

Methodological enhancements in MDO process investigated in the AGILE European project

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Nomenclature

AGILE	=	Aircraft 3rd Generation MDO for Innovative Collaboration of Heterogeneous Teams of Experts
MDO	=	Multidisciplinary Design Optimization
DC	=	Design Campaign
SEGOMOE	=	Super Efficient Global Optimization based on Mixture Of Experts
RSM	=	Response Surface Model
TLAR	=	Top Level Aircraft Requirements
SOTA	=	State Of The Art
PIDO	=	Process Integration and Design Optimization

Abstract

This paper presents methodological investigations performed in research activities in the field of MDO in overall aircraft design in the ongoing EU funded research project AGILE. AGILE is developing the next generation of aircraft Multidisciplinary Design and Optimization processes, which targets significant reductions in aircraft development costs and time to market, leading to cheaper and greener aircraft solutions. The paper introduces the AGILE project structure and describes the achievements of the 1st year (Design Campaign 1) leading to a reference distributed MDO system. A focus is then made on the different novel optimization techniques studied during the 2nd year, all willing to ease the optimization of complex workflows, characterized by high degree of discipline interdependencies, high number of design variables in the context of

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