

# GE Aviation Deutsche Bank Industrial Conf.

June 05, 2014



This document contains "forward-looking statements" – that is, statements related to future, not past, events. In this context, forward-looking statements often address our expected future business and financial performance and financial condition, and often contain words such as "expect," "anticipate," "intend," "plan," "believe," "seek," "see," or "will." Forward-looking statements by their nature address matters that are, to different degrees, uncertain. For us, particular uncertainties that could cause our actual results to be materially different than those expressed in our forward-looking statements include: current economic and financial conditions, including volatility in interest and exchange rates, commodity and equity prices and the value of financial assets; potential market disruptions or other impacts arising in the United States or Europe from developments in sovereign debt situations; the impact of conditions in the financial and credit markets on the availability and cost of General Electric Capital Corporation's (GECC) funding and on our ability to reduce GECC's asset levels as planned; the impact of conditions in the housing market and unemployment rates on the level of commercial and consumer credit defaults; pending and future mortgage securitization claims and litigation in connection with WMC, which may affect our estimates of liability, including possible loss estimates; our ability to maintain our current credit rating and the impact on our funding costs and competitive position if we do not do so; the adequacy of our cash flows and earnings and other conditions which may affect our ability to pay our quarterly dividend at the planned level or to repurchase shares at planned levels; GECC's ability to pay dividends to GE at the planned level; our ability to convert pre-order commitments/wins into orders; the price we realize on orders since commitments/wins are stated at list prices; the level of demand and financial performance of the major industries we serve, including, without limitation, air and rail transportation, power generation, oil and gas production, real estate and healthcare; the impact of regulation and regulatory, investigative and legal proceedings and legal compliance risks, including the impact of financial services regulation; our capital allocation plans, as such plans may change including with respect to the timing and size of share repurchases, acquisitions, joint ventures, dispositions and other strategic actions; our success in completing announced transactions and integrating acquired businesses; our ability to complete the staged exit from our North American Retail Finance business or the acquisition of the Thermal, Renewables and Grid businesses of Alstom as planned; the impact of potential information technology or data security breaches; and numerous other matters of national, regional and global scale, including those of a political, economic, business and competitive nature. These uncertainties may cause our actual future results to be materially different than those expressed in our forward-looking statements. We do not undertake to update our forward-looking statements.

This document includes certain forward-looking projected financial information that is based on current estimates and forecasts. Actual results could differ materially.

GE's Investor Relations website at [www.ge.com/investor](http://www.ge.com/investor) and our corporate blog at [www.gereports.com](http://www.gereports.com), as well as GE's Facebook page and Twitter accounts, contain a significant amount of information about GE, including financial and other information for investors. GE encourages investors to visit these websites from time to time, as information is updated and new information is posted.

**Imagination at work.**

# GE Aviation portfolio ... \$22B<sup>-1)</sup>

Commercial engines  
\$6.8<sup>-2)</sup>



Commercial engine services  
\$7.9<sup>-2)</sup>



Military engines and services  
\$4.1



BGA and Integrated Systems  
\$1.5



Avionics and Digital Solutions  
\$0.8



Avio Aero  
A GE Aviation Business  
\$0.8



A leading provider of jet engines, services and systems

-1) Based on 2013 revenue  
-2) includes GE's share revenue from 50-50 CFM and EA joint ventures

# Powering the world's airline fleets

Every **2 SECONDS**, an aircraft with GE engine technology is taking off somewhere in the world. <sup>-1)</sup>

At any given moment, **MORE THAN 2,200** of these aircraft are in-flight, carrying between 50 and 500 passengers.

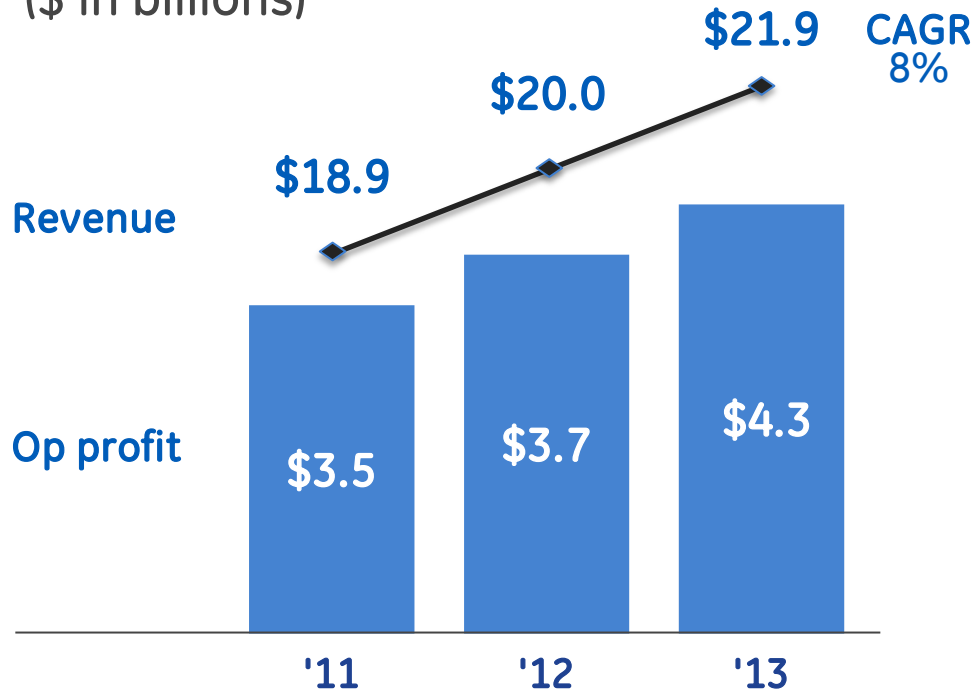
That's **MORE THAN 300,000** people ... right now ... who are depending on our engines.



<sup>-1)</sup> Includes joint venture engines built by CFM and EA  
\*CFM International is a 50/50 JV between GE and Safran  
EA is a 50/50 JV between GE and PW

# A great GE business

(\$ in billions)



	'11	'12	'13
R&D	\$1.5B	\$1.6B	\$1.8B
Deliveries	2,918	3,296	3,513
Installed Base	56,000	57,000	58,000

## Strategic imperatives

- Grow installed base and services
- Lead in next-generation products
- Position supply chain for product volume growth
- Build out digital services for customer productivity

Deliveries and installed base includes GE and JV partners volume.  
 2012 Deliveries: GE 1,837; CFM 1,382; EA 77  
 2012 Installed base: GE 40K; CFM 18K; EA .2K  
 CFM is a 50/50 JV between GE and Snecma  
 EA is a 50/50 JV between GE and Pratt & Whitney



# Commercial engines



# Commercial Equipment Growth

## Environment



**Passenger demand**  
(IATA, RPK % YoY)

**5.3** → **5.2** → **5.8**  
2012      2013      2014F



**Load factors**  
(%)

**79** → **80+** → **80+**  
2012      2013      2014F



**Jet fuel**  
(\$/gal)

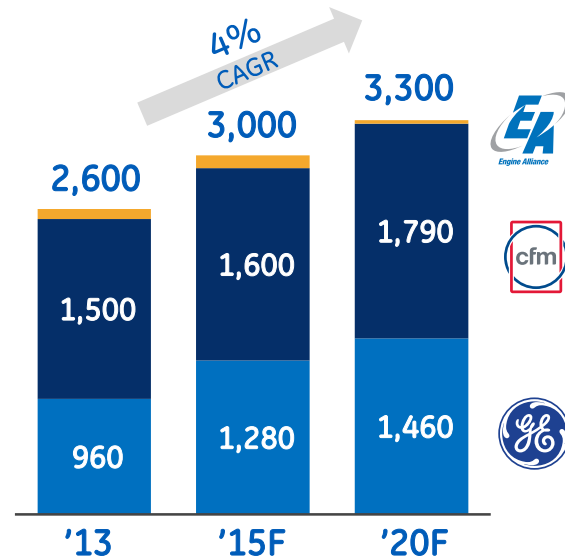
**310** → **298** → **293**  
2012      2013      2014F

Source: IATA and GE analysis

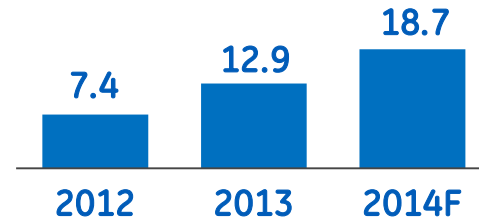


## Production volume

# of GE and JV engines <sup>(-1)</sup>



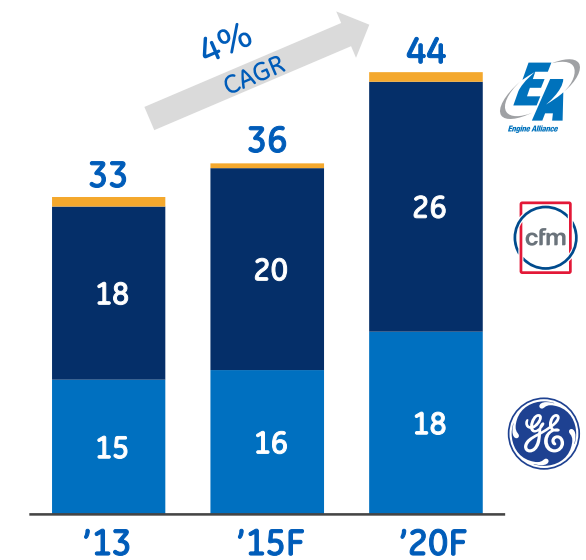
**Airline profits**  
\$Billions (IATA)



... airlines feeling good

## In-service fleet

# of engines '000



CFM is a 50/50 JV between GE and Snecma  
EA is a 50/50 JV between GE and Pratt & Whitney  
LEAP is a trademark of CFM International  
-1) Production volume approx. 34% GE, 62% CFM, 4% EA

# Commercial product positioning

OEM


Widebody

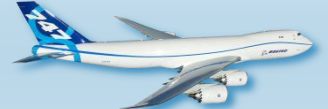
Narrowbody

Regional / Biz





**A380**   
**GP7200**


**787**   
**GE9x-1B**

**747-8**   
**GE9x-2B**

**777X**   
**GE9x**

**A380** 

**787** 

**A350** 

**MS-21** 

**A320neo** 

**C919**   
**LEAP-1C**

**A320neo**   
**LEAP-1A**

**737MAX**   
**LEAP-1B**

**C-Series** 

**MRJ** 

**E-Jet** 

**Global 7000/8000**   
**Passport**

**Advanced Turboprop\*** 

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

\* GE Program currently under evaluation



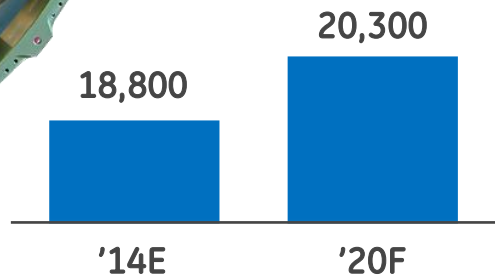
# Preferred power for narrowbody

## CFM56 ...



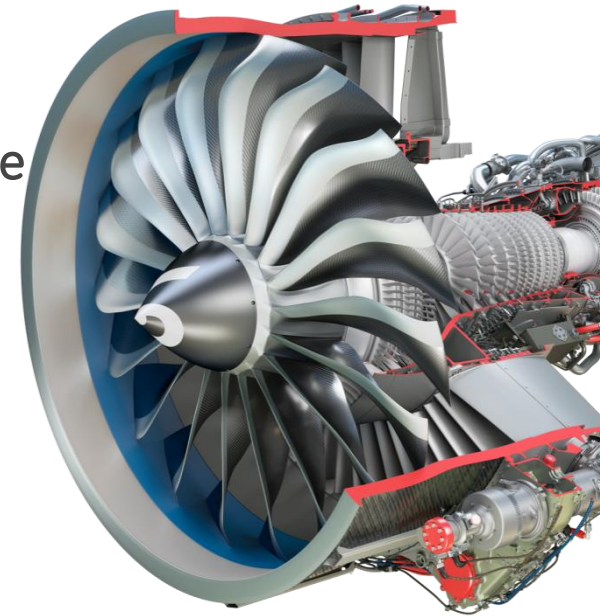
- 26,000 engines delivered
- 30+ years in service
- 34,000+ departures per day

### Fleet in service



## LEAP ...

- 2016 service entry
- Selected by Airbus, Boeing, COMAC
- 6,300 orders and commits
- 9,000 a/c opportunity

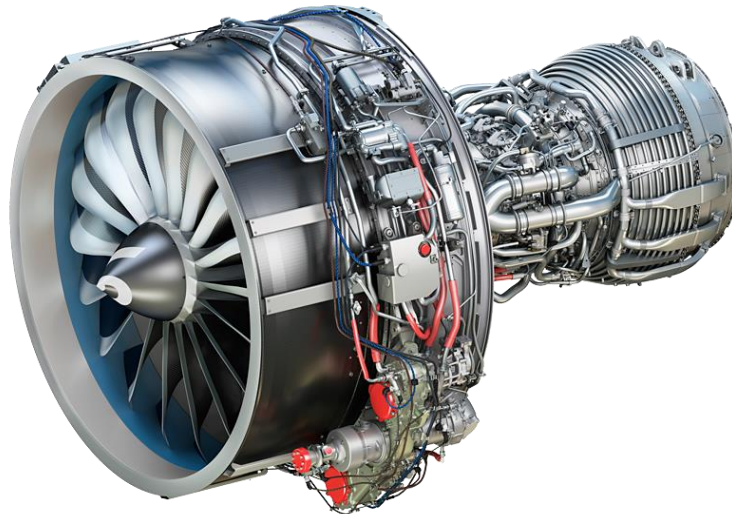


**15%**  
LOWER  
fuel consumption\*





# CFM LEAP competitive advantage summary



**630+**  
million flight hours

CFM experience  
and execution

Fuel  
efficiency

Reliability

Maint. Cost

Emissions

**1\***  
LOWER

up to 2% with  
deterioration

**2\***  
FEWER  
flight delays

**20\***  
LOWER

**30\***  
LOWER  
NOx

CFM LEAP vs.  
PW1100G

- 21 CFM upgrades delivered on time, on spec over last 30 years
- Continuing investment
- Customer support network
- Comparable maintenance
- Existing parts logistics

\* CFM estimates



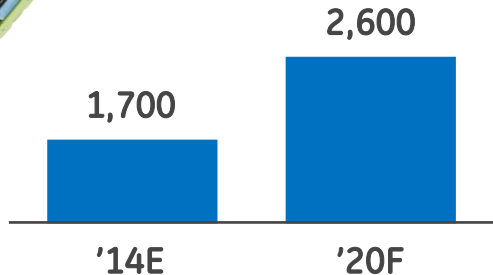
# Technology leadership in big twins

## GE90 ...



- 600 aircraft on order
- 1,700 engines in service
- With 65 operators

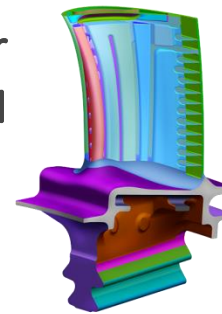
Fleet in service



## GE9X ...

- Service entry end of decade
- Sole source on 777X
- 3,000 a/c opportunity

Most advanced engine GE's ever designed



**5%** BETTER fuel efficiency

vs. ANY engine

I N C L A S S



# Successful launch of 777X demonstrates customers confidence in GE9X technology

**300**  
AIRCRAFT

Customer	777-8X	777-9X
Lufthansa	-	34
Etihad	7	18
Emirates	35	115
Qatar	-	50
Cathay Pacific	-	21
ANA	-	20
<b>Total</b>	<b>42</b>	<b>258</b>



**Lufthansa**

الإتihad

**ETIHAD**

**QATAR**  
AIRWAYS القطرية



**ANA**



**Emirates**



**CATHAY PACIFIC**

**Active campaigns with 10+ customers and ~200 aircraft**



GE9X ... delivering value on the 777x

**10%**  
versus  
-300ER  
**LOWER**  
**Fuel Burn**



G E T E C H N O L O G I E S

Fan blades



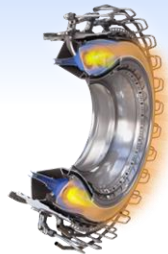
**16**  
BLADES

Compressor



**27:1**  
PRESSURE  
ratio

Combustor



**29%**  
NO<sub>x</sub>  
REGULATORY  
margin

Ceramic-matrix  
composites (CMCs)



**20%**  
L E S S  
cooling



# Carbon-fiber composites ... improving performance, weight, durability

**GE90-94B**  
777-200ER



- Wide chord design
- 22 blades**

**GE90-115B**  
777-200LR, -300ER, 777F



- Swept aero
- 22 blades**

**GE9x**  
787, 747-8



- Improved efficiency
- 18 blades**

**GE9X**  
Boeing 777X



- Improved materials
- 16 blades**

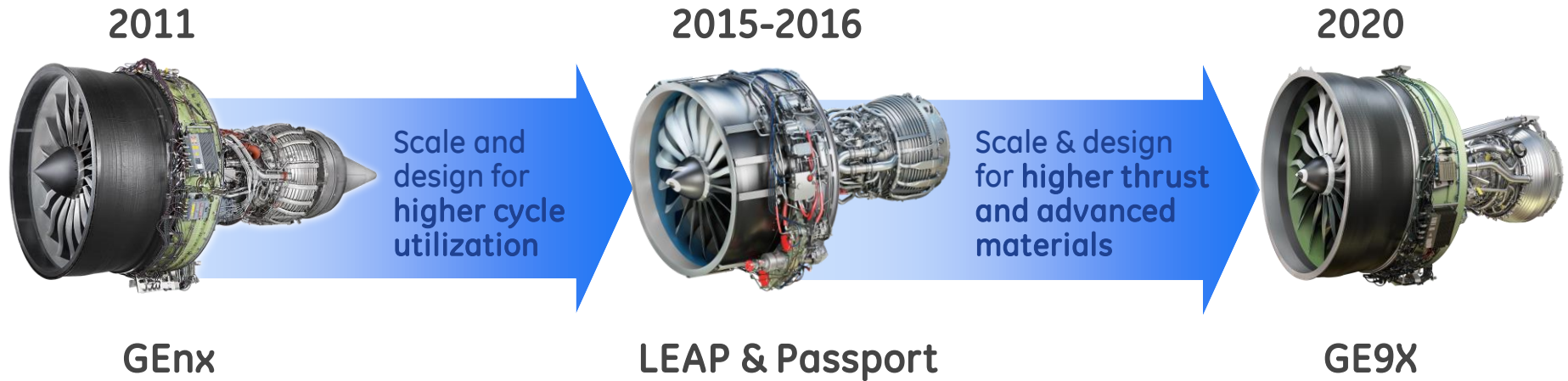
2020 fan blade  
EXPERIENCE  
**100+**  
million flight hours

**Extending  
to fan cases**

- Integrated structure
- Saves 700+ lbs per aircraft on 787



# Building on technology investment



E X P E R I E N C E

Delivering technology  
with customer confidence

6000  
E N G I N E S

60<sub>M</sub>  
H O U R S

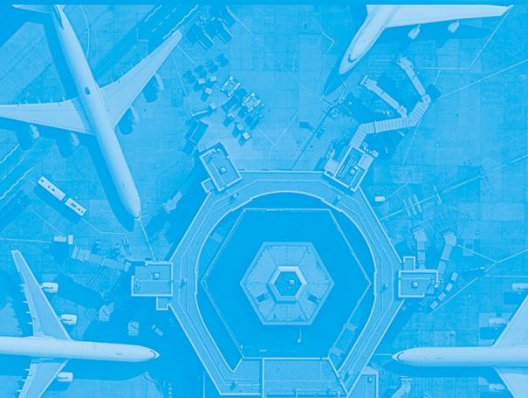


Deutsche Bank Conference

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

GE Aviation

# Services



# Commercial services growth

## Environment



**Passengers**  
(IATA, RPK % YoY)

**5.3%** → **5.2%** → **5.8%**  
2012      2013      2014E



**Utilization**  
Avg. cycles/ day, % YoY

**-1%** → **0.9%** → **0.2%**  
2012      2013      2014E



**Departures**  
GE & JV-powered flights (MM)

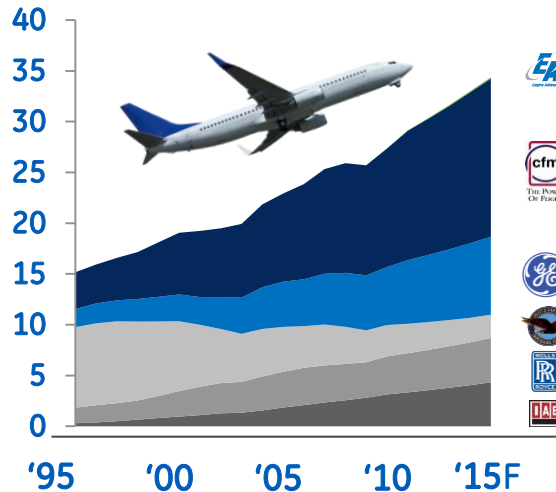
**20** → **21** → **22**  
2012      2013      2014E

Source: IATA & GE analysis



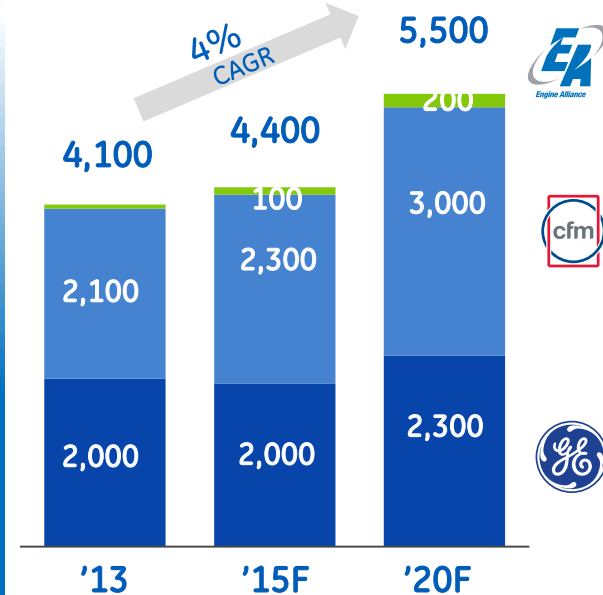
## Departures

# departures (millions)



**2 of 3** daily flights  
powered by GE or GE JV's

## Shop visits



**\$96B**  
Services backlog

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



# Servicing our customers today and tomorrow

## GE & JV engines backlog

Engine Model	Services (\$B)
CFM/LEAP	\$43
CF6	\$6
CF34	\$5
GE90/GE9x	\$27
GEEnx	\$13
GP7000	\$2

## Service offerings



**Risk Transfer**

\$/hr comprehensive maint coverage



**Overhaul**

Time and material (T&M) overhaul



**Material**

New, Used, Repaired



**Asset Optimization**

TRUengine™ program  
Analytics  
Diagnostics

**33,000**  
engine installed fleet

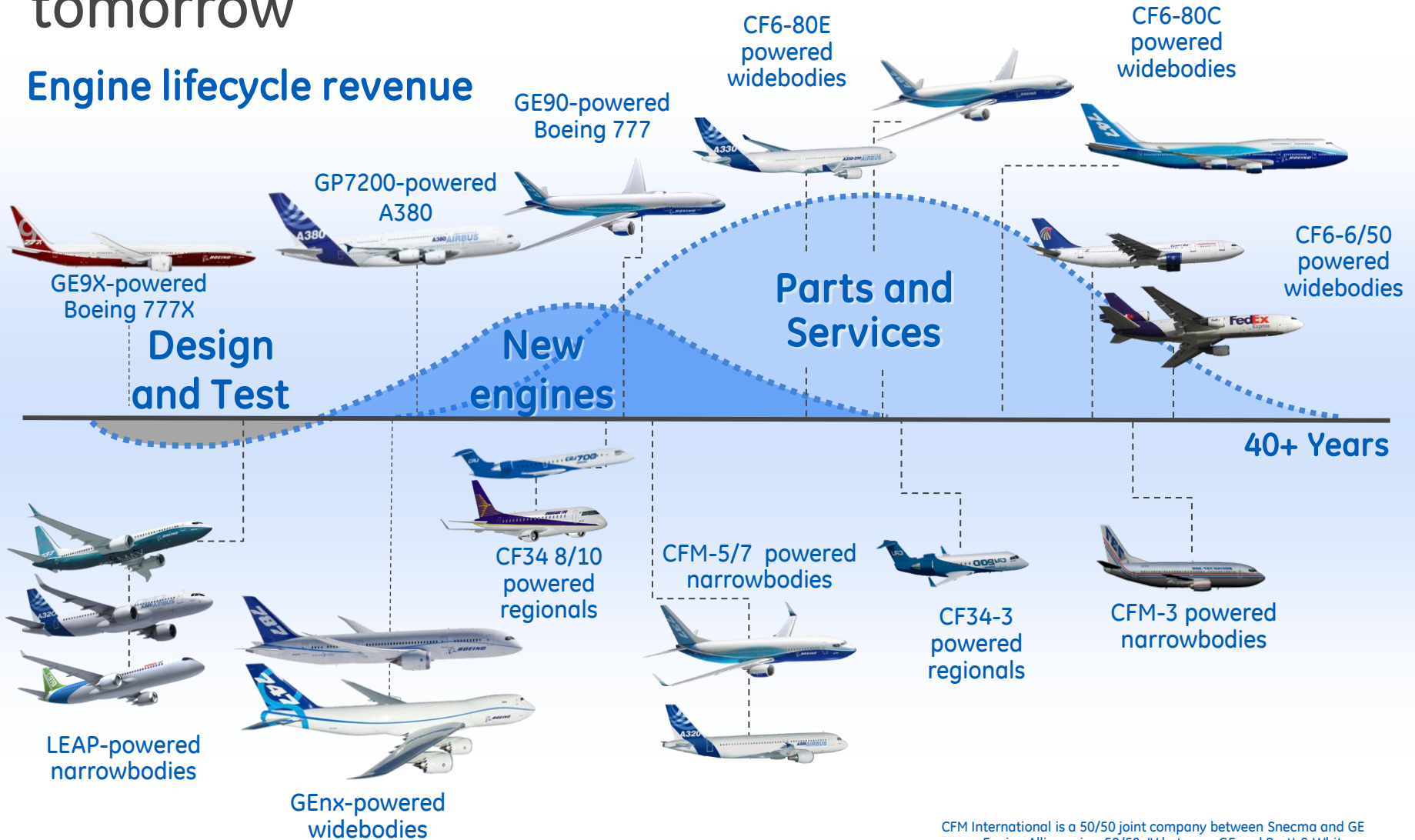
**\$96B**  
Backlog



16,300 CFM56 engines. CFM is a 50-50 JV between GE and Snecma  
120 GP7000 engines. GP7000 is a product of EA, a 50-50 JV between GE and Pratt & Whitney

# Industry leading product portfolio ... today and tomorrow

## Engine lifecycle revenue



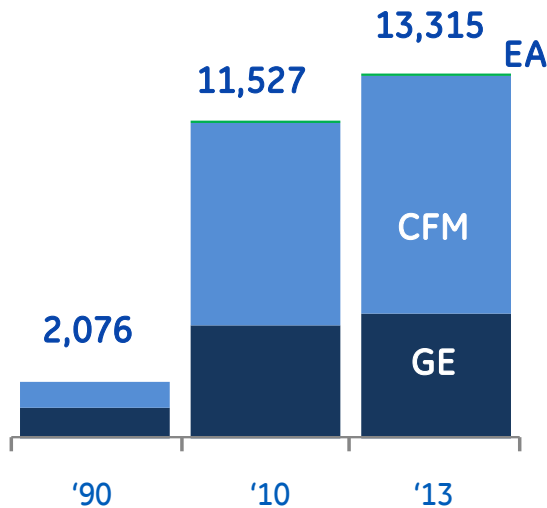
CFM International is a 50/50 joint company between Snecma and GE  
 Engine Alliance is a 50/50 JV between GE and Pratt & Whitney



# Well positioned for services growth

## Large fleet

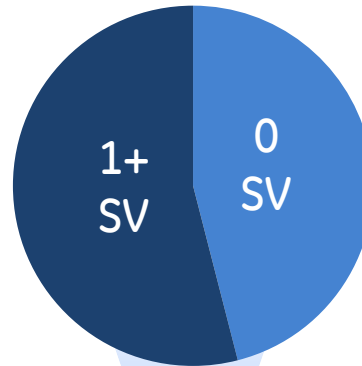
Installed base (Aircraft)



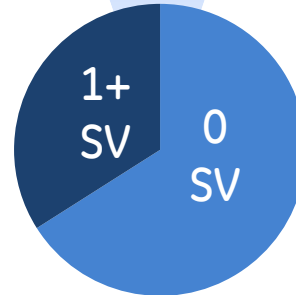
## Young fleet

Engine maturity

Total fleet



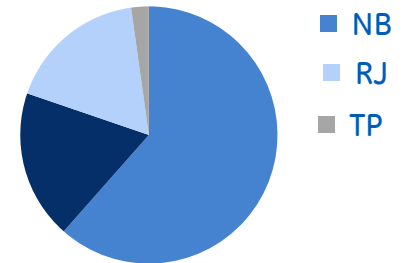
CFM 7B/5B fleet



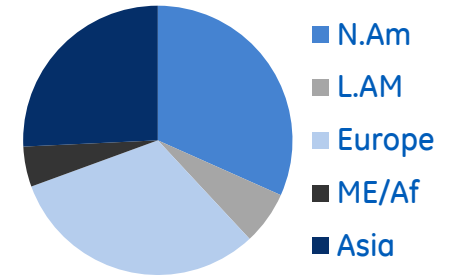
## Diverse fleet

Segment/geographic

Type



Region



CFM is a 50/50 JV between GE and Snecma  
 EA is a 50/50 JV between GE and Pratt & Whitney  
 GE Honda is a 50/50 JV between GE and Honda Aero, Inc.



# Aligned network of global service partners

- More than **8,000** employees in **10** countries
- **250** field service engineers
- **450** dedicated customer support representatives

- **400+** services customers worldwide
- **55+** years of experience (25+ years CFM)
- Network locations **worldwide**

**OEM**

**GE Celma**  


**GE Strother**  


**GE Malaysia**  


**GE Wales**  


**GE Caledonian**  


 St. Quentin  
Brussels  
Morocco  
Mexico



**Cincinnati** **McAllen, TX** **Terre Haute** **Hungary** **Singapore** **Singapore-ATI**



**Network**

**CFM56**  
   
 **SR Technics**  
 **IBERIA**

**CF6**  
  **EGAT**

**GE90**  
 

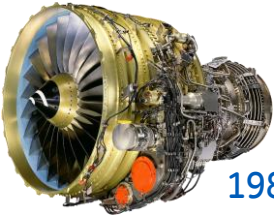
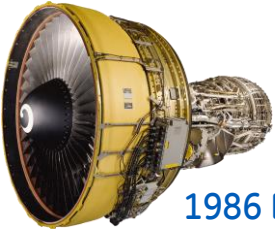

**CF34/CT7**  
   
 

**GENx**  
   
**GE EVERGREEN ENGINE SERVICES** 



CFM, CFM56, and the CFM logo are trademarks of CFM International, a 50/50 joint company between Snecma and General Electric Company

# GE's tradition: continuous product improvements to reduce customers' cost of ownership

Installed base ('13)	I M P R O V E M E N T S		
	Upgrades	Fuel Burn	Time-on-wing
<b>CFM56</b> ~18,500  1984 EIS	8	8%	2x
<b>CF6-80C2</b> ~3,000  1986 EIS	8	3%	3x
<b>GE90</b> ~1,550  1995 EIS	5	2%	2x

CFM is a 50/50 JV between GE and Snecma



# GE's Analytics Advantage

SoftWare CoE



**FASTWORKS**

**350**

Engineers working on Aviation Analytics

**25**

Customers connected to full flight data

Full flight data growth (# of flights)

**15k**  
**2013**

**3.4M**

**2014**

**~10M**

**2015**

Data Volume (Tera Bytes)

**2**

**340**

**1,500**

Aviation



# Minds & Machines at GE Aviation

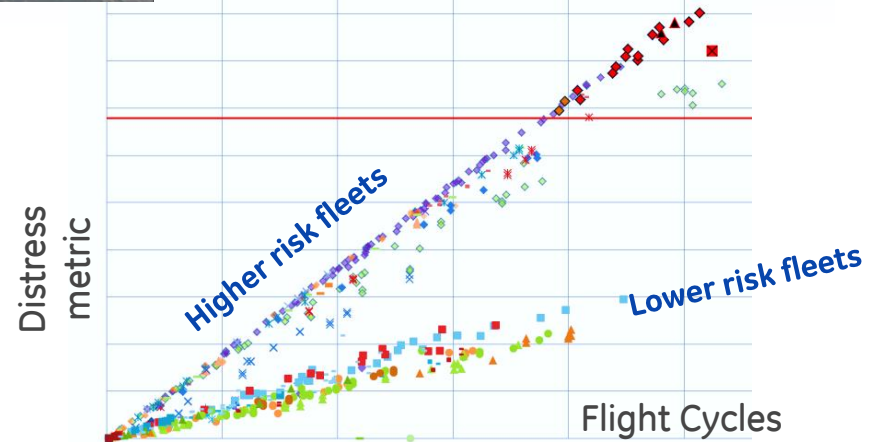
## Asset productivity...example

**Issue:** Accelerated wear in regions with high air particulates



**Approach:** Applied analytics to detect engines at risk of early removal

(millions of data points used...every engine in the fleet, every flight)



**Value:** Prevent high cost events and minimize customer maintenance burden



Time on Wing



Maintenance, Repair & Overhaul



Reliability



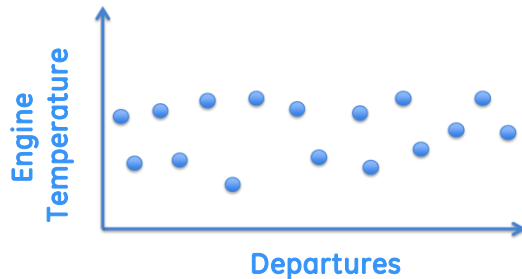
Disruptions



# Minds & Machines at GE Aviation

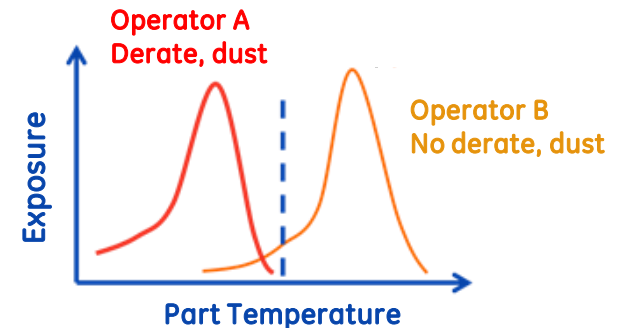
where physics meets analytics

## Anomaly Detection



"Temperature has shifted in particulate environments"

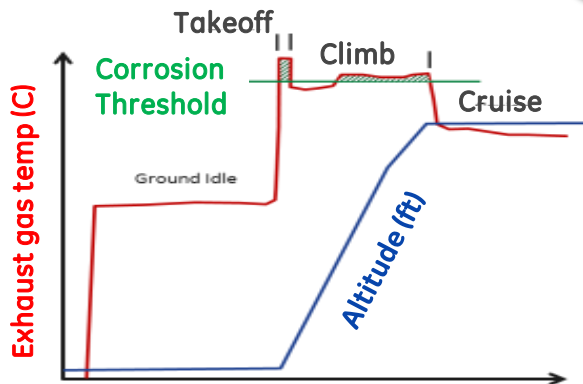
## Descriptive Analytics



"A subset of the fleet is susceptible to accelerated wear"

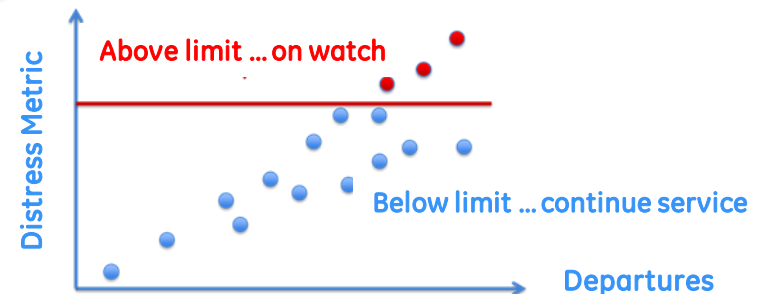
Engine data + environment + engine physics = Customer Value

## Predictive Analytics



"We have isolated the operational condition"

## Prescriptive Analytics



"Condition will cause engine removal in xx flights. Recommended operation to extend time on wing is....."





# Minds & Machines at GE Aviation

Flight Efficiency Services...improving how airlines fly their planes



## + Fleet Synchronization

"Let's implement full ops efficiency"



## + Navigation Services

"Partner with me to increase efficiency"



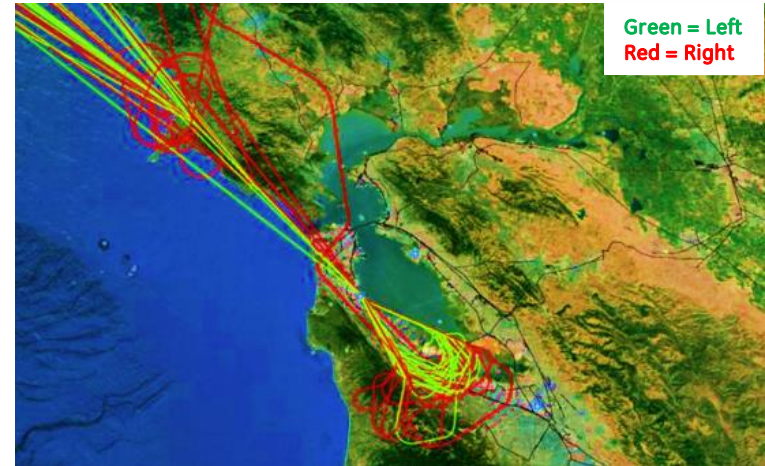
## + Fuel and Carbon

"Let's find and implement fuel saving programs"

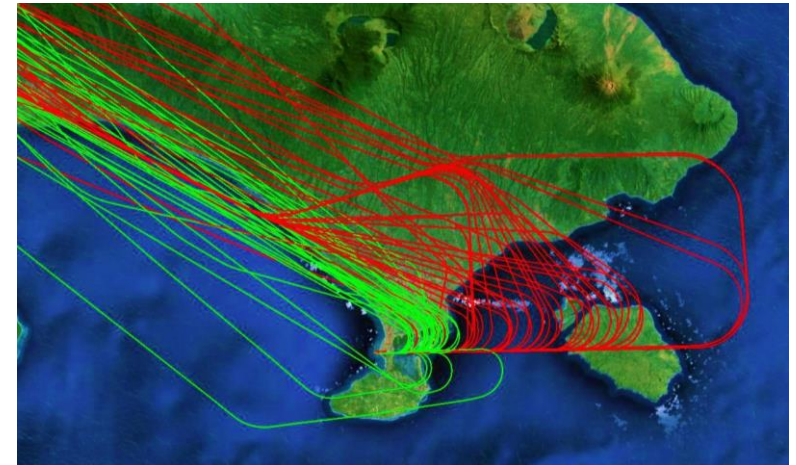


## + Austin Digital

"Let's measure and track safety & fuel procedures"



Average Cost Increase = 2300 kg / hold



Average Cost Increase = 150 kg / flight

# Wrap up



# In summary

- Great GE business that invests & delivers
- Unprecedented installed base ... and growing
- Investments in all segments securing product positions
- Unprecedented services backlog ... and growing
- Minds & machines enhancing customer productivity
- A commitment to technology leadership
- Culture of simple, competitive cost structure



