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Human-Systems Integration in Aerospace NDT

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Abstract

Correct outcomes of NDT inspection have particular importance in aerospace safety and performance. These outcomes depend directly on both the NDT system and the human inspector so that for optimum performance the integration between the inspector and the system must also be optimized. This means both fitting the inspector to the system (e.g., training) and fitting the system to the inspector (i.e., Human Factors Engineering). Together these comprise Human System Integration, HSI. NDT, like other systems humans use, has evolved over time, and is expected to change even more rapidly with digitization, artificial intelligence techniques, big data analytics and the availability of off-the-shelf rapid communications. Fortunately, detailed knowledge of how inspectors perform their jobs has also evolved over 50 years and continues to improve, so that aspects of inspection performance can be described by detailed mathematical models. We need to apply what has been learned about both the NDT system and the human inspector if we are to achieve the overall performance that we all desire. This keynote examines the HSI aspects of current and potential future NDT systems to ensure that we can successfully implement changes to improve performance.