Technology Development and Analysis

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Integration Technologies

	Technology	Level of Need	Level of Maturity	Timeline/costs
Integration	Better information systems and architecture	5	Avail - H Imp - L	Long (10 years) and Expensive $$
	Integrating disparate types of info			
	Connectivity/architecture of data sources and Standardizeation of data	3	Avail - M Imp - L	Medium
	PHM Design tool	4	Avail - L Imp - L	Medium
	FMECA			
	C/B analysis	10+	Avail - L Imp - L	
	Uncertainty quantifcation			
	Placement of sensors			
	Algorithms	5		
	Fault Progression			
	Fault detection			
	Fusion			
	Data driven			

Sensors

Technology	Level of Need	Level of Maturity	Timeline/costs
Sensors	3+		sensor development 2+ yrs
Self Aware		L	implementation on PHM platforms - long
wireless		M	
Micro sensors			
smart materials		L	
reconfiguables		L	
low weight		M	
usage monitoring			
high reliability			
Placement/# sensors	Aging AC 5	L	
Cabling/connectors			
Aging aircraft	5		
Corrosion	3+		

Algorithms

	Technology	Level of Need	Level of Maturity	Timeline/costs
Machinery	Algorithms		H	
Electronics	Algorithms on board, fault detection is high		L	
Structures	Algorithms		M	
	Physics of failure modeling	5	L-M	
	Manufacturing variability			
	Initial conditions			

COE Role

- Education, dissemination of PHM technology
- Information broker
- Data Repository
- Articulation of PHM Business Case
- Parallel to RAC in Rome, NY
- Tech Reports/Lessons learned
- Standards
- Technology Review
- Technology transfer

COE Role

- Development of Sensors
- Testing of common electronic parts
- List of Sensors and their use
- Identification of sensor gaps for DoD funding
- Data analysis
  - Develop algorithms
  - Set alarm thresholds based on features
  - Validate
- Algorithm Development
  - Data driven
  - Physics of Failure
- Validate PHM approaches, algorithms through simulation and testing
- Verification and Validation