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IMPACT ASSESSMENT OF LEO ORBITS DEVELOPMENT ON THE ECONOMY: A CASE STUDY BASED APPROACH

Abstract

This paper aims at investigating the application of new alternative impact assessment methodologies for the evaluation of LEO mega constellations' technologies effect onto the real economy. The impact of the generic use of LEO constellations of satellites for purposes such as information transmission and satellite geolocalisation is the centre of attention of this paper. The advantage of lowering costs with the creation and launch of LEO satellites compared to the past is what characterises this topic as extremely relevant and up to date. Specifically, this work provides an initial overview of the existing techniques, encompassing both strengths and limitation of each existing evaluative methods. It aims at contributing to fill the gap in literature corresponding to high uncertainty in assessing which opportunities are the most promising in terms of gained results. The general overview provided in the first section is then expanded by empirical research onto the available data on three newly promoted projects satellites-based at a LEO level across Europe, trying to assess their impact with existing methodologies at first. Respectively, in this work it has been decided to focus on the implementation of a valid methodology to present evaluative guidelines for the future results of the projects 1) IRISS, the new satellite constellation based on NAVSATCOM promoted by EUSPA, 2) IRIDE, a new Italian Government-led project consisting in a "constellation of constellations" in LEO. The main issues tackled by the new methodology introduced are : climate change, national security and RD. Secondly, the chosen projects, consequently representing case studies, will be evaluated with a newly proposed methodology. The goal of the introduction of a brand-new strategy to evaluate such an impact finds its reason of being in the connection between the impact of original projects based on LEO level data gathering and the potential defence declination of such technologies use.