CURRENT & FUTURE EVOLUTION OF AIRBUS COMPOSITE STRUCTURES

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During the past 40 years, AIRBUS has continuously and progressively introduced advanced materials and structural technologies as a consequence of successful experience accumulated.
A significant amount of structural weight has been saved through the introduction of new technologies and through the structural optimization. The use of composites materials and technologies has significantly increased mainly due to their application to major structural components such as vertical & horizontal tail planes, rear unpressurized fuselage section, center wing box, fuselage.
For the introduction of new materials into future Airbus products, it is essential to identify the best match of material characteristics with structural design drivers in order to define an optimized airframe.
This paper will highlight the advanced materials and technologies foreseen for the next Airbus product. Then, it will discuss the potential use of innovative materials and technologies for the future thanks to the current R&T developments.
Finally, a first vision about multifunctional structures and smart structures, as for instance Structural Health Monitoring, will be presented. Beyond that, also nanotechnology promises significant benefits and could enable new approaches towards smart structures.