The Eurofighter Typhoon cockpit assessment process

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Abstract

Since the early days of the Eurofighter Typhoon, Human Factors (HF) has had a major part to play in its development. The early cockpit layout and philosophy were informed by initial mission analyses, an ergonomics handbook and principles of cockpit design. Today's current processes still rely on these methods, alongside HF specialists working together with engineers and the end users, in order to provide a platform that is both highly usable and operationally effective. As the aircraft continues to be developed, Cockpit Assessments remain an integral part of the design cycle and are carried out regularly as a de-risking exercise that allows aircrew to review and comment on the proposed design, whilst also allowing Eurofighter Cockpit Group the opportunity to collect data prior to design freeze. A variety of assessments are carried out by Cockpit Group to evaluate such issues as layout, lighting and the moding of displays and controls. This paper provides an overview of the initial design process, discusses the steps involved in the development of the assessment methodology and presents the various tools and techniques used throughout the assessment to ensure acceptability of the intended product.

Introduction

The Eurofighter Typhoon is a multi-role combat aircraft, built by the Eurofighter Consortium of BAE Systems, Cassidian and Alenia Aeronautica and is currently in service with the air forces of the UK, Spain, Italy, Germany, Austria and the Kingdom of Saudi Arabia. Available in a single seat or twin seat training variant, and in development since the late 1980s, the Eurofighter Cockpit is treated as a subsystem in its own right (rather than different aspects being owned by differing functions, e.g. radar, fuel etc.) and as such has a dedicated team with design authority. The multi-disciplinary team was originally made up of designers, engineers, HF specialists and aircrew. This team worked together to inform the initial layout, geometry, lighting and moding based on HF and operational requirements for single seat operation, alongside knowledge of the capabilities of the systems and equipment. This work is continued today by the current Eurofighter Cockpit Group at BAE Systems, Warton.

Cockpit design requirements

As a swing role combat aircraft, responsible for carrying out both Air-to-Air and Ground Attacks, it is imperative that Human Factors are considered within the

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