



DGA Aero-Engine Testing is Developing a Digital Alternative to Traditional Test Benches with ESI's SimulationX

System Simulation Allows Virtual Testing of Aircraft Engine Operations in Real Conditions

Paris, France – September 25, 2018 – [ESI Group](#), leading innovator in [Virtual Prototyping](#) software and services for manufacturing industries, announces its collaboration with [DGA Aero-Engine Testing](#) in the development of a virtual test bench for aircraft engines in flight conditions. DGA Aero-Engine Testing (or DGA-EP) is a non-profit public body, part of the Test and Evaluation capabilities of the French armament procurement agency. Aircraft engines, for both civil and military applications, are tested in DGA-EP facilities to verify their performance for given applications. These tests are an integral part of the engine certification process. This project leverages [SimulationX](#), ESI's solution for system simulation, to deliver a major technological advance that will benefit the [DGA](#) in terms of resources, deadlines and budget.

DGA Aero-Engine Testing or DGA-EP – an entity dedicated to all types of aeronautical thruster tests – has a wide range of test facilities. It designs and carries out tests of aerobic aeronautical engines, their components, assemblies and sub-assemblies and associated equipment under simulated flight conditions, including icing conditions. The DGA-EP site is currently the largest center of its kind and houses nearly all high-altitude caissons in Europe. To optimize the preparation of its tests and the training of its operators, the entity launched the SIMATMOS project in 2012, with the objective to implement a virtual test bench, which will eventually be used to train its operators, check the feasibility of the tests and predict the performance of the testing installations.

Following a public tender, DGA-EP chose ESI's system simulation solution to model the installations. The solution [SimulationX](#) empowers them to create Virtual Prototypes of the engines, and to test them virtually under real flight conditions. In addition, the open and adaptable environment provided by SimulationX will enable connections to a flight simulator in the future.

Laurent Porsain, Test Process Manager at DGA-EP, in charge of the SIMATMOS project, comments: *"This success is part of our wider transition to Industry 4.0. Our objective is to take advantage of exceptional digital solutions to complete more numerous and more comprehensive tests, to work collaboratively and to train our teams. We aim to do this at a lower cost and before the final physical test, which remains regulatory."*

The virtual test bench that is being built with SimulationX is one of the major elements of DGA-EP's digitalization initiative. Virtualization of both the test configuration and the engine (or other equipment) will make it possible to completely reproduce the test conditions and predict the performance of test equipment. In the longer term, DGA-EP plans to extend this work to progressively update the virtual



test bench using data collected during actual physical testing, and ultimately to develop a [Hybrid Twin™](#) of each testing installation, that will enable intelligent maintenance and support.

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About ESI Group

[ESI Group](#) is a leading innovator in [Virtual Prototyping](#) software and services. Specialist in material physics, [ESI](#) has developed a unique proficiency in helping industrial manufacturers replace physical prototypes by virtual prototypes, allowing them to virtually manufacture, assemble, test and pre-certify their future products. Coupled with the latest technologies, Virtual Prototyping is now anchored in the wider concept of the *Product Performance Lifecycle™*, which addresses the operational performance of a product during its entire lifecycle, from launch to disposal. The creation of a *Hybrid Twin™*, leveraging simulation, physics and data analytics, enables manufacturers to deliver smarter and connected products, to predict product performance and to anticipate maintenance needs.

ESI is a French company listed in compartment B of NYSE Euronext Paris. Present in more than 40 countries, and addressing every major industrial sector, [ESI Group](#) employs about 1200 high-level specialists around the world and reported annual sales of €141 million in 2016. For more information, please visit www.esi-group.com.

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