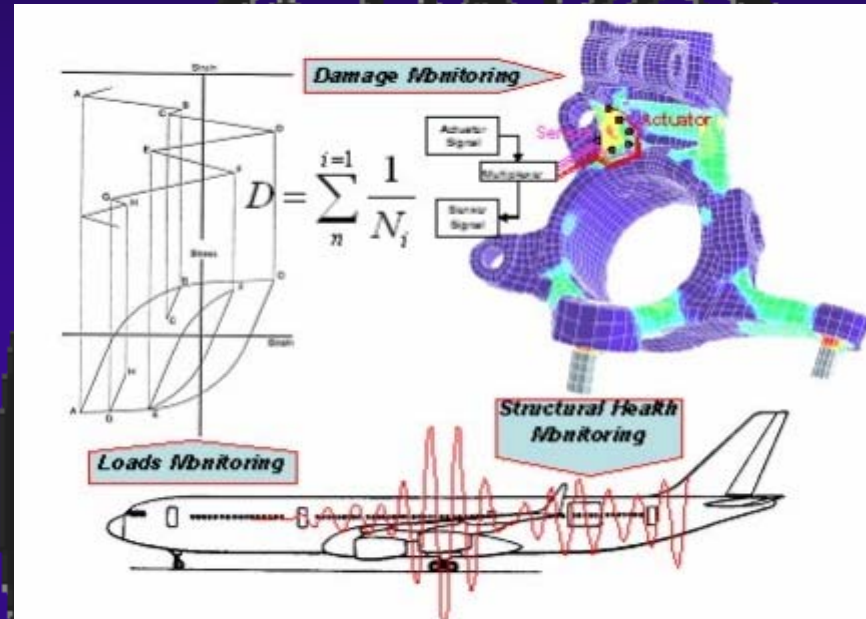




# SHM in Action



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# SHM in Action Overview

- Duration: 2006-2009
- SSA Project
- Partners: UPM, Sheffield (UK), Siegen (Ge), IST(P), Patras (Gr), Risoe (Dk), IFFM (Po)
- Objectives:
  - Preparation and providing of a 40 hours theoretical/practical course through several European Universities, for the formation of SHM specialists.
  - Creation of an SHM specialists network.



# SHM in Action

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Basic technologies for crack detection:

- Perturbations in elastic waves propagation.
- Damage assessment by vibration tests.
- PZTs and Phased arrays.
- Fibre Optic Sensors.
- Signal analysis.

# Approaches and technologies for SHM



**DIAGNOSIS:** Detect (I) and locate (II) damage occurrence

**PROGNOSIS:** Predict damage progression, maintenance planning, fatigue analysis

## Usage Monitoring

- Flight data + FE model
- Strain gauges
- FBG as strain sensors

## Damage Assessment

- Vibration analysis
- Acoustic emission
- Lamb waves
- E/M impedance
- Fibre optic polarization changes
- FBGs



## Dates

- May 07 University Politécnica de Madrid (Dept Aeronautics), Spain
- Nov 07 University of Siegen (Institute of Mechatronics), Germany
- Apr 08 University of Sheffield (Dept. of Mechanical Engineering), U. K.
- July 08 Polish Academy of Sciences (IFFM), Gdansk, Poland
- Nov 08 Instituto Superior Tecnico (IST), Lisbon, Portugal
- April 09 University of Patras (Lab. for Mechanical Systems), Greece
- July 09 RISOE National Laboratory, Denmark