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"ENSURING CYBERSECURITY IN SPACECRAFT SOFTWARE DEVELOPMENT PROCESSES: EXPERIENCE FROM INTERNATIONAL COOPERATION"

Abstract

The preparation and implementation of programs of research, exploration and use of outer space, planets and celestial bodies of the solar system remains one of the most important activities of states claiming a significant role in the global political system. The surge in space activity by a number of developing countries, leading space powers and some private aerospace companies reflects a new round of interstate competition and cooperation in this space, but on a larger scale. Against this background, cybersecurity issues in outer space show a tendency to build up their capabilities in the aerospace sphere, which cannot but arouse the interest of international specialists. Particularly noteworthy is the activation of the private sector in the aerospace segment to create software for national governments' space programs, as well as cybercriminal efforts to obtain critical data and create emergencies in space. The response of cyberspace specialists is often and usually much slower and longer than that of Space X, Blue Origin, Isar Aerospace, Space 1000, and so on. This issue is especially important in conditions of active creation of orbital commercial stations, which will be designed for long-term stay of people. The main differences in security issues in space and on Earth are: 1) "Scale" (The problem of importance of the cybersecurity segment in space suggests that this area should be designated as one of the most significant for all experts and specialists) 2) "Distances" (The issue of ensuring reliable cybersecurity is rooted in innovation and cooperation between the leading powers, in order to achieve a reliable security regime between spacecrafts from different countries). 3) "Level of Criticality of Damage" (The magnitude of incidents in space caused by cyberspace failures can lead to unintended consequences and even more devastating scale) 4) "Increased Involvement" (More and more private and independent companies are getting involved in space exploration, which underestimates the level of entry into space. It may not just be about space here: supply chain disruption also remains a sensitive area of liability for cybercriminals. Space equipment manufacturers Boeing and Northrup Grumman held a webinar, from which they concluded that this area is very significant and relevant to reducing the risks of possible conflicts and crisis situations in space. This report will focus on these aspects.