



Innovation and What's Next

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Vice President and Chief Technology Officer

Forward-Looking Statements:

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," "will," or "would." 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, which may be affected by GECC's cash flows and earnings, financial services regulation and oversight, and other factors; 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; adverse market conditions, timing of and ability to obtain required bank regulatory approvals, or other factors relating to us or Synchrony Financial could prevent us from completing the Synchrony IPO and split-off as planned; our ability to complete the proposed transactions and alliances with Alstom and realize anticipated earnings and savings; 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.

"This document may also contain non-GAAP financial information. Management uses this information in its internal analysis of results and believes that this information may be informative to investors in gauging the quality of our financial performance, identifying trends in our results and providing meaningful period-to-period comparisons. For a reconciliation of non-GAAP measures presented in this document, see the accompanying supplemental information posted to the investor relations section of our website at www.ge.com."

"In this document, "GE" refers to the Industrial businesses of the Company including GECC on an equity basis. "GE (ex-GECC)" and/or "Industrial" refer to GE excluding Financial Services."

GE's Investor Relations website at www.ge.com/investor and our corporate blog at 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.

GE businesses

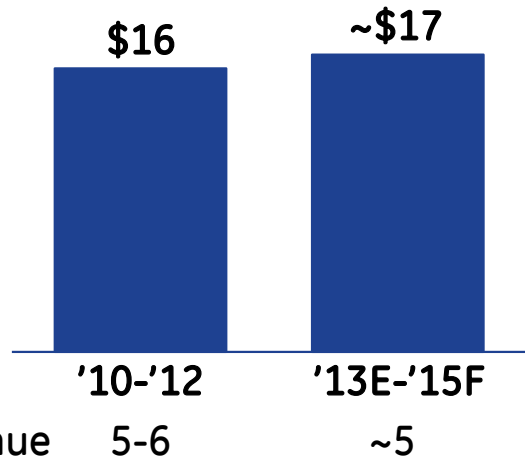


Spending = \$5+B/year



Leadership in Technology

Investment (\$B)



Value creation

- Broad and deep technical reach... ability to spread ideas
- Deep technical foundation ... to better serve our customers
- Broad global footprint (7 GRC network)
- Investment required ... now in the run rate

Why we win



- ✓ Material science (GRC)
- ✓ Power gen (P&W)
- ✓ Electrification (EM)
- ✓ Diagnostics/sensors (HC)

- 1 GRC pushes capabilities rapidly across the Company
- 2 Execution on big and complex systems ... technical scale (i.e., engines)
- 3 Foundation of materials, modeling, and manufacturing science
- 4 Strong linkage with customers and partners
- 5 Product management tools to integrate gaps and simplification



GE Global Research

The technology development arm for GE

- First U.S. industrial lab
- Market-focused R&D
- One of the world's most diversified industrial research organizations
- Leading a team of 50,000 world-class engineers



imagination at work

Expanding our global presence

1900 - 1999

2000 - 2009

2010→



Advanced Manufacturing and
Software Technology Center
Detroit, MI



Global Research
Headquarters
Niskayuna, NY



Global Research Europe
Munich, Germany
2X Size + Customer
Innovation Center



O&G Tech Center
Oklahoma



Software CoE
San Ramon, CA



Brazil Technology Center
Customer focused R&D
Rio de Janeiro, Brazil



Welch Technology Center
Bangalore, India



China Technology Center
Shanghai, China
+ 3 Customer
Innovation Centers



Russia



Japan



Israel

Global Research annual funding

GE business programs

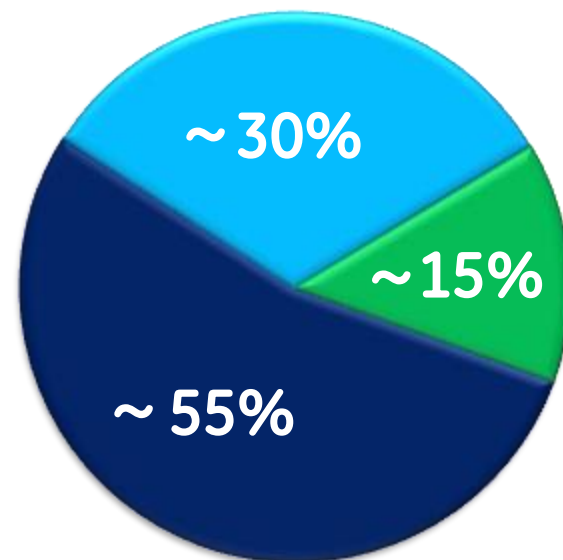
- Next generation product technology
- Short-term technical challenges

GE corporate programs

- Advanced Technology programs
- New ideas
- High-risk/high reward

External partnerships and gov't. funded

- Joint technology
- Specific customer focus



Key Technologies





What's Next

Six areas of research that
will ignite the future



**EXTREME
MACHINES**



**SUPER
MATERIALS**



**INTELLIGENT
INTERNET**



**MAPPED
MINDS**



**BRILLIANT
FACTORIES**



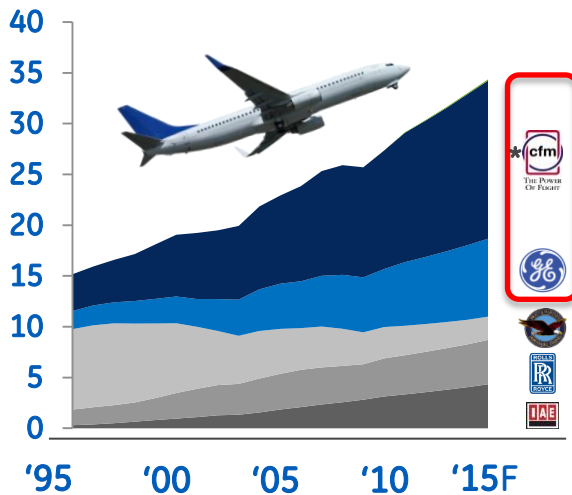
**ENERGY
EVERYWHERE**



Aviation: Growth enabled through leading technology

Departures

departures (millions)



2 of 3 daily flights
powered by GE technology

Technology Advancement with GRC

- Materials and super alloys
- Low emissions combustion
- Turbine cooling and aerodynamics
- Gas path and flow sealing
- Carbon-fiber composites
- Ceramic matrix composites
- Model-based controls
- Repair and advanced manufacturing
- High Performance Computing



*CFM is a 50/50 JV between GE and Safran. CFM engines utilize both GE and Safran technologies.

*CFM LEAP...not just any new product introduction

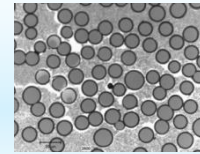
- First engine fired two days ahead of schedule
- Achieved max thrust
- 15,000 parts...3,000° F temps
- Composites, ceramics, super alloys
- 3D printed fuel nozzles
- Clearances $\frac{1}{4}$ thickness of a human hair



*CFM is a 50/50 JV between GE and Safran.

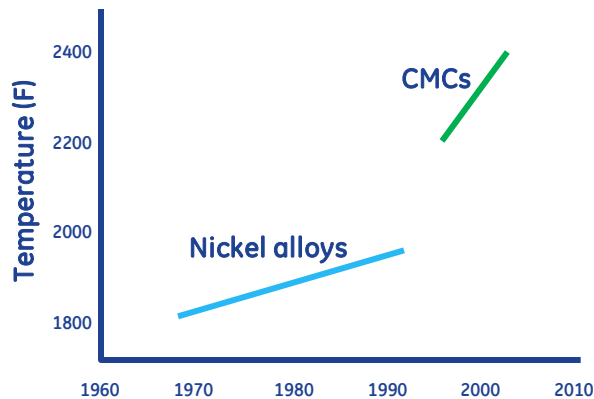
What are ceramic-matrix composites?

CMCs are silicon carbide fibers in a silicon carbide matrix

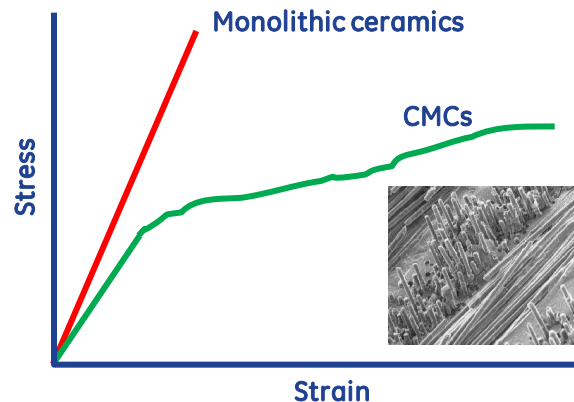


● Diameter of a human hair

High-temperature



Not brittle



+500°F + 1/3 weight of metal = 1.5% Fuel efficiency

Power & Water: HA turbine technology

Lower
OPEX

Industry-leading efficiency & maintenance costs

Lower
CAPEX

Largest turbines with lowest \$/kW through economies of scale

Simpler

No complexity and cost of steam cooling... and designed for plant constructability

Most
Flexible

Industry-leading operating flexibility... start times, ramp rates, operating range



5% lower lifecycle cost of electricity ...
significant customer validation, building the HA order book



Unsurpassed technology heritage and culture

Global Research Center



- Basic research
- New technology
- Advanced tools

GE Aviation



- Advanced materials
- Analytical tools
- Aeronautical experience

GE Power & Water



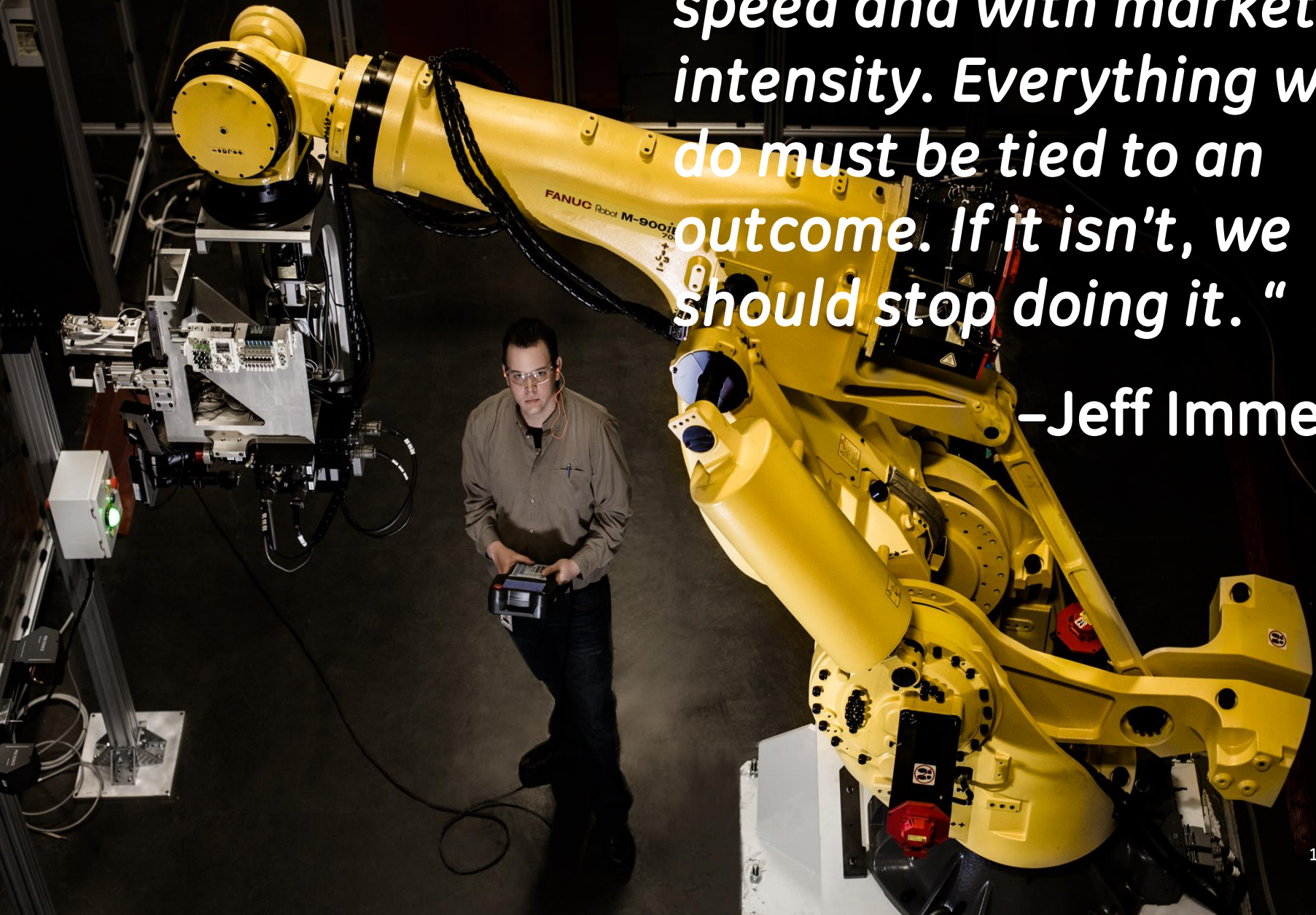
- Energy experience
- Reliability and availability
- Industry breadth



FastWorks

"GE will move at market speed and with market intensity. Everything we do must be tied to an outcome. If it isn't, we should stop doing it."

—Jeff Immelt



SOFC: Initial commercial product

Design driven by market requirements

- Electrical output: 1-10MW
- 65% Efficiency
- NG Fueled
- Minimal site installation
- Turn down capability
- Low GHG emissions

Market drivers

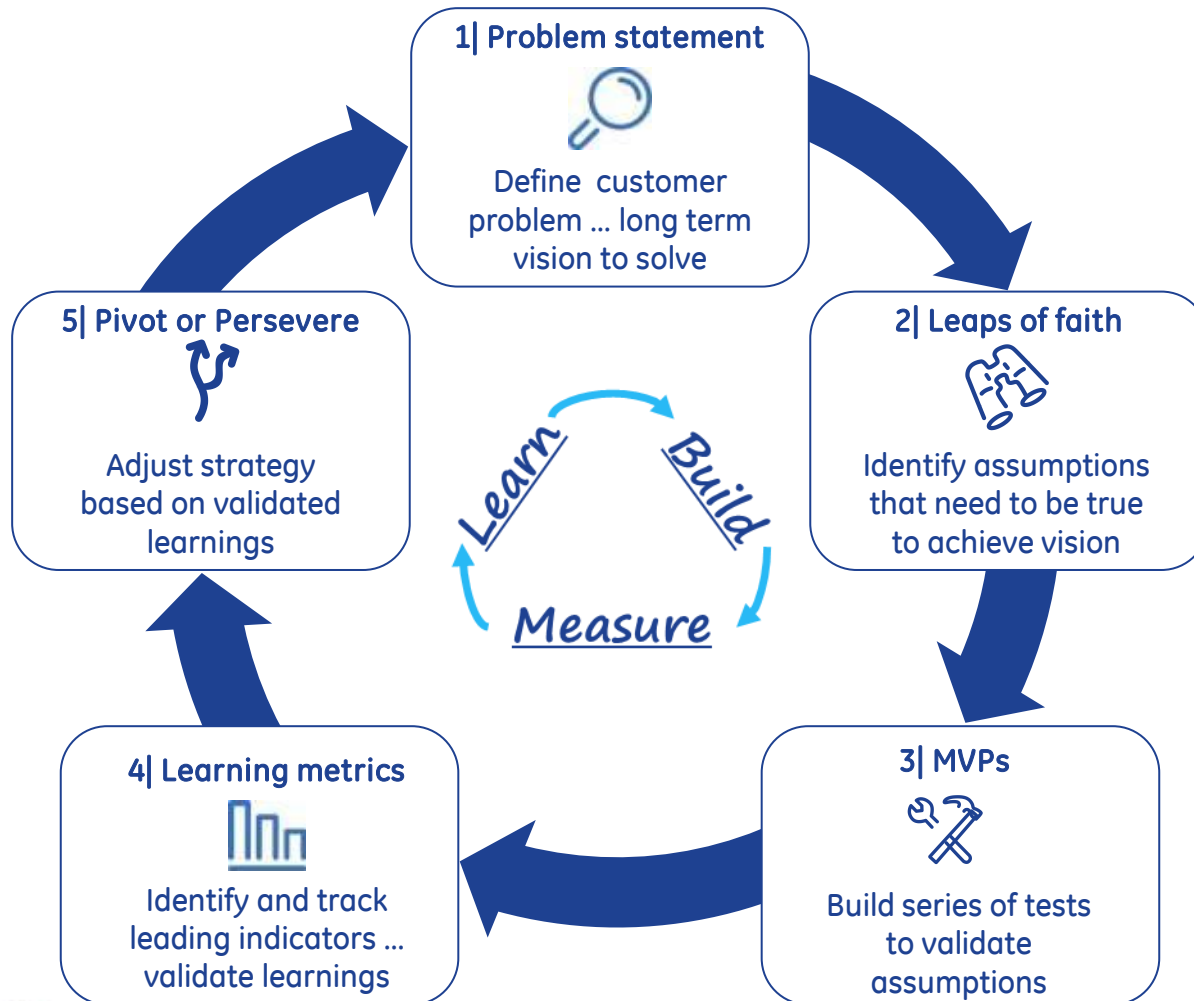
- LCOE - OpEx
- Energy security/reliability
- Corporate social responsibility
- Grid support
- T&D deferral



Clean reliable on-site energy

The FastWorks Framework

Experiment...learn...iterate



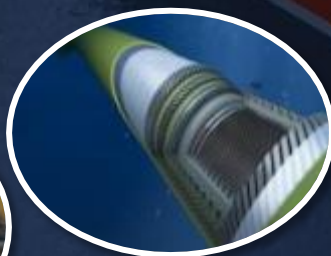
Oil & Gas: Differentiated technology - winning on the most advanced projects

Shell Prelude

World's 1st floating LNG

GE content

- First compressor trains for FLNG
- Innovative flexible riser design
- Customized offshore cryogenic valves



Applying proven GE technology and expertise to deliver transformational solutions



Differentiated technology and services: Innovation in deep water drilling

20k psi BOP



Industry first ... access to
20K PSI and 350°F reservoirs

Asset lifecycle management

SeaONYX™ controls

Bringing GE Mark VIe to Drilling

SeaLytics BOP Advisor™

Troubleshooting and
Maintenance Management

Data-enabled services

- Equipment baseline modeling
- Condition based maintenance
- Rig-based re-certification
- Digitized asset history

Increased reliability
Reduced downtime



Transportation: Evolution Series Tier 4



New Exhaust Gas Recirculation (EGR)

No after-treatment avoids \$1.5 billion in infrastructure & operating costs

Reduce NOx and PM emissions by 70%

Launching robust service support plan at launch

Increased cooling system capacity

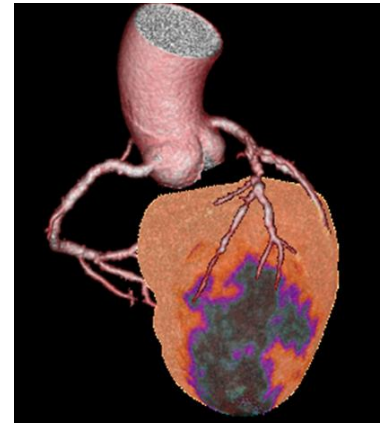
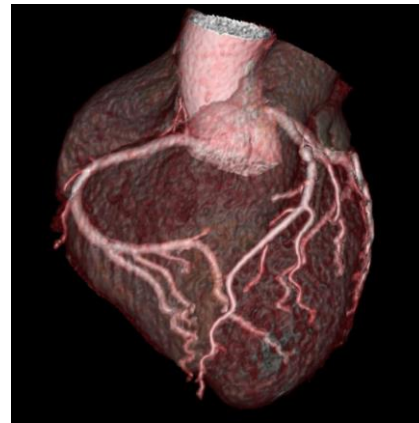


Base engine improvements

New variable speed auxiliaries

New engine control unit and power supply

Revolution™ CT – Platform for the future with uncompromised clinical performance



Key GRC technologies

Image Reconstruction:

- Wide Cone
- SnapShot Freeze™

Spectral Imaging:

- Gemstone™ Detector
- Pierce Tube



Clinical / Patient Value

Dose conscious:

- Routine low radiation dose
- Potential for reduced contrast media

Clinical benefits:

- 1-beat cardiac ... gateway to intervention
- Tissue characterization ... "non-invasive biopsy"

A biological factory

Industrialized and automated for cell therapies

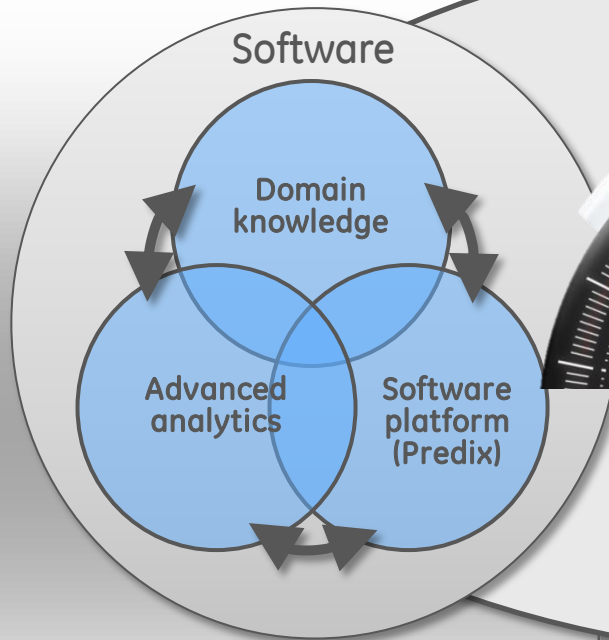
Quality assurance/quality control



- Advanced manufacturing for healthcare
- Enable widespread adoption of cell therapies

Major trends

Industrial Internet



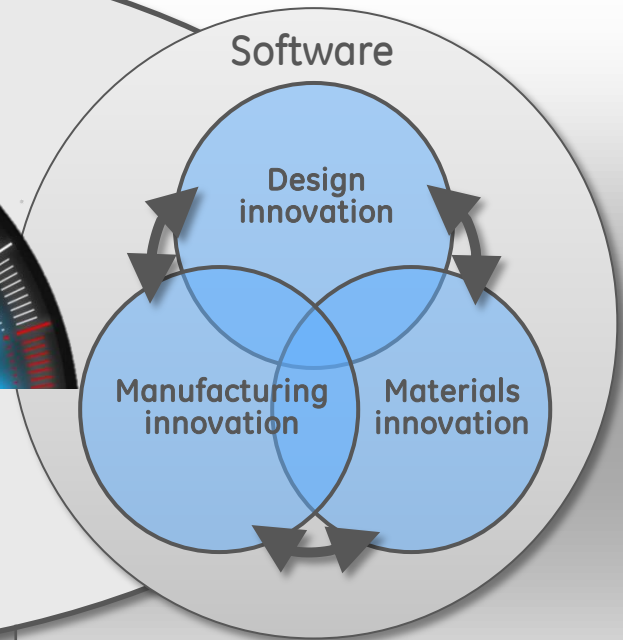
- ✓ Industrial data growing at 2X other data
- ✓ Most complex data sets

Open innovation



- ✓ Innovating with customers
- ✓ Collaboration ecosystems

Advanced Manufacturing

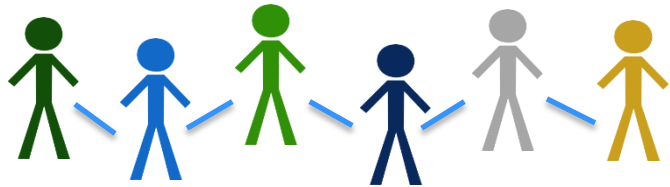


- ✓ New paradigm = manufacturing technology + materials innovation
- ✓ Digital thread



Industrial Internet - Rise of the machines

What happened when 1B people became connected?

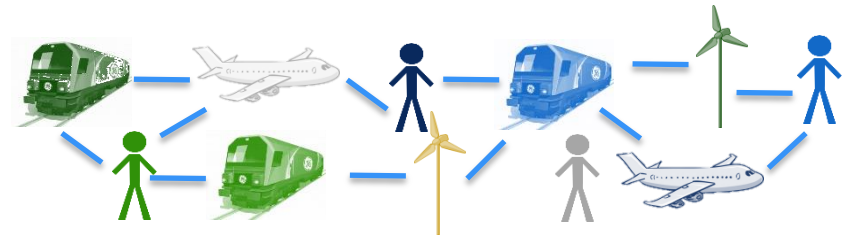


Redefining business models:

- Ads
- Entertainment
- Retail

Consumer Internet

What happens when 50B machines become connected?



Redefining productivity:

- Employees
- Assets
- Systems

Industrial Internet



Industrial Internet

Machines + Sensors + Connectivity + Cloud + Analytics

Engines + locomotives + MR machines +
appliances + wind turbines + ...

Power of 1% - **\$300B saved** over
the next 15 years



Predictivity + aviation

Impact of Unplanned Downtime



Air turnbacks
are costly

Airline industry maintenance
cost for delays & cancellations



Decrease in
workforce
productivity



Added
maintenance
costs

  **\$45MM per day**

Loss per cancellation
or diversion

  **\$25K - \$100K**

Loss
per delay

  **\$6K - \$8K**

Benefits of Predictive Maintenance



Effective workforce
& reduced
maintenance costs



On-time
performance



Customer
satisfaction

Advanced Manufacturing...why now?

The **PHYSICAL** and **DIGITAL** worlds are converging ...



Hardware
Meets Software



Agile Manufacturing



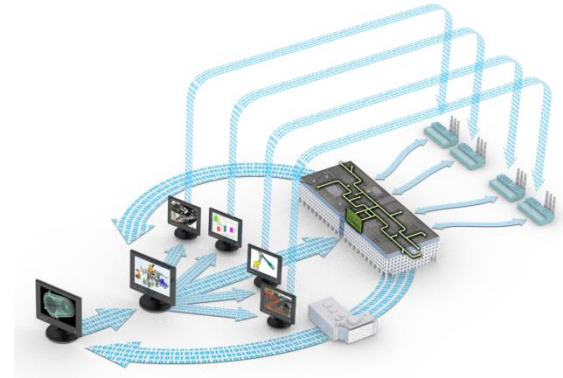
New Ecosystems

Technology enabling disruption



Advanced manufacturing ... what's next?

- Model based enterprise – Digital thread throughout the entire product lifecycle ... create a “self-improving factory” that never stops
- Advanced tools ... high performance computing and additive technologies to revolutionize materials and manufacturing process innovations
- Data and advanced analytics to take product development, speed, performance and reliability to new heights



Rise of small, nimble, adaptable supplier base



Spreading technology across GE

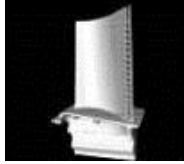
Materials & modeling



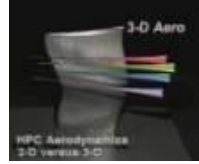
Composites



Coatings



Metal
alloys

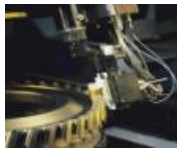


Computational
fluid dynamics

Imaging & analysis



Digital
X-ray



Eddy
current



Phased array
ultrasound



Optical
metrology

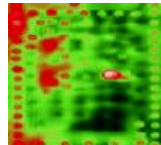
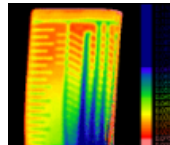


Image
processing



Thermo-
graphy



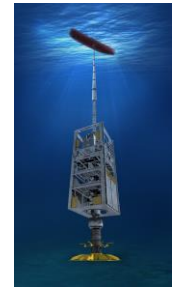
Aviation



Healthcare



Energy



Oil & Gas



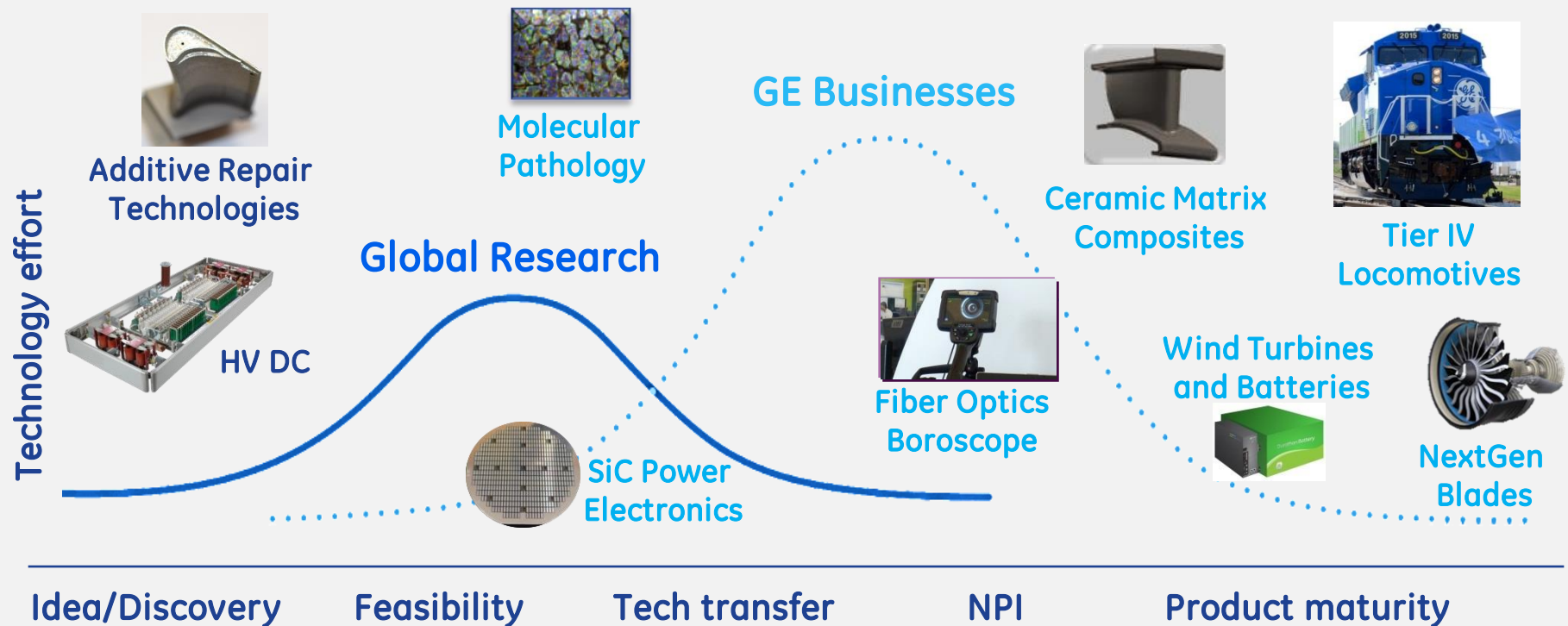
Water



Wind



GE Research + Businesses = Innovation Works



Partners in innovation

