

## ***46ESS-69: Lift fan for aero engines***

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*The lift fan system is the most effective way, for fighter aircrafts, to achieve both vertical and supersonic capabilities. Compared to other types of V/STOL fighters (Vertical/Short Take Off & Landing), aircrafts equipped with lift fans proved to be safer and to require shorter runaways. Moreover, lift fan systems allow the pilot to easily convert the aircraft to conventional flight, to STOVL flight, only by pressing a button: therefore, this new generation of aircrafts will achieve take offs like helicopters, while performing as modern fighters. The multiple advantages of the lift fan system have enabled it to become very popular between many of the world air forces. Applications of the lift fan systems can be found in the "JSF F-35", in the British "Harrier" and the in Russian "Yak-38".*

*The aim of this report is to represent the state of the art of the lift fan systems from an historical point of view and to give an overview of the main engineering challenges as well as future prospects.*