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A UNIVERSITY-BASED FACILITY FOR EVALUATION AND ASSESSMENT OF SPACE PROJECTS

Abstract

In 2015, UN adopted a set of 17 goals to end poverty, protect the planet and ensure prosperity for all as part of a new sustainable development agenda. Partly, these goals may be addressed by new space-based systems utilizing cutting-edge technologies in telecom and Earth observation. As the aerospace community broadens, it becomes more and more decentralised, with private companies playing more significant role compared to government agencies. For the private sector, however, it is important to be able to know with a certain degree of certainty whether the projects are economically and politically feasible. Classical assessment scheme, however, tends to consider only technical aspects of proposed space missions. This is more evident in Russia, where the state-owned companies only care about fulfilling the goal posed by the state, but aren't always cost-effective, and don't expect their projects to pay off, because they live off government funding and not their own profits. As the shift towards private space becomes more obvious in developing countries, investment groups and foundations create a solid demand for expert evaluation for space-based systems. Having analysed this demand, the Space Centre of Skolkovo Institute of Science and Technology (Skoltech) established a facility for evaluation and assessment of space-based systems. The aim of the facility is to use the set of skills accumulated in Skoltech to provide end-to-end assessment for emerging aerospace projects. This paper describes the way the facility functions, and presents the methodology developed in Skoltech used for evaluating projects, including risk assessment, business model analysis, stakeholder analysis, and modelling scenarios. The results are shown of applying the said methodology to several emerging space projects in telecom, Earth observation and multifunctional missions, both in Russia and on the international scale. Particularly, a case has been studied where an M2M telecom satellite network could be used for disaster monitoring and measuring meteorological data. The paper discusses how the services delivered by those systems to end users would evolve in different political and economic circumstances, and different geographic regions. Finally, the paper describes the software tool developed by Skoltech specialists for global assessment analysis.