

THE SEARCH FOR AN OPTIMAL FORM OF CIVIL-MILITARY COOPERATION IN THE AIR TRAFFIC MANAGEMENT IN POLAND. NEW CHALLENGES – NEW SOLUTIONS

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Abstract

The article contains an overview of the European Union's legal regulations and provisions of the national aviation law applying to civil and military cooperation and coordination in managing air traffic, as well as operational agreements between the Polish Air Navigation Services Agency and organisational units of the Ministry of National Defence. The author conducts an analysis of the standards applicable in this scope, points out the practical consequences of certain legal instruments that are in force and suggests solutions that may contribute to improvement of the existing legal and organisational mechanisms of cooperation in the area of studies in question.

Key words: functions of authority in airspace, managing air traffic, air navigation service providers, civil and military cooperation.

Introduction

Cooperation and coordination of tasks in the scope of air traffic management¹ between the authorities of civil and military aviation and operational entities belonging to both of the interested parties has a long history, but considering the European Union's performance of the Single European Sky programme (SES)² and its technical component – the SESAR³ programme, this issue is acquiring special

1 Air Traffic Management (ATM) – means a combination of on-board and on-ground functions (Air Traffic Services, airspace management and management of air traffic flow) required for ensuring safe and effective movement of aircrafts during all the stages of operation. Source: Regulation (EC) No 549/2004, Article 2 point 10.

2 Legislative programme Single European Sky (SES) – was initiated by the European Commission in 1999 to increase the effectiveness of Air Traffic Management and efficiency of Air Navigation Services (ANS) by better operational integration of the European airspace.

3 SESAR (*Single European Sky ATM Research*) – the programme for drawing up and implementation of the European Air Traffic Management system of a new generation, managed by SESAR Joint Undertaking, formed pursuant to the Regulation of the Council (EC) No 219/2007 (OJ L 64 of 2.3.2007, p. 1).

significance – since both of the programmes are assumed to satisfy variable and, at times colliding, needs of all airspace users, which necessitates a close civil and military cooperation on a general European scale. The said cooperation is perceived by the EU legislators as a downright necessary condition for successful implementation of the regulations set forth in the scope of retrofitting the European Air Traffic Management System. Secondly, the key role of the civil and military sphere of cooperation in Air Traffic Management is stressed by the fact that it applies to ensuring safe and effective air navigation – an essential function performed in peacetime by each member state belonging to the International Civil Aviation Organisation (ICAO), resulting from the generally applicable principle of exercising authority within territorial airspace. The necessity of securing crucial interests in safety and defence policy of the EU Member States and NATO in the current, volatile geo-political situation is also an important aspect in the sphere of cooperation in this area between civil and military authorities⁴.

For such a cooperation to meet the expectations placed on it, on the one hand, it requires political willingness and the involvement of countries in its organisation and maintenance at the European and regional level (currently as a part of participation in SES and SESAR programmes) and, on the other hand, it needs such a standardisation of its model at the domestic level that would create the surroundings for practical fostering of the required values, especially such as increasing the level of safety, operative and economic efficiency of air operations performed by civil and military users of aircrafts. The goal of this article is to investigate into the applicable *de lege lata* in the relevant provisions of the EU and Polish aviation law, as well as the national agreements on cooperation in various areas of Air Traffic Management in terms of their practical usage by the military and civil entities. The results of the conducted analyses are the *de lege ferenda* postulates referring to the improvement of the discussed cooperation to improve the functioning of Air Traffic Management (ATM) System and the Air Navigation Services (ANS) in Poland.

Legal Aspects

EU regulations

In the current legal circumstances, the issues associated with civil and military cooperation and coordination in Air Traffic Management are included in the EU legal acts in the sphere of a single European sky and in the generally applicable provisions of national law, especially in the Act of 3 July 2002 on *Aviation Law* and

⁴ It needs to be noted that the currently conducted operations of NATO Air Forces (Afghanistan, Libya, Iraq, Kuwait, Syria) need to use the airspace of many countries, which is associated with complicated processes of planning and coordination of actions with civil institutions providing Air Navigation Services to avoid unnecessary segregation or limitations in availability of airspace and to ensure mission effectiveness and the required level of air traffic safety.

the implementing regulations issued on its basis⁵. The EU legislation in the scope of SES, developed since 2004, currently includes two packages of ordinances of legislative character adopted by the European Parliament and by the Council⁶ and 31 implementing regulations of the European Commission⁷. Pursuant to the legislative powers held by the EU⁸, the regulations passed refer to air transport and their scope does not include military operations and training, meaning that they only apply to the General Air Traffic (GAT)⁹, i.e. all the flights complying with ICAO provisions, and they do not include the Operational Air Traffic¹⁰, i.e. all the flights for which rules and procedures have been determined by the relevant state authorities. Since a considerable portion of flights by military aircrafts occur in generally accessible airspace pursuant to GAT procedures and the military air traffic service authorities may also provide their services for civil aircrafts, in reality, the provisions regarding SES also apply directly to military aviation.

Legal protection of the EU Member States' interests in the scope of defence safety and policy, as well as safety and efficiency of military aviation operations carried out in the Operational Air Traffic has been provided under Article 13 of the Regulation (EC) No 549/2004 (framework). Pursuant to this provision, a state may apply measures necessary to i.a. exercise supervision over airspace and to carry out training and military operations. The lack of possibilities to set forth regulations for the military has been counteracted by adopting (as an annex to the framework regulation) a general statement of the Member States regarding the military issues

5 As part of exercising authority in Polish airspace, the Air Navigation Services are provided in line with the provisions of the EU law regarding the single European sky, international agreements and international provisions and the Act on Aviation Law and other acts. See Article 5 section 1 of the Act of 3 July 2002 on the Aviation Law (Journal of Laws of 2017, item 959 and 1089).

6 The SES I packages include four regulations (EC) of 10 March 2004: No 549/2004 down the framework for the creation of single European sky; No 550/2004 on the provision of Air Navigation Services in the single European sky; No 551/2004 on the organisation and use of the airspace in the single European sky; No 552/2004 on the interoperability of the European Air Traffic Management Network, published in the Official Journal OJ L 96, 31.3.2004. The Second SES package includes Regulation (EC) No 1070/2009 of the European Parliament and of the Council of 21 October 2009 amending Regulations (EC) No 549/2004, (EC) No 550/2004, (EC) No 551/2004 and (EC) No 552/2004 in order to improve the performance and sustainability of the European aviation system (OJ L 300, 14.11.2009, p. 34).

7 As of 15.08.2017.

8 Article 100 section 2 of the *Treaty on the Functioning of the European Union* (consolidated text), Official Journal C 326 of 26.10.2012, p. 47.

9 GAT (*General Air Traffic*) encompasses all flights conducted in accordance with the rules and procedures of ICAO. These may include military flights for which ICAO rules satisfy their operational requirements.

10 The term Operational Air Traffic (OAT) is applied in Europe to all flights which do not comply with the provisions stated for general air traffic (GAT) and for which rules and procedures have been specified by appropriate national authorities.

in the SES programme¹¹. This document is a declaration of cooperation between the Member States in the area of uniform application of the Flexible Use of Airspace (FUA)¹² concept; it also constitutes an obligation to tighten the civil and military cooperation in all the matters associated with Air Traffic Management and to ensure favourable conditions for such cooperation in order to balance out the economic requirements with safety and defence requirements.

The process of Airspace Management (ASM) is the most important area of civil and military cooperation regulated in details under SES legislation. This issue has been discussed under the Basic Regulation (EC) No 551/2004 on airspace (revised under the Regulation No 1070/2009) and two Commission regulations: No 2150/2005 laying down common rules for flexible use of airspace (FUA)¹³ and No 677/2011 on traffic management network functions¹⁴. The Regulation (EC) No 551/2004 introduced (in Article 7 section 1) the obligation of full and uniform application of FUA concept rules and laid down three legal measures aimed at defragmentation of the European airspace: airspace division into lower and upper (at the FL 285 flight level), establishing the European upper region of airspace information and its approval by ICAO, as well as division of this space into Functional Airspace Blocks (FAB)¹⁵. According to the assumptions of the EU legislator, efficient civil and military cooperation within these structures, unrestricted by the borders of the countries, should contribute to optimisation of integrated airspace design processes and satisfy the current and future needs of military aviation to a larger extent. In Article 11 of the quoted Regulation, the states were obliged to enter into agreements between the civil and military authorities regarding the management of specific functional airspace blocks. It is also worth pointing out the wording of recital 17 of this act's preamble stating that *military operations and training should be safeguarded whenever the application of common principles and criteria is detrimental to their safe and efficient performance*.

The regulations aimed at ensuring close cooperation between the civil and military entities liable for airspace management¹⁶ are set forth under the Regulation

11 *Statement by the Member States on military issues related to the Single European Sky*, OJ L 96, 31.3.2004, p. 9.

12 FUA (*Flexible Use of Airspace*) – the concept of flexible use of airspace prepared by Eurocontrol as a part of EATCHIP programme, accepted for use by the transportation ministers of ECAC states at the meeting in Copenhagen of June 1994.

13 Commission Regulation (EC) No 2150/2005 of 23 December 2005 laying down the rules for the flexible use of airspace (OJ L 342, 24.12.2005, p. 20).

14 Commission Regulation (EC) 677/2011 of 7 July 2011 laying down detailed rules for the implementation of Air Traffic Management (ATM) network functions and amending Regulation (EU) No 691/2010 (OJ L 185, 15.7.2011, p. 1).

15 Functional Airspace Block (FAB) – is a main element allowing for improvement of cooperation between the institutions providing Air Navigation Services serving the purpose of increasing the efficiency of actions and usage of synergy effect.

16 Airspace Management (ASM) – means a function of planning with the primary goal to maximise the available airspace by a dynamic division of time for its usage and, immediately, by segregation of airspace between different categories of airspace users based on short-term needs. Source: Regulation (EC) No 549/2004, Article 2 point 7.

No 2150/2005 laying down common rules for flexible use of airspace. They especially specify that this process occurs at three, co-dependent organisational levels (strategic, pre-tactical and tactical) based on agreements and procedures under civil and military coordination and with consideration for the requirements and character of operations in both types of aviation. At the strategic level (ASM 1), the states were obliged to establish a national body to deal with the issue of airspace strategy and to engage in cooperation with other states to apply the FUA concept effectively and uniformly, i.a. through establishing zones in state Cross Border Areas (CBA). To carry out the tasks at two lower levels (ASM 2 and ASM 3), the countries establish an Airspace Management Cell (AMC) responsible for collecting user's needs, planning and assignment of flexible elements of airspace and real-time application of civil and military procedures for coordination of airspace usage. Moreover, state responsibilities include establishing coordination procedures and creation of support systems between ATS bodies and military management bodies to exchange the information on the planned activation of airspace in a timely and effective fashion and to inform all the interested users on the current air traffic situation.

The civil and military aspect also applies to the manager of the European ATM network. Pursuant to Article 3 of the Regulation No 677/2011, the networks manager, as a part of its responsibilities, ensures performance of such network functions as: management of air traffic flow, designing of the European network of routes, management of radio frequencies and management of transponders codes of common radars. Article 11 of the Regulation determines that the responsibilities of this organisation¹⁷ include implementation of arrangements allowing for proper coordination of tasks associated with network functions with military authorities of the EU Member States. It especially applies to Air Traffic Flow Management (ATFM)¹⁸ and designing of the European network of routes to be carried out without a detriment to reservation or without limitation of airspace and excluding its exclusive or specific usage by military users¹⁹. The Member States are responsible for ensuring proper representation of the military institutions providing Air Navigation Services and military users of airspace in all the working operative arrangements and consulting mechanisms set forth by the network manager.

Another area of civil and military cooperation within ATM is ensuring the Air Navigation Services, which, according to the single European airspace legislation²⁰,

17 In July 2011, the European Commission, by the way of decision C(2011) 4130 established Eurocontrol as the Network Manager with a mandate valid through to 31.12.2019.

18 Air Traffic Flow Management (ATFM) – managing of air traffic means a function established to improve safe, organised and swift air traffic flow by ensuring maximum usage of ARC capabilities and compatibility of air flow intensity with a capacity declared by relevant institutions providing Air Traffic Services. Source: Regulation (EC) No 549/2004, Article 2 point 9.

19 It pertains to the principles of flexible use of airspace laid down in the Commission Regulation (EC) No 2150/2005

20 Article 2 point 4 of the Regulation (EC) No 549/2004.

include Air Traffic Services (ATS)²¹, Communications, Navigation, Surveillance services (CNS)²², Aeronautical Information Service (AIS)²³ and Meteorology Services (MET)²⁴. Common requirements for safe and effective operation of these services have been set forth in the implementing regulations (EC) nos. 550/2004 and 216/2008 and in the Implementing Regulation (EU) No 1035/2011²⁵. However, pursuant to the legislative competences of the EU, provisions in such scope do not encompass military operations and training and their application may not infringe upon the Member States' requirements in the sphere of public order, safety and defence affairs. Therefore, the preamble of the Regulation No 550/2004 (recital 16) obliges the institutions providing Airspace Navigation Services to initiate and maintain close cooperation with the military authorities responsible for the actions that may exert an effect on General Air Traffic, whereas Article 11 recommends that the Member States ensure that written agreements between the civil and military authorities are concluded or that they make adequate legal arrangements regarding the issue of managing specific airspace blocks. It is also noteworthy that Article 7 section 5 of the Regulation in question states that regardless of the responsibility to provide Air Navigation Services based on certification, a Member State may allow for these services to be provided within partial or entire airspace that is in its range of responsibility without any certification when an entity providing such services offers to, first of all, aircraft in traffic other than air traffic. This provision also allows the military bodies of ATS to provide their services with no certification to civil users of airspace – however, provided that the common requirements regarding provision of Air Navigation Services are complied with.

To improve the general efficiency of operations by the Air Navigation Services and the network functions, the Regulation of the European Parliament and of the

21 Air Traffic Services (ATS) – mean various services of aviation information, alarm services, air traffic advisory services and air traffic control services (area control, proximity and airport services). Source: Regulation (EC) No 549/2004, Article 2 point 11.

22 Communications, Navigation, Surveillance (CNS) – services dealing with communication, navigation and control.

23 Aeronautical Information Service (AIS) – means a service established in a given area, responsible for provision of information and aviation data necessary for safety, regularity and efficiency of air navigation, in Poland AIS is a body of the Polish Air Navigation Services Agency. Definition based on the Regulation (EC) No 549/2004, Article 2 point 3.

24 Meteorology (MET) – meteorology services mean such equipment and services that provide an aircraft with weather forecasts, guidelines and observations, as well as all other information and weather data ensured by states to be used in aviation. Source: Regulation (EC) No 549/2004, Article 2 point 29.

25 As of 2 January 2020 the following shall take effect: Commission Implementing Regulation (EU) 2016/1377 of 4 August 2016 laying down common requirements for service providers and the oversight in Air Traffic Management/Air Navigation Services and other Air Traffic Management network functions, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011 and (EU) No 1035/2011 and amending Regulation (EU) No 677/2011 (OJ L 62, 8.3.2017, p. 1).

Council No 1070/2009 set forth the system of SES operation efficiency for the needs of general air traffic. In the subsequently adopted Commission Resolutions nos. 691/2010 and 390/2013 setting the standards for this system functioning²⁶, execution of performance efficiency process management was detailed out through specifying Key Performance Areas (KPA), goals and Key Performance Indicators (KPI) and the responsibility to draw performance efficiency plans at the national and FAB level. As stems from the aforementioned lack of EU powers in the scope of making decisions regarding military operations, the adopted regulations do not apply to measurement of military missions' efficiency, nor to civil and military cooperation and coordination in Air Traffic Management. Nevertheless, both of the analysed regulations point out the significance of this cooperation for the purposes of fulfilling the goals of a performance efficiency system, while also guaranteeing that provisions aimed at protecting basic interests of safety and defence policy are followed²⁷. Moreover, it has been determined that one of the obligatory elements of the performance efficiency plan drawn up by the state supervision bodies is a description of its civil and military facet. It should present the plan *describing the performance of Flexible Use of Airspace (FUA) application in order to increase capacity with due regard to military mission effectiveness, and, if deemed appropriate, relevant performance indicators and targets in consistency with other indicators and targets of the performance plan*²⁸. To fill in the gap with respect to the EU provisions regarding performance efficiency, the Eurocontrol Agency has prepared guidelines laying down the frameworks for civil and military cooperation efficiency in Air Traffic Management²⁹. Through efficient assessment of planning and use of airspace, implementation of this document will allow for better adjustment of civil Air Navigation Services to the needs and operative requirements of military aviation, forming the groundwork for civil and military partnership in ATM focused on performance efficiency.

In addition to airspace management and providing Air Navigation Services, Air Traffic Flow Management is a constituent of the ATM process. This function, carried out in the European area by the network manager (Eurocontrol) in a centralised manner, contributes to ensuring the maximum use of possibilities offered by the Air Traffic Control (ATC) services and compliance of the traffic intensity with the capacity declared by the institutions providing Air Traffic Services. Common ATFM rules have been set forth under the Commission Regulation (EU) No 255/2019. However, the adopted regulations apply solely to flights performed in GAT pursuant to the IFR

²⁶ The system of efficiency for the Air Navigation Services and network functions for the first period of reference was constituted under the Regulation (EC) No 691/2010 of 29 July 2010 (OJ L 2010, 3.8.2010, p. 1). Currently, in the second reference period (years 2015-2019), the Commission Implementing Regulation (EC) no, 390/2013 of 3 May 2013 (OJ L 128, 9.05.2013, p. 1) is binding.

²⁷ Recital (13) of the Regulation No 691/2010 and Recital (17) of the Regulation No 390/2013.

²⁸ Article 11 section 3 letter f) of the Regulation No 390/2013.

²⁹ *Civil-Military ATM Performance Framework*, Edition 1.0, Eurocontrol, February 2015.

provisions. Military aircraft are subject to ATFM measures (such as allocation of time for an operation, change of route or flight level) only when they plan or engage in flights in airspace or at airports subject to such measures. Nonetheless, it needs to be pointed out that training by military aircraft and other activities requiring airspace to be reserved may significantly affect availability of routes and the capability of the European airspace. Therefore, in order to limit the influence of military operations on flights of civilian aircraft in GAT, it is necessary for the military to provide information on the planned endeavours to the ATM network manager, in order to include it in the Network Operations Plan (NOP)³⁰.

Interoperability of the Air Traffic Management system technical infrastructure is the area of civil and military cooperation crucial for guaranteeing safety and efficiency of air operations. It includes the systems and procedures for managing airspace, air traffic flow, Air Traffic Services (especially the systems for processing the data about flights, systems for processing the supervision data and systems of human-computer interfaces), connections (in ground-ground, air-ground and air-air relations), navigation, supervision, aviation information services, systems and procedures for using meteorology information. In the SES legislation, the issues associated with technical aspects of ATM are included in the Basic Regulation (EC) No 552/2004 and in 21 implementing regulations of the Commission. In Annex II to the Basic Regulation it has been stated that one of the essential requirements for the CNS systems is enabling civil and military cooperation. According to this requirement, *the EATMN, its systems and their constituents shall support the progressive implementation of civil/military coordination, to the extent necessary for effective airspace and air traffic flow management, and the safe and efficient use of airspace by all users, through the application of the concept of the flexible use of airspace*³¹. To achieve this goal, the systems and their components need to provide the civil and military operative entities with access to updated, correct and coherent information including all flight stages. This process also needs to take into account the national safety requirements.

Results of the analysis of the required SES provisions regarding civil and military cooperation in Air Traffic Management allow it to be stated that it is a necessary condition for effective implementation of public transport policy by the EU Member States, ensuring efficient management of the European airspace and providing Air Navigation Services while facilitating General Air Traffic and Operational Air Traffic (GAT/OAT) and taking account of safety issues and the requirements applicable to

30 Network Operations Plan (NOP) – means a plan drawn up by the network manager in coordination with interested parties involved in operational activity to organise its operational activity in the short and mid-term perspective pursuant to the main principles of the network strategic plan. In the part regarding the planning of the European network of routes, the network operational plan includes a plan for improving the European network of routes. Source: Regulation No 677/2011, Article 2 point 23.

31 Annex II to Regulation (EC) No 552/2004, point 4.

both types of traffic. However, it needs to be pointed out that the EU regulations in this scope are relatively terse, which is a natural consequence that stems from the impossibility of laying down law in the sphere of the military. They mostly include recommendations by the National Supervision Authorities (NSA)³² and other Air Navigation Service Providers (ANSP)³³ and focus on organisational and technical aspects for optimising the processes of airspace management. The legal gaps in this scope are partially filled in by the declaration of the EU Member States concerning the military issues associated with the single European airspace; however, it may not replace the binding legislative standards. In this state of affairs, particular attention needs to be devoted to the provisions of national aviation law, applying, entirely, not only to civil entities, but also partially to the military bodies and services.

Provisions of national aviation law and operational agreements

Pursuant to the Act of 3 July 2002 on *Aviation Law* (Article 4 section 1), the full and exclusive authority over its airspace is exercised by the country of Poland. In peacetime, the civil functions resulting from this authority (outside the strengthening of state defence) are performed by the relevant minister for transportation, whereas the matters of defence and security are dealt with by the Minister of National Defence. During war, martial law or a state of emergency, the authority is taken over by the commander in chief responsible for protection of national airspace borders – on behalf of the head of the National Defence Ministry. According to Article 4, section 2, the Act authorised the Council of Ministers to specify, by way of an ordinance, the conditions and manner for performing the functions resulting from exercising authority in Polish airspace and to strengthen defence in peacetime, taking into consideration the resultant responsibilities and authorisations borne by and granted to the relevant services and bodies, as well as rules of cooperation between the institutions providing Air Traffic Services and proper military services and bodies. Based on the above statutory delegation, the Council of Ministers adopted the Regulation that (in par. 2 section 1) distinguishes three functions resulting from exercising authority in Polish airspace³⁴. These include: Air Traffic Management, protection of national airspace borders and providing search and rescue services. These functions are performed by the relevant bodies (civil and military) in the manner laid down in separate provisions. The subsequent regulations, included in paragraph 3, determine the scope of cooperation between the institutions providing Air Navigation

32 National Supervisory Authority (NSA) – state authority dealing with supervision.

33 Air Navigation Services Providers (ANSPs) – institutions providing Air Navigation Services are all the public or private institutions providing Air Navigation Services for the General Air Traffic. Source: Regulation (EC) No 549/2004, Article 2 point 5.

34 Ordinance of the Council of Ministers of 31 October 2007 on performing the functions resulting from exercising authority in Polish airspace and strengthening defence in peacetime, (consolidated text, Journal of Laws No 2015, item 100).

Services and the relevant organisational units of the Armed Forces of the Republic of Poland in relation to performing both the functions stemming from exercising territorial authority in air space and the strengthening of state defences in peacetime (table 1).

Table 1

Areas of cooperation between the institutions providing Air Navigation Services and the organisational units of the Polish Armed Forces

Functions of the institutions providing Air Navigation Services	Scope of civil and military cooperation
Resulting from the authority exercised in Polish airspace in peacetime	<ul style="list-style-type: none"> • Airspace Management (ASM) at the strategic, pre-tactical and tactical levels; • Air Traffic Flow Management (ATFM); • provision of Air Traffic Services (ATS); • coordination of Search and Rescue (SAR) services; • provision of Aeronautical Information Services (AIS); • performance of aviation training; • provision of Meteorology Services (MET) • planning, organising and performance of national and international exercises and training; • exchange of information necessary for effective, routine cooperation and joint activities in emergency situations – including aiding aircraft crews during flights; • joint use of airspace through General Air Traffic and Operational Air Traffic (GAT/OAT); • performance of obligations stemming from the international agreements which Poland is a party to
Resulting from the strengthening of state defence in peacetime	<ul style="list-style-type: none"> • ensuring Polish airspace sovereignty and protection; • taking action in crisis situations.

To cooperate with the military in the sphere of Air Traffic Management and perform state defence tasks, the Regulation authorised the joint civil and military advisory body responsible for shaping the rules of airspace management and usage³⁵, institutions ensuring Air Navigation Services and civil airport bodies dealing with air traffic. Furthermore, the provision under paragraph 6 of this legal act allows civil and military cooperation to be organised and its conditions specified outside the scope of the above-mentioned tasks (e.g. regarding the exchange of information between the neighbouring civil and military bodies of Air Traffic Services) based on the agreements concluded between the institutions providing Air Traffic Services and the Military Air Traffic Service Office of the Polish Armed Forces. Such

³⁵ This body is the Airspace Management Committee (AMCM), convened based on Article 121 section 4 of the Act of 3 July 2002 on *Aviation Law*.

agreements need to be approved by the President of the Civil Aviation Authority and the Operational Commander of the Armed Forces.

Another statutory authorisation, included under Article 4 section 3, obliged the Council of Ministers to determine, by the way of a resolution, the conditions and manner of handing over, to the Minister of National Defence, the functions resulting from exercising authority in Polish airspace and strengthening defences for wartime, martial law or a state of emergency, accounting for principles of cooperation between the institutions providing Air Traffic Services and proper military services and bodies and with other state bodies. The legal act³⁶ issued on these grounds contains the resolution stating that *as of the moment of declaring a state of emergency within a part or the entirety of the country territory, the institution providing Air Navigation Services shall apply the principles for allocation of airspace elements laid down by the military bodies relevant in such type of state of emergency* (paragraph 2), whereas in the higher states of defence alertness of the country, the institution providing Air Navigation Services will be subordinated to the leadership of the commander performing the tasks of the National Defence Minister in the scope of state border protection within Polish airspace and will carry out its functions as part of the military airspace control system (paragraph 3). The procedures for taking over the functions resulting from exercising authority in Polish airspace in wartime, martial law or a state of emergency have been specified in details in the classified airspace control plan in agreement with the President of the Civil Aviation Authority and the body in charge of activities by the Polish Air Navigation Services. In the process of preparing for militarisation of this institution periodical, defence-related tasks are carried out.

The issues concerning civil and military cooperation in the scope of managing Polish airspace are also included in the Act of the Polish Air Navigation Agency³⁷ and in four regulations of the minister relevant for transportation³⁸. The most important of the above legal acts, from the perspective of the discussed issue, is the Regulation on the structure of Polish airspace and the detailed conditions and manner of using this space. It determines i.e. the procedure for establishing permanent and flexible (used mainly by military aviation) elements of airspace available for air navigation. In the

36 Ordinance of the Council of Ministers of 31 October 2007 on conditions and manner of handing over, to the Minister of National Defence, the functions resulting from exercising authority in Polish airspace and strengthening defences for the time of war, martial law or state of emergency (Journal of Laws of 2007 No 210, item 1524).

37 Act of 8 December 2006 r. on the Polish Air Navigation Agency (Journal of Laws of 2006 No 249, item 1829, as amended).

38 Ordinance of the Minister of Infrastructure of 12 September 2008 on the issue of Airspace Management Committee and on determination of its scope of activity (Journal of Laws No 173, item 1074); Ordinance of the Minister of Infrastructure of 25 November 2008 on the structure of Polish airspace and the detailed conditions and manner of using this space (consolidated text, Journal of Laws of 19 March 2014, item 351); Ordinance of the Minister of Infrastructure of 9 October 2003 on limitations of flights for a period not longer than 3 months (Journal of Laws No 183, item 1794); Ordinance of the Minister of Infrastructure of 11 June 2010 r. on prohibitions or limitations of flights for a period not longer than 3 months (Journal of Laws No 106, item 678, as amended).

course of the procedure, a project of specific structures is drawn by the institution providing Air Navigation Services (Strategic Planning Unit/ Polish Air Navigation Services Agency) in agreement with the Military Air Traffic Service Office of the Polish Armed Forces³⁹, and next, it submits the project for approval to the President of the Civil Aviation Authority. Controlled and uncontrolled airspace structure, together with its changes, approved by the President of the Civil Aviation Authority, is published in the Civil Aviation Authority's Journal of Laws and a catalogue of aviation information (AIP Poland). Agreements with the military do not apply to the airspace classification project. The outlined procedure does not entirely reflect the pattern of the process for introducing changes in airspace structure, as determined in the FUA concept. It also needs to be stated that due to the lack of a civil and military body to deal with issues of airspace strategy, the national regulations only partially account for the rules of laying down and reviewing the airspace policy drawn up by Eurocontrol and included in the *Airspace Management Handbook*⁴⁰.

Institutional conditions

The process of forming single Air Traffic Management in Poland, initiated in the last decade of the previous century, with the purpose of thorough retrofitting of the existing Air Navigation Services, was by definition of civil and military character. Adopting the rules and procedures of the FUA concept for Polish airspace management and pursuing the use of the inter-operational CNS equipment and systems operated by the military services for securing air navigation was, in particular, a reflection of such an attitude. At the very beginning, execution of the organisational endeavours initiated at that time met a lot of difficulties of formal, legal, technical and economic nature – overcoming them, partially, was rendered possible only after adoption of the 2002 Act on Aviation Law. Further changes adapting the national solutions in the sphere of ATM/ANS to international and European standards occurred as a result of gradual application of secondary legislation to the new aviation law and to the provisions of the Act of 2006 on the Polish Air Navigation Services Agency. At the same time, military air traffic service was reformed, though by restricting its scope of operations to participation in airspace management and providing ATS services at the airports of the Polish Armed Forces. Division of tasks associated with ensuring security and efficient air traffic flow in Polish airspace stemming from this process is shown in table 2.

39 Proper coordination and reaching an agreement between all the relevant entities of the civil and military aviation is a critical element of this process which should be effected between any outside consultations of airspace users and interested organisations are initiated.

40 *The ASM Handbook - Airspace Management Handbook for the Application of the Concept of the Flexible Use of Airspace*, Eurocontrol, ed. number 5.3, ed. date 17.11.2016.

Table 2

**Division of competences between the civil aviation institutions and the military bodies
in the scope of Air Traffic Management**

Functions	Civil bodies	Military bodies	Civil and military bodies
Airspace Management at the strategic level (ASM 1)	<ul style="list-style-type: none"> • The Minister relevant for transportation – legislative body, general supervision • President of Civil Aviation Authority – decision-making body, supervision over performance of tasks by the institutions providing Air Navigation Services • Polish Air Navigation Agency / Strategic Planning Unit - executive body of the President of the Civil Aviation Authority 	Military Air Traffic Service Office of the Polish Armed Forces / Airspace Management Department – executive body	<ul style="list-style-type: none"> • (AMCM) – advisory body responsible for shaping of airspace management and usage principles. • The Management of Baltic FAB – Polish-Lithuanian body executing strategy, goals and tasks of Baltic FAB task.
Airspace Management at the pre-tactical and tactical levels (ASM 2 and 3)		Military Air Traffic Service Office of the Polish Armed Forces / Airspace Usage Department – performance of tasks in AMC Poland	Airspace Management Centre (AMC Poland)
Providing Air Traffic Services (ATS)	<ul style="list-style-type: none"> • Polish Air Navigation Services Agency – for GAT/OAT for controlled and uncontrolled space FIR EPWW • Civil airport bodies dealing with air traffic zones (CTR, ATZ) 	<ul style="list-style-type: none"> • Military Air Traffic Service Office of the Polish Armed Forces / Air traffic Services Department – content-related supervision • Air traffic airport bodies at the airports – in the Military Airport Traffic Zones (MATZ) 	
Air Traffic Flow and Capacity Management (ATFCM)	Polish Air Navigation Services Agency / Flow Management Post (FMP) – cooperation with Network Management Operations Center (NMOC)		

Functions	Civil bodies	Military bodies	Civil and military bodies
Maintenance of technical infrastructure (CNS/ATM)	<ul style="list-style-type: none"> Polish Air Navigation Services Agency / Technical Office Manager of airports 	<ul style="list-style-type: none"> Military Air Traffic Service Office of the Polish Armed Forces / Exploration and Normalisation Department – content-related supervision Commanders of military units (air bases) 	
Aviation Information Service (AIS)	Polish Air Navigation Services Agency / Cartography Team, Publications Team, International Office NOTAM, Offices of Crews Briefings at seven airports	<ul style="list-style-type: none"> Military Air Traffic Service Office of the Polish Armed Forces / Aviation Information and Procedures Department Offices of Crews Briefings at military airports 	
Providing meteorology service for aviation protection against weather (MET)	<ul style="list-style-type: none"> Institute of Meteorology and Water Management / Centre for Civil Aviation Protection against Weather Airport meteorological stations 	<ul style="list-style-type: none"> Hydro-meteorological Office of the Polish Armed Forces Airport meteorological stations 	
Provision of Search and Rescue services (SAR)		<ul style="list-style-type: none"> Air Operations Centre/ Coordination Sub-centre of Aviation Search and Rescue Services Marine Operations Centre/ Coordination Sub-centre of Marine Search and Rescue Services 	Polish Air Navigation Services Agency / Coordination Centre of Aviation Search and Rescue Services
ATS personnel training	Air Traffic Controller Training Centre of the Polish Air Navigation Services Agency	Certified Air Traffic Services Personnel Training Organisation WSOSP in Dęblin (AFIS, ADI/TWR, APP)	
Certification and licensing	Civil Aviation Authority		

Functions	Civil bodies	Military bodies	Civil and military bodies
Supervision over Air Navigation Services provision (ANS)	Civil Aviation Authority: <ul style="list-style-type: none"> • supervision over provision of ANS by the Polish Air Navigation Services Agency and other civilian entities • supervision over provision of ANS by the military to keep the compliance with common EU law requirements. 	General Commander of the Polish Armed Forces – provision of ANS with no certification in airspace assigned for the needs of military aviation and keeping compliance with the EU requirements while providing the services.	

As stems from the above list, the activities of three currently functioning civil and military bodies (including the Polish-Lithuanian Management of Functional Airspace Blocks) concern airspace management and one is devoted to coordination of aeronautical search and rescue services. Moreover, in the structures of institutions providing Air Navigation Services (Polish Air Navigation Services Agency) there is the Department of Operative Cooperation of the Air Traffic Services also dealing with civil and military cooperation.

Cooperation between the Polish Air Navigation Services Agency and the military in other areas (mentioned in the Ordinance on performing the functions resulting from exercising authority in Polish airspace) occurs within the frameworks of the concluded agreements or, if it is necessary to satisfy current needs, is carried out by ad hoc appointment of civil and military task teams. Thus far, both sides concluded numerous operative agreements and agreements with civil, legal and financial effects with each other, i.a. in the scope of more effective management of airspace (in the case of AMC functioning) as regards the flow of information on air traffic and flights in OAT and in the scope of operational cooperation during *Air Policing* mission performance.

The legal basis for the existing long-term agreements is formed by, respectively for their purpose, provisions under Article 10 section 2 and Article 11 of the Regulation (EC) No 550/2004 of the European Parliament and of the Council on the provision of Air Navigation Services in the single European sky, Article 121 of the Act of 3 July 2002 on *the Aviation Law*, Article 3 section 4 of the Act of 8 December 2006 on *the Polish Air Navigation Agency* and Article 3 section 2 of the Ordinance of the Council of Ministers of 31 October 2007 on performing the functions resulting from exercising authority in Polish airspace and strengthening defences in peacetime.

The last of the civil and military agreements in the area of ATM is an agreement concluded between the General Commander of the Polish Armed Forces and the President of the Civil Aviation Authority on supervision over provision of Air Navigation Services. It sets forth the principles of cooperation between the civil and the military parties in the scope of ensuring the monitoring of compliance with common requirements regarding the provision of Air Navigation Services by the

military bodies in the airspace elements within the scope of their responsibility. This agreement allowed the President of the Civil Aviation Authority to issue a decision permitting the General Commander of the Armed Forces to provide, as of 6 July 2017, Air Navigation Services without certification, in the entire airspace within the scope of its responsibility. Legal basis for this decision is provided under Article 7 section 5 of the Regulation (EC) No 550/2004 of the European Parliament and of the Council. The military is responsible for execution of the provisions under the agreement in the scope associated with providing Air Navigation Services in airspace assigned for the needs of military aviation and for ensuring compliance of their provision with the requirements of the EU law. Whereas the President of the Civil Aviation Authority bears responsibility for monitoring the compliance with common requirements regarding the provision of Air Navigation Services by the military bodies.

Consequences of standardisation and proposals of changes

One of the first effects of establishing a uniform system of Air Traffic Management in Poland was the practical implementation of the FUA concept in airspace management. The Civil and Military Airspace Management Cell (AMC Poland) had launched its operative activity as early as in 2001, i.e. 4 years before the Commission's Regulation 2150/2005 on FUA became effective. This endeavour, difficult from the content-related and organisational perspective, was executed by the joint forces of the then Air Traffic Agency and newly-formed Military Air Traffic Service Office of the Polish Armed Forces. Today, AMC functioning is still an example of a successful model of civil and military cooperation, fully compliant with the Eurocontrol-drawn Specification for the application of the Flexible Use of Airspace⁴¹. However, at this point, it needs to be pointed out that the national aviation law, so far, has had no provisions established that would legitimise its activities⁴². Pursuant to the statutory delegation, in 2003, an ordinance of the minister relevant for transportation appointed a joint civil and military Airspace Management Committee with the purpose of shaping the management rules and using the airspace. Nevertheless, the committee, as a consultative and advisory body, may not perform the function of national body for airspace strategy as defined in FUA usage specification. Therefore, in the area of managing Polish airspace, which is the most important area of civil and military cooperation, it is necessary to take up legislative actions that would result in:

⁴¹ *Specification for the application of the Flexible Use of Airspace (FUA)*, Eurocontrol, edition number 1.1, edition date 10.01.2009.

⁴² Rules of AMC Poland functioning have been drawn up only in *Agreement on operational cooperation between the Polish Air Navigation Services Agency and the Military Air Traffic Service Office of the Polish Armed Forces in the scope of airspace management*, applicable as of 22.04.2014.

– changing applicable national regulations (especially the Ordinance on the structure of Polish airspace and the detailed conditions and manner of using this space) to fully implement the rules of airspace management set forth in the Flexible Use of Airspace (FUA) concept;

– establishing civil and military organ responsible for Polish airspace management at the strategic level or assigning relevant powers within this scope to an existing central administrative body of civil aviation.

As pointed out above, the scope of joint tasks performance in the Air Traffic Management is included in generally applicable provisions assigning the Polish Air Navigation Services Agency and the national defence department with the responsibility of mutual cooperation. However, due to the very broad spectrum of the said cooperation, there is no single act that would contain a detailed and uniformed catalogue of mutual tasks and the scope of responsibility to be borne by each of the parties, since these tasks are scattered in numerous provisions, additionally performed by various military organs. A multitude of entities responsible for given task areas of the national defence department, stemming from the complexity and specifics of defence tasks, results in the lack of a uniform military organisational structure responsible for all the aspects of cooperation with the Polish Air Navigation Services Agency. Since there is no single body that could represent the military party in civil and legal agreements, cooperation with the institution providing Air Navigation Services faces formal, legal and financial problems – as it is necessary to point out that the Polish Air Navigation Services Agency is a public-finance unit cooperating with units subordinate to the Ministry of National Defence and incurring the costs of maintaining material and personnel assets resulting from joint performance of defence tasks associated with Air Traffic Management.

Thus, it is necessary to determine the legal powers of the military to conclude civilian and legal agreements and administrative and legal agreements, and the need to lay down better instruments for cooperation. In the current situation of intensive work over drawing up a new Polish Armed Forces model (including introducing changes in the management and command system)⁴³, it seems justifiable to propose a temporary solution that would specify the scope of possible cooperation between the Polish Air Navigation Services Agency and an indicated body of military authority (e.g. the General Commander of the Polish Armed Forces) based on a general agreement. The document, in addition to determining the areas and principles of cooperation (regarding i.e. airspace management and information exchange) could include a clause on the lack of mutual financial obligations resulting from the tasks performed as part of cooperation.

Moreover, the results of the conducted analyses indicate the need to adopt, within the political sphere (the minister relevant for transportation and the Ministry of National Defence) a document of “strategic” status determining the frameworks

⁴³ See: *Koncepcja Obronna Rzeczypospolitej Polskiej*, MON, May 2017.

of permanent civil and military structural cooperation in Air Traffic Management. This document should define in details common goals, interests and needs of given civil and military entities regarding the available measures and resources used for ensuring safety and efficiency of air traffic in Polish airspace. This characteristic strategy of civil and military cooperation development in the aviation area should also clearly indicate the possibility of coupling the resources held by each of the parties and joint performance of some functions, as well as specialisations and harmonisation of potential possessed by the interested operative entities to achieve a significant effect of a scale.

It would be also valid for this document to specify the areas and conditions requiring closer cooperation between all the parties involved in Air Traffic Management, in order to achieve the goals associated with Air Navigation Services' activities set forth in the EU provisions, since it is noteworthy that some of the efficiency indicators determined under the EU law for the Air Navigation Services and network functions in the key areas of activity (such as: safety, environment protection, airspace capacity and economic efficiency) exert direct or indirect effect on the efficiency of tasks performance by the air force. Since the needs of tasks assessment in the area of civil and military cooperation and coordination in Air Traffic Management are greater than the ones laid down under the SES provisions, it is recommendable to additionally implement the methods of surveillance, measurement and assessment of activities in the sphere of airspace management prepared by Eurocontrol for their practical usage. The policy of civil and military cooperation development should be subjected to periodical review to ensure its relevance and suitability to the operative needs of both parties.

The comprehensive approach to civil and military cooperation in Air Traffic Management should also account for the issues of crisis management in situations threatening safe use of airspace. To guarantee swift and efficient response in such situations, it is necessary for the proposed strategy to include the rules of using the potential of civil institutions and aviation organisations, as well as air defence command bodies and military Air Traffic Services; it is also required to ensure closer cooperation between them. The issues concerning responses to current and prognosticated threats to safety of flights, including non-military crisis situations in airspace (e.g. caused by technical malfunctions, cyber-crime, terrorist attacks) should also be encompassed in all the civil and military documents of ATM services (operating instructions, emergency plans, cooperation agreements) at the local, national and regional level (FAB).

Generally speaking, it needs to be stressed that the specialised organisational units of the Polish Armed Forces are an active participant of many processes in Air Traffic Management (especially airspace management) and the Polish Air Navigation Agency is legally obliged to cooperate with the military. However, there are areas of civil and military cooperation that have not been fully formalised. These include e.g. interoperability of Air Traffic Management System's technical infrastructure (CNS/ATM), partnership in the efficiency system for the Air Navigation Services; protection of ATM system and information associated with air navigation against

threats and vulnerabilities or research and development works in the scope of Air Traffic Management systems.

Further strengthening of bilateral civil and military relations in the area of providing Air Navigation Services (e.g. by recommendations set forth herein) should serve better usage of the available synergies between operational, technical and economic aspects of their functioning and, consequently, it may constitute a real added value for the uniform system of Air Traffic Management in Poland. Nevertheless, it needs to be emphasised that successful solving of main problems in maintaining a high level of security and efficiency of air traffic, resulting from ineffective usage of available resources (airspace, technical infrastructure, airports) will depend on the readiness of all the interested parties to engage in coherent and consistent cooperation. Such an approach is necessary to transform the assumptions into measurable effects and to achieve the mutually accepted goals. The key roles in this process are to be performed by the Polish Air Navigation Agency and the with Military Air Traffic Service Office of the Polish Armed Forces.

Summary

The primary goal of civil and military cooperation and coordination in Air Traffic Management is to ensure safe, effective and flexible use of airspace by all its users, while taking care of operative procedures coherence, economic efficiency and avoiding duplication of tasks. This goal can be achieved by efficient use of human and technical potential possessed only by civil institutions providing Air Navigation Services and the bodies dealing with air defence systems. Therefore, it is in the interest of all the parties involved in the process of Air Traffic Management to continuously improve on cooperation assuming partnership approach, allowing not only to distribute the efforts in joint performance of operative tasks equally, but also to share knowledge and experience and to stimulate creativity and innovation. It needs to be assumed that in perspective of future challenges, both to sustainable development of air navigation and to the Polish defence system, organisationally improved civil and military cooperation in the scope of performing basic state functions resulting from exercising authority in airspace, could entirely meet the wide spectrum of varied and ever-growing requirements imposed by both types of aviation.

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