020 fleet average Boeing & Airbus fleet growth; assume leased fleet stays flat  
 IATA source of # passengers



# Enormous growth potential



Source data: Flightglobal Ascend fleet database, Q1'17.

Population data from: USCB world population clock, UN estimates, CIA Factbook, The World Bank, individual country census and official estimates.



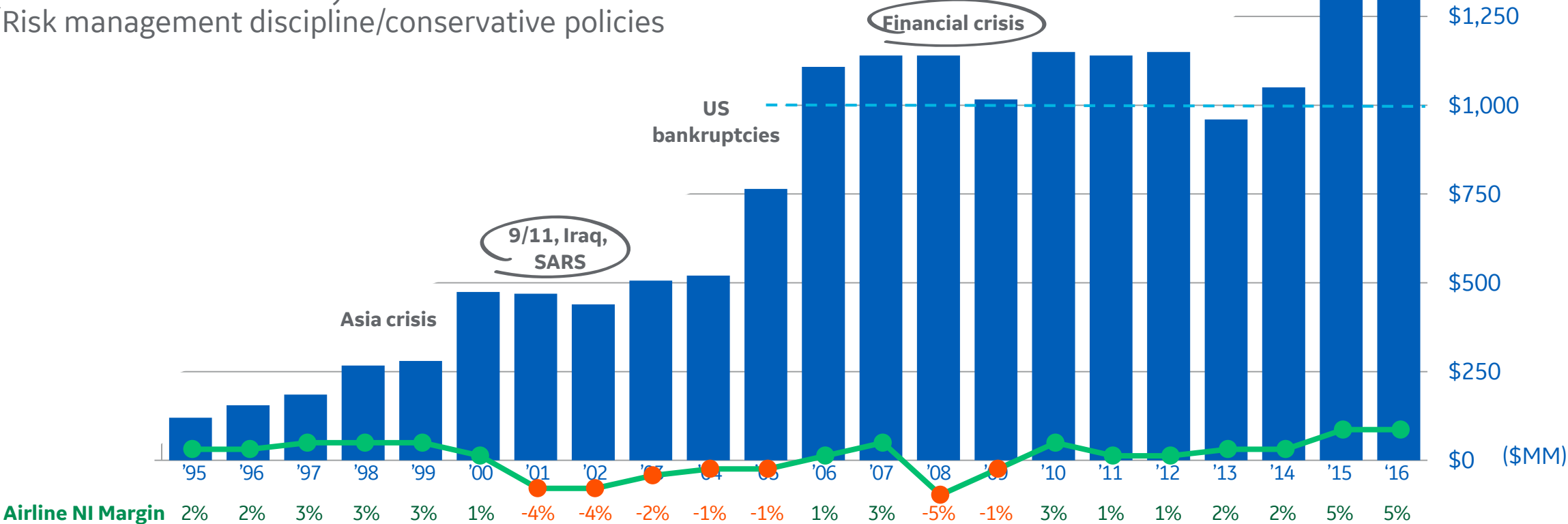
# GECAS... consistent earnings through multiple cycles

## Stable earnings despite industry ups/downs

- ✓ Ability to redeploy assets globally
- ✓ Focus on core commodity assets
- ✓ Risk management discipline/conservative policies

### GECAS Net Income

**YE'16: \$1.4B NI  
\$45.3B assets**



# GECAS customers span the globe

More customers in more countries than any other lessor

Support a broad array of customers from start-ups to LCC's, cargo and regionals, to flags and majors

Book Split	
Asia	27%
Europe	23%
North America	22%
Mid-East, Africa & Russia/CIS	20%
LAC	8%

Ongoing global diversification		
	2007	2017
Global Customers	212	264
North America	38%	23%
High Growth Regions	40%	56%



# Aviation finance industry's broadest product range

Offering innovative solutions to solve customers needs

A world leading aircraft lessor



~1,340

Leased Aircraft

- Op Leases
- Purchase and Leasebacks (PLBs)



GECAS

A world leading asset based lender



\$4.3B

Loan Book

- Senior Secured Loans



PK AirFinance  
A GECAS Company

A world leading engine lessor



~700

Engines

- Leases & Loans
- PLBs
- Exchanges



GEEL

A world leading helicopter lessor



~235

Helicopter Portfolio

- Leases & Loans
- Engines



Asset management services leader



Asset Management Services

- Recertified Aircraft & Engine Components



GECAS

Asset Management Services



# Global distribution network

## Broad global reach and local expertise in aviation finance, well positioned for growth

- ~575 employees ... leading industry team with deep domain
- ~30 years average tenure of most commercial and functional leaders
- Headquartered in Ireland with 26 offices
- 50% offices focused on serving emerging regions



# Portfolio composition

## Diversified and attractive assets (\$)



### Rigorous portfolio and fleet management

- Average aircraft age ~8 years
- AOG's maintained at ≤5 for 14+ years
- Tapering last-of-line NG and RJs
- Launched 738 cargo conversion program

GECAS portfolio 1Q'17



## Focused new tech orderbook (#)



### Orderbook of 418 core commodity assets

- Attractive and conservative fixed-wing orderbook:

<u>Orderbook</u>	<u>GECAS</u>	<u>Industry Avg.</u>
% New tech	96%	84%
% of Existing Fleet	33%	50%
% Narrowbody	95%	77%

- GECAS jet skyline well placed: 100% '17, 80% '18

GECAS orderbook as of YE'16 plus 100x A320neo and 20x 737-800MAX orders

# GECAS at the Air Show



**GECAS announces order for 100 Airbus A320neo aircraft**



**GECAS TO PURCHASE 20 BOEING 737 MAX 10X**



**CDPQ & GECAS establishing a multi-billion leasing platform**



**GECAS Supports AirVault Enhancements to Leasing Market**



# Expand GECAS footprint with originations and servicing

## PLB's and Debt on core commodity assets



- Fund \$3-4B per annum on PLB's and Debt
- Drive competitive differentiators to win:
  - Speed
  - Fleet rollovers
  - Forward commits
  - Aviation domain
  - Certainty of execution
  - Innovative financial solutions

## Ramp up of new tech orderbook post '18



- Deliveries grow from 34x in 2017 to 50x+ in '19+
- Placements concentrated in high-growth emerging regions
- Always evaluating opportunities for additional orders



# And more serviced and institutional transactions

## Serviced Vehicles ... growing the franchise with balance sheet efficiency

**Boost serviced assets under management from ~\$3.0B YE'16 to ~\$7B YE'20**



\* Subject to conditions, including any required regulatory approvals



# Supporting growth for customer and GE

Helping our customer grow with innovative financing solutions

## JOINT CAMPAIGNS



10x LEAP A321neo

14x LEAP 737-8 MAX

## NEW MARKETS



5x 737-8 MAX

8x 737-800/737-8 MAX new order

## SENIOR DEBT



\$280MM secured loan on A330s & 737-8s

\$210MM secured loan facility

## GEA FLEET MANAGEMENT



332 engine portfolio & ~85% GE/CFM-powered aircraft fleet



# Key operating imperatives

- ✓ Position for growth 2017-2020 on owned and serviced portfolios
- ✓ Rigorous portfolio management and skyline placements
- ✓ Emphasis on commodity products in high growth regions
- ✓ Manage and continue to diversify Milestone portfolio  
+ position for industry recovery
- ✓ Drive support of the GE Store
- ✓ Continue risk and operating discipline



# Conclusions

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- ✓ **WELL DIVERSIFIED PORTFOLIO IN GROWTH INDUSTRY**
- ✓ **STRONG FRANCHISE WITH HISTORY OF SUCCESSFULLY MANAGING THROUGH THE CYCLES**
- ✓ **GE AVIATION AND GECAS ... UNPARALLELED INDUSTRY EXPERTISE**
- ✓ **WELL POSITIONED TO EXPAND FOOTPRINT**
- ✓ **CONSISTENT HIGH RETURNS FOR GE**



