

Adapting Institutional-Legal Mechanisms of the Space Industry Management to the Challenges of the New Space Era

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The article is devoted to the analysis of the institutional-legal mechanisms of managing the strategically important space industry in Ukraine. Scientific-theoretical research methods: abstraction, idealization, construction of hypotheses and models, documentary analysis and synthesis, objective truth, cognitive-analytical, etc. Results: the origin and historical genesis of constituent elements of institutional-legal mechanisms of the management of the space industry in Ukraine and the problems of adapting these mechanisms to the trends of the “new space,” are analyzed. The scientific aim is to contribute to developing the adequate and integrated legal regime of the management of the space industry in Ukraine and improving its institutional framework’s effectiveness. Discussion: the evolution of the institutional framework and of the national space industry and its legal regime is analyzed on the background of Ukraine’s space activities and trends of the “new space.” The management of the national space industry needs not a fragmentary but a comprehensive administrative legal regulation and its harmonization with the respective regime of the leading space-faring nations.

Keywords: institutional-legal mechanisms, State Target Scientific-Technical Space Program of Ukraine, new space, space industry, adaptation of the law, self-regulatory organization

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Introduction

Ukraine's space industry has undeniable achievements – from 1962 to 2021, 163 Ukrainian-made rocket carriers were launched from 6 cosmodromes worldwide, placing 380 satellites by order of 25 countries into orbits; 27 spacecraft were produced (Rokytzky, 2020). However, its scientific-technical potential and its markets have been substantially lost due to the following critical determinants:

1. Poor management of the major international projects involving the Ukrainian space authorities and enterprises, including the Alcantara Ukrainian-Brazilian joint spaceport for Cyclone-4 launchers, the Sea Launch and the National Satellite Communication System with its pivotal Lybid satellite.
2. Severing geopolitical ties with Russia that made joint space projects (e.g., Dnepr launcher or the Ukrainian docking system) were impossible.

In the last decade, humankind has entered the “new space” era, when private aerospace companies created by Elon Musk, Jeff Bezos, Richard Branson, et al. capture significant shares of the upstream (means of access and presence in space) and downstream (means of information retrieval, orbital production, navigation) markets and design their space programs. A couple of decades ago, states were spending colossal public budgets to create space technologies confirming their superiority and leadership; then, the space technologies were created by the state, for it and at public expense. On the contrary, the new/commercial space requires a very different approach, including the sheer cut of the launch cost and the exponential growth in creating new rocket-space technologies, aimed at:

1. Creating outposts beyond the Earth (e.g., Moon “villages” and space islands to ensure the preservation of the achievements and gene pool of humankind (Halunko et al., 2021).
2. Mining on celestial bodies (asteroids and planets of the Solar System).
3. Orbital manufacturing in “0”- gravity and vacuum.

Ukraine's space industry residual scientific and technological potential allows it to become an important supplier of solutions for the new global space ecosystem, including developing and producing aerospace systems, processing space data, etc. In our view, that may be achieved only provided the institutional-legal mechanisms of Ukraine's space industry management were adapted to Ukraine's integration into new global space product supply chains and its new international alliances in the aerospace sector.

Contemporary institutional-legal mechanisms of the space industry management

The contemporary institutional-legal regime of space industry management in Ukraine is based on Art. 92 of its Constitution and started to evolve soon after Ukraine had gained its independence. The Law of Ukraine “On Space Activities” (Law, 1996), as a core act of the system of national space law, defines the principles of that management in Ukraine and establishes the legal basis of its organization and general requirements for the international space cooperation.

The current state of that Law, analyzed by the leading Ukrainian scientists (Shemshuchenko, 2012), provokes some well-founded criticism (Shemshuchenko & Semenyaka, 2019), as it contains norms with no proper mechanism of their implementation. To implement the rules of Articles 8, 12, 13, 27 of this Law, the Cabinet of Ministers of Ukraine has yet to approve the rules of space activities in Ukraine, registration of space enterprises in Ukraine, while the President of Ukraine – the procedure for the interaction of the Ministry of Defense of Ukraine and the intelligence bodies with the central executive bodies in the space activities.

In our view, the Law in question insufficiently addressed the emergence of the “new space” and the interests of its participants (until 2020, the space activities in Ukraine were pursued exclusively by the state-owned enterprises). Thus, it was modified in October 2019 to end the state monopoly on space activities, lift the excessive regulation and enhance the investment attractiveness of the space industry. The introduced declarative permissive procedures aim at creating attractive economic and legal conditions for conducting space activities. While the legal regime was modified without a clear forecast of the effects, the modifications shall be reviewed for their compliance with the principles of the adequacy of public regulation of the space industry. The respective institutional-legal mechanisms implementing the novelties of the space activities, including the registration of the pursuance of space activities as well as licensing, shall be installed.

There are several draft laws “On state regulation of satellite navigation” (Draft Law, 2013) and “On state regulation of remote sensing of the Earth” (Order, 2013) that, if adopted, would determine legal, economic, organizational and financial fundamentals of public regulation of the specific space activities in Ukraine or by its subjects abroad. These bills shall be updated and forwarded for approval by lawmakers as soon as possible.

Attracting the extra-budgetary sources of funding of space projects requires the adequate regulation of private-public partnerships (including cross-border ones), provided with the Law on Public-Private Partnership (Law, 2010). It is important that the state creates organizational and administrative conditions for such partnership, given the innovative and investment attractiveness of space activities.

Linking the priorities of the space industry development with the funding (primarily public) used to be one of the key functions of the State Space Agency of Ukraine (the “SSAU”). The Agency was established and granted the special status with the Decree of the President of Ukraine (Decree, 1992). From the institutional point of view, SSAU had been the central state body competent to form and implement the state space activities policy until 2012. Following the delimitation of powers of administrative bodies with the revision of the Space Activities Law, SSAU was deprived of the function of space policy formation, remaining with the one to ensure its implementation. Indeed, until 2019, SSAU had de-facto been performing the policy formation function.

The Agency had been developing the 5-year State Target Scientific-Technical Space Programs, to be approved by the Verkhovna Rada of Ukraine, since 1994. The programs provided the means to preserve and develop the scientific and production potential of the space industry for the benefit of the national economy and security and Ukraine’s entry into international space markets. In recent years, space activities have been conducted in the absence of the Program, while since 2020, the powers to form the space policy and to develop the Program were transferred to the Ministry of Strategic Industries of Ukraine (Resolution, 2020). Notably, the space industry was determined “strategic” by virtue of its transfer under the reign of that Ministry.

Adapting the institutional-legal mechanisms of the space industry management

Adapting the institutional-legal mechanisms of the space industry management to the new economic, technological and geopolitical realities is vital for Ukraine. The work uses the theoretical aspects of Professor Frans von der Dunk (International, 2018), as well as Associate Professor Larysa Soroka (Soroka, 2020), while the fundamentals of improving the institutional-legal regime of any sector of activities in Ukraine has been laid down in the work of leading administrative law scholars (Administrative, 2020).

We suggest adapting such mechanisms comprehensively, not fragmentarily, based on a clear understanding of Ukraine's space sector position in producing and using competitive high-tech space products. We see the main task of such adaptation in bringing those mechanisms in line with the needs of the current stage and prospects for the development of space activities. It should be carried out on a thorough analysis of the practice of applying the existing ones, the best practices in the national space and administrative law, and the experience of the leading space-faring nations. The inconsistencies and conflicts in the institutional-legal mechanisms shall be eliminated.

Effective management and placing the decision-making at the optimal level in the state are fundamentally important for the development of the strategic space industry. However, as a result of the redistribution of powers and unclear legal algorithm of coordination, the management of the space industry is dispersed between the MSIU and the SSAU, as the central executive bodies responsible for forming and implementing the policy in the field of space activities.

As a result of the adoption of the Law of Ukraine No 143 "On Amendments to Certain Laws of Ukraine on State Regulation of Space Activities" (October 2, 2019), two formulations on central executive bodies appeared in the Law "On Space Activities," namely:

1. Central executive body, ensuring the formation and implementation of state policy in the space activities.
2. Central executive body implementing state policy in the space activities.

In pursuance of the Law of Ukraine No 143, and in accordance with the resolution of the Cabinet of Ministers of Ukraine No 819 dd. 07.09.2020, the scheme of direction and coordination of central executive bodies was changed, providing for the direction and coordination of the SSAU through the Vice Prime Minister of Ukraine – Minister of Strategic Industries. SSAU has retained the focus on implementing the state space policy, managing the space facilities, as well as the civilian educational and research programs. Meanwhile has lost a significant part of its powers, its prestige has been reduced, which is inconsistent with global practice, which demonstrates an increase in interest in space activities and the creation of appropriate special government agencies.

According to the Concept of optimization of the system of central executive bodies, approved by order of the Cabinet of Ministers of Ukraine dd. 27.12.2017 No 1013-r, there may be a conflict between the functions of public policy and certain functions of managing the objects of state property, inspection, supervision and the provision of administrative services. That may lead to the development of biased and low-quality policies, increase budget expenditures on existing government programs and resist change. Also, the existing division of powers between the SSAU and the MSIU contradicts the Public Administration Reform Strategy of Ukraine until 2021, approved with the Order of the Cabinet of Ministers of Ukraine

dd 24.06.2016 No 474. The Draft Law No 1424, if adopted (Draft, 2021), would eliminate the conflict of competencies between the MSIU and the SSAU and leaves very few inconsistencies as to the competencies of both bodies.

There is an ongoing discussion on the appropriate institution to manage the state-owned space industrial enterprises – the MSIU, the SSAU, or the Cabinet of Ministers of Ukraine. We see two solutions of either leaving the management of those enterprises with the SSAU, or creating a state holding company, similar to Ukroboronprom, directly subordinated to either SSAU or the Cabinet of Ministers of Ukraine. At the lowest common denominator, the effective functioning and competitiveness of the state-owned space enterprises in the new space economy ought to be ensured with their organizational and economic transformations: corporatization or even further privatization.

The innovation and production potential of the space industry may be enhanced by using such forms of priority development as scientific, industrial parks and clusters. These forms shall be developed in coordination with the Ministry of Education and Science (in charge of the scientific parks) and the Ministry of Regional Development of Ukraine.

Furthermore, we propose strengthening the institutional mechanisms of the policy-making on the space activities with the “council of users of the space services.” It might be institutionalized as the consultative body at the highest level possible – either at the Cabinet of Ministers or the President. That body shall determine the priorities of the development of the space industry encapsulated in the document, similar to the existing National Space Strategy (Order, 2015), as approved by the SSAU and based on scientific forecasting and analysis. Creating such a “user-oriented” body would allow to balance the interests of the space industry in the narrow sense, that is stunningly losing its capacities, and the users of space technologies (including defense and security sector, ICT, agribusiness, etc.). That, in turn, should eliminate disproportions in the distribution of the scarce state funding as well as shape partnerships necessary to realize strategic projects in the space sector.

It is worthwhile considering the establishment of a self-regulating body in the space industry, alongside the practice of the aerospace industry in some countries (e.g., the USA). Such self-regulating body in our country might be created on the basis of the law on self-regulating organizations, its draft being considered by the Verkhovna Rada of Ukraine (Draft, 2011) and be granted with certain administrative powers (e.g., registration of the declaration of space activities). It would enable supplementing the institutional-legal mechanisms with the markets ones and the tools of self-regulation. In order to ensure the safety of space activities, the more complex administrative services like certification, verification of compliance with the requirements of airworthiness, technical regulations, licensing shall be administered by the central executive body, namely the SSAU.

Last but not least, the rules of space activities management in Ukraine shall be harmonized with the institutional-legal mechanisms of the prospective partners, e.g., countries where “commercial” spaceports oriented towards Ukrainian launch vehicles are being construed. The comparative analysis of such regimes in Ukraine and China, and the best practice of space project management were recently analyzed by Oleksandr Levenko and Oleksandr Drozdenko (Levenko & Drozdenko, 2021).

Conclusion

The institutional-legal mechanisms of managing the industry in Ukraine ought to be sophisticated, with the following key measures:

1. Redistributing the decision-making and regulatory powers among the executive and policy-making bodies.
2. Reconsidering the role of the central executive bodies in the state-owned space enterprise management and promoting their reorganization in Ukraine in order to increase their efficiency and competitiveness.
3. Introducing on a limited scope self-regulation into the space industry.
4. Harmonizing the institutional-legal mechanisms with the ones of the prospective partners.

Implementing these measures can help integrate and manage the space industry in Ukraine and improve its institutional framework.

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