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TRAINING OF AVIATION PERSONNEL FOR THE NEEDS OF THE AIR FORCE AND THE RELATED FUTURE CHALLENGES

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Abstract

Higher military education is nowadays undergoing numerous changes due to the "Concept of the development of higher military education in 2017-2026" adopted in 2016. The following article looks at the planned modifications in the context of training aviation personnel for the needs of the Air Force. The "Training military pilots" section discusses the process of training candidates to be military pilots, the main problems related to it as well as the nature of the system of training and educating the cadets of the Polish Air Force University. The considerations in the next section of the article concern the selection of candidates for military pilots. The recruitment, consisting of several stages, aims to efficiently identify the best candidates for service in aviation. The screening training, the aim of which is to check the predispositions of candidates for serving as pilots, is a novelty in this process. The chapter "Selection" looks at the solutions applied so far in the School of Eaglets, and also analyses the benefits of the new recruitment method. The final sections of the article concern the profile of the graduates of the Polish Air Force University, their target skills and the development plans of the University in the face of the challenges posed.

Key words: Polish Air Force University; higher military education; training military pilots; screening training; recruitment

Higher military education is powerful, modern and elite. The "Concept of the development of higher military education in 2017-2026" adopted in 2016 specifies that "…the aim of the functioning of higher military education institutions is the comprehensive preparation of officers to carry out the most difficult tasks related to the defence of our state against contemporary and future threats. To this end, universities are to shape appropriate professional qualifications, desirable personality traits, patriotic and moral attitudes of officers, students and listeners, and appropriate

relations with the national and international environment. Universities are to strengthen their elitist character"[1].

The mentioned "Concept..." also sets forth that the mission of higher military education is providing high-quality education and training, and conducting innovative research, implemented using the latest knowledge and technical achievements, drawing on the long tradition of Polish military education, responding to current and future directions of the development and needs of the Polish Armed Forces.

The vision of military education outlined in the "Concept..." assumes, among other things, the following main directions of its development:

- building and strengthening the leading positions of military universities in the higher education system in Poland, Europe and around the world,
- preparing officers, candidates for professional soldiers and students and listeners for carrying out tasks and facing challenges adequate to the needs arising from contemporary threats and from the needs of the Polish Armed Forces,
- shaping the personal and professional characteristics of officers, students and listeners, while maintaining and promoting creativity and innovative action,
- guaranteeing the inflow of highly qualified personnel for the needs of the Armed Forces of the Republic of Poland[2].

Training military pilots

The training of military pilots is a unique undertaking governed by specific determinants (Figure 1). First of all, the character and types of future tasks which relate directly to the predicted nature of future military conflicts must be taken into account. Fourth-generation warfare requires particular strategies and skills. Secondly, rapidly developing technology provides us with some new solutions all the time. We must be flexible and able to adapt instantly to the new reality. This was the case with UAVs – the introduction of this branch of aviation created a demand for UAV operators.

Unfortunately, we also have to bear in mind the budget restrictions. Training pilots is becoming more and more costly. We cannot afford to train cadets who do not meet our requirements and thus the selection process proves crucial again. Another thing to consider is physical abilities. Pilots work in conditions close to the very limits of human endurance and their bodies must be exceptionally resistant. A pilot must also be manually skilled as this means that appliances and electronic systems can be operated without hesitation or the fear of failure.

1 M. Liberacki, *Koncepcja rozwoju wyższego szkolnictwa wojskowego w latach 2017-2026*, Departament Nauki i Szkolnictwa Wojskowego MON Warszawa 2016, p. 3.
2 Ibidem, p. 4.

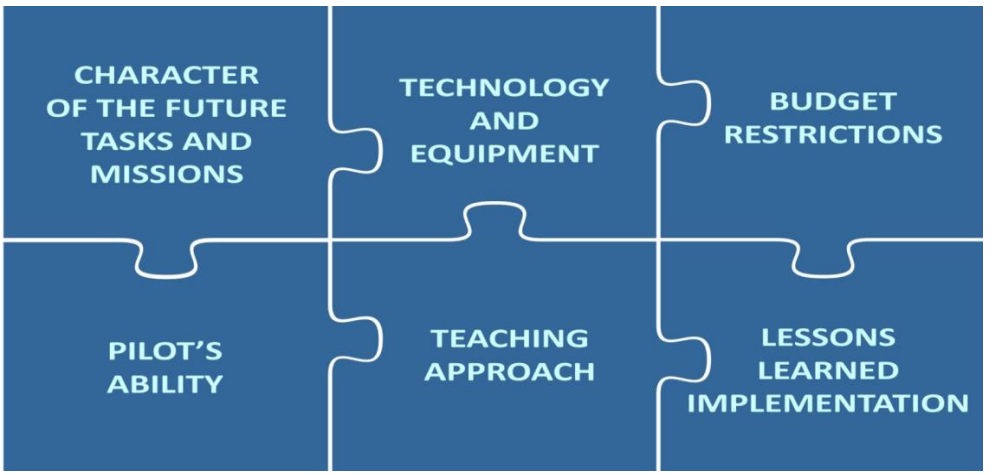

Fig. 1. Determinants of the process of training candidates to be military pilots

We operate in a dynamically developing environment. Not only are the technologies changing, but also the teaching approach. It has to adapt to the new requirements so that it provides successful methods of training and education.

No less important is the rich experience of aviation, which constitutes a considerable asset. Conclusions from the previous projects, both successful and failed, serve as an invaluable lesson and source of inspiration for the future. At the moment, in accordance with the adopted system of training and educating the cadets of the Polish Air Force University (PAFU), the flight training consists of two stages:

Stage I implemented during engineering studies

The flight training is carried out at the Academic Centre for Aviation Training (ACAT) on civilian aircraft according to the ICAO regulations, according to the received certificates, and is supervised by the Polish Civil Aviation Authority (PCAA). As part of this stage, each cadet obtains an private pilot's licence for a plane PPL(A) or a private pilot licence for a helicopter PPL(H), depending on the specialty. The scope of flight training at this stage is as follows (Figure 2):

- cadets of the "jet pilot" specialty fly around 120 hours and complete a training course in the field of IR and aerobatics,
- cadets of the "transport aircraft pilot" specialty are trained up to the level of the CPL(A) professional licence with a training course in the field of IR and on a multiengine aircraft and their total flying time reaches 210 hours,
- cadets of the "helicopter pilot" specialty attend a training course for a helicopter tourist license PPL(H) and achieve a total flying time of around 50 hours.

The basic flight training at this stage is conducted on Diamond DA-20 aircraft. These planes are equipped with the Garmin 500 avionics system. They are modern

planes that perform well during basic training. The IR training takes place on three simulators, including two certified ones of FNTP II class. The first simulator is based on the Cessna 172 and Piper Seneca V aircrafts. Among the two FNTP II certified simulators is one based on Diamond DA-40 and DA-42 aircraft, and a universal one. The practical IR training is conducted on a single-engine Zlin 143i aircraft with Garmin 950 system, and also on the newly purchased DA-40 with Garmin G1000 avionics for the forthcoming training season.

The multi-engine aircraft training is conducted on Diamond DA-42 aircraft with Garmin G1000 avionics. The aerobatics training is conducted on the Zlin 242 aircraft. In turn, the helicopter training is conducted on the Guimbal Cabri G-2 helicopter equipped with a Garmin 430 avionics system, and also on the newly purchased Robinson R-44 Raven II helicopters for the forthcoming training season.

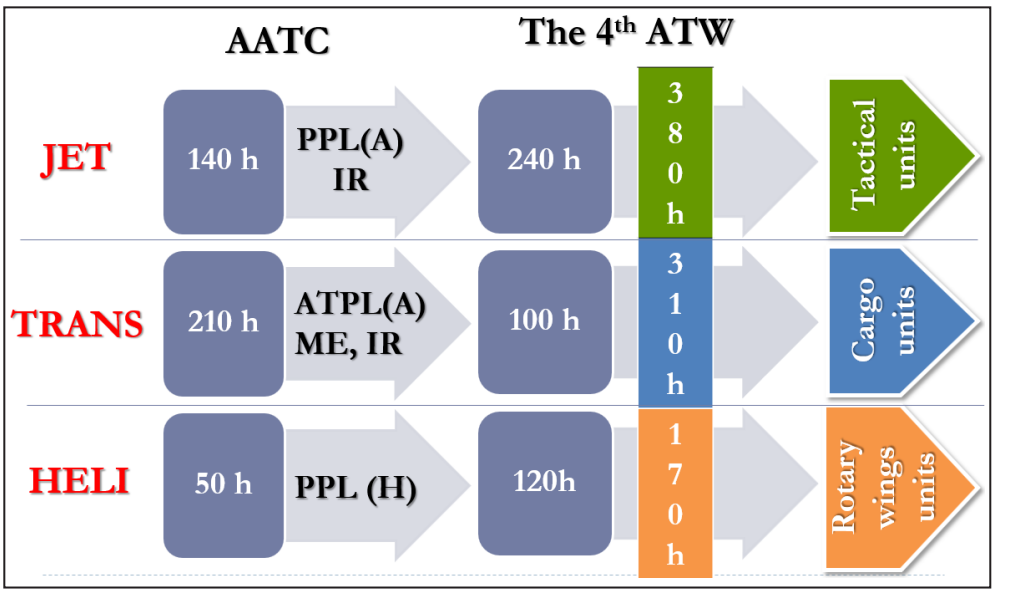

Fig. 2. Flight training in the Polish Air Force University

Stage II implemented during the master's studies

As part of this stage, training is provided on military aircraft according to military regulations. The General Commander of the Armed Forces is currently responsible for the training, which is carried out by the school aviation bases included in the 4th Aviation Training Wing. At this stage, the cadets of PAFU also undergo training on flight simulators. At present, it is necessary to equip the University with a Mi-2 helicopter training device, on which some of the cadets make flights and an M-346 aircraft training device, which is to be used in training from this year on.

Selection

The main norm in force in aviation was, and is today, invariably safety, which depends primarily on the so-called human factor. At the end of the previous century, the percentage of aviation accidents in the world that were classified as "pilot error" was estimated at around 70%, and in the Eastern bloc countries even at 76%[3]. Knowledge about the human factor has become the subject of research and teaching at the faculties of psychology of many universities around the world and most importantly at aviation training centres. Research into the impact of human factors on aviation has itself become a separate branch of services. The significance of the human factor in aviation is also evidenced by the fact that global aviation organisations regularly issue and recommend implementing guidelines that have become the norm in force in this field (ESARR5, JAR FCL1, FCL2, Annex 1-ICAO). They contain standards for recruitment, selection, training, assigning and maintaining entitlements and health requirements for aviation candidates.

The process of selecting the candidates is the critical element, which consists in choosing the optimal candidate who fulfils the initial criteria and shows the appropriate predispositions for air service and military service in general. Medical examination is the unchanging stage of this selection.

Adequate health predispositions are a requirement for candidates for professional soldiers, including those appropriate for flight personnel, the possession of which is documented by relevant certificates. A person applying for admission to studies for candidates for professional soldiers, after submitting the application, is required to undergo specialist medical examinations. The medical examinations for applicants are conducted in two stages:

- stage I - examination in the appropriate District Military Medical Board certifying the physical and mental fitness for professional military service and the lack of psychological counter-indications for service;
- stage II - specialist examination in the District Military Aeromedical Board in Warsaw.

This procedure results from the regulations currently in force in this respect relating to health fitness. Taking into account, above all, the simplification of this procedure and savings in the area of spending public funds, the current regulations are being amended. The desired condition is the introduction of legal regulations that will enable qualification of candidates for training at the Polish Air Force Academy by one medical body, which should solely be the District Military Aeromedical Board in Warsaw. The PAFU candidate will save time and the budget will save money.

Obtaining the required positive medical certificates after the examinations determining the required category of health for the selected specialty is the basic

3 D. Beaty, *Pilot. Naga prawda. Czynnik ludzki w katastrofach lotniczych*. Grupa wydawnicza Foksal. Warszawa 2013, p. 206.

condition for admission to study at the Polish Air Force University for candidates for professional soldiers.

Already at this stage, many of the candidates learn that it is not enough to dream about becoming a military pilot, but to begin with, it is necessary to fulfil the very strict medical and psychological criteria. The statistics show that only about 15% of the candidates applying for training in PAFU go through the fine sieve of the initial aviation and medical qualification[4].

The next stage consists of a training course that examines the predispositions for service in the role of a pilot. A prerequisite for candidates for pilots to take the entrance examination at the Polish Air Force University is to complete this training and achieve a positive result. All candidates for the specialty of piloting an aircraft are required to undergo the said training.

In this regard, an attempt was also made to change the regulations so that this stage would only be implemented after the entrance examinations, as the last element of recruitment for the „School of Eaglets". The adoption of such a solution will allow for focusing on the target group of candidates who successfully complete all the other stages of the selection process previously. In practice, this will mean that the process of a fairly costly and time-consuming screening in the air will cover the minimum number of candidates, which will significantly reduce costs and allow for a more thorough examination of candidates.

In this context, however, it is also worth noting that there is some doubt as to the relevance of organising training to check predispositions for service in the air before admission to the University, as currently, as part of engineering studies, a basic training course for the airplane private pilot licence on sports aircraft is conducted and might be counted as the proper screening. This was already the case in the history of the University of Dęblin. The selection training was cancelled for several years at the beginning of the 1990s.

Recruitment of future pilots took place without the basic predispositions for aviation training being checked before the commencement of the candidate's service[5]. The training examining the predispositions for service in the role of a pilot (screening training) was conducted during the first year of study, second semester, using PZL-130 "Orlik" airplanes. The training programme assumed the performance of day and night VFR flights and day IFR flights within around 76 hours[6]. Once, in 1998, a solution was adopted which assumed that the cadets underwent screening training on a TS-11 jet achieving around 70 hours of flight time[7]. In 2007, a solution was adopted in which screening training began to be implemented by selected regional aeroclubs under the supervision of the Polish Air Force Academy. The competition

4 Ibidem, p. 120.

5 M. Stanecki, *Szkolenie selekcyjne*, „Lotnictwo" no 10, 2008, p. 32.

6 J. Bzymek, J. Matrzak, *Szkolenie pilotów w świetle integracji sił powietrznych RP ze strukturami NATO*, doctoral dissertation, AON Warszawa 2001, p. 150-151.

7 Ibidem, p. 15.

for the implementation of such training could have been taken by all air training centres certified by the Civil Aviation Authority of the Republic of Poland.

As a consequence, the candidates for pilots underwent the selection training in aeroclubs throughout the country[8]. This training covered about 130 hours of theoretical training and 20 hours of practical training in flight according to a uniform training programme approved by the CAA. Experience in this respect, however, showed that the commercial nature of this training obscured its real meaning. External training entities focused on the implementation of the contracted 20 hours of flight time, which, of course, brought them measurable financial income, and were not interested in disqualifying candidates during this training.

As part of the recruitment of candidates for the Polish Air Force Academy (PAFA) for the academic year 2017/2018, the current solution in this area was introduced. The screening training examining the predispositions to perform service in the air began to be carried out at the Academic Aviation Training Centre of PAFA (currently at the Academic Centre for Aviation Training of PAFU). The adopted selection training model consists of two stages:

– stage I – selection training on a flight simulator,
– stage II - theoretical and practical selection training in flight.

The condition necessary for admitting the candidate to the second stage is obtaining a positive result at the first stage. After successfully completing the training checking the predispositions to serve as a pilot, the candidate is qualified for the proper recruitment procedure.

The main advantage of this solution is the fact that screening of the candidates' predispositions is conducted by pilots-instructors from the Academic Center for Aviation Training, mostly with experience in the role of military pilots-instructors, who know the requirements, needs and realities of military training perfectly, and it significantly differs from flying in civil aviation, and even radically from sports aviation, which is the domain of aeroclub training centres.

Selection training, in addition to the theoretical part, will also include classes on the training device (aircraft simulator) „Selekcjoner" which is a complete novelty. At this stage, the candidate's basic predispositions to control (maintain the assigned flight parameters) the aircraft will be verified in a completely objective manner. The assessment of flight accuracy is generated by the computer. Bearing in mind the „artificiality" of the conditions for performing this check (ground training device), it has been assumed that in extremely negative cases, in order to confirm (verify) such a result, the candidate will be consulted with the Military Institute of Aviation Medicine, in the scope of psychological evaluation of the candidate made previously at the Institute as part of the aeromedical examination. The final verification will be carried out in the second stage of training carried out in the air. In this respect, the

8 D. Bogusz, *Rys historyczny szkolenia selekcyjnego kandydatów na pilotów wojskowych w Polsce*, Obronność – Zeszyty Naukowe Wydziału Zarządzania i Dowodzenia Akademii Obrony Narodowej 4 (12)/2014, p. 15.

programme for this training also provides for significant innovation, as the candidates will be divided into three groups depending on the aviation experience they already have. The first group should be candidates with documented aviation training in the form of an aviation licence. The second group will include candidates who have some undocumented aviation experience (e.g. in previous years they underwent selection training at PAFU) and the last group will be candidates with no aviation experience. Depending on the group, the selection training will last up to 1 hour, up to 6 hours and up to 11 hours of flight respectively.

As a rule, the new solutions are beneficial because they guarantee the consistent standard of training. Continuity of training will also be maintained, from the recruitment to the completion of practical training in the third year of study. It is also important that the classes will be conducted by the same instructors. During the pre-selection, the instructors will be able to get to know the candidates for pilots, which will later translate into their evaluation at the subsequent stages of cadet training. The compulsory selection training – conducted by the university instructors – will also help to minimise the risk of „letting in" people who are unfit to be pilots during recruitment. The experience from previous years showed that about 5-7% of cadets, who had previously passed the selection training conducted by aeroclubs, did not have the appropriate predispositions and this was only spotted during the practical training at the university.

The new solution is also cheaper. With the previous solution, the cost of training 1 candidate was about PLN 15 thousand (it included theoretical and practical training involving 20 flight hours per trainee). Meanwhile, after the change in the regulations, expenses incurred per person amount to approximately PLN 8.5 thousand (with 11 flight hours per person). The positive result of the pre-selection is a passport to participating in the final stage of the recruitment process.

The recruitment procedure includes:

- analysis of the results on the secondary school leaving certificate in the following subjects: mathematics, physics, English;
- English proficiency test, if it was not the subject of the secondary school leaving examination;
- physical fitness test;
- interview.

This is another milestone on the road to the career of future military pilots. At this stage, the University faces a dilemma regarding setting the right store by the physical fitness test result in confrontation with the requirements of an intellectual nature. The modern work environment of a military pilot seems to be more a sophisticated operator workplace than a typical cabin of an aircraft as it was until recently, with typical elements of its manual control. At this stage, it often turns out that there is a large discrepancy in the level of preparation of candidates in the physical and intellectual sphere. Often those who successfully pass the medical and psychological qualification present insufficient secondary school leaving examination results or physical fitness test results. The percentage of young people who are characterised by the required, optimal state of psychophysical predispositions for service in aviation,

is noticeably lower year by year. In this context, it has recently been noted that the health category tends to be the essential criterion predisposing a given candidate for service in a particular branch of aviation, or service in the air in general. Certainly it cannot be a fundamental or even the only criterion in this respect. The system must promote candidates who present a kind of optimal balance in terms of health predispositions and other admission requirements, i.e. the appropriate proficiency in English, mathematics, physics or the required level of physical fitness.

After completing the recruitment procedure, a list of candidates qualified for admission to the University is drawn up. The list contains those who received the best results, which are ranked from the highest to the lowest, and are in a position covered by the limit of places on the given field of study and specialties defined by the Personnel Department of the Ministry of National Defence.

The entire selection process of the candidates for the „School of Eaglets" is aimed at eliminating those candidates for military pilots who, in the perspective of further training, will not be able to meet the ever-increasing requirements of efficient operation in complex situations. It should be noted that the process of selection of candidates for military pilots is not and may never be perfect to ensure optimal selection of people for this profession, which would guarantee the implementation of pilot tasks on increasingly more technically complex, and thus more and more demanding aircraft. This is evidenced by the constantly occurring percentage of people disqualified at the stage of candidate service, at the level of basic flight training (for a tourist pilot licence or professional pilot's licence), as well as unfortunately occurring mistakes made by already trained military pilots during advanced training, or during continuous training. Aiming to improve the process of verifying the predisposition to air service at the stage of candidate service, errors are being tracked in the system. It does not mean, however, that they are really there. It is worth noting that the analysis of various aviation incidents indicates that during the aviation training process, for example, many people master the skills they need and their deficiencies show at a later stage of the training. The conclusion that follows is: solutions that will allow for more optimal (efficient) verification of predispositions to air service should be constantly looked for.

Competences of the PAFU graduate

Specialist education of a military student is aimed at preparing them for practical training in order to acquire professional qualifications of a military pilot of an aircraft. According to the education standard in the Aviation and Cosmonautics field of study, a PAFU graduate should have knowledge and skills enabling safe and correct operation of an aircraft, weapons, on-board and ground systems as well as technical equipment. In addition, they should demonstrate knowledge of construction, purpose and operational limitations of aircraft, tactical and technical data, weapons and technical equipment, as well as the methods for using and

operating the given aircraft, equipment and weaponry. The graduate, pilot, should demonstrate knowledge of the regulations in the field of air communications and the ability to conduct radio correspondence on air networks, including correspondence in English.

As part of the studies, the candidate for professional soldier receives military education in accordance with the standard of professional education for candidates for officers contained in Decision No. 289/MON of the Minister of National Defence of 9 July 2014 on the Standard of Military Education for candidates for officers - Minimum Programme Requirements. In addition, the graduate has knowledge in the field of humanities, social sciences, including defence sciences, regarding the essence, regularity and problems of the officer's functioning in a military unit in peace, crisis and war. They also have the ability to recognise, diagnose and solve problems related to commanding a sub-unit, including leadership, education and training, and management of military property and human resources, effective communication, negotiation and persuasion in a military team. They can boast considerable physical fitness and mental resilience, allowing for undisturbed performance of tasks in a stressful environment of increased risk. They speak English at a level that guarantees efficient communication, in a general and military context. They are prepared for operating in the conditions of a military unit, command and organisation of training and education activities in the service positions of a junior officer, in the field of general and specialist training, to deepen the specialist knowledge and skills necessary for the position held in a specific type of troops/services. They have the necessary specialist knowledge allowing for the use of combat capabilities of the entrusted equipment and conducting technical services. In addition, as a result of engineering studies, completing the officers' standard (military module) and practical training in military units, the graduate is prepared to serve in a first job position.

A modern graduate is prepared to work independently in accordance with the studied specialty, has the ability to work in a team, discuss the results of research and observation, and formulate opinions. A graduate, above all:

- is an expert, specialist, presenting a high level of professional skills (especially skills in dealing with abnormal situations) and specialist knowledge adequate to the duties fulfilled in a first job position in the Polish Armed Forces and the qualifications of personnel employed in civil aviation units: domestic and foreign;
- has the knowledge and skills necessary for undertaking creative design and construction work, implementation and scientific work related to the construction, operation and piloting of aircraft and spacecraft;
- has a habit of lifelong learning and professional development and is prepared to take up research challenges and undertake third-cycle (doctoral) studies;
- presents English language proficiency at level 3232 (NATO STANAG 6001);
- can demonstrate a sufficiently high level of efficiency in terms of: decision making (i.e. its speed and accuracy), speed of perception, spatial orientation and physical fitness;

– has high psychological and physical resistance to the stress occurring in the service and work environment as well as hardships related to the profession;
– presents an intellectual level and cognitive efficiency that is higher than average, which mainly manifests itself in such traits as: attention (mainly focus, switchability and distribution), thinking (including creative thinking), visual memory and auditory memory;
– has a specific psychophysical predisposition, i.e. adequate visual-hearing coordination and speed of motor reactions.

The anticipated new qualitative characteristics of the armed forces will require other officer skills than those required in a large army of the Cold War era. The model of an officer (soldier) with strictly defined tasks must be replaced by the model of an officer who is a system organiser and understands the broad conditioning of the sub-division commanded by them. Future soldiers must also have technological competence, which means that decisions can not only be made on the basis of experience and reason, but also by using modern means of information analysis to plan and execute military operations, optimally using all the advantages of the available combat technology. Technological competence is indispensable in the 21st century when the basic concepts of tactics and strategy have undergone many changes caused by the introduction of new weapons systems.

What school?

The Polish Air Force University with its mission is part of the concept of the development of higher military education, which aims at educating and training professional personnel for the needs of the Armed Forces, and civilian aviation personnel. The main task of the University is, of course, educating and training the candidates for professional soldiers as part of full-time first-cycle and second-cycle studies as well as training and retraining professional soldiers on various types of improvement and professional courses. In this respect, the activities of PAFU are conditioned by the current and prospective needs of the Polish Armed Forces, defined by the Minister of National Defence and the administrators of individual corps.

In order to meet the needs of the Polish Armed Forces, the educational activity of the Polish Air Force University is focused on:

– systematic expansion and improvement of university courses, professional courses and specialist trainings carried out at the university for the needs of the Armed Forces of the Republic of Poland;
– using the expert potential of the experienced commanders and staff officers involved in the implementation of the didactic process;
– building new educational abilities by modernising the didactic and scientific base of the university, equipping it with training devices, simulators and equipment of the latest generation;

- intensification of activities aimed at international exchange of academic teachers, university students and PhD students;
- expanding and updating the didactic offer and fields of study and specialties in educating personnel for the needs of the Armed Forces of the Republic of Poland and permanent updating of education and training programmes;
- dissemination of the educational offer through available methods and techniques and modern information transmission environment;
- improvement of the didactic process carried out at the university and creating a modern didactic workshop using academic teachers, enabling greater effectiveness of education and training;
- creating an educational offer enabling the graduates to obtain the highest qualifications and qualifications sought in the labour market;
- improvement of the system of evaluating the scientific and didactic employees of the University[9].

Throughout its history, the aviation university in Dęblin has undergone various transformations conditioned by various external factors. However, these changes were always aimed at adapting to the changing environment and challenges brought by new conditions. The breakthrough in the history of the "School of Eaglets" was the reform of military higher education of 2008. As a result, the process of education (theoretical preparation) was separated from practical training in school aviation units. In connection with the exclusion of the University from the structures of the Air Force, on the basis of the training centres separated from the School (Dęblin and Radom air units), a new tactical aviation organisation in the form of the 4th Aviation Training Wing (4th ATW) with two new aviation training bases was created. On this occasion, the Centre for Engineering and Aviation Training was also separated from the School structure, and currently functions independently of the University. All these entities previously functioned as a unity, comprehensively carrying out the process of preparing air personnel for the needs of the Polish Air Force. In the current system, according to the assumptions made, they are to complement each other and are responsible for separate elements of the entire system of aviation personnel preparation. However, such a solution has one fundamental weakness, namely that there is currently no single leader (superior) responsible for the whole process of education and training of aviation personnel for the needs of the Polish Armed Forces.

The current challenge in the area of appropriate organisation and security of the practical aviation training process carried out during the engineering studies, using light aircraft and general aviation helicopters in accordance with civil regulations, is the issue of obtaining an airport where this training can be carried out without external restrictions. The Academic Center for Aviation Training currently has twenty nine different types of aircraft, which were in the air for more than 11,500

9 M. Liberacki, *Koncepcji rozwoju wyższego szkolnictwa wojskowego w latach 2017-2026*, MON Departament Nauki i Szkolnictwa Wojskowego Warszawa 2016, p. 7-8.

hours in 2018, which is more than in any other Air Force base in our country. It should be noted that the needs in this area are constantly growing and are currently estimated at 14,500 hours.

The Centre currently shares the airport with the 41st Air Force Base in the hometown of PAFU – Dęblin, and independently uses a former military airport adapted for flight training in Nowe Miasto nad Pilicą. However, given the current and prospective needs of its development, this infrastructure is insufficient. The development of the Academic Centre for Aviation Training also allows us to consider acquiring the ability to independently, fully secure the process of recruiting candidates for proper training on military aviation aircrafts. In this context, it will be possible to verify the current solution in this respect and to consider another, optimal training system that checks the predispositions of the given candidate for a professional soldier to serve in the military as a pilot.

Conclusions

Summing up the above analyses, it can be concluded that the Polish Air Force University is steadily following its path of development. The recent changes made it possible to stabilise its position. However, taking into account the progressive changes in the international situation, the newly defined threat environment for our country, the adopted course on the development of the Armed Forces capabilities (potential) presents new challenges to the system of military training in Poland. The primary challenges are the radically increased limits of the recruitment of candidates for professional soldiers. The University must adequately react to the emerging tasks.

In the field of aeronautical training, it seems optimal to build and develop the capacity of the Polish Air Force University to organise the training of aviation personnel, through the development of specialised training centres that currently function in its structure, with the leading role of the Academic Centre for Aviation Training in this regard.

The second fundamental aspect of the education and training process of future pilots and leaders of the Air Force's aviation is programme content, focused on the desired effects, in the form of a graduate prepared for the "new times". In this context, it is obvious that a set of desirable traits, competences and skills of a pilot of the future (a new graduate of the "School of Eagles") is conditioned by so many variables that it is difficult to determine clearly what this pilot will be like. In this respect, there are still more questions than answers.

Firstly: "What?". What do we want to achieve? What are our goals for the future? What will future missions be like? Will the aims of future operations stay the same? What is the desired end state: a master of arts or a soldier-operator trained practically? Secondly: "How?". What is the best way to achieve success? How do we achieve the optimal balance between theory and practice? Next is "Where?". In which environment will the pilot be operating - homeland, abroad or both? What will

be the conditions of future operations and what will be the nature of the conflicts? Will they be classic military conflicts, or asymmetrical, and maybe hybrid, or of a nature that we do not even know yet? Another question is "When? What is the deadline?". When exactly will we need the "new" pilots? What is the proper time frame for training?

The answers to this sequence of questions in fact constitute the answer to the most crucial question: what is the pilot-graduate of the Polish Air Force University like in terms of personal and professional characteristics?

Taking into account the analyses presented above, one should certainly consider changes in the organisation and the course of the training process, professional training and development of the candidates for pilots conducted at PAFU. The stage of designing the training programme at a military aviation university is the one which should answer the following question: what educational content will allow the expected state in the sphere of the personal and professional characteristics of the graduate to be achieved, in the context of the new requirements. It should be a programme that will allow most future PAFU graduates to make the "brains" of modern aircrafts or military helicopters they will operate in their first job positions in the Air Force units. To paraphrase the words spoken about Napoleon entering Jena in 1806: "Here is the reason on horseback." It can be assumed that the mind, the intellect and the imagination will be the strongest traits of the future graduate of the Polish Air Force University – a pilot of a modern aircraft[10].

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