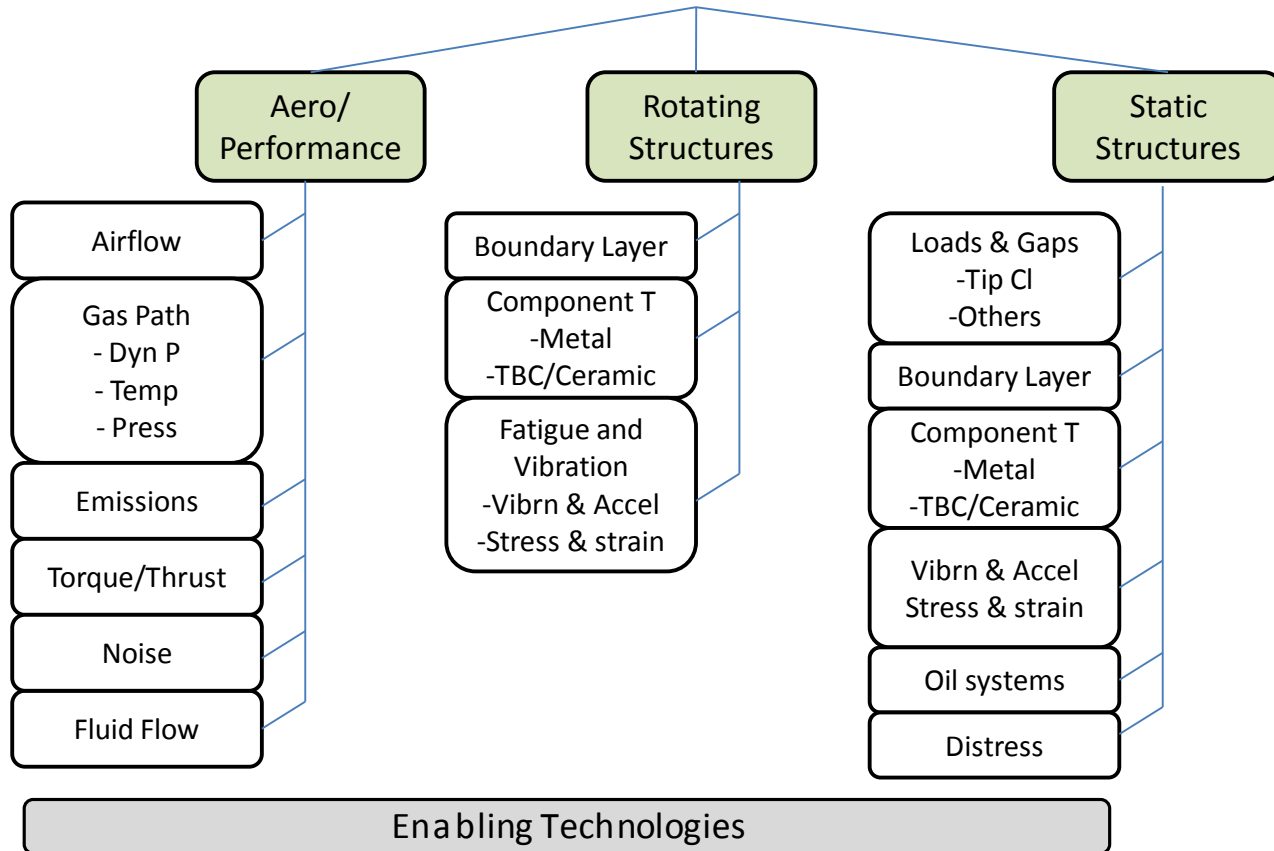


# Structure



# Aero Performance

EVI-GTI- PIWG Joint Lab Gap Matrix

22-Feb-17



Measurand/Measurement	Externals and shafts		Intake, Compressor (Front) and Fan		Compressor (rear)		Combustion system		HP Turbine		LP Turbine		Exhaust	
Pressure (MKS)	1 bar		1-10 bar		10-45 bar		<45 bar		25-45 bar		1-20 bar		1 bar	
Pressure (Eng)	15psi		15-150psi		150psi-650psi		650psi		370psi-650psi		15psi-300psi		15psi	
Temperature (MKS)	-40 to 300C		-40 to 300C		300 to 700C+		700C-2400C		1000C-1800C		700C-1000C		700C+	
Temperature (Eng)	-40 to 570F		-40 to 570F		570 to 1300F+		1300F-4300F		1800F-3300F		1300F-1800F		1300F	
TRL assessments = Red 1-4, Yellow 5-6, Green 7-9														
<b>1. Airflow Measurements</b>	EU	US	EU	US	EU	US	EU	US	EU	US	EU	US	EU	US
Overview of gaps	Green		Green		Green		Green		Green		Green		Green	
<b>2. Gas Path Measurements</b>	Green		Green		Green		Green		Green		Green		Green	
Overview of gaps	Green		Green		Green		Red		Red		Yellow		Green	
<b>3. Fluid flow</b>	Green		Green		Green		Green		Green		Green		Green	
Overview of gaps	Green		Green		Green		Yellow		Green		Green		Green	
<b>4. Emission Species - Exhaust</b>	Green		Green		Green		Green		Green		Green		Green	
Overview of gaps	Green		Green		Green		Green		Green		Green		Yellow	
<b>5. Torque and Thrust</b>	Green		Green		Green		Green		Green		Green		Green	
Overview of gaps	Green		Green		Green		Green		Green		Green		Green	
<b>6.Noise</b>	Green		Green		Green		Green		Green		Green		Green	
Overview of gaps	Green		Green		Green		Yellow		Green		Green		Green	
<b>Enabling technology: Wires and Interconnects</b>														
Hardwire	Green		Green		Green		Yellow		Yellow		Green		Green	
Transition technology	Green		Green		Green		Yellow		Yellow		Green		Green	
Connectors	Green		Green		Yellow		Red		Red		Red		Yellow	
Soft/flex wire	Green		Green		Red		Red		Red		Red		Red	
Fiberoptic cables	Yellow		Yellow		Yellow		Red		Red		Red		Yellow	
Wireless	Green		Green		Yellow		Red		Red		Red		Yellow	

## Rotating Structures

EVI-GTI- PIWG Joint Lab Gap Matrix

30-Oct-12

Measurand/Measurement	Externals and shafts		Intake, Compressor (Front) and Fan		Compressor (rear)		Combustion system		HP Turbine		LP Turbine		Exhaust	
Pressure (MKS)	1 bar		1-10 bar		10-45 bar		<45 bar		30-45 bar		1-20 bar		1 bar	
Pressure (Eng)	15psi		15-150psi		150psi-650psi		650psi		370psi-650psi		15psi-300psi		15psi	
Temperature (MKS)	-40 to 300C		-40 to 300C		700C+		700C-2400C		1000C-1800C		700C-1000C		700C+	
Temperature (Eng)	-40 to 570F		-40 to 570F		1300F		1300F-4200F		1800F-3300F		1300F-1800F		1300F	
TRL assessments = Red 1-4, Yellow 5-6, Green 7-9														
<b>1. Boundary layer/heat transfer</b>	EU	US	EU	US	EU	US	EU	US	EU	US	EU	US	EU	US
Overview of gaps														
<b>2.Component Temperature</b>														
Overview of gaps														
<b>3 Fatigue and Vibration</b>														
Overview of gaps														
<b>Enabling Technology: Signal transfer</b>														
Inductively powered telemetry														
Battery powered telemetry														
Slip rings														
Optical telemetry														
<b>Enabling Technologies: Wiring and interconnects</b>														
Hardwire														
Transition technology														
Connectors														
Soft/flex wire														
Fiberoptic cables and links														

<b>Stationary Structures</b>
EVI-GTI- PIWG Joint Lab Gap Matrix
30-Oct-12

Measurand/Measurement	Externals and shafts		Intake, Compressor (Front) and Fan		Compressor (rear)		Combustion system		HP Turbine		LP Turbine		Exhaust	
Pressure (MKS)	1 bar		1-10 bar		10-45 bar		<45 bar		30-45 bar		1-20 bar		1 bar	
Pressure (Eng)	15psi		15-150psi		150psi-650psi		650psi		370psi-650psi		15psi-300psi		15psi	
Temperature (MKS)	-40 to 300C		-40 to 300C		700C+		700C-2400C		1000C-1800C		700C-1000C		700C+	
Temperature (Eng)	-40 to 570F		-40 to 570F		1300F		1300F-4200F		1800F-3300F		1300F-1800F		1300F	
TRL assessments = Red 1-4, Yellow 5-6, Green 7-9														
<b>1. Load and Displacement</b>	EU	US	EU	US	EU	US	EU	US	EU	US	EU	US	EU	US
Overview of gaps														
<b>2. Boundary layer/heat transfer</b>														
Overview of gaps														
<b>3. Component Temperature</b>														
Overview of gaps														
<b>4. Fatigue and Vibration</b>														
Overview of gaps														
<b>5. Oil system</b>														
Overview of gaps														
<b>6. Component Material Wear, Degradation, distress</b>														
Overview of gaps														
<b>Enabling Technology: Wiring and interconnects</b>														
Hardwire (MIC)														
Transition technology														
Connectors														
Soft/flex wire														
Fiberoptic cables														

