

IAF BUSINESS INNOVATION SYMPOSIUM (E6)
Entrepreneurship and Innovation: The Practitioners' Perspectives (1)

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DIGITALIZATION AND INDUSTRY 4.0, A COMPARISON BETWEEN OLD SPACE AND NEW
SPACE

Abstract

This paper aims to report on a comparative analysis of aspects of Digitalization and Industry 4.0 for both the traditional space manufacturing industry as well as the Newspace industry. The research question for the envisioned paper will be formulated as follows: "Which concepts of Digitalization and Industry 4.0 for both the traditional space manufacturing industry as well as the Newspace industry are being applied and will be implemented in the future?" To answer this research question, various sources of literature will be consulted such as; Scientific papers, Internet sources, Presentations at the ESA final presentation days and results of OHb System's research and internal questionnaires. In addition it will base its findings on a questionnaire send to Newspace players by the ECSS for Newspace working group. The differences between the traditional spacecraft manufacturing and Newspace industries can be characterized with a different approach to risk management, larger batches of units and different business models. This results in significant different approaches to manufacturing, integration (sometimes autonomous) and qualification. This paper will go into the details of these differences and aim to give an outlook for future developments (e.g. Mass customisation using automation, Virtual integration, Digital twin, Artificial intelligence). Examples of Digitalization and Industry 4.0 concepts covered in this paper include: • Smart tools • Tool tracking system • Smart bolts • Augmented reality for AIT, quality applications • Automated geometrical 3Dscanning • Artificial intelligence for predictive maintenance • Visual quality checks using cameras • Exoskeletons for AIT support • Autonomous driving vehicles/drones • Cobots (cooperative robots) • Digital twin • Model Based Engineering