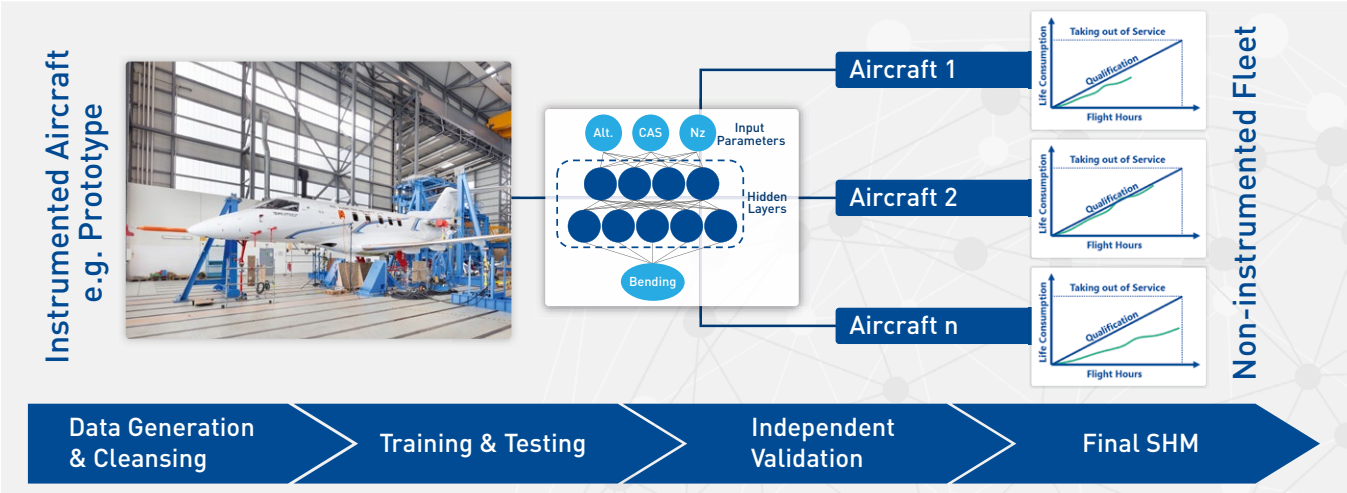
Structural Health Monitoring

Load determination using recorded flight parameters

AI optimises Structural Health Monitoring

Aircraft must be operated in a safe manner. Therefore, safety must be permanently ensured and proven. A decisive factor is the service life monitoring of aircraft as the basis for maintenance. If mission profiles change, this not only affects the service life of an aircraft, but possibly also the entire fleet and its maintenance programme. We use Artificial Intelligence to optimise further Structural Health Monitoring systems with benefits for aircraft life monitoring, life extension programmes and in assessing the impact of changed mission profiles on service life.



Method

- Flight tests and recording of sensor data with an instrumented aircraft (flight parameters, loads)
- Train and test an AI monitor as a virtual sensor system
- Validate the AI monitor and evaluate the loads with error analyses and damage comparisons (real vs. virtual sensor)
- Apply the AI monitor to the fleet
- Maintain and check the AI monitor, e.g. in case of configuration changes

Service

- Use the flight parameters to determine structural loads
- Apply an AI monitor for load determination
- Determine aircraft life consumption according to requirements
- Integration of knowledge gained through SHM into maintenance programmes

Your added value

- Retrospective assessment of use with residual life estimation
- Reliable and cost efficient SHM method
- Safe and economic use of the fleet enabled by continuous monitoring

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