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Sommario/riassunto	Throughout the ages, humans have applied knowledge and know-how to master materials. They have gone from materials encountered by chance available in their environment to customized materials designed to meet multi-criteria specifications. Today, owing particularly to digital modelling on different scales, we are able to design high-performance materials, combining various classes of materials, in controlled geometries and dimensions. These innovation strategies - architected or bio-inspired materials - have been integrated in many industrial sectors (cars, aeronautics, biomedical sciences, etc.).