

Transfer of corrosion mapping experiences from aerospace to other industries

Guillaume ITHURRALDE¹

¹Products & Equipment, TESTIA, France

It has been more than 90 years since the first attempts to test solid materials using sound waves occurred. After all this time, technologie and technique had advanced enormously. The new developments are mostly pointing out to perform more reliable, accurate and faster inspections. The specific challenges of each industrial sector has led to the creation of focused solutions. Some of them can be adapted and transferred to other industrial sectors, taking advantage of the lessons learned and the expertise gained. In the aerospace sector, for example, one of the major challenges in terms of aircraft inspection is the detection and evaluation of corroded areas. Ultrasonic Testing (UT) products and solutions have been developed for that purpose. They are also used to measure wall remaining thicknesses after blending-out operations. All these inspection tools and products resulted from three main drivers: 1. Release aircrafts quicker thanks to faster acquisitions; 2. Reduce human factor & signals misinterpretations thanks to diagnosis assistance; 3. Make information available for all the actors thanks to digital continuity from the initial work order to the results transfer into assets digital twins hosted in the cloud. The full inspection process was analyzed first, then optimized. Phased array technology was selected. Acoustic coupling was monitored. Lightweight scanners were developed. Signals were automatically processed. Dedicated graphical user interfaces were designed. Positioning systems were added. Data reporting was harmonized. Connectivity to the web was included. Augmented reality options were investigated... Nowadays, these products and solutions are referenced in the technical documents of major OEMs (Original Equipment Manufacturers) such as AIRBUS. They are very appreciated by airlines and MROs (Maintenance & Repair Overhaul companies) which take advantage of the immediate RoI (Return on Investment). TESTIA is exploring corrosion mapping applications in other industries such as ships repair and maintenance, storage tanks, etc. This presentation will give some insights on equipment and tools, which have been developed and industrialized by Testia, an Airbus Company for aerospace sector and can be transferred to other industries.