

A close-up photograph of an industrial robotic arm performing a welding task. The scene is filled with bright orange sparks emanating from the point of contact between the welding torch and the metal workpiece. The background is dark, with blue and green lighting highlighting the metallic surfaces of the machinery. The overall atmosphere is one of precision and advanced manufacturing technology.

Industrial Innovation

Where Research Meets Reality

Vic Abate, SVP & CTO, GE



BETTER WORLD

ENERGY



TRANSPORTATION



HEALTHCARE

SEE *the future*

MOVE *the future*

CREATE *the future*



Technical expertise
Knowledge sharing
Customer outcomes

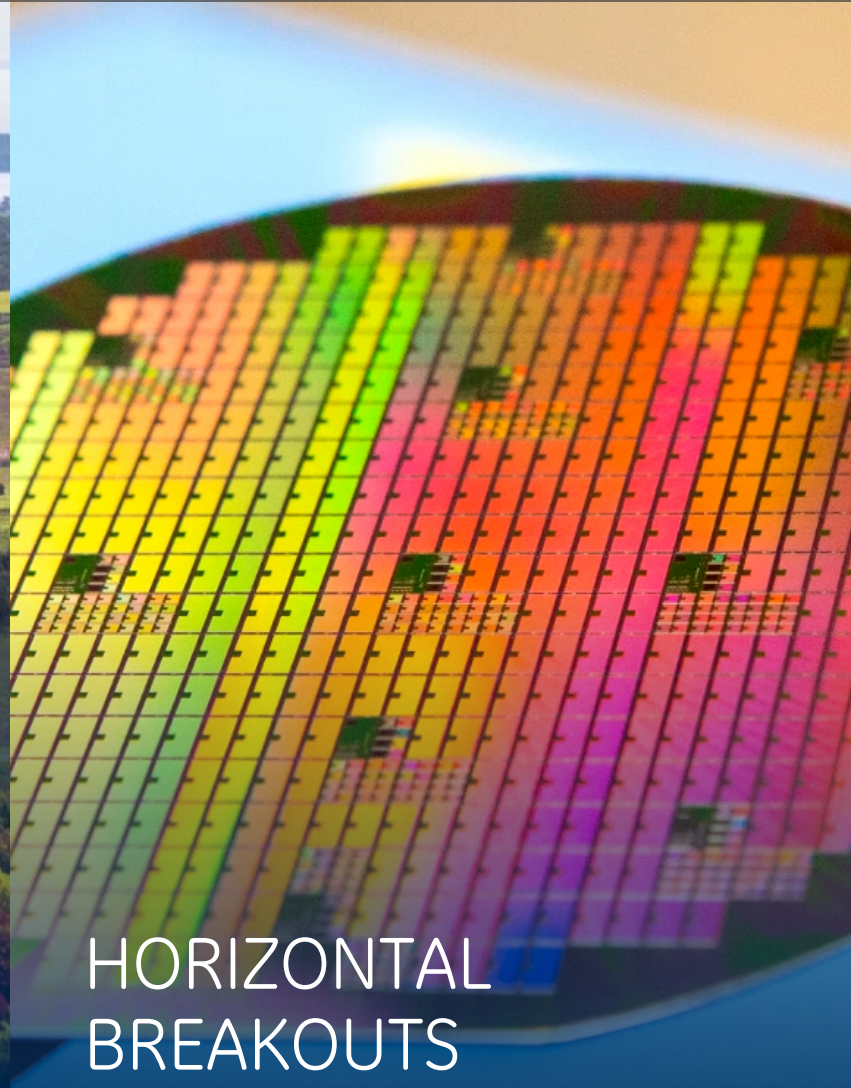


ADVANCED TECHNOLOGY FRAMEWORK



PRODUCT BREAKOUTS

INNOVATING faster than
"Moore's Law" of our industries



HORIZONTAL BREAKOUTS

Science based DIFFERENTIATION
for the GE Store



EXPONENTIAL BREAKOUTS

Applying world's FASTEST
moving technologies

PRODUCT TECHNOLOGY BREAKOUTS

A circular image showing a close-up of a wind turbine's nacelle and blades against a blue sky.

3 CENT WIND

World's lowest cost of energy, highest output, land-based wind turbine

A circular image showing a detailed view of a gas turbine engine's compressor section.

65% CC GAS TURBINE

Extending world-record efficiency leadership

A circular image showing the interior of a magnetic resonance imaging (MRI) scanner.

PLUG & PLAY MRI

Industry-leading speed to diagnosis ... 10 minute exam

A circular image showing an oil pumpjack (jack-o'-lantern) against a blue sky.

2X WELL

Doubling the production of traditional oil & gas wells

A circular image showing a large array of solar panels under a bright, cloudy sky.

COST LEADING STORAGE & SOLAR

Best-in-class system architecture & products to reduce costs by 20%+

A circular image showing the wing of an aircraft in flight against a blue sky with clouds.

HYBRID PROPULSION

World's most efficient aircraft propulsion system

HORIZONTAL TECHNOLOGY BREAKOUTS

Technology adoption at GE

✓ Innovators & early adopters

✓ Fast follower

	 SiC	 CMC	 Controls / Edge	 Robotics	 Digital Twin	 Invest. Castings	 AI
	Faster	Hotter	Smarter	Productive	Precognitive	Strategic	"No laws"
 POWER	✓	✓	✓	✓	✓	✓	✓
 RENEWABLES	✓		✓	✓	✓		✓
 O&G	✓	✓	✓	✓	✓	✓	✓
 CURRENT	✓		✓		✓		✓
 AVIATION	✓	✓	✓	✓	✓	✓	✓
 TRANSPORTATION	✓		✓	✓	✓		✓
 HEALTHCARE	✓		✓	✓	✓		✓

EXPONENTIAL TECHNOLOGY BREAKOUTS

FUTURE TECHNOLOGY TRENDS

Cost ↓

Performance ↑

Degrees of freedom ↑

ADDITIVE
MANUFACTURING

Lasers
Materials
Systems
Software

DISPATCHABLE
RENEWABLES

Renewables
Batteries
Electric vehicles
Grid

INSPECTION AS
A SERVICE

Robotics
Drones
Sensors
AI

RESEARCHER
INSIGHTS

Our next
Exponential
Breakouts

NEW INTERDISCIPLINARY LABS



PRODUCT
MANAGEMENT
AS A SCIENCE

EFFICIENT capital
deployment



VARIABLE COST
PRODUCTIVITY

EXPAND product
margins



BREAKOUT
MOVES

DRIVE sustained
differentiation



FORGE
LAB

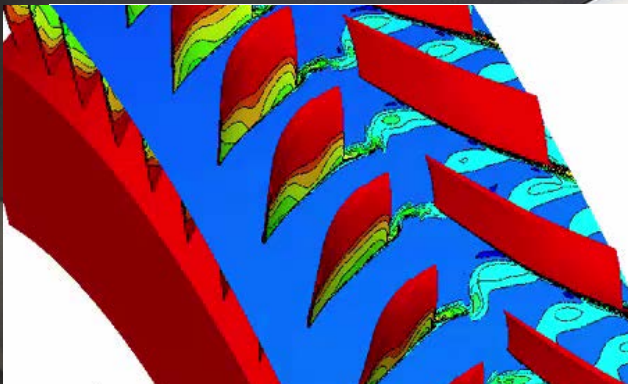
DEMONSTRATE
exponential technologies



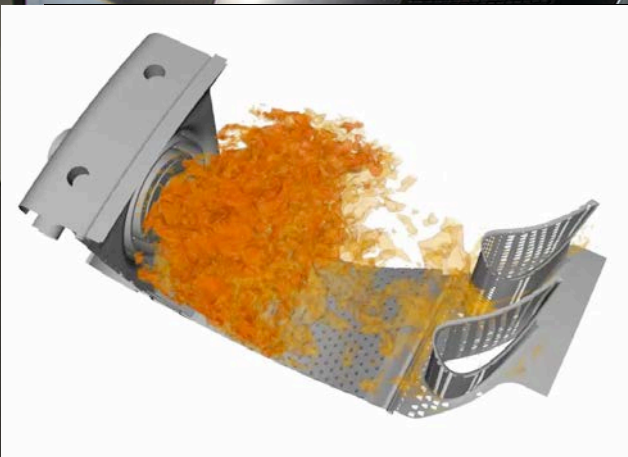
CUTTING EDGE DESIGN

Material Science
Aerodynamics
Physics & Analytics

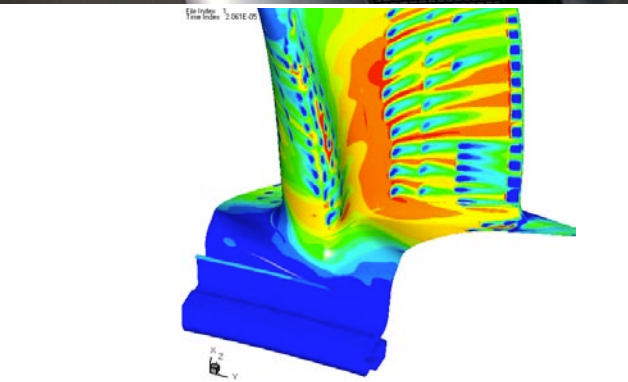
COMPRESSION



COMBUSTION

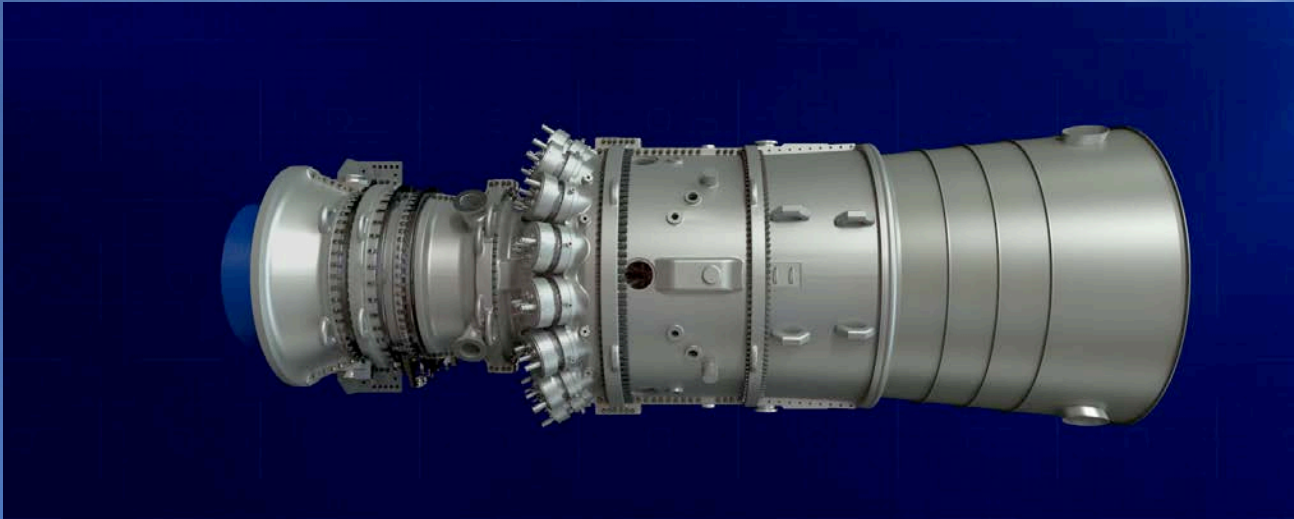


WORK

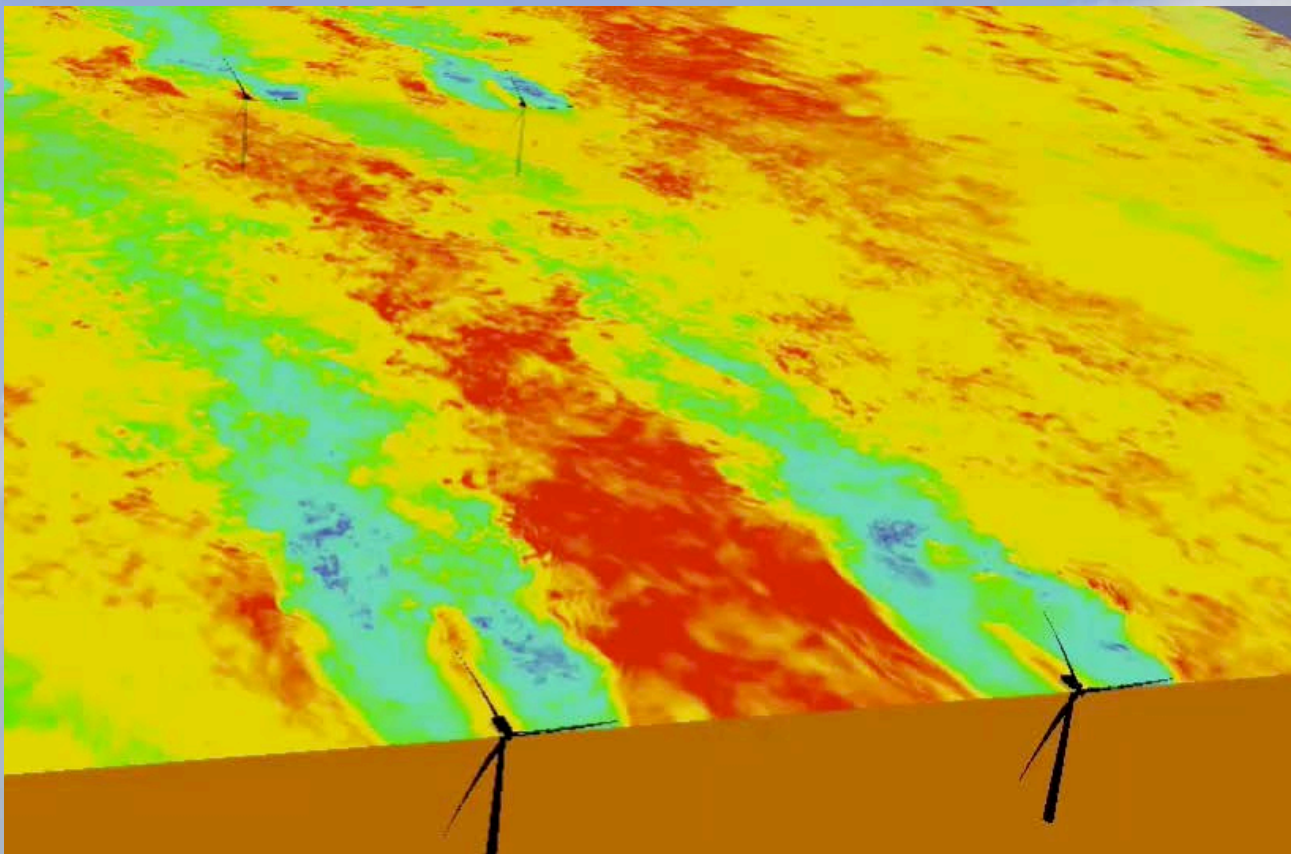


BEST PERFORMANCE

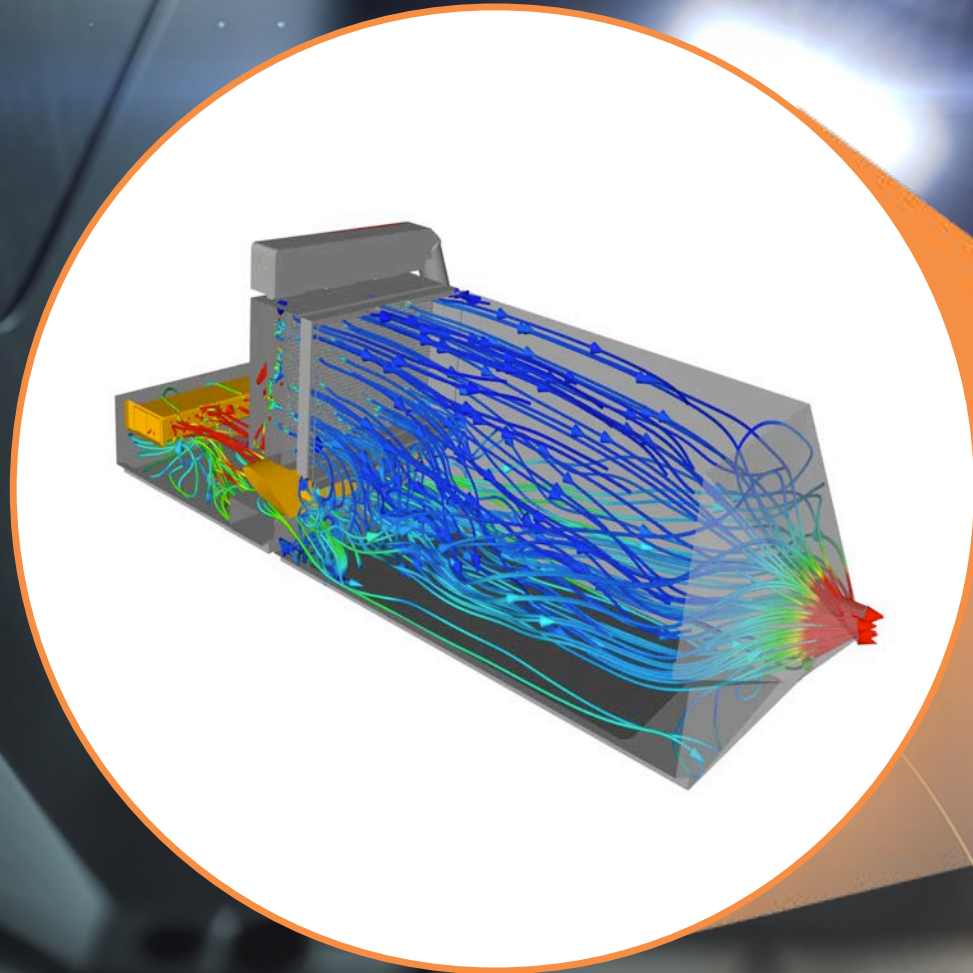
The Power of the Engine



WORLD'S MOST EFFICIENT GAS TURBINE



HIGHEST PERFORMANCE WIND TURBINE



NEXT GENERATION MANUFACTURING



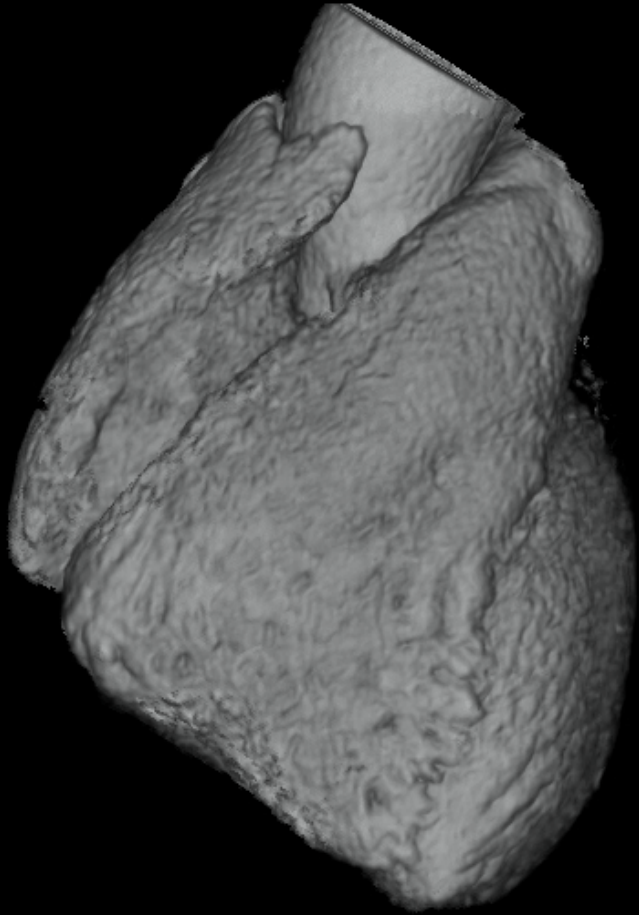
QUALITY MANUFACTURING

X-ray source

Detectors

Reconstruction
algorithms

Image analytics



HUMANS TO HARDWARE



RELIABLE FLEETS

Fleet diagnostics

Digital Twin

Machine learning

Reliability
engineering



WIND TURBINES
35,000

RELIABILITY



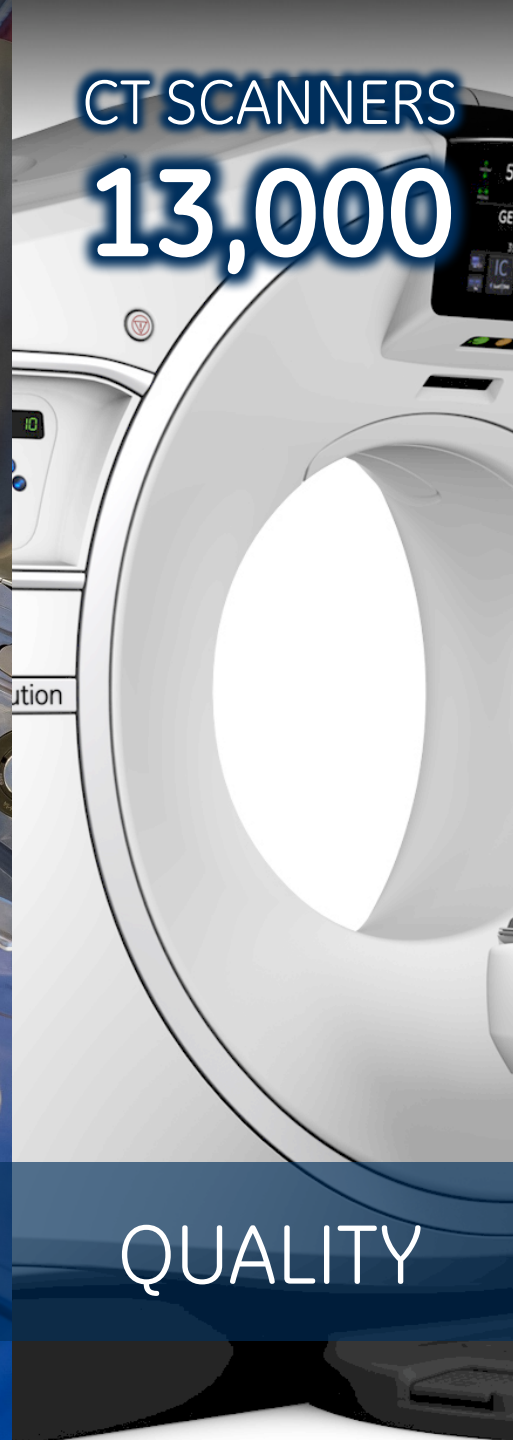
LOCOMOTIVES
22,500

FUEL BURN



GAS TURBINES
7,000

EFFICIENCY



CT SCANNERS
13,000

QUALITY



ENGINES
33,000

TIME ON WING



Better technology, better world

