ESTONIAN QUALITY AGENCY
FOR HIGHER AND VOCATIONAL EDUCATION

Report for Institutional Accreditation

Estonian Aviation Academy

2020

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Introduction

Institutional accreditation

'Institutional accreditation' is the process of external evaluation which assesses the conformity of a University or higher education institution`s management, work procedures, study and research activities and environment to both legislation and the goals and development plan of the higher education institution itself. This is feedback-based evaluation in which an international assessment panel analyses the strengths and weaknesses of the institution of higher education based on the self-assessment report of the institution and on information obtained during the assessment visit, providing recommendations for improvement and ways of implementing them.

The goal of institutional accreditation is to support the development of strategic management and quality culture that values learning-centeredness, creativity and innovation in the higher education institutions (**HEIs**), as well as to increase the societal impact of education, research and development delivered by the HEIs.

HEIs are assessed according to twelve standards of institutional accreditation. Assessment focuses on the core processes of the HEI – learning and teaching, research, development and creative activities, and service to society – as well as on strategic management of the organisation and resource management. The learning and teaching process is examined in more detail under five standards (study programme, teaching staff, learning and teaching, student assessment, and learning support processes). Throughout the assessment process, there is a focus on academic ethics, quality culture and internationalisation.

The Institutional Accreditation Report consists of two parts: (1) evaluation of twelve institutional accreditation standards, and (2) a report on quality assessment of a sample of study programmes.

Educational institutions must undergo institutional accreditation at least once every seven years based on the regulation approved by EKKA Quality Assessment Council for Higher Education Guide to Institutional Accreditation.

The institutional accreditation of Estonian Aviation Academy (EAA hereinafter) took place in November 2020. The Estonian Quality Agency for Higher and Vocational Education (**EKKA**) composed an international assessment committee, which was approved by the higher education institution. The composition of the panel was thereafter approved by the order of the EKKA Director.

The following persons formed the assessment committee:

Mark Richardson	Chair of the panel, Professor Emeritus, University College Dublin, Ireland
William Agius	Deputy Head of the Centre for Aviation, ZHAW Zurich University of Applied Sciences, Switzerland
Mari Kasemets	Student, Tallinn University of Technology, Estonia
Mikko Paronen	Vice President Sales, Patria Pilot Training Oy, Finland
Pascal Revel	Counsellor for Science & Technology, French Embassy in Germany, France
Kalle Tammemäe	Director, IT College, Tallinn University of Technology, Estonia
Kristo Vallimäe	Project Manager, Estonian Air Navigation Services, Estonia

Assessment process

The assessment process was coordinated by EKKA staff – Ms Liia Lauri and Mr Hillar Bauman.

The Assessment Panel conducted its work in the last quarter of 2020, a period characterised by limitations on international travel and face-to-face meetings due to a global pandemic – the Covid-19 crisis. Notwithstanding this, through extensive research prior to the site visit, detailed analysis of the well-written self-evaluation report, study of a considerable quantity of additional requested material (promptly supplied), together with frank and open discussions during well-attended sessions during a hybrid site visit (half of the Panel onsite, half online), the Panel reached unanimity of findings, commendations and recommendations without difficulty.

An extensive initial preparation phase was conducted following an online 'kick-off' meeting on 28 September 2020. Anticipating the probable need for a hybrid site visit, the Panel communicated regularly to distribute tasks between the members of the assessment panel, exchange preliminary views, identify and request further data and documents, and draw up a session-by-session list of questions where additional evidence was required. The Panel agreed the overall questions and areas to discuss with each group during the site visit and to a detailed schedule for the site visit.

The Panel met (half of the Panel onsite, half online) in the offices of EKKA, Tallinn, on Monday, 2 November 2020 for a briefing on the Estonian Higher Education System as well as the assessment procedures by EKKA. Members of the team agreed the distribution of session chairs and lead inquisitors for each session of the site visit.

During the following two days, from Tuesday 3rd to Wednesday 4th of November 2020, meetings were held (half of the Panel onsite, half online) with representatives of Estonian Aviation Academy as well as external stakeholders.

On Thursday 5th November 2020, the Panel held a meeting, during which the findings of the panel were discussed in detail and the structure of the final report was agreed. Findings of the team were compiled in a first draft of the assessment report and evaluation of the 12 accreditation standards.

In finalising the assessment report, the Panel took into consideration comments made by the institution. The Panel submitted the final report to EKKA on 18th December 2020.

Information about Estonian Aviation Academy

The Estonian Aviation Academy (EAVA) educates and trains specialists for Estonian and international aviation enterprises and organisations. The study process employs the standards of Estonian higher education and those of the International Civil Aviation Organization (ICAO) and the European Union Aviation Safety Agency (EASA). It is a state-owned professional higher education institution, initially founded as Tartu Aviation College under the Ministry of Transport and Communications in 1993 before transfer to the Ministry of Education and Research in 1999. It was renamed Estonian Aviation Academy in 2008. The Academy offers studies at the first cycle of higher education, at the vocational education level, continuing education in-service courses and retraining of practising specialists in aviation enterprises. It was positively accredited as an institution by the Estonian Quality Agency for Higher and Vocational Education (EKKA) in 2014.

The mission of EAVA is to provide high-quality and efficient education and training in aviation as well as development activities. The vision (Vision 2020) is of an academy that is an internationally recognised aviation HEI, proceeding in its activities from the needs of the society, and a highly valued cooperation partner in the field of aviation. Strategic directions established in the EAVA Strategic Plan 2016-2020 include becoming a recognised and valued international training organisation; and becoming an aeronautical research and development 'gateway' in Estonia.

The Estonian Aviation Academy is managed by a management team (the Rectorate) consisting of the Rector, three Vice Rectors (Education, Development, Administration), seven Heads of Department Units, a Head of Finance, a Personnel Manager and a Quality Manager. The highest decision-making body is the EAVA Council. Strategic planning and implementation of objectives is informed by a 12-member Advisory Board, chaired by the manager of the Estonian Aviation Cluster. The rectorate meets weekly; a meeting of all staff is held quarterly; the Advisory Board normally meets twice a year but it is planned that meetings will be quarterly from 2021.

EAVA has developed links with other HEI's to limit unnecessary duplication. This involves cooperation with the University of Tartu, Estonian University of Life Sciences and Tallinn University of Technology, particularly in respect of modules in the social sciences and courses in electrical engineering and communication.

The number of students per full-time equivalent academic employee has averaged 17 over the years 2014 to 2019. The number of students in EAA has remained relatively stable, fluctuating between 232 and 275 in the past six years, an average of 250 in the period. The typical annual admission level of 58 led to an average of 41 graduates in the past six years. The dropout rate is thereby low by Estonian standards. Students are currently distributed across programmes in Aviation Management (26%); Aircraft Piloting (19%); Air Traffic Services (12%); and Aeronautical Engineering (43%) - distributed across three programmes: two legacy programmes, Communication and Navigation Systems (7%) and Aircraft Engineering (16%) and a merged new programme (20%). A target of 10 international students in speciality studies has not been met. The percentage of graduates in employment or continuing their education is very high, for example 97% in 2019 (SER).

The biggest increase in the number of students over the last five years has been in Aviation Management (from 45 in 2014/15 to 64 in 2019/20). The number of students admitted since 2018/19 in the field of technology is typically 30 students per annum into a new study programme Aeronautical Engineering, which comprises two specialities: Aviation Communication and Navigation Systems (CNS) and Aircraft Engineering (TECH). This programme is a merger of two separate programmes, which had a combined entry of 30 students in 2014/2015 but which saw a slight decline to 25 students by 2017/2018, when the merged programme replaced denominated entry to CNS and TECH (SER).

The Academy employs 55 persons - 35 full-time, 16 part-time and 4 on parental leave (31 December 2019). There are only 16 academic positions due to the difficulty in providing a full workload for speciality academic staff. Just three have doctoral degrees. Half (18 persons) of the non-academic staff are involved in teaching and are supported in developing their pedagogic skills. There is a high number of visiting academic staff under a mandate agreement, typically 30 per academic year. One of the characteristic features of the Estonian Aviation Academy is that part of the teaching is carried out by experienced specialists from Estonian and foreign aviation enterprises and lecturers from other higher education institutions working on a contract basis. Gender balance across the Academy's employees is 37% female and 63% male. The gender balance in academic positions is 6% female and 94% male.

The combined Rector and Vice-Rectors posts at the time of the site visit (November 2020) was gender balanced.

The satisfaction rating across stakeholders in 2019 on a 5-point scale was 3.6, 3.8 and 4.0 for students, alumni and employers respectively (SER).

Main impressions of the self-evaluation report and the visit

The Panel commend EAVA for their comprehensive SER, especially given the fact that it was prepared in a challenging period, posed by restrictions on normal working conditions due to the global Covid-19 pandemic. The Panel, aware that several members would be unable to be onsite during the site visit due to travel restrictions, requested a wealth of data in advance of the visit and all of this was provided in a prompt and timely manner. Excellent technological arrangements were put in place by EKKA and EAVA to facilitate online meetings by the Panel both in advance of and during the site visit. The Panel especially express their thanks to the staff of EKKA for their support in advance of the site visit, while the Panel and EKKA prepared documentation in a meticulous manner to prepare for each and every session during the site visit. This allowed the Panel chair to fully discharge his responsibilities during the site visit despite doing this remotely via online participation. Panel members participating online found the process to be satisfactorily inclusive, allowing full questioning of attendees and comprehension of responses. The members of the Panel onsite were appreciative of the courtesy extended to them. All Panel members are grateful to EKKA for their diligent support and to EAVA for their organisation of access to a high number of representatives of staff, students, alumni and employers all of whom provided succinct, open, honest and helpful responses to our many questions.

Main changes on the basis of recommendations of the previous institutional accreditation

The previous institutional accreditation in 2014 was assessed under four areas. It was determined that EAVA was conforming to requirements in three areas (Organisational Management and Performance; Teaching and Learning, Service to Society) and partially conforming to requirements in the area of Research, Development and other Creative Activity (RDC). Nine recommendations were made of which four related to RDC.

In response to the two recommendations in respect of Organisational Management and Performance, EAVA have improved the quality management system to better integrate external requirements of aviation and education regulations; has significantly increased academic staff participation in mobility programmes; and introduced lecture observations of teaching in English by a language expert and a subject matter expert whose recommendations are now included in employees' personal files (SER).

In response to two recommendations in respect of Teaching and Learning, EAVA have enhanced the Study Regulations relating to 'Counselling and support services for learners with special needs'; and doubled the participation rate of students in the Erasmus learning mobility programme during the period (SER).

The most significant aspect of the 2014 institutional accreditation decision were the four recommendations concerning RDC activities. It was recommended that a strategy be elaborated for acquiring external resources for applied research or other RDC activities; staff should be motivated to engage in RDC through international networks and regional universities; the Academy should engage

more in RDC with employers to gain external funding for applied projects; and that graduation theses should have a stronger research orientation, be more analytical and reflect more of the authors' self-dependent thinking. In response the position of Vice Rector for Development was created and finances were made available from EAVA resources (approximately €40,000 in 2020) for allocation strategically by the RDC Council, which is formed by members of all specialities; the staff workload model [teaching/research/organisation and professional development] includes research time ranging from at least 30% to 10% across the five grades [Professor, 40 max/30 min/30 max], [Associate Professor, 50 max/25 min/25 max]; cooperation ties with universities have been consistently growing (for example, ELASTRA project); the Academy regularly engages in cooperation agreements with various enterprises; and the proportion of analytical work in graduation theses has increased (SER).

Regarding Service to Society, it was recommended that EAVA should consider more possibilities for raising revenue by offering training in the international aviation market. In response, the Academy's new Commercial Aviation Management programme serves as a basis for developing an English-language study programme oriented to the international market, notably aviation operations using a digital simulation software platform developed as part of the EEA/Norway cooperation project; and the ELASTRA II project funds will support EAVA's goal to become a recognised aviation competence centre (SER).

The Panel found that EAVA had responded fully to the recommendations. Nevertheless, two major initiatives failed to yield improvements on the scale anticipated in response to the recommendations. These relate to internationalisation and RDC activity. A specific 'EAVA Strategy for Internationalisation 2016-2020' was adopted. Although most of the targets were achieved in respect of outward student mobility there has been little impact on the international nature of the Academy itself. In respect of RDC, the position of Vice Rector for Development was created to coordinate the work of the Development Department and RDC activities, their internal funding and evaluation. Unfortunately, it did not have the desired effect, inadvertently creating a loss of ownership for RDC in the speciality departments with consequent failure to gain traction in ramping up RDC to a higher level of activity and impact.

The Panel acknowledges the efforts made by EAVA to address the 2014 recommendations but makes further recommendations in this report to more aggressively tackle the areas of internationalisation and research.

Summary of the institutional accreditation findings

General Findings:

The Accreditation Panel noted that the Estonian Aviation Academy (EAVA) is a unique resource, being the only such specialist professional higher education institution in Estonia and backed by the stability of state funding in a globally competitive market. It serves a public sector need for highly skilled professionals while additionally providing graduates to the private sector, mainly in Estonian aviation enterprises. The Panel found that it also has the ambition and potential to be a significant future player in the international market for the education and training of specialists for the aviation industry, which by its nature is technologically dynamic and international, with an ongoing need for in-service training. However, the Academy has yet to appreciate the scale of the bottlenecks to be overcome in establishing a foothold in the international league. Nevertheless, given its national importance which provides financial stability, the Academy is in a strong position to take a long-term strategic approach to developing its vision and full potential as a recognised and valued international training organisation allied to excellence in aeronautical research and development. Realising this vision will not be easy as it will require a step change in the Academy's internationalisation and research impact.

The Academy acknowledges that there is still much work to be done in relation to two areas that were identified in 2014 as in need of improvement at the time of the last Institutional Accreditation review: internationalisation and research. These aspects greatly influenced the Strategic Plan 2016-2020 and a specific Strategy for International Cooperation 2016-2020. Despite the vision, goals and strategic development planning, progress on internationalisation and research has not kept pace with international competition. Effectively time has been lost, despite good intentions and solid management systems, due in part to somewhat unambitious targets. The next period will require a more aggressive approach to internationalisation and the building of research capacity.

The Academy appointed a new Rector in 2020 who has since redesigned the senior management and unit structure that will develop and deliver the Strategic Plan 2021-2025. The vision and goals are well communicated and clearly understood by an energetic and forward-looking senior management team, composed of complementary strengths and experience, some recently external to the Academy. The management structure has been realigned to a flat structure rather than a hierarchy. The structure is centred around empowering students and staff to leverage the Academy's infrastructure to develop their full potential to the betterment of the Academy and Estonian society. The re-organisation of senior management functions and units has attempted to eliminate a silo mentality, most particularly eliminating a false division between teaching and research. Research, development and creativity (RDC) were intended to be grown through a dedicated Development Department and development budget but this unfortunately was ineffective, due to unforeseen loss of ownership of RDC within the specialist units. Under the new structure, strategic level direction for RDC is coordinated by the Vice-Rector for Development working in partnership with a RDC Council, representative of all specialist units. Less evident in the new management structure is any revised approach to internationalisation – many institutions worldwide have found it necessary to establish dedicated support units for internationalisation with oversight by a dedicated role at senior management level.

The Panel was provided (translated into English) with a draft map of the general Strategic Plan 2021-2025, which indicated a recognition of the need to grow internationalisation and research. The Panel was also provided (untranslated) with 10 sub maps of the Strategic Plan 2021-2025, where there was

an individual strategic map for development (RDC activities). One of three strategic goals focuses on internationalisation and one on development services (that include applied research, validation, testing, analyses etc.). Through discussions and analyses EAVA has set a focus to 'future technology' (more specifically unmanned aviation vehicles and the environment in which they operate, aviation digitalisation, process automation and simulations, robotics). Notwithstanding this the Panel noted that the Vision 2025 does not articulate specific research and international ambition: "EAVA is a highly-valued aviation education, training and development partner for stakeholders", whereas the Vision 2020 was "By 2020, the Academy is an internationally recognised aviation HEI, proceeding in its activities from the needs of the society, and a highly valued cooperation partner in the field of aviation." The Panel are of the opinion that 'research' and 'internationalisation' need to be highlighted unambiguously in the wording of the vision, until critical mass in both fields is achieved. The Academy is aware of its strategic strengths and weaknesses, although perhaps not yet aware of the scale of the challenge in becoming highly ranked internationally.

The Academy is well resourced and its inspiring physical infrastructure is both effectively and efficiently used. The financial platform is strong, even in the current and near-future volatile circumstances of the aviation sector, due to state funding, close collaboration with the Estonian Aviation Cluster and the ongoing attraction to school leavers of a career in aviation. The teaching staff are dedicated and enthusiastic, leading to a good working environment in which the staff and the students work together in an atmosphere characterized by positivity. Internal communication is effective. External communication with stakeholders is systematic, being an integral part of the Academy's highly active Advisory Board. Meeting future ambition will however require recruitment criteria and career development supports that lead to a step change in the Academy's research activity and impact.

The Academy's quality support processes conform to the requirements of a higher education institution. There are effective feedback loops in the quality processes, which are being continually exploited in each quality review cycle. Quality improvement activities are informed by an active Advisory Board, which is demonstrably representative of the Estonian aviation industry. Additionally, the Academy's programmes conform to the certification requirements of the Estonian Civil Aviation Administration, where required. Notwithstanding this certification and higher education institution quality culture, the Panel are of the opinion that a very high bar should be set for the safety culture standard in an institution devoted solely to aviation training and education. Therefore the Panel gave considerable attention to the onus for a safety ethos in an academy that is uniquely dedicated to preparing graduates for the aviation industry. More so than other sectors, the issue of safety is at the heart of the aviation industry. This is reflected in the curricula of the certified programmes but the Panel make recommendations on the further development of a distinct safety culture as a hallmark graduate attribute of the Academy.

Academic ethics are underpinned by the Academy's core values of openness, courage, enthusiasm and devotion, combined with teamwork principles of mutual respect, adherence to rules, sincerity, trust and direct communication. The Academy relies to some extent on its small-scale environment to differentiate cases of non- compliance with codes of conduct and guidelines as a learning experience (not documented) or a discipline matter, as appropriate. These informal and formal approaches are conducted in the context of clear regulations and operational procedures. The international document 'Just Culture in Aviation Safety Principles' is recognized within the Academy as a basis for enhancing the work and study environment. The Panel believe that this document could be exploited to greater

effect, not suggesting that it is required to address deficiencies but as a tool to raise the culture within the Academy to a world class standard.

The Academy's significant contribution and reputation at national level has perhaps reduced its openness to the international market. Internationalisation is not yet an integral part of the Academy's day-to-day life, nor at a level that matches the vision. This is despite excellent work in the past and at present to develop this aspect through increasing the number of courses taught in English, the strong English language skills of students and teaching staff, and efforts to promote ERASMUS exchange partnerships. Reaching the critical mass of international activity required to match the Academy's vision will need greater prioritization at senior management level and buy-in from all staff. Preceding this however is a need for a shared understanding of internationalisation, ambitious strategic targets and specific seed-funding to resource an internationalisation strategy. Specifically, there cannot be a narrow view of internationalisation as being limited to the mobility of staff and students on a limited range of ERASMUS opportunities. Internationalisation and global engagement needs to pervade every aspect of the Academy's daily operations such that it becomes an integral part of the Academy's work and study environment. Furthermore, there needs to be a recognition that a teaching institution's international profile is inextricably linked to its international research reputation. Thus internationalisation, not least in making EAVA a destination of choice for international students attracted by an excellent teaching and learning environment, cannot be divorced from developing the research profile of staff – an area requiring significant support and nurturing.

Teaching is provided by enthusiastic and dedicated staff members in a student-centred environment. The need for a balance between theory and practice, reflected in the academic and industry experience of staff, is recognized in an Academy that provides an enviable combination of high quality education and training to its students. Needless to remark this appropriate balance of theory and practice is not readily appreciated by some of the first and second year students! The Academy is attempting to inject more aviation-related material into modules to motivate such students to stay the course. Looking to the international ambitions of the Academy, a careful path needs to be charted in respect of the staff cohort, to achieve a career development and reward structure which values both the excellent researcher and highly experienced practitioner. The Academy must take a bold step and now embark on a long-term strategy that will position it as a highly respected research-led teaching institution in the global aviation community. This will require a fundamental review of recruitment criteria and career development investment. It will require, inter alia, workload models that nurture the early-career researcher, promotional criteria that reward both teaching and research, publication targets, grant proposal mentorship and differentiated research requirements among staff positions such that the role of the practitioner-based teacher is highly valued. This challenge is not unique to the Academy and is an ongoing issue for professional schools in higher education institutions worldwide.

Study programmes are designed, developed and continually updated through close collaboration between the Academy and its stakeholders, not least the highly representative Estonian aviation cluster. Study programme boards have student representation. The study process is such that personal feedback is an integral part of the student learning experience.

The learning support systems are highly effective. The dropout rates are low in comparison with other higher education institutions in Estonia. Nevertheless, the Panel would hope that the Academy would not rest in efforts to reduce dropout rates further, given the relatively high level of infrastructural investment required by the State to provide each student place in this impressive national facility.

Regarding research development and other creative activity (RDC), there is a clear understanding on the part of senior management of the need to increase the Academy's level of research activity and impact. Less evident is the degree of understanding of the standard required to compete for funding in the international research landscape. The Academy is somewhat hindered by national legislation which makes it difficult for it to access state research funds. On the other hand, the Academy is highly respected by the national aviation sector and through the Estonian Aviation Cluster it has the opportunity to become the research and development wing of a growing Estonian aviation community. The Academy needs to internationally benchmark its niche expertise and thereby identify international groupings of complementary partnerships who will assist it in winning international research work packages to Estonia. Management of this step change in research capacity and activity requires that the Vice-Rector for Development and the RDC Council take advantage of international advice and expertise in growing the research and development culture within the Academy. The importance of this step change in respect of growing the Academy's future role as an international player in education and training cannot be over emphasized.

The Academy's societal contribution is significant, befitting its national role as an ambassador, servant and leader for the aviation community. This contribution spans an interconnected chain of stakeholders from motivating school children to take an interest in aviation all the way through to providing lifelong learning opportunities for aviation professionals. However the Academy must not rest on its laurels as a highly respected national institution and must be flexible enough to embrace change, providing a spectrum of future services from ab-initio vocational study to first and second cycle degree education to continuing professional development. The close collaboration between the Academy and the industry, public and private, provides a firm foundation for further development of second cycle higher education qualifications allied to increased research and development activity. Such a scenario would synergistically grow the international reach of the Academy while supporting the Estonian aviation sector in building on Estonia's international reputation for innovative leadership in e-technology.

Commendations:

The Academy is commended on its study process and learning support system that is demonstrably student-centred and which includes ongoing personal feedback to students. The work and study environment is excellent, through a combination of high quality infrastructure and a staff-student collegiate atmosphere founded on clearly enunciated teamwork principles. The Academy has a clear vision and this is being driven by a strong and energetic senior management team, blending diverse management experience both internal and external to the aviation sector.

The Panel commend the Academy's achievement in respect of its student-centred ethos, which underpins Standard 10, Learning Support Systems. These systems were fully stress-tested in 2020 when national public health guidelines forced educational institutions worldwide to close their doors and cease contact teaching to urgently reduce the exponential growth of Covid-19 virus incidences. The Academy responded quickly to the potentially damaging interruption of studies late in Academic Year 2019/2020 in a manner that is worthy of recognition. Use of technology, the dedication of teaching staff and the learning support functions came together to prevent any serious disruption to students' learning. The Academy has continued to build on this experience over the last few months to roll out a blended learning environment in Academic Year 2020/2021, given remaining uncertainty

over possible national public health restrictions in coming months. The Panel found through interviews with students and recent graduates that the blended learning environment was introduced in a seamless manner, that belies the crisis management required, such that the Academy's high quality student learning experience has been maintained during increased reliance on digital platforms.

Areas of concern and recommendations:

The Accreditation Panel found the Academy to be a student-centred, well-managed and resourced entity with many strengths that underpin its conformity to requirements in full (ten standards) and in part (two standards). The Panel's comments and recommendations for improvement are advanced in a spirit of partnership, building on the goal of institutional accreditation to support the Academy's further proud development.

The Panel determined that, once again, recommendations are required to strengthen internationalisation and research. Additionally, advice is provided in respect of enhancing graduate attributes in respect of aviation safety culture.

Despite high level dedication to progress since the last Institutional Accreditation (2014), the Panel determined that the Academy is not yet developing its potential in respect of being an international partner, ambassador and engine of growth for Estonian aviation enterprise through ongoing weaknesses in respect of internationalisation and research. Recommendations regarding internationalisation and research are to some extent interlinked, given that a higher education institution's international reputation is, in part, dependent on its research reputation. The Panel endorse the vision of the Academy to be a valued international player, recognise its many strengths and applaud its ability to accurately recognise areas for improvement. However, the Panel is concerned that the current rate of progress in respect of internationalisation and research impact is not keeping pace with global competition and therefore these standards require aggressive management of change to current practice.

Separately, the Panel recognises the Academy's diligence in meeting the safety standards required for ongoing certification by the Estonian Civil Aviation Administration. However, there is a further opportunity relevant to a HEI in this context – not only to meet certification standards but to excel. The Panel wishes to encourage the Academy to go further and to make safety culture a proud hallmark of graduate attributes across all of the Academy programmes, certified or not.

The primary recommendations related to Standard 5, Internationalisation, are summarised as follows:

- The term 'internationally recognised' may be implied by the term 'highly-valued' in the revised vision statement of the Academy. Nevertheless, it is recommended that the Academy's international ambitions be unambiguously stated in the vision statement for 2025
- Allied to Standard 1, Strategic Management, a multi-faceted approach to 'internationalisation' is required, rather than just being reactive to international mobility schemes and such like. It is recommended that management take a wider view of the term 'internationalisation', build consensus on this across the Academy and invest in a proactive approach – perhaps including a senior management post and/or an international member of the Advisory Board

- It is recommended that much greater stretch targets be set, prioritised and supported to integrate international aspects into all the main processes of the Academy
- There is a need to build consensus and buy-in across the Academy on the value of building international reputation and the magnitude of the task required, which will require sustained activity across a range of integrated collaborations within the Academy. Consideration should be given to dedicated leadership and support on this significant multifaceted task, which may require support to staff through a senior management post, an international member of the Advisory Board and perhaps a dedicated International Office with adequate start-up funds and expertise
- Allied to Standard 8, Learning and Teaching, the international competitiveness of students could be enhanced by further internationalising the student experience through a holistic approach to an international atmosphere within the Academy. It is recommended that the Academy explore the barriers to international mobility of students and proactively address these
- Allied to Standard 11, Research, development and/or other creative activity, it is recommended that the growth of RDC in the Academy be conducted by selecting niche areas of research expertise and developing these areas with international partners in a twin track approach to building research and internationalisation.

The primary recommendations related to Standard 11, Research, development and/or other creative activity, are summarised as follows:

- Allied to Standard 1, Strategic Management, it is recommended that the vision of EAVA for 2025 needs to be stronger in respect of research activity, with ambitious strategic objectives in SP 2021-2025. Management needs to develop a deeper shared understanding across the Academy of the high benchmark for research impact in an aviation institution of international repute
- It is recommended that the Academy do a comprehensive international benchmarking to better understand the potential of niche expertise applications (e.g. UAV, integrated ATC, ATM procedures, flow simulation…) and develop international research partners built on selected niche expert strengths of the Academy
- Allied to Standard No. 5, Internationalisation, there is a risk that the Academy could be left aside of the larger HEI community in Europe as competitors gain ground and reputation. It is recommended that the Academy map strategic academic partners for increasing the academy's participation in European research projects. The Academy should twin with synergistic partners and apply to calls of the forthcoming Horizon Europe "widening" programme
- There is a lack of a clearly formulated, long-term strategy for R&D and its role for EAVA, particularly on its articulation with the educational programmes and the growth of academic staff competences. It is recommended that the Academy Identify areas which contribute to the improvement of both teaching / learning and the long term growth of competences and expertise of academic staff and set priorities accordingly

- Allied to Standard No. 6, teaching staff, the number of teaching staff with higher academic degrees (Master, PhD) could be higher. It is recommended growth in RDC activity at the Academy be closely allied to staff career development in a twin track strategy
- It is recommended that mentorship be provided to staff, with seed funding if required, in the skill of preparing and presenting strong research proposals to EU funding calls
- Low funding of R&D projects due to the limited needs of R&D expertise from the Estonian aviation ecosystem limits the Academy's development. It is recommended that there be improved external communication about the Academy's selected niche areas of expertise, not least by highlighting research on the Academy's website.

The recommendation from the Panel to encourage the Academy further, related to Standard 3, Quality Culture, in respect of making safety culture a proud hallmark of graduate attributes on all programmes, is as follows:

- Exercising its responsibility to go beyond the requirement of the standard and guidelines, identifying best practice that the institution could benefit from, the Panel recommends implementation of the Compliance, Quality & Safety Management system across all operations of the Academy and not just at certain specialties of it.

	conforms to requirements	partially conforms to requirements	does not conform to requirements	worthy of recognition
Strategic management	X	☐	☐	☐
Resources	X	☐	☐	☐
Quality culture	X	☐	☐	☐
Academic ethics	X	☐	☐	☐
Internationalisation	☐	X	☐	☐
Teaching staff	X	☐	☐	☐
Study programme	X	☐	☐	☐
Learning and teaching	X	☐	☐	☐
Student assessment	X	☐	☐	☐
Learning support systems	X	☐	☐	☐
Research, development and/or other creative activity	☐	X	☐	☐
Service to society	X	☐	☐	☐

Key to evidence

E: interviews with employers and other external stakeholders

M: interviews with management staff

S: interviews with students

A: interviews with alumni

T: interviews with teaching staff

R: inspection of resources (e.g. library, laboratories)

SER: Self-Evaluation Report

1.1. Strategic management

Standard:

Development planning at the higher education institution is purposeful and systematic, involving various stakeholders. The higher education institution regularly evaluates the achievement of its stated objectives and the impact of its activities.

Guidelines:
The HEI has formulated the objectives and key results for its core activities – learning and teaching; research, development and creative activities, and service to society – taking into account national priorities and the needs of society, focusing on its strengths and reducing unnecessary duplication both within the HEI and throughout higher education in Estonia. The HEI is managed in accordance with its mission, vision and core values, as well as objectives set out on the basis of those principles. Achievement of the objectives and effects of the activities are evaluated regularly. Creativity and innovation are supported and given value in both core and support activities. Membership of the HEI (including students), as well as external stakeholders, is involved in developing and implementing the HEI's development plan and action plans. The HEI members share the core values that serve as a basis for the institution's development plan.

Indicator:
The rate of achieving the objectives set in the development/action plan (key results)

Evidence and analysis

The Panel determined that the Academy is appropriately managed in accordance with the governance requirements of the Statutes of the Estonian Aviation Academy, established on the basis of the Higher Education Act and the Government of the Republic Act. The Academy continues to have a clear and appropriate structure of management, which has been recently re-aligned to better address challenges of silo mentality, whereby high level support units can alienate rather than support the frontline departments. The management structure addresses its dual responsibilities in respect of higher education at first cycle and management of its certified functions as ATO, MTO and ATSTO.

The rectorate now comprises the Rector, three Vice Rectors (Education, Development, Administration), seven Heads of Department, a Head of Finance, a Personnel Manager and a Quality Manager (SER, M). The new structure emphasizes the student-centred focus of the Academy through a grouping of five of the seven departments under the Vice-Rector for Education (renamed from 'studies'). The highest collegiate decision-making body of the Academy is the EAVA Council, chaired by the Rector. At least 20% of the Council membership consist of the representatives of academic employees and of the student body. The other members are the Rector, the Vice rectors and the heads of structural units (SER). Strategic planning and implementation of objectives is informed by a 12-member Advisory Board, currently chaired by the manager of the Estonian Aviation Cluster (SER, E).

The rectorate meets weekly. The EAVA Council meets quarterly in ordinary session, with provision for extraordinary meetings. A meeting of all staff is held quarterly. The Advisory Board normally meets twice a year. The Board met three times in 2020 and it is planned that meetings will be quarterly from 2021, further intensifying EAVA's connection with the aviation sector

The current strategic plan (SP 2016-2020), building on existing strengths, sought to stretch staff and broaden horizons beyond a monopolistic national role and to embrace the opportunities and challenges of the EU open market. The plan was to increase its role as a valued international training organization, increase its activity in aeronautical research and development, and ensure economic sustainability. The Academy has the ambition to become a recognized aviation competence centre. The Academy's national mission has continued to be successfully discharged since the previous Institutional Accreditation in 2014. However, progress on growing internationalisation and research impact has fallen short of the strategic ambition. The Academy is now drafting the next strategic plan (SP 2021-2025) under the new Rector appointed in January 2020, following the expiry of the previous incumbent's five-year term of office. The new Rector has lost no time in evaluating the ineffectiveness of the Academy in delivering ambitious goals that are heavily dependent on change. A flat-network organizational structure has replaced the previous direct-subordination tree structure, to greater empower the effectiveness of the Academy in delivering strategic goals. There have been new appointments to senior roles, which has both brought external and diverse experience to the Academy while happening also to gender balance the senior management cohort of rectors and vice-rectors. The relationship between the Research Council and senior management has been strengthened, under the chairmanship of the former Vice-Rector for Development working with the newly appointed vice-rector. This aims to enhance the shared sense of responsibility across specialist units to increase their research activity and impact. (SER, M).

During interviews with management staff, the Panel learned of recent decisions that will inform the SP2021-2025. The Academy's development planning is firmly rooted in a SWOT analysis approach to its five-yearly plans, with allowance for yearly updating if required. No update changes were required in the period 2016-2020 but openness to this dynamic approach will serve the Academy well in the 2021-2025 period, in the context of a global pandemic. The vision for 2025 is for EAVA to be a highly-valued aviation education, training and development partner for stakeholders. The vision will be achieved through three strategic goals:

- To be an independent and internationally recognised professional higher education institution.
- To offer diverse and future technology oriented high-quality training and development services.
- To be engaged in active international partnerships and offer study programmes in English.

The Vice-Rector for Development is currently leading the construction of SP 2021-2025. As heretofore, this process is being conducted in close cooperation with staff, students, the Academy's Advisory Board and external stakeholders, notwithstanding current restrictions on normal working practices due to the global pandemic (M).

Achievement of strategic objectives and impact is regularly evaluated. Implementation of the strategic plan is managed against finely grained performance indicators. The Strategic Plan is supported by an Annual Implementation Plan. Progress is monitored twice a year by the EAVA Council and EAVA Advisory Board together with annual satisfaction surveys of students, alumni and employers (SER).

EAVA is the only professional HEI in Estonia dedicated to education and training for aviation enterprises and organisations, yet EAVA has developed links with other national HEI's to limit unnecessary duplication in teaching and to advance research projects. This involves cooperation with the University of Tartu, Estonian University of Life Sciences and Tallinn University of Technology, particularly in respect of modules in the social sciences and courses in electrical engineering and communication. These include Signal and Signal Processing, RF Electronics, Sensorics, Cognitive Communication – Tallinn University of Technology; Electrotechnics – Estonian University of Life Sciences; Intro to Philosophy, Estonian Orthography and Composition, English, Developing Physical Capabilities – University of Tartu. (SIS https://eava.ois.ee/). Some duplication has been found necessary in response to providing an optimal student-centred learning environment at the Academy. Research links have also been forged (SER).

The core values of openness, courage, enthusiasm and devotion were developed in consultation with the vast majority of staff. The values are published on the EAVA Intranet and public website. Additionally, the values are underpinned by five principles, published on the Intranet, encouraging high quality operational standards based on mutual respect, adherence to rules, sincerity, trust and direct communication (SER).

The need for greater impact in the field of research, development and creativity (RDC) was identified as a key factor in the last Institutional Accreditation. This requires targeted support to staff in developing their research profiles and mentorship in bidding for research funding, especially through international collaborations. The SER acknowledges that part of the management structure reorganization is to address ineffectiveness in the rate of progressing the research and development mission. It is not self-evident that this will be achieved under the new structures. The EAVA mission and vision is very clear on high quality education and training but less so on its role as a driver of innovation in aviation. The Panel were impressed by the working relationship of the Vice Rector for Development and the Chair of the Research Council in their joint endeavour to operate in a cross-cutting partnership role with the heads of units to support EAVA's growth in respect of research and innovation (M).

The Panel noted that the Academy resources devoted to increasing internationalisation are largely devoted to the operational management of student exchange mobility. Many HEI's in Europe have found that reaching a critical mass of international activity requires strategic guidance under a dedicated role at senior management level. Such posts are variously found under titles such as vice rector for 'internationalisation', 'global engagement', 'international relations'. This has been found to be highly successful in some institutions, while others have found little added value from such a position. The Panel cannot be prescriptive on the effectiveness of such a role but raise awareness of the need for some level of dedicated strategic leadership and resourcing of efforts to break into an already mature competitive market.

The Panel found that the senior management team is fully aware of the need to build its international reputation and 'future technology-oriented development services'. However, the Panel is less confident that the Academy as a body has yet to appreciate the scale of the bottlenecks to be overcome. Establishing a foothold in the international league of HEI's will require a step change in its performance indicators measuring internationalisation and research impact. Nevertheless, given its national importance which provides financial stability, the Academy is in a strong position to take a long-term strategic approach to developing its vision and full potential as a recognised and valued international training organisation allied to excellence in aeronautical research and development. This

will not be easy in circumstances where the five-year term of office of a rector favours, at best, a medium-term strategic approach, not to mention the fall-out from the current Covid-19 pandemic which will create compelling short-term pressures on the aviation industry and, by association, the Academy. The existing system of development planning in coordination with the EAVA Advisory Board and the EAVA Council needs to be ever-mindful of long-term international opportunities in addition to inevitable short-term national challenges. Failure to tackle this now will increase the scale of the problem even further – time has been lost since the last institutional accreditation. The draft vision of the proposed SP2021-2025 does not specifically include the word 'international', while the draft strategic goals does not specifically include the word 'research'. The Panel is satisfied that the management structures are adequate but would be remiss if concern were not expressed that the proposed SP2021-2025 appears to lack the aggressiveness required to tackle a step change in the Academy's collective internal concept of internationalisation and research.

The commendable active engagement of Advisory Board members to development planning ensures national input to the priorities of EAVA, while affirming the high reputation of the Academy among Estonian aviation enterprises. Nevertheless, consideration could be given to inviting international expertise onto the Advisory Board to assist guidance in achieving the Academy's international ambition.

Conclusion

The Academy conforms to requirements in respect of the standard for strategic management.

The development of strategic objectives, conducted on a five-year planning cycle, is achieved in a systematic and inclusive way, involving all stakeholders. The strategic and implementation plans are developed and monitored in consultation with the EAVA Council and EAVA Advisory Board. The Council membership includes representatives of academic employees and of the student body, to a level of at least 20%. The Advisory Board is active, engaged and strongly representative of Estonian aviation enterprises. Achievement of strategic objectives is supported through alignment of the mission, vision and core values. Core values are additionally underpinned by five principles applicable to daily operations.

The EAVA mission and vision is very clear on high quality education and training. The Academy's key role as the sole national HEI in support of aviation enterprises and organisations is commendably discharged, as is management of its certified functions as ATO, MTO and ATSTO. The Academy also responds to its unique position as a specialist HEI in respect of playing a leading role in its service to society as a promoter of interest and awareness of aviation matters.

Co-operation agreements exist with three other HEI's in Estonia to ensure minimal duplication of effort in respect of the social sciences, courses in electrical engineering and communication and to collaborate on specific research projects.

The Academy has a strong and energetic management team and has recently adapted its management structure to a flatter network that will better empower its staff to achieve shared goals.

Success in the development of the Academy as the national provider of graduates for the aviation industry is not as strongly reflected in its performance as a leader in research, development and creativity for the aviation sector. Although the need for growth in this activity is recognized in strategic

planning (top-down) there is not yet sufficient evidence of traction among the full cohort of academic staff (bottom-up). The objectives of the draft Strategic Plan 2021-2025 do not unequivocally enunciate 'research' as a strategic priority. The Academy as a body has yet to appreciate the scale of the bottlenecks to be overcome in establishing a foothold in the international league of HEI's, a process that is inextricably linked to research metrics.

The Academy resources devoted to increasing internationalisation are largely devoted to the operational management of student exchange mobility. Achievement of the Academy's goal to be an internationally recognised professional higher education institution may require a dedicated senior management role and targeted resourcing to break into an already mature and ever-increasingly competitive market.

Strengths

- A strong and energetic senior management team
- An active and engaged Advisory Board strongly representative of Estonian aviation enterprises
- Alignment of the mission, vision and core values, underpinned by clearly enunciated principles, with values and principles integral to the ethos of an institution preparing graduates for the global aviation industry

Areas of concern and recommendations

- EAVA is not yet devoting sufficient targeted resources and energy to achieving international recognition and becoming an international player. A multi-faceted approach to 'internationalisation' is required, rather than just being reactive to international mobility schemes and such like. It is recommended that management take a wider view of the term 'internationalisation', build consensus on this across the Academy and invest in a proactive approach – perhaps including a senior management post and/or an international member of the Advisory Board - to raise brand recognition internationally through a series of initiatives over a range of engagement types. This recommendation is strongly allied to Standard No. 5
- The strategic development of the Academy as a centre for research and innovation is not achieving the same level of success as its role in training and education. It is recommended that the vision of EAVA for 2025 needs to be stronger in respect of research activity, with clear strategic objectives in SP 2021-2025 for actions that will progressively grow research capacity, activity and impact over the long term. Management needs to develop a deeper shared understanding across the Academy of the high benchmark for research impact in an aviation institution of international repute and ensure that allied strategic objectives and drivers have full staff 'buy-in'. This recommendation is strongly allied to Standard No. 11

Opportunities for further improvement

- Refine KPIs to ensure that progress on building RDC and international brand recognition is given high priority, can be accurately monitored and rate of progress communicated annually across the Academy in a shared spirit of collective endeavour

1.2 Resources

Standard:

The higher education institution develops its staff and manages its physical and financial resources in a purposeful, systematic and sustainable manner. Internal and external communications of the higher education institution (including marketing and image-building) are targeted and managed.

Guidelines:

The HEI has an efficient staff development system. The principles and procedures for employee recruitment and development are based on the objectives of the HEI's development plan, and are fair and transparent. The career model of academic staff motivates talented young people to start their academic careers, creates opportunities for progress, and ensures sustainability of the academic staff. The principles for employees' remuneration and motivation are defined, available to all employees, and observed.

Allocation of the HEI's financial resources is based on the objectives of its development plan. The management and development of its infrastructure (buildings, laboratories, classrooms, IT systems, etc.) are economically feasible. Sufficient resources are available for updating the infrastructure for education and research, and/or a strategy exists enabling the HEI to acquire them.

A sufficient amount of textbooks and other learning aids are available, they are of uniformly high quality and accessible. Publicly offered information about HEI's activities (including study programmes) and the findings of external evaluations is correct, up to

date, easily accessible and understandable. The HEI has a system to popularise its core activities and academic career opportunities. The HEI has a functioning system for internal and external communications, relevant to the target audiences. The HEI members are informed of the decisions relevant to them in a timely manner.

Employee satisfaction with management, working conditions, information flow, etc., at the HEI is surveyed regularly and the survey results are used in quality improvement activities.

Indicators:

- *Distribution of revenues and costs (incl. RDC activities)*
- *The results of the staff satisfaction survey*

Evidence and analysis

Human resources and development

EAVA follows their 2016-2020 Development Plan to attract, retain and develop staff (SER). The focus has been on continuous development of staff which the Panel acknowledges as a healthy policy. Selected competencies (teaching skills, didactics, digitalization and leadership) have been identified as important areas. An added option is to participate in external training, conferences and mobility programmes. Staff in certain positions have the responsibility and possibility to engage in RDC. (SER)

Staff members can organize their work independently (M), thus having influence in their own working hours arrangement and location. With this EAVA represents a modern way of working arrangements. Currently, EAVA employs foreigners, which creates a more international environment for the students and staff alike. Certain instructors can teach their topic across specialties thus increasing efficiency considerably (T).

The Academy introduced a new staff motivation system during the assessment period. EAVA management rewards high performing individuals through measurement of various KPIs by a diversified set of transparent remuneration, benefits, bonuses and non-financial motivators. Issues relating to job satisfaction are observed by the management. Bi-annual staff satisfaction surveys provide evidence that the level of staff satisfaction is high and has remained high for an extended period (SER).

Although there is no procedure in respect of a set career path (M), the new career development system (2019) includes opportunities to move from teacher level towards higher positions. EAVA has the possibility to support Master's Degree and Doctorate studies and enable movement between various specialties (M). EAVA allocates €1000-2000/annum for each staff member´s training and development (SER). Additional allocation may be available if studies take place abroad. Personal preferences are taken into consideration when career development plans are defined. Plans are usually made for a three year development horizon (M).

Newly recruited staff members have to possess adequate English language skills. Mentors are used to familiarize newly hired persons efficiently to EAVA systems (SER). So far, an adequate to strong competitive field has existed for vacancies, up to 16 candidates per position, however increased salary expectations have posed a challenge during recent hiring processes (SER, M).

EAVA salary rules are clearly defined and are openly communicated to the staff. The principle is understandable, consisting as it does of Basic salary, Performance bonus and Development Activity bonus. Salaries have been revised annually (SER). According to the evidence, EAVA´s local salaries are competitive to other HEI's in Estonia, although there are signs that remuneration may become an issue in the future (SER, M). Consideration has been given to attract and engage visiting industry specialists, whose salary levels may be higher than that of the local standard level (SER, M).

EAVA has recently restructured to ensure that functions such as R&D are not seen as exclusively centralised ('management') and remain the responsibility of each specialty department. A new specialty, Aviation Management has been established (SER, M).

A formal EAVA Recruitment Procedure exists and this is followed during public and/or internal competitions to fill a vacant post. There is good evidence that this procedure is fair and transparent (SER).

There is a wish to engage more masters qualified, and especially doctorate level, of staff members (M). According to the Rector, these are particularly hard to find, mostly due to competition with other HEIs in Estonia which are located in Tallinn, and the small scale of the aviation sector in the country. Should the lack of recruiting highly educated staff members prevent EAVA from developing its current and future educational mission, consideration must be given to solving this challenge in the future. As EAVA does not have a master's degree programme of its own, it currently lacks the possibility to produce its own aviation-oriented offspring. The Rector has duly identified this issue and its effects to the academic staff (M). See also Section 1.12 in respect of offering qualifications at master's degree level.

One of the goals in the Academy's Strategic Plan was to ensure a sustainable organization with the focus on learning. This goal has been reached over the years and seems to stand on a solid base. EAVA has been able to keep the student/staff ratio at a constant level which has also benefited financial performance of the Institution (SER).

Internal communication

All necessary means and tools for efficient internal communication exist at EAVA, including new intranet. Both students and staff are pleased with the level of information provided (M, T, S). There is an open-door policy at the Academy, which is highly regarded by the staff and students alike (T, S). Additionally, it became obvious during the interviews that the Academy has managed to maintain a high level of two-way personal interaction in the form of regular meetings and ad-hoc discussions. Foreign staff members equally expressed their satisfaction with internal communication, a sign of equality among staff, regardless of their origin or native language (T).

The Management advised during the site visit that an Emergency Response handbook exists (M).

The Rector highlighted during 'corridor-discussions' that the Academy has recently introduced a bi-lingual notification system – all news or notifications which are sent to the 'all' mailing list are now not only in Estonian but also in English.

External communication

EAVA´s external communication target groups have been well identified. Most external communication is targeted towards admission marketing, i.e. attracting new potential high capacity students (M). While engaging in such marketing, mainly through events, radio campaigns and Social Media marketing, the side product is increased brand awareness of EAVA in the domestic market. In a recent study, EAVA´s spontaneous awareness score was 7% (SER), a figure which satisfied the marketing department (M). The Academy is targeted for a niche market; therefore, such level of awareness was considered satisfactory. So far, the target group that EAVA has been able to reach the best is also the right one (those between 15 to 24 years of age) (SER).

After Covid-19, the blow suffered by the aviation industry may affect interest, with school-leavers tempted to apply to professions other than aviation in fear of a weakened aviation employment market. The 2020/2021 period and some academic years beyond may require additional marketing efforts to boost awareness of the industry.

Marketing resources were reported to be at a level that was deemed satisfactory to the Head of the Marketing Department (M).

There was very little if any evidence of International marketing presented. The only exception to this is the use of Social Media, which is domestic and international at the same time. The recent, new internet site serves both markets, and is available in English and Estonian languages. Once EAVA defines its international ambitions more closely, marketing messages should be targeted accordingly.

Financial management

The main source for funding is coming from the State of Estonia. Students receive their education and training free of charge based on Estonian legislation. Funding is granted based on various performance metrics, such as graduation times (SER). Covid-19 caused delays in graduation times and it remains to be seen how this affects the Academy's funding.

The Academy also earns revenue through commercial activities, arranging commercial continuing training courses and laboratory services. Use of existing resources in such a way is very positive and serves the society well in its part. The Academy also received external funding for various development programmes, for example from the EU. External support from partnership companies has increased substantially since 2016 (€64,000) to 2019 (€208,000). The support ensures a reliable source of new graduates to join the staff of the aviation sector in Estonia and has been therefore important for partnership companies (A).

EAVA´s own revenue has decreased every year during the accreditation period, particularly from 2016/2017 levels (SER). The reason for the decrease was explained with less demand for EAVA´s training services, which is their main source of revenue, outside of state support (M). At the same time, the Rector mentioned that one of the purposes of EAVA is to create a basis for various aviation sectors to self-develop. Perhaps this partially explains the reduction, however the Panel suggests that EAVA find ways to revitalize their own revenue generation sources through creation of e.g. training or R&D products/services which are in demand.

Simulators were mentioned to produce around 10% of own revenue (M). A consideration is that simulator hourly rates are constantly set to match actual costs with a margin to guarantee their upkeep. Some simulators are already aging, especially the Aircraft FNPT II/MCC Mechtronix unit. Updates require funding to keep the device properly certified. The same equally applies to the ATC simulator.

It was also noted that both aircraft and helicopter training devices have a rather low percentage of use/training hours per year. A question arises if such low hours (below 500/year for the aircraft and even less for the helicopter) yield sufficient value to justify future investment in owning the devices or if such service should be outsourced, especially in the future, when current devices come to the end of their useful lives.

Education allowances and grants are a relatively small amount from the total expenditure, and the trend over the years has been stable.

Labour costs have been stable year to year, even if salaries have increased 5-10% annually. This was explained by the use of freelance staff, which has reduced costs.

Administrative costs have not only remained stable but have decreased during the period. This is an achievement worth mentioning as it is very easy to inflate such costs. This demonstrates very careful cost control and the careful use of funds towards core education functions.

Annual average for investments has been *circa* €115,000. Actual spending has varied according to investments made. The management are satisfied with their current investment capabilities (M).

Infrastructure

EAVA´s study centre is state-of-the-art among any similar institutions, even in international comparison. This is a great benefit for students and staff alike, and their satisfaction is easily evidenced with performed satisfaction surveys. The Centre can fully support any international ambitions as it provides an impressive training centre for all students.

EAVA have used the space efficiently and changed some areas to arrange more space for teaching over the years. The management is clearly open to release office areas for the purpose of instruction, which is a positive sign (R).

Information Technology development and management

The management of EAVA stated that the level of IT is on a satisfactory level. Furthermore, IT security was mentioned to be up to date as a specialist was engaged in 2018 to manage this part of EAVA´s operations. With this, the management expressed their satisfaction towards the data protection level at the Academy (M).

The EAVA IT department oversees ICT related issues of various simulators:

- Mechtronics FNPT II MCC (aeroplane) (R)
- EC135 FNPT II MCC (Helicopter) (R)
- Air Traffic Control (ATC) simulator (R)
- UAS simulator (R)
- GNSS simulator

Of the above devices, the Mechtronics FNPT II, ATC and EC135 simulators require Estonian Civil Aviation Administration (ECAA) approval certificates, which are adequately placed, are visible on-site and can also be found on EAVA´s website (R).

Distance learning was already a focus area for the Academy before the Covid-19 mobility restrictions made its use a priority. The IT department was able to facilitate EAVA staff and students in the move to work/studies from home during the Covid-19 crisis when the building was periodically closed to students. The transition took place in a very rapid and efficient way, which made it possible for the Academy to continue theoretical instruction during lock-down as planned. Practical training sessions were hindered by the lock-down and were delayed. Some of the delays were recovered during the summer season and the situation has stabilized.

EAVA is collecting information (including sensitive personal details) regarding students and is effectively a record holder. EAVA´s website offers information regarding GDPR and its applicability at EAVA (R), and based on this there is evidence that the setup requirements of GDPR have been duly observed. However during interviews with staff it was noted that detailed awareness of day-to-day GDPR responsibilities (EU Data Protection Act) was not high among all team members and minor breaches could inadvertently go unreported, despite mandatory requirements (M).

Learning material

The Academy has set up a large aviation related library for the benefit of the students. While study materials are being progressively moved from physical books towards e-learning material based on web applications, EAVA´s library still carries an important function by providing a wide selection of physical study books. Use of the library has been professionally arranged and is very helpful when students need a wider range of material for their studies and research (R).

Dissemination of public and internal information

EAVA has recently introduced a new website for all users to visit and search information regarding the Academy and its various functions. The site is a transparent and useful source of basic information (R).

For internal communication, an intranet solution has been recently made available. The management mentioned that active face-to-face or personal phone call contacts are widely used to exchange information when necessary. The Panel was pleased to learn that personal contacts are appreciated and maintained during these exceptional times (M).

EAVA markets its vacant positions through various sources, including social media such as LinkedIn. The Panel observed that the information text seems to be mainly in the Estonian language only. Recent examples include 'Education & Development services specialists / Haridus- ja arendusteenuste spetsialist', where only the short introduction of the position offered was in English, and 'Lennujuhtimise Juhtivinstruktor, which was only in the Estonian language (R). The Panel would like to draw the attention of the Academy to Section 1.5 Internationalisation, which refers to the paper Udam, Maiki; Seema, Riin; Mattisen, Heli (2015), *Eesti kõrgharidus institutsionaalse akrediteerimise tulemuste taustal ehk Mida juhid peaksid teadma,* Eesti Haridusteaduste Ajakiri, nr 3(1), 80–102, which emphasises the importance of integrating international aspects into all the main processes of an institution of higher education. While a criterion for appointment to a particular post in the Academy might require fluency in Estonian, this should not preclude advertising in both Estonian and English. The communication team should pay attention to language selection in a consistent way.

Employee satisfaction

According to EAVA´s internal studies, employee satisfaction has constantly been better than satisfactory. Comprehensive evidence is offered through the results of the Staff Satisfaction Survey. The Panel was able to confirm the SER's reported findings of satisfaction surveys during interviews with the staff. Work satisfaction is on a very high level, and most importantly, students are very satisfied with the way the staff of the Academy works with them. This message was received several times from various sources, e.g. current students, alumni and cooperation partners (M, T, A, S, E).

Therefore, the Panel is pleased to state that there were no negative findings related to satisfaction surveys results. The Panel was equally impressed and pleased to note the good team spirit and cooperation with students.

Conclusions

The Academy's current practice conforms to requirements for a HEI.

Its general practices in areas of human resources and development thereof, hiring processes, staff satisfaction and motivation systems form a good basis for continued success with the work of the

Academy. Financial management and use of physical resources are well utilized and taken care of. Information technology is up to date, and systems and training devices are upgraded gradually as required. Communication channels, both internal and external, are working as expected. The management and staff were able to seamlessly manage the transition from classroom studies to online systems in an exemplary manner during the Covid-19 crisis. Management, staff and also students experienced a higher workload during the lockdown caused by the pandemic.

Strengths

- Excellent financial management without inflating administrative costs, ensuring effective use of funds towards core education functions
- Flexible use of the resources while transitioning from contact to online delivery during Covid-19 restrictions
- High employee and student satisfaction according to surveys

Areas of concern and recommendations

- NIL

Opportunities for further improvement

- Staff Satisfaction Surveys could be a yearly event for faster tracking of trends among staff
- Explore more ways to revitalize revenue generation sources through creation of training and R&D products/services which are in demand
- Notwithstanding the effective distribution of information internally and nationally, once EAVA defines its international ambitions more closely, the marketing messages should be targeted accordingly, with details in both Estonian and English languages
- Full awareness of responsibilities under the EU Data Protection Act is not high among some team members, and the mandatory requirement to report even minor breaches of GDPR should be highlighted to all staff

1.3 Quality Culture

Standard:

The higher education institution has defined the quality of its core and support processes, and the principles of quality assurance. In the higher education institution, internal evaluation supports strategic management and is conducted regularly at different levels (institution, unit, study programme), the findings of internal and external evaluations are analysed and quality improvement activities implemented.

Guidelines:

Members of the HEI have agreed upon definitions for the quality of their core and support processes and are guided by them in their daily work. The HEI develops and publicises its policies and procedures for internal quality assurance (internal evaluation) and conducts regular internal evaluations, which take into account, inter alia, the standards set out in this Guide, and incorporates feedback from its members and/or from external experts. In the course of internal evaluations, peer learning, comparisons with other HEIs regarding their results and means for achievement, as well as a sharing of best practices take place, among other things.

Internal evaluation is based on the following key questions in quality management: What do you want to achieve, and why? How do you want to do it? How do you know that the activities are effective and will have the desired impact? How do you manage the quality improvement activities?

Regular reviews and enhancements of study programmes ensure their relevance, including their compliance with international trends.

Evidence and analysis

The quality culture within the Academy was examined by the Panel not alone as a HEI but also in its significant role as a HEI supplying graduates to the aviation industry. The aviation industry, more so than others, operates in an environment which cannot be forgiving of lapses in quality culture. Recognising this important attribute for all of the Academy's graduates, irrespective of their study programme, the Panel exercised its responsibility to go beyond the requirement of the standard and guidelines, identifying new improvement opportunities for the institution and providing examples of best practices that the institution could benefit from.

The Academy's four core values (openness, courage, enthusiasm, devotion) and five teamwork principles (respect, abidance, sincerity, trust, sharing) are related to the values highlighted in the Estonian Code of Conduct for Research Integrity. The culture is informed by the 'Just Culture in Aviation Safety' and the Academy follows the principles of Just Culture, as expected. (SER)

The Academy conducts satisfaction surveys periodically as part of its Quality procedures, e.g.:

- Staff satisfaction survey (2019) did not reveal major problem areas within the Academy. However, perhaps the most alarming indicator was "dedication to work" which indicated

surprisingly low levels among staff. Furthermore, it needs to be stated that all studied areas fared worse than in the previous study two years earlier, although changes are mostly marginal. The most noticeable decrease in satisfaction was related to General Management. As the management team has recently gone through a major restructure exercise, and that feedback obtained in Panel interviews indicated positive feedback towards changes already executed, the Panel has confidence that there will be a turn in trends in the forthcoming 2021 satisfaction study. (SER, T)

- Students have the possibility to evaluate (via Student Information System SIS) subject courses and level of teaching. This feedback is used by EAVA to develop the quality of teaching and also justify possible promotions of staff. According to students, as expressed during interviews, teachers are very open to receive comments and opinions, and to provide further explanations, if required. (S)

The academy states that "a significant component of the quality assurance system in higher education is feedback". EAVA collects feedback from several sources, such as partners, employees, students and alumni through internal & ECAA audits, stakeholders´ satisfaction surveys (including students) and oral feedback. Through these, EAVA is able to study its academic/educational quality performance and develop its operations further, as and when needed. (SER)

The EAVA Quality Management Handbook was revised and replaced recently by Management Handbook (Juhtimiskäsiraamat 2020) and a copy of the new handbook was presented to the Panel after the meeting with the management. The SER indicated that this change would take place during 2020, as has been evidenced now by the presentation of the book. As such, the Panel did not have the possibility to study the new Management Handbook before meeting with Staff of the Academy, nor place questions regarding the renewed manual during the interview. (SER, M)

The new Management Handbook is in Estonian language only, which created certain problems regarding the use of the document by the Panel. All management manuals, handbooks and training programmes should be presented in English, if the Academy wishes to maximise its international potential. The Panel recognizes that there may be ambitions and even legislation to maintain the Estonian language in the documentation. In such a case, presentation of languages could be side by side (English-Estonian). It could be agreed that the Estonian language would prevail, if there were any errors in translation or similar issues.

Use of the English language is common within Aviation, and the Panel encourages the Aviation Academy to weigh wide-scale benefits of the proposed change. The use of the English language will arguably create a more international mindset among management and other users of manuals, not to mention a more international image. It would also greatly assist the usability of manuals when due diligence is required (i.e. during audits and accreditation events) by foreign HEI´s, partners, prospective clients and the members of their due diligence/audit/accreditation teams.

Furthermore, it should be noted that already today EAVA employs non-Estonian staff and seeks to admit international students. Efficient use of manuals is essential, and this has been made challenging to non-Estonian language speakers. This aspect is also closely related to the theme of Internationalisation.

Additional to the Academy's quality as a HEI, the Estonian Civil Aviation Authority (ECAA) conducts its own certification audits to various departments of EAVA, which require appropriate EASA based training provider approvals. These departments are:

- Air Traffic Services Training Organisation (ATSTO) for Air Traffic Controllers
- Approved Training Organisation (ATO) for Pilot Training
- Maintenance Training and Examination Organisations (MTO) for technical training

The two Flight Training Devices (FTD) for aeroplane and helicopter have been certified for provision of flight training.

Relevant valid ECAA certificates were placed visible on the wall at the academy according to EASA regulations. They are also easily found at the internet site of EAVA. Training organizations and FTDs above are audited and monitored by ECAA and were not therefore directly a part of this evaluation.

The Academy is following the requirements of Standard 3 'Quality Culture' from the Institutional Accreditation viewpoint. Additionally, the Academy is certified for three different training organizations (ATC, ATSEP and ATO), and provides training based on regulations with oversight by the Estonian Civil Aviation Academy (ECAA). The Academy is certified as being compliant to the requirements of a training organization regulations, with no significant concerns raised by ECAA. However, a concern arose for the Panel during interviews of staff and students that application of Compliance Management, as used within an ATO and ATSO, is not well known (T, S). Therefore, the Panel would like to raise an allied issue, unique to the Academy in the HEI context: aviation quality and safety standards. The Academy is applying the safety and quality systems to the specialities depicted as 'training organizations' but not across the entire Academy. This leaves a measurable amount of Academy structure and staff out of the whole process. This non-systematic approach may lead to errors from some parties within the Academy and this could affect the overall safety and quality systems baselines with a domino effect reaching into the training organizations.

The Panel examined the ATO in this respect and found that their Compliance Management has produced deviations as expected. The conclusion is that there is no overall implementation of the Compliance, Quality & Safety Management System within the institution, including issues related to health and safety, but only at certain specialties of it (as in this case, the ATO, ATSO). A management system for findings does exist. (SER, M, T, S)

Following on from this point, as EAVA is very much an aviation specialized training institution, it should be ensured that no person can graduate from EAVA without fully understanding how Compliance, Quality & Safety Management Systems work, why these procedures are in place, and what is the role of an individual in the system. Management of these matters should cover all events at the Academy, including health and safety related ones in public areas, on top of training related ones at different departments. The management should make sure that there is a paper trail recorded with every deviation, a root cause of deviations will be identified, and that proper corrective actions are presented. The Panel encourages the Academy to enhance the integrated management system to a level where all the parties of the Academy are included to minimise the risk of any unexpected negative impact on the overall quality and safety standards.

Conclusions

The Academy's current practice conforms to requirements for a HEI in respect of quality culture.

The Academy's four core values and five teamwork principles are related to the values highlighted in the Estonian Code of Conduct for Research Integrity. The Academy conducts satisfaction surveys which bring valuable feedback for the management from students, employees, partners, alumni and through internal and ECAA audits. The Academy follows the principles of 'Just Culture in Aviation Safety'.

The Management Handbook (Juhtimiskäsiraamat 2020) is in Estonian language only. All management manuals, handbooks and training programmes should be presented in English. This would greatly assist the usability of manuals when due diligence is required by foreign partners and clients, while also creating a more international mindset throughout the Academy.

Exercising its responsibility to go beyond the requirement of the standard and guidelines, identifying best practice that the institution could benefit from, the Panel recommends implementation of the Compliance, Quality & Safety Management System across all operations of the Academy and not just at certain specialties of it (ATO, ATSO). This would ensure that no person could graduate from EAVA without fully understanding, *inter alia*, the role of an individual in the system. This aspect highlights a special responsibility of EAVA in protecting high quality standards in the international aviation industry.

Strengths

- Implementation of Just Culture

Areas of concern and recommendations

- Exercising its responsibility to go beyond the requirement of the standard and guidelines, identifying best practice that the institution could benefit from, the Panel recommends implementation of the Compliance, Quality & Safety Management System across all operations of the Academy and not just at certain specialties of it.

Opportunities for further improvement

- Academy to ensure that all staff and students know and understand the importance of Compliance, Quality and Safety Management Systems and actively use them in daily operations
- Management manuals are found in Estonian language only. All management manuals, handbooks and training programmes should be presented in English also, to create a more international mindset within the Academy and to facilitate due diligence by foreign partners and prospective clients

1.4. Academic ethics

Standard:

The higher education institution has defined its principles for academic ethics, has a system for disseminating them among its members, and has a code of conduct including guidelines for any cases of non-compliance with these principles. The higher education institution has a functioning system for handling complaints.

Guidelines:

The HEI values its members and ensures that all its employees and students are treated according to the principle of equal treatment.

Employees and students of the HEI are guided by the agreed principles of academic ethics in all their activities.

The HEI respects fundamental values and policies of research set out in the document, 'Research Integrity', issued jointly by Estonian research institutions, the Estonian Academy of Sciences, the Estonian Research Council and the Estonian Ministry of Education and Research.

The HEI supports its students and teaching staff in their understanding and responding to ethical issues. Teaching staff and students do not tolerate academic fraud, including cheating and plagiarism, and they will act immediately upon any such occurrence.

Management of complaints from HEI members (including discrimination cases) is transparent and objective, ensuring fair treatment of all parties.

Indicator:

- *Number of academic fraud cases*

Evidence and analysis

Ethical work practices for staff are founded on values and principles aligned with the 'Rules on Organisation of Work' (Est, 2019), the Estonian 'Code of Conduct for Research Integrity' (2017), and the 'Just Culture in Aviation Safety' document. The academic ethics align with EAVA's core values of openness, courage, enthusiasm and devotion, combined with EAVA teamwork principles of mutual respect, adherence to rules, sincerity, trust and direct communication. These values and principles are clearly articulated in EAVA's guidance to employees through the Academy's intranet. (SER)

There is a clear responsibility on employees to inform a designated coordinator of any non-compliance issues or conflicts of interest. Staff can communicate concerns to their immediate supervisor, the

personnel manager, the quality manager or the Rector. Measures are in place for resolution within the Academy or with externally-mediated assistance if deemed necessary, ensuring the principle of equal treatment. (SER)

Student related rules of conduct are clearly set out in the 'Study Regulations'. Academic behaviour related aspects are covered in Chapter 8, which sets out learners' studies-related rights and obligations. Dishonourable conduct as a term is well defined. (SER)

EAVA is using URKUND, a contemporary plagiarism detection tool that other Estonian HEIs use as well. Similar to the other HEI's, the Estonian plagiarism detection tool KRATT was studied before switching to URKUND. The procedures in detected cases of dishonourable conduct are set out in Chapter 6. There are specific requirements to process each graduation thesis with URKUND. Routine measures to suppress fraud and plagiarism are used, such as changing test and examination questions each time a course is run. (SER, T)

It was stated in meetings with management and with teaching staff that, in a small organization with a relatively flat structure, all dishonourable behaviour incidents become known and are well controllable. More often than not, the matter is resolved locally at course level. This approach, in parallel with formal procedures for escalating more serious cases, allows the matter to be approached as a learning experience or discipline matter as appropriate. (M, T).

Although supportive of this approach, the Panel observed that informal resolutions are not systematically recorded in the Academy's quality system and therefore trends are not analysed. It is recognized that the amount of dishonourable behaviour is small and random, with fraud in final thesis thought to average less than one case per year, but valuable statistical data is lost to management through absence of records. Viewing statistics at long term intervals might identify a drift in standards of judging 'minor' incidents over time. It is vital for an academy preparing students for the aviation industry to be ever vigilant in protecting its standards.

Should it become necessary to set up a designated committee to consider a case of dishonourable behaviour by a student, the committee includes a representative of the Student Council. Interviews with students confirmed their awareness of academic culture and mutually honest behaviour. The culture is especially discussed in introductory courses and before writing the final thesis. Students recognized fair and transparent assessment of their study outcomes by academic staff. Complaints are rare, a bit more in situations when cum laude level for a person is at risk. All such cases have been handled and solved well. (S)

The meetings with academic staff confirmed that the study culture and atmosphere in the Academy is one of intolerance to fraud. Although honourable behaviour by students is covered by rules and regulations, and does not cover ethics implicitly, emphasis is placed on high ethical standards as a key pillar of aviation safety during the learning experience. EAVA places a special responsibility on practical training supervisors to monitor honourable behaviour by students as an integral part of the safety culture in the aviation community. A special dedicated reporting system is available to students of flying training. (T)

The Panel is of the opinion that the additional systems in place to discourage dishonourable behaviour by students of flying training could usefully apply to the student experience on all programmes of the Academy. This would ensure that all graduates would have very high ethical standards and

understanding of personal responsibility, befitting those entering the aviation industry. (See also Section 1.3 for specific recommendations).

Conclusions

The Academy's current practice conforms to requirements for a HEI in respect of academic ethics.

The Academy has clearly defined standards of academic ethics for staff. The ethics align with EAVA's core values and teamwork principles, clearly articulated in EAVA's guidance to employees through the Academy's intranet. Procedures are in place for dealing with cases of non-compliance including resolution within the Academy or with externally mediated assistance, ensuring the principle of equal treatment.

Student related rules of conduct are clearly set out in the 'Study Regulations'. Procedures in detected cases of dishonourable conduct are set out, with the matter resolved locally at course level or with formal procedures for more serious cases, as appropriate. A designated committee to consider a case of dishonourable behaviour by a student shall include a representative of the Student Council.

Although high ethical standards are part of the ethos of the working environment for staff, the position of students is more regulation focused. The student regulations are framed in similar terms to other HEI's, despite the responsibility of EAVA to emphasise to students the particular value of ethical behaviour in minimizing risk in the aviation industry. Extra systems are in place to discourage dishonourable behaviour by students of flying training but the fundamental principle could inform the student experience on all programmes of the Academy.

Strengths

- EAVA's values and principles strongly underpin the ethos of academic ethical behaviour

Areas of concern and recommendations

- Consider setting up a systematic approach (process) to register the handling of dishonourable behaviour cases, both minor and major. Statistics are not recorded in respect of minor cases of dishonourable behaviour by students if the cases are resolved at local level. This deprives management of a useful tool in identifying long-term trends should systematic drift be occurring

Opportunities for further improvement

- Reframing the guidance and regulations for students to emphasise the value of ethical behaviour in parallel with the sanctions available in cases of unethical behaviour

1.5. Internationalisation

Standard:
The higher education institution has set objectives for internationalisation and assesses the attainment of these objectives regularly. The higher education institution has created an environment that encourages international mobility of students and teaching staff, supporting the development of learning, teaching and RDC activities, as well as the cultural openness of its members and Estonian society in general.

Guidelines:
The HEI creates opportunities for international student exchanges by offering study programmes and/or modules taught in English. The learning environment at the HEI supports internationalisation and cultural openness.
Recognition of qualifications and recognition of prior learning and work experiences for student admission and programme completion are in accordance with the quality requirements set by the HEI, are systemic and consistent with the expected learning outcomes and support international student mobility.
The organisation of studies at the HEI facilitates student participation in international mobility. The HEI has agreements with foreign higher education institutions and, through international exchange, sends its students abroad to study and undertake practical trainings, providing comprehensive support for this. Members of the teaching staff encourage students to participate in international mobility.
International lecturers participate in the process of teaching, including supervision of doctoral theses.
The HEI supports and recognises the participation of its teaching staff in international teaching, research or creative projects, as well as their teaching, research or creative work and personal development which are performed at HEIs abroad.

Indicators:

- *Teaching staff mobility (in-out)*
- *Student mobility (in-out)*
- *Number of English-taught study programmes by main units and levels of study*

Evidence and analysis

The previous institutional accreditation review in 2014 assessed four areas (organization, teaching and learning, RDC and service to society) as opposed to the twelve standards being assessed in this review. Thus 'internationalisation' as such was not assessed as a distinct area. Nevertheless the final report was peppered with recommendations of an international nature: upgrading the level of student mobility, widening the international mobility of the academic staff, addressing weak English language

proficiency of some academic staff members, greater collaboration with international research networks, and taking advantage of possibilities in the international aviation market. These recommendations were highly relevant to the Academy's vision of being "an internationally recognised aviation HEI by 2020." The Panel found that the Academy has yet to reach a critical mass of international activity that would meet the Vision 2020 (SER).

The Panel found that the senior management team is fully aware of the need to build its international reputation. However, the Panel is less confident that the Academy as a body has yet to appreciate the scale of the task and the bottlenecks to be overcome (M).

The draft Vision 2025, shared with the Panel during the site visit, has dropped the previous statement of international ambition: "EAVA is a highly-valued aviation education, training and development partner for stakeholders." It may be inferred from the strategic objectives allied to the new vision that 'stakeholders' include international partners. However, the Panel recommend, for a host of reasons, that prioritization be given to actions that will make EAVA 'an internationally recognised aviation HEI', a status it has yet to achieve. The Panel carefully analysed the Academy's internationalisation efforts over the last six years to better understand why the Academy has not yet achieved 'an environment that encourages international mobility' to the extent that would achieve critical mass and would thereby also contribute to 'the cultural openness of its members and Estonian society in general'. Currently the Academy partially conforms to the requirements of the standard.

Specific attention was paid to internationalisation in the EAVA Strategic Plan 2016-2020. The Academy recognized that the international nature of aviation entrepreneurship and the EU principle of free movement of the workforce demanded that their study process would enable the gaining of international experience in the course of formal studies or during in-service training. The Strategic Plan was based on a SWOT analysis that recognized a weakness in that international formal education was not developed and that an opportunity existed for entering the international education market. Given the significance of the issue, a separate 'Strategy for International Cooperation for 2016–2020' was adopted to, *inter alia*, enhance the international visibility and competitiveness of the Academy by expanding its research and development activities, provide the Academy graduates with international experience and offer the teaching staff international opportunities for professional development allied to the motivation system (SER).

To reach the strategic goals for internationalisation, a detailed course of action was decided, supported by 26 itemized activities with key performance indicators:

- Internationalisation of the study process and the R&D activities in cooperation with foreign partners.
- Organisation of international cooperation with the present and new partners from abroad.
- Development of the environment supportive to international cooperation.
- Adequate funding of the activities of international cooperation.

The performance indicators were assessed every two years during the lifetime of the Plan.

Regarding outward mobility of students, the standard duration of studies has been extended by the period of learning mobility (SER). It is changing as more preparatory work is done to adapt Erasmus studies into student's study programme (S). This demonstrates that none of the partnerships have resulted in negotiation of an alignment of modules in EAVA and in the international partner. Seamless transfer credits of pre-agreed blocks of learning worth approximately 30 ECTS of the EAVA programme

learning outcomes are not in place. The module learning outcomes achieved when studying abroad are credited on a case-by-case basis. Given that many courses on the EAVA programmes are core and cannot be substituted, most cases of outward mobility will lead to an extension of study duration. The fact that the Academy's programmes are based around four year (240 ECTS) structures when most prospective partner HEI's have moved to three year first cycle (180 ECTS) together with two year second cycle (120 ECTS) programmes cannot be helpful in negotiating seamless mobility exchange. Nevertheless every effort should be made to identify at least one partner with similar core modules where alignment of a semester would allow students at least one option of fitting the semester abroad in their nominal studies time. This would increase the motivation for using the mobility option and also would give an opportunity for motivated students to graduate in planned time. This would further enhance the Academy's reputation as a student-centred and learning-focused institution. Some difficulties are noted for obtaining practical training periods abroad other than short-term learning mobility such as familiarisation practice in Finland for ATS students and in Latvia for Aircraft Piloting students (SER, S).

Incoming students use English as the language of instruction and administration. The number of modules taught in English is limited and no full programmes are taught in English. Developments have led to the value of modules being taught in English reaching 60 ECTS in both semesters and this continues to increase each year. In keeping with the HEI's intention to promote internationalisation and to attract foreign students, EAVA would need to continue increasing the number of modules in English, building to entire degree programmes in the English language. Furthermore, all the relevant administrative documentation would also need to be made available in English for non-Estonian residents. During the interview with the Vice-rectors and the Quality Manager it was confirmed that EAVA is currently in the process of setting up an initial degree programme that will be taught in English. In the same interview, the Vice-rector for Education explained that teaching staff would generally be quite willing to provide teaching in English, but were often hampered by their lack of progress in improving their own English. This is a valid point that was appreciated by members of the Panel, who noted that the proficiency of staff in teaching through English has improved in recent years (M, T). Nevertheless, the requirement for academic staff is B2, which could be considered low for an aviation academy supplying graduates to the aviation industry - a truly international community.

Students who have studied in EAVA under ERASMUS+ report an excellent student learning experience, with very high satisfaction ratings in third party independent surveys. During the interview with students there was also positive remarks from an ERASMUS student regarding the recently overhauled webpage, which was found to be very informative and well written for prospective international students (SER, S).

Nevertheless, the number of incoming students remains low. The relevant performance indicators show a lack of ambition in matching the rhetoric of the importance attached to internationalisation. For example, the target percentage of incoming Erasmus+ students was set at the relatively low figure of 7%. Although this was achieved (8.3% in 2018/2019) there is little evidence of significant effort and progress over the lifetime of the Plan to stretch the targets, with 7.4% achieved in 2015/2016 (SER, S).

The Academy has 20 international academic partners but the relatively low level of international activity is such that these partnerships are not yielding an ongoing critical mass of staff, student or research collaborations exchanges. Internationalisation of R&D activities was a goal of the 'Strategy for International Cooperation for 2016–2020', with EAVA having a key role in bringing aviation-related development projects to Estonia. However, the number of international partners in development

projects has not exceeded three in the period 2016-2020. The Academy was at a loss to identify the primary barriers to progress but the Panel found that the Academy resources devoted to increasing internationalisation are largely devoted to the operational management of student exchange mobility, rather than a concerted push on a multi-faceted approach. The Panel refer the Academy to the paper Udam, Maiki; Seema, Riin; Mattisen, Heli (2015), *Eesti kõrgharidus institutsionaalse akrediteerimise tulemuste taustal ehk Mida juhid peaksid teadma,* Eesti Haridusteaduste Ajakiri, nr 3(1), 80–102, which emphasises the importance of integrating international aspects into all the main processes of an institution of higher education (SER, M).

On a positive note, during the period under review, foreign visiting academic staff taught at the Academy both within the Erasmus+ programme and under the mandate agreement in ever-increasing numbers: 13% in 2016, 18% in 2017 and 20% in 2018 (SER).

In respect of increasing the outward mobility of staff, there is evidence of awareness of the possible need to include internationalisation as a mandatory part of staff career development and evaluation to achieve steady state targets (SER, M).

An opportunity to raise the Academy's international profile through the web was enhanced when the Academy launched a MOOC in English 'Introduction to Aircraft'. This has attracted more than 500 participants worldwide over the last two years. A further MOOC was created in 2020, focussing on the safe operation of unmanned aerial vehicles. The UAV MOOC is in Estonian, related to the ECAA implementation of new UAV operator legislation, but should not be overlooked as an opportunity for reissue as another English language MOOC of international interest.

As outlined in Section 1.3, use of the English language is common within aviation. It would be beneficial if all management manuals, handbooks and training programmes were presented side by side English-Estonian. It could be agreed that the Estonian language would prevail, if there were any errors in translation or similar issues. This use of the English language would create a more international mindset in the Academy, enhancing the international image. It would also greatly assist the usability of manuals when due diligence is required by potential foreign HEI partners and prospective clients.

Achievement of the Academy's goal to be an internationally recognised professional higher education institution may require a dedicated senior management role and targeted resourcing. International representation on the Academy's Advisory Board might also be helpful.

Conclusions

The academy can be deemed only as partially conforming to the requirements of the standard for internationalisation.

The Academy's strategic planning documents for the period 2016-2020 demonstrate full appreciation of the importance of internationalisation. A 'Strategy for International Cooperation for 2016–2020' was adopted to enhance the international visibility of the Academy by expanding its research and development activities, student and staff mobility outbound and incoming. However, the Strategy set relatively low performance targets for internationalisation activities and has taken some comfort from meeting these somewhat unambitious targets. EAVA acknowledges that the targets have been met on occasion in a fortuitous way rather than through the success of a systematic series of actions derived from the Strategic Plan.

Significant barriers remain in respect of student exchange – both inbound and outbound. It may be noted that the Academy's programmes are based around four year (240 ECTS) structures when most prospective partner HEI's have moved to three year first cycle (180 ECTS) together with two year second cycle (120 ECTS) programmes. Currently, the standard duration of studies by EAVA students has to be extended by the period of learning mobility. Nevertheless, some progress has been made over the last 4 years in improving performance. Although incoming student numbers are relatively low by international standards, those students who have studied in EAVA under ERASMUS+ report an excellent student learning experience.

The position regarding foreign visiting academic staff, both within the Erasmus+ programme and under the mandate agreement, has been satisfactory with increasing numbers year-on-year. Outbound mobility of academic staff is growing but not systematically and the possible need to include internationalisation as a mandatory part of staff career development and evaluation is under consideration.

The Panel found a narrow interpretation of 'internationalisation' at EAVA, with the limited support resources available being concentrated on mobility of students, teaching by foreign visiting lecturers and international teaching assignments by EAVA staff. Less evident was a holistic view whereby strengthening international links in the field of research and development would be seen as a key driver of the Academy's international reputation, with consequent synergistic impact on learning and teaching in an international context. A proactive multi-faceted approach to 'internationalisation' is required, rather than just being reactive to international mobility schemes and such like. This may require leadership by a dedicated role on senior management and access to international experience through Advisory Board membership.

Strengths

- The Academy has an international presence online through a MOOC 'Introduction to Aircraft'
- The number of international lecturers at the Academy is increasing

Areas of concern and recommendations

- The term 'internationally recognised' no longer appears in the revised vision statement of the Academy, perhaps inadvertently leading to loss of focus on the importance of internationalisation to the future flourishing of the Academy. It is recommended that the Academy's international ambitions be unambiguously stated in the vision statement for 2025.
- Many of the targets set in the Strategy for International Cooperation are low, demonstrating a lack of ambition. It is recommended that much greater stretch targets be set, prioritised and supported to integrate international aspects into all the main processes of the Academy
- There is a need to build consensus and buy-in across the Academy on the value of building international reputation and the magnitude of the task required, which will require sustained activity across a range of integrated collaborations within the Academy. Consideration should be given to dedicated leadership and support on this significant multi-faceted task, which may require support to staff through a senior management post, an international member of the Advisory Board and perhaps a dedicated International Office with adequate start-up funds and expertise

- There has been greater attention to the low hanging fruit of learning and teaching international exchanges than progressing partnerships in the field of RDC, despite the centrality of research impact in international reputation. EAVA is not yet devoting targeted resources and energy in a cohesive multi-faceted approach to growing international reputation through a combination of mobility and research partnerships in a strategic way. It is recommended that the growth of RDC in the Academy be conducted by selecting niche areas of research expertise and developing these areas with international partners in a twin track approach to building research and internationalisation. This recommendation is allied with Standard 11

Opportunities for further improvement

- Further grow international brand awareness through MOOC's
- Noting that the Academy's programmes are based around four year (240 ECTS) structures when most prospective partner HEI's have moved to three year first cycle (180 ECTS) together with two year second cycle (120 ECTS) programmes, enhancing student mobility opportunities could form the catalyst for a wider-ranging review of the current model of programme structures
- The Academy should twin with synergistic partners and apply to calls of the forthcoming Horizon Europe "widening" programme. This recommendation is allied to Standard No. 11

1.6 Teaching staff

Standard:
Teaching is conducted by a sufficient number of professionally competent members of the teaching staff who support the development of learners and value their own continuous self-development.

Guidelines:
Members of the teaching staff engage systemically in development of their professional and teaching skills, improve their supervision competence, and share best practices with one another.
Teaching staff's participation in research, development and/or creative activities supports the teaching process and ensures competence for the supervision of students' theses (including doctoral theses).
Members of the teaching staff collaborate in fields of teaching, research and/or creative work within the HEI and with partners outside the HEI, e.g. with field practitioners, public sector organisations, companies, other research and development institutions, and lecturers from other Estonian or foreign higher education institutions.
Qualified visiting lecturers and practitioners participate in the teaching process.
When assessing the work of teaching staff (including their periodical evaluations), the effectiveness of their teaching as well as their research, development and creative work is taken into account, including student feedback, the effectiveness of their student supervision, development of their teaching and supervisory skills, their international mobility, and their entrepreneurial experience or other work experience in their fields of speciality outside the HEI.

Indicators:

- *Competition for elected academic positions*
- *Results of students' feedback about the teaching staff*
- *Teaching staff participating in continuing training or other forms of teaching skills development*

Evidence and analysis

The number of employees at EAVA is stable and was 51 in 2019. The academic staff number 16 in total, consisting mostly of lecturers (10 in 2019). There is high competition per academic position, up to 16 per position (average, 2019) from a low of 3 (average, 2017). The proportion of academic staff is small in relation to total staff numbers but remarkable is the number of non-academic staff who teach (17 of the 35 in 2019). There is also a significant number of visiting academic staff, mostly from Estonian aviation enterprises (35 in 2019). The number of students has been stable resulting in a ratio of 18 students per full-time academic employee, a decline over the five year period from 15.3 to 18.6.

The Academy is aiming to increase the number of full-time academic staff. Three new members (one international) have joined EAVA in 2020. Recruitment has been international, both to support greater internationalisation and to support development of the Aviation Management programme, delivered in the English language.

The gender balance of staff is not yet reflective of international trends where female participation, especially in ATS and flight operations, is increasing. The proportion of academic staff who are male is currently 94% (SER).

Teaching is provided by qualified personnel, both full time academic and contract based specialist staff. The assessment of qualification is regulated through the EAVA document 'Conditions and procedure for evaluating academic staff and assessing compliance with qualification requirements (in Estonian)'. The number of teaching staff with the highest academic degree (PhD) is low at 4 (in 2019) but this represents an increase during the last five years. A worrying trend is that the proportion of teaching staff with aviation competences and experience is decreasing. The current position is a matter for concern, with a level of 56% compared to a target of 85% (SER). The target figure is to be applauded as it is key to providing a quality learning environment for students of the Academy. The Academy faces two challenges in this regard. It must provide an attractive environment to recruit staff from aviation enterprises which may offer better salaries and opportunities. Also, the Academy needs to build the number of research-active staff but suitably qualified researchers may not have extensive experience and competence in aviation.

The average age of academic staff has been increasing and is currently 45. Plans are in place to recruit recent graduates to develop the new generation teaching staff, with a rise in the qualification level and increase in the competences of the teaching staff (SER).

There is a clear workload model. The workload model covers teaching, research/creative work and development (of the organisation and professionally). Academic staff members are expected to participate in R&D in increasing proportion to academic rank, at least 30% for professors and up to 15% for lecturers. Teaching load is up to 40% for professors and up to 60% for lecturers. The teaching load is relatively high in comparison to HEI's in other countries, which inhibits growth of R&D activity, but the overall size of the Academy in respect of student numbers has financially constrained the available number of academic posts (SER).

There is a supportive personal development programme. The development of the professional skills of academic staff is increasing. Ongoing improvement is monitored and actively managed through a performance review system linked to personal development plans. Interviews with teaching staff confirmed that there are adequate resources for staff development. There is a yearly budget per academic, which allows participation in costly aviation competence training abroad. In respect of pedagogical skills development lecturers confirmed participation in dedicated courses offered by University of Tartu. Development of the English language proficiency of teaching staff is supported and the Panel was very satisfied with English proficiency of both academic and non-academic teachers, which is in good accordance with EAVA's strategy of growing internationalisation of studies. There is scope to support Master's and PhD studies by academic staff at universities in Estonia. This is encouraged but there is scant evidence of the efficiency and yield of this activity (SER, M, T).

Student feedback is sought annually and overall satisfaction on studies is high, averaging 4.6 over the last five years. The performance of teaching staff is evaluated and appreciated with up to 100% of monthly basic salary being awardable as supplementary performance pay (SER).

Conclusions

The Academy conforms to requirements in respect of the standard for teaching staff.

Teaching is provided by qualified personnel, both full time academic and contract based specialist staff. The number of academic staff (16) is small in relation to total staff numbers (51) but half of the non-academic staff also teach. There is also a significant number of visiting academic staff (35). The student:staff ratio is 18 students per full-time academic employee.

There is a clear workload model covering teaching, research/creative work and development (of the organisation and professionally. There is a supportive personal development programme and it is actively managed through a performance review system linked to personal development plans. However the opportunities for academic staff to participate in R&D are limited. The English language proficiency of both academic and non-academic teachers is good.

Student feedback is sought annually, is high, and influences teachers' supplementary performance pay.

The proportion of teaching staff with aviation competences and experience is decreasing. The current level is 56%, compared to a target of 85%.

The proportion of academic staff who are female is currently only 6%.

Strengths

- There is a good balance between academic teaching staff and practitioners

Areas of concern and recommendations

- The number of teaching staff with higher academic degrees (Master, PhD) should be higher. There are limited R&D opportunities for staff development at EAVA. It is recommended growth in RDC activity at the Academy be closely allied to staff career development in a twin track strategy. This recommendation is allied to Standard No. 11

Opportunities for further improvement

- The decline in professional skills in aviation of the teaching staff should be monitored and arrested where possible, for example through secondment of staff to enterprises for professional development
- The gender balance of staff could be improved, reflecting international trends where female participation, especially in ATS and flight operations, is increasing

1.7 Study programme

Standard:

Study programmes are designed and developed while taking into account the expectations of stakeholders, higher education and professional standards, and trends in the relevant fields. The objectives of study programmes, modules and courses and their planned learning outcomes are specific and coherent. The study programmes support creativity, entrepreneurship and development of other general competencies.

Guidelines:

In planning study programmes and student places, the HEI pursues its objectives and the needs of the labour market, and takes into account national strategies and the expectations of society. The planned learning outcomes are in accord with the requirements for the corresponding level of the Estonian Qualifications Framework.

Expected student workloads defined in the study programmes are realistic and consistent with the calculation that 1 ECTS credit equals 26 student learning hours.

Theoretical learning and practical learning are interconnected. The content and organisation of practical trainings support the achievement of learning outcomes of the study programme and meet the needs of all parties.

Evidence and analysis

The standard is for study programmes to be designed in such a way that they take into consideration the expectations of all stakeholders, as well as trends and developments in the relevant fields. The HEI's study programmes are designed, developed and continually updated through close collaboration between the Academy and its stakeholders. The Study Programme Council includes a wide range of stakeholders including academic staff, employer representatives, alumni and current students. It is noteworthy that the Estonian Aviation Cluster is prominently represented in a formal advisory capacity for the development of study programmes. As such, the HEI is able to meet the demands of the industry. Study programme boards have student representation. Student feedback via the SIS is voluntary but the programme managers also organise meetings with all students of the study group at the beginning of every semester. This way of gathering feedback and discussing different topics about the study programme is a good way to involve students in the process of improving the programme. (SER, E).

The HEI's objective in the development of study programmes is twofold. On the one hand, the degree programmes have to meet the requirements defined by the ECTS specifications of the European higher education area in order to be able to confer an academic degree to its graduates. On the other hand, there are also regulatory requirements to be met, as some of the degree programmes lead directly to

a career path for which there is a licensing requirement. This is not an easy task, because obtaining a licence merely means that the individual is minimally competent to undertake a task, whereas academic studies strive for excellence in research. The development of the study programmes is conducted through a process and structure that is adequate to ensure that the prevailing legal and regulatory requirements are met. The role of the individual stakeholders and related feedback processes are taken into account in the programme development structure (SER).

The learning outcomes are clearly stated for each module and are described appropriately per level. They derive in a coherent way from a thematic module structure, based on the programme objectives. A significant number of the programme objectives, modules and learning outcomes are inextricably linked to the Academy being a certified training organisation according to EASA regulation 2015/340. The resulting modules have been arranged across themes, including general subjects, the natural sciences, engineering, languages, speciality modules, graduation theses and elective subjects.

The effectiveness of the structure of the Academy for assessing and updating teaching programmes is evident from the recent merging of two older programmes, Aviation CNS and Aircraft Engineering into a new one, Aeronautical Engineering (CNS/TECH).

In addition to core technical modules, students acquire general competencies, such as digital literacy and language skills. Students develop their skills in expressing themselves adequately in an academic context in both Estonian and English as part of the language module of the degree programmes (SER).

In the interview with graduates of the Academy, respondents confirmed that the education they had received at the HEI had helped them to prepare for the workplace in their chosen field. In addition, there appears to be strong support from graduates and students for the education that is provided and how meaningful it is perceived to be (A, S).

As the HEI seeks to expand its activities in the international sphere, it will come up against a number of challenges. Currently, the study programmes are very much oriented toward the demands of the local market and are of four years study duration. However, as the Academy becomes more international, it will have to cater to a much broader audience and competition from similar first cycle programmes of three years duration. This will put demands on the study programmes which are difficult to reconcile with those of the local market. The Academy must be more open to change.

Conclusion

The Academy conforms to requirements in respect of the standard for study programme.

The development of the study programmes is conducted through a process and structure that ensures that the prevailing legal and regulatory requirements are met with some degree programmes also leading directly to a career path for which there is a licensing requirement. Stakeholder feedback processes are taken into account in the programme development structure.

Graduates confirmed that the education they had received at the Academy had helped them to prepare for the workplace. The dropout rates are low in comparison with other higher education institutions in Estonia.

Currently, the study programmes are very much oriented toward the demands of the local market. However, as the Academy becomes more international it may require a more international perspective to be represented on the advisory boards that input to study programme development.

Strengths

- Keeping the study programmes simultaneously compliant both to the degree programme requirements and to the regulatory requirements, providing graduates with an academic degree and basic licence - one of few HEIs able to do this in the region
- Good feedback processes ensure ongoing input for study programme development

Areas of concern and recommendations

- NIL

Opportunities for further improvement

- Widening the range of English-taught modules
- Redesign study programmes according to the *de facto* 3+2 standard model across the EU, as addressed more in Section 1.5 'Internationalisation'

1.8 Learning and teaching

Standard:

Admissions requirements and procedures ensure fair access to higher education and the formation of a motivated student body. The higher education institution systemically implements a student-centred approach that guides students to take responsibility for their studies and career planning, and supports creativity and innovation. Graduates of the higher education institution, with their professional knowledge and social skills, are competitive both nationally and internationally.

Guidelines:

The teaching process takes into account students' individual abilities and needs, and supports their development. Organisation of independent work and classroom teaching motivates students to take responsibility for their studies.

Teaching methods and learning aids used in the teaching process are modern, appropriate and effective, and support development of a digital culture.

Students are motivated to learn and contribute to improving the quality of their studies by providing meaningful feedback on both the learning process and the organisation of studies.

Doctoral students plan their studies, as well as their research and development activities, in collaboration with their supervisor(s), setting specific objectives for each year and assuming responsibility for achieving those objectives.

Indicators:

- *Student satisfaction with the content and organisation of studies*
- *Alumni satisfaction with the quality of studies*
- *Employer satisfaction with the preparation of the graduates*

Evidence and analysis

The admission process for students into EAVA is overseen by a Board of Admissions who ensure that students who enrol in one of its degree programmes meet the academic and regulatory requirements. The process is rigorous, transparent and fair. It is based on highly relevant attributes of applicants determined from national examinations and an entrance examination. Application is open to

international candidates and foreign qualifications are recognised. Competition for entry is high and a pre-screening option was introduced for potential applicants, allowing them to self-test suitability in respect of knowledge, motivation and communication skills. More than half of the students admitted have passed entrance tests prior to the submission of applications. Admission is based on the applicants' ranked performance with points garnered from National Examinations, written entrance examination and oral. The oral exam is conducted by a panel of Academy staff members and employers' representatives (SER).

Candidates for the speciality of Air Traffic Services have to pass a set of specific tests and the interview panel includes a psychologist. The tests are those of Eurocontrol's 'FEAST', the First European Air Traffic Controller Selection Test (SER). Although not mandatory for use by organisations such as the Academy or air navigation service providers, the FEAST system helps to guide selection of those most likely to succeed in their studies. Furthermore, Eurocontrol provides supportive online services to those preparing for the test. It is a fair selection tool of benefit to the prospective student and therefore cannot be seen as an unfair barrier to this first cycle higher education opportunity.

Candidates for the Aircraft Piloting speciality are also assessed for their suitability through tests which help determine the candidates' psychological aptitude and personality traits (SER).

The competition for places averages five applicants per place, ranging from 2.4 (Aeronautical Engineering CNS-TECH) to 10.7 (Air Traffic Services). The fact that competition for a study place at the HEI is high compared to the national average is likely to ensure that motivation among students remains high too. Combining this factor with the rigorous and relevant entrance examinations contributes significantly to ensuring that the drop-out rate remains low at an average over the last five years of less than 15%. The average is 10.5% overall, with 8.2% in the category of 'Services' (national average 14.4%) and 14.8% in the category of 'Engineering, manufacturing and construction' (national average 17.1%).

Prospective applicants may use the 'student shadow' possibility. Through the shadowing process the decision-making of the potential applicant is better informed from a more comprehensive understanding of the speciality, the learning environment and the organization of studies. Positive experience of the system was expressed during the interviews with students (S).

The study process is such that personal feedback is an integral part of the student learning experience. With regard to the implementation of a learner-centred and learning focussed approach, the curriculum has been designed such that there is considerable flexibility for the teaching staff to attend to the specific needs of individual students (SER). The Panel found this to be a strength of the student learning experience (S). However, it should also be noted that such an approach is only possible as long as the number of students in the individual courses is limited.

Although application is open to international candidates and foreign qualifications are recognised, one of the key areas where the HEI needs to do more work is the promotion of internationalisation. The Panel determined that the management team appears to be well aware of the fact that their success in becoming a more internationally-recognised institution will likely increase the number of high quality student applications (M). As a result, the management team will need to look at ways to harness this growth opportunity, without dropping standards, while ensuring that the staff can maintain the close relationship with the students that exists now and which allows students to progress in the way that is best suited to their specific needs.

In accordance with the standard, students are guided to take responsibility for their studies and their career development. The Academy has to invest more heavily in contact teaching per 1 ECTS in cases of certain specialities where this is required. The Panel found that most students responded positively to this and were actively involved in their learning process. The students and graduates that the Panel spoke to during the visit clearly showed a lot of initiative in terms of their own career planning and goals. Some of the students spoke of courses they had not enjoyed or that they did not think were necessary for their training. Given that they will receive both an academic degree and a licence, the Panel would hesitate to regard their concerns as justified, but it is positive that their behaviour showed them to be critical of their studies (S, A).

Graduates of the higher education institution, with their professional knowledge and social skills, are competitive nationally. The graduates are well qualified in terms of knowledge and technical skills based on European regulations for serving the Estonian aviation ecosystem. Their skills are transferable in the European Union mobility market. Overall the number of students availing of mobility opportunities during their studies is small. Combining this with the relatively small number of incoming exchange students leads to a lack of exposure to the international environment during their studies. Although EAVA offers education in a field that is regulated by international laws and certification, the competitiveness of students internationally could be enhanced by a more international environment in the Academy, as outlined in Section 1.5.

Teaching methods and learning aids used in the teaching process are modern, appropriate and effective, and support development of a digital culture. The use of simulators and other equipment in the use of practical studies is good. Digital culture also includes e-support for subjects. This also adds to the diversity of methods used and students are more independent in planning their study process. The proportion of subjects with e-support was already 53% before the Covid-19 pandemic prompted further growth of digital resources (SER, R).

The HEI was able to react swiftly to the changing needs of students in the wake of the Covid-19 pandemic, which restricted access to the Academy for periods. The management team are keen to implement further modules for online teaching, subject to meeting regulatory requirements imposed by the Estonian CAA which necessitate offering a minimum number of contact hours (M).

Conclusions

The HEI conforms to the standard for learning and teaching.

A Board of Admissions ensures that students who enrol in one of its degree programmes meet the academic and regulatory requirements. The process is rigorous, transparent and fair. The intake of students is limited and determined by applicants' performance in the suite of entry examinations.

The courses tend to be taught in relatively small groups to motivated students, which in turn allows the HEI to meet the individual students' needs. A student/teaching staff ratio below 20 is good.

The graduates are well qualified in terms of knowledge and technical skills based on European regulations and close ties to the industry ensure that graduates are nationally competitive and will be able to find suitable positions upon entering the job market. Although the skills are transferable in the European Union mobility market, the competitiveness of students internationally could be enhanced by a more international environment in the Academy.

Strengths

- The extensive input of the Academy's staff to the annual admission process contributes significantly to the lowest drop-out rates in Estonian HEI's, which demonstrates both a student-centred approach from the moment of application to graduation and the careful management of the State's investment in the Academy

Areas of concern and recommendations

- The international competitiveness of students could be enhanced by further internationalising the student experience through a holistic approach to an international atmosphere within the Academy. It is recommended that the Academy explore the barriers to international mobility of students and proactively address these. This recommendation is strongly allied to Standard No. 5

Opportunities for further improvement

- Regarding the issue of internationalisation, there are a number of options for the HEI to explore in the realm of learning and teaching. The HEI is already making efforts to gradually raise the level of English and acknowledges that this is a gradual process that takes time to achieve. In the meantime, the ambition could be for students to be exposed more regularly to the English language in a way that will allow them to become familiar with academic discourse and technical language as it is used in the aviation community worldwide

1.9 Student assessment

Standard:

Assessments of students, including recognition of their prior learning and work experiences, support the process of learning and are consistent with expected learning outcomes. The objectivity and reliability of student assessments are ensured.

Guidelines:

The assessment criteria are understandable to students and students are informed about them in a timely manner. Members of the teaching staff cooperate in defining assessment criteria and apply similar approaches.

Assessment methods are versatile and relevant, and assess the degree of achievement of learning outcomes (including general competencies).

If possible, more than one staff member is involved in the development of assessment tasks and student assessments. Along with assessments, students receive feedback that supports their individual development.

The HEI supports development of the teaching staff's assessment competencies.

Evaluation of doctoral students is transparent and impartial. Its purpose is to support the development of doctoral students, to assess the effectiveness of their current work and to evaluate their ability to complete the doctoral studies on time and successfully defend their doctoral theses.

When recognising prior learning and work experience towards the completion of the study programme, results obtained through the studies and work experiences (the achieved learning outcomes) are assessed.

Students are aware of their rights and obligations, including the procedures for challenges regarding assessments.

Indicator:

- *The number of credit points applied for and awarded under the accreditation of prior and experiential learning scheme (APEL); this does not include credit points transferred from a different study programme at the same HEI.*

Evidence and analysis

The Academy's assessment methods are tailored to measuring the achievement of learning outcomes across a range of diverse teaching and learning environments. Assessment methods are versatile and relevant to appropriately assess the degree of achievement of learning outcomes including general competencies. Assessors include Academy staff in the role of licensed Assessors, occasionally working with external licensed Assessors. Assessment includes traditional written examinations, orals, tests, practical examinations, knowledge checks and review of practical training. The learning outcomes for group projects are assessed both orally and in writing (computer-based tests, project tasks). The use of regular knowledge checks is being rolled out to encourage active participation throughout the semester and greater student responsibility for their learning.

The assessment strategy and criteria are available to the students in a timely manner through the EAVA Study Regulations. These regulations are based on the Minister of Education and Research Regulations in respect of the unified assessment system of the higher education level and the vocational education level, as appropriate. (SER).

The assessment methods and criteria are provided by the lecturers who introduce them to the students during the first lecture or class or in Moodle in the case of e-learning. The teaching goals of each course and the requirements for satisfactorily completing the course are accessible in the SIS by the start of the subject course, at the latest (SER).

Several subject courses are taught by two or more members of academic staff. In this case, several of them are involved in establishing the assessment criteria and performing the assessment. If a project is completed as a group, the members of the academic staff who are not directly involved in teaching the subject course attend the defence and assess the project. This ensures that the assessment is objective (SER).

Members of the teaching staff cooperate in defining assessment criteria and apply similar approaches. The HEI supports development of the teaching staff's assessment competencies and coherence of approach. Training has been organised on research methods, academic writing, the supervision process, research ethics and copyright. An online course 'Teaching at the Estonian Aviation Academy' has been created. Thirty practical training supervisors have taken the PRÕM programme ('Corresponding learning with labour market needs'). It was confirmed by the HR Manager that at least all new teaching staff members are introduced to the EAVA online course (M).

Assessment of subjects in the ATS module of Speciality Rating Training takes place in the ATC simulator environment in 'test' (one assessor) or 'exam' (two assessors) mode. The evaluation is done by ECAA licensed Assessors - this assures the level of quality for the knowledge and skills of the students (SER).

Students are both supported and assessed during practical training. Assessment is ongoing through the reports of the supervisor and the student. This allows the achievement of learning outcomes to be regularly documented (SER).

Graduation theses are assessed by defence committee members using assessment sheets based on the assessment criteria set out in the Study Regulations (SER). Following defence, feedback is provided for each student's personal development.

A comprehensive system is in place for the Accreditation of Prior and Experiential Learning (APEL) under the Estonian Aviation Academy Procedure for Accreditation of Prior and Experiential Learning. Applications can currently be submitted to the APEL Board during the academic year for recognition

of a separate subject course, group of subjects or a module. Prior learning and work experience can constitute up to 75% of the total volume of certain study programmes. Information on APEL is disseminated through seminars and the website, backed up by counselling of APEL applicants. The number and quality of APEL applications has increased year on year over the last five years. The number of applications doubled over the period to reach 72, of which 70 were fully approved and 1 partially approved.

APEL problems remain in equating the ECTS value of credits earned internationally with learning outcomes of modules in the Academy. A possible solution is the greater availability of optional subjects in the Academy programmes (SER). To an extent that is a 'work around' approach. The problem will be ongoing until the Academy aligns its curricula more closely with practice in similar European HEI's. This may require consideration of a major restructuring, moving from four year (240 ECTS) first cycle programmes to the 3+2 model of first and second cycle higher education commonly practised in European higher education.

Students are made aware of their rights and obligations, including the procedures for challenges regarding assessments, not alone through the Study Regulations but also through an Information Folder for First Year students. Along with assessments, students receive feedback that supports their individual development. Students are happy with the amount of feedback given and feel that it supports their personal and academic development. Students confirmed during the interviews that all subject descriptions and criteria are entered in the SIS in a timely manner and are reviewable. Students and alumni expressed their general satisfaction about their studies (S,A).

Conclusions

The Academy conforms to requirements in respect of the standard for student assessment.

Students have the opportunity to familiarize themselves with the assessment criteria before the start of the subject. Briefing on assessment criteria in the first lecture or a class also gives an opportunity to ask questions if necessary, before the assessment period starts. The teaching staff and practical training supervisors have been given opportunities to enhance their skills regarding assessment methodologies and criteria through online courses and training. Specialist assessments, such as that in the ATC simulator environment test exercises and examinations, are evaluated by ECAA licensed Assessors, maintaining an external set standard.

Practical training introduces the work environment where a student obtains a view of the practical part of their chosen profession. Assessment is ongoing through the reports of the supervisor and the student, allowing the achievement of learning outcomes to be regularly documented.

A comprehensive system is in place for the Accreditation of Prior and Experiential Learning (APEL). The number of APEL applications has increased year on year. Advisory services support the use of this opportunity, which can constitute up to 75% of the total volume of certain study programmes. The handling of APEL does not bring any extra expenses for the student/applicant. Unfortunately the seamless transfer of ECTS credits earned internationally is not yet well established. A 'work around' of using these as optional module credits is helping but is less than satisfactory.

Assessment is allied to feedback, given in support of the student's development.

Strengths

- NIL

Areas of concern and recommendations

- NIL

Opportunities for further improvement

- Despite a comprehensive system being in place for APEL, which is being increasingly used with APEL advisory services support, there are systematic problems. Seamless recognition of APEL credits earned internationally is hampered by lack of equivalence. There is a need to better align the curricula of the Academy's four year (240 ECTS) programme structures at first cycle with partner institutions at first cycle. In this regard it must be noted that many European HEI's now differentiate their modules across three year first cycle (180 ECTS) together with two year second cycle (120 ECTS) programmes. This aspect is worthy of a more wide ranging review by the Academy

1.10 Learning support systems

Standard:
The higher education institution ensures that all students have access to academic, career and psychological counselling. Students' individual development and academic progress are monitored and supported.

Guidelines:
The HEI assists the student in developing an individual study programme based on the student's special needs as well as educational abilities and preferences.
The HEI advises its students (including students with special needs and international students) on finding practical training places as well as jobs. Students are aware of where to get support in the case of psychological problems.
The HEI has a functioning system to support and advise international students (including psychological and career counselling) which, inter alia, helps them integrate smoothly into the membership of the HEI and Estonian society. The HEI analyses the reasons students withdraw from studies or drop out, and takes steps to increase the effectiveness of the studies.

The HEI supports student participation in extra-curricular activities and civil society initiatives.
The HEI monitors student satisfaction with the counselling services provided and makes changes as needed.

Indicators:

- *The average duration of the study by levels of study*
- *Dropout/withdrawal rate*

Evidence and analysis

The HEI assists the student in developing an individual study programme based on the student's special needs as well as educational abilities and preferences. If a student is not able to participate in studies at the usual rate, they are offered alternative solutions to continue their studies. Alternatives include opportunities for academic leave or drawing up an individual study plan (SER).

The HEI advises its students (including students with special needs and international students) on finding practical training places as well as jobs. Students are aware of where to get support in the case of psychological problems. Career counselling is provided by heads of specialty departments (SER). Psychological support is provided by the psychologist whom students can visit on their own initiative or by recommendation of the studies specialist. Psychologist´s appointments do not take place at the campus site.

Students praised the Head of Academic Affairs for the approachability for consulting. These consultations have resulted in students making contacts with possible employers (S). EAVA Study Regulations provide an overview of the various counselling options available by the HEI (SER).

The foreign relations specialist takes care of foreign students, being responsible for the preparation, arrangement and completion of their learning mobility (SER). In addition, foreign students have access to dedicated tutors, something that was much appreciated by students (S). EAVA has a functioning system to support and advise international students (including psychological and career counselling) which, *inter alia*, helps them integrate smoothly into the membership of the HEI and Estonian society. An Estonian language and culture course has been created for the same purpose (SER).

The dropout rates are low in comparison with other higher education institutions in Estonia. Nevertheless, the Panel would hope that the Academy would not rest in efforts to reduce dropout rates further, given the relatively high level of infrastructural investment required by the State to provide each student place in this impressive national facility. The drop-out rate remains low at an average over the last five years of 10.5% overall. The rigorous admission process to programmes in ATS and Aircraft Piloting contributed to the low drop-out rate, with 8.2% in the category of 'Services' (national average 14.4%). There is a more systematic problem in the Aeronautical Engineering study programme, with a drop-out rate of 14.8% in the category of 'Engineering, manufacturing and construction' (national average 17.1%). To reduce the number of drop-outs, EAVA has analysed the reasons and taken steps to encourage students to continue their studies. The measures applied contributed significantly to the decrease in the number of interrupters in 2018. However, in 2019, the rate of first-year students who interrupted their studies increased in the Aeronautical Engineering study program (SER). As an example of actions taken, there is an improved admission system vis-à-vis discovering the motivation and attitude of applicants prior to the commencement of studies. Also, various preventive actions and measures to solve problems during studies as explained above, and a motivation system for the students have been introduced (SER). Students brought out that the main reason for dropping out is students´ realization that the specialty is not the right one for them, or they become demotivated in the first two years because of the mandatory subjects that they (incorrectly) perceive are not directly connected to aviation (S).

The nominal length of studies in EAVA professional higher education is four years. Excellent results have been achieved among the highly motivated and carefully selected students of ATS and Aircraft Piloting, with average lengths of studies 4.1 years and 4.35 years respectively. However the Aviation Communications and Navigation Systems programme (now a speciality in Aeronautical Engineering) has averaged 5.35 years of study to completion. Male students' mandatory service in the Defence Forces (8-11 months) extends the average length of studies. Since 2013, students have not received extensions from the military on the basis of studies (S).

An issue in respect of duration for talented students is that participation in the Erasmus+ programme carries a high risk of lengthening the study period. Also the timing of studying abroad is very important - it is advised to be done during the first two years. Students were well aware of this information (S).

The HEI supports student participation in extracurricular activities and civil society initiatives, including foreign students. An exchange student participating in the interview was very satisfied with the number of events the Student Council had planned. Students from EAVA participate in various educational events all over Estonia. The Department of External Relations and Marketing allocates funds from its budget for the Student Council to organize leisure time and sports activities. Additional

support is available to top athletes. Students who compete on a professional level receive a grant (SER, S).

The HEI monitors student satisfaction with the counselling services provided and makes changes as needed (SER). The methods are efficient as can be seen from the student satisfaction survey. The HEI has put the responsibility for gathering student feedback to the lecturers. Lecturers will plan the questionnaire filling at the end of their subjects. This makes the process of giving feedback more pleasant to the students.

The dropout rates are low in comparison with other higher education institutions in Estonia. Nevertheless, the Panel would hope that the Academy would not rest in efforts to reduce dropout rates further, given the relatively high level of infrastructural investment required by the State to provide each student place in this impressive national facility.

The Panel commend the Academy's achievement in respect of its student-centred ethos, demonstrated through its learning support systems, which were fully stress-tested in 2020 when national public health guidelines forced educational institutions worldwide to close their doors and cease contact teaching to urgently reduce the exponential growth of Covid-19 virus incidences.

The Academy responded quickly to the potentially damaging interruption of studies late in Academic Year 2019/2020 in a manner that is worthy of recognition. Use of technology, the dedication of teaching staff and the learning support systems came together to prevent any serious disruption to students' learning. The Academy has continued to build on this experience over the last few months to roll out a blended learning environment in Academic Year 2020/2021, given remaining uncertainty over possible national public health restrictions in coming months.

The Panel found through interviews with students and recent graduates that the blended learning environment was introduced in a seamless manner, that belies the crisis management required, such that the Academy's high quality student learning experience has been maintained during increased reliance on the learning support systems already existing and being extended on digital platforms.

Conclusions

The Academy conforms to requirements and is worthy of recognition in respect of the standard for learning support systems.

The HEI assists the student in developing an individual study programme based on the student's special needs as well as educational abilities and preferences. Students are able to receive personal counselling regarding options of continuing studies. The counselling system is well developed and it serves all students, including exchange students. Services provided cover different topics and students participate in tutoring towards exchange and first year students. Psychological counselling is provided to all students. Foreign students are introduced to locals and also language-culture course is offered to promote integration. The drop-out rate is lower than in other Estonian HEIs. Students are encouraged to participate and organize various events and competitions to promote aviation education. EAVA monitors the success of counselling services and frequently collects feedback from students.

Strengths

- Student-centred ethos, demonstrated through its learning support systems, which were fully stress-tested in 2020
- Continuous feedback is collected from the students and the results have been very good

Areas of concern and recommendations

- NIL

Opportunities for further improvement

- Continue efforts to make the first year more aviation related, to minimize drop-outs, without loss of standards in the basic sciences - a preparation for deeper understanding of later courses and possible entry to master's level studies
- Continue student recruitment marketing efforts to attract talented applicants to EAVA, with particular attention to managing the expectations of students applying to the Aeronautical Engineering programme.

1.11 Research, development and/or other creative activity

Standard:

The higher education institution has defined its objectives and focus in the fields of RDC based on its mission, as well as on the expectations and future needs of society, and assesses their implementation and the societal impact of its RDC activities. RDC supports the process of teaching and learning at the higher education institution. Support services for RDC are purposeful and support implementation of the objectives of the core process.

Guidelines:

The HEI places a high value on the role and responsibilities of the field of RDC in society and evaluates the results of its RDC activities, their international visibility and societal impact.

The HEI responds flexibly to the current needs of society and the labour market in terms of its research and plans its research in collaboration with enterprises, public sector institutions and organisations of the third sector.

Members of teaching staff introduce students to their research results as well as the latest scientific achievements in their areas of specialisation, and involve students in their R&D projects where possible.

The organisation and management of RDC take into account thematic differences and the mission (profile) of the HEI.

Indicators depend on the specificities of the HEI:

- *Numerical data: (1) scientific publications by classifiers; (2) public presentations of creative work; recognition from international competitions; reviews in professional publications, etc.; (3) patent applications, patents; (4) textbooks, study aids of various formats, etc.; (5) system development solutions; product development solutions; environmental applications solutions; (6) contracts concluded with enterprises; (7) spin-off companies, etc., in line with the profile and priorities of the HEI; etc.*
- *Number of scientific publications / creative works per member of academic staff and per employee with the requirement to do research (FTE, by areas)*
- *Number and volume of externally funded projects of RDC activities*

Evidence and analysis

The R&D activities of EAVA are based on the Estonian Higher Education Act. EAVA's mission is "*to provide high quality and efficient education and training in aviation as well as development activities*". Based on this, the Academy has defined its objectives and focus in the fields of RDC by publishing several documents (SER):

- EAVA Strategic Plan 2016—2020
- EAVA Procedure for Research & Development
- EAVA R&D Development Plan

Procedures have been established for registering spin-off companies, managing intellectual property and developing laboratories.

The strategic plan 2016-2020 sets specific goals related to RDC activities:

"By 2020 the Academy should be the center of studies and development in the field of RPAS in its region, expanding the cooperation with partners from private and public sector both nationally and internationally".

"The Academy shall support the engagement of its staff and students in R&D activities; Annual contests of student research papers and staff members' application projects are held, more and more students are engaged in application projects".

Two lines of activities have been planned for achieving the general strategic goals:

- Cooperation with aviation enterprises for supervising / consulting graduation theses and research papers
- Students' enterprise / spin-off programme

In addition, a series of activities were designed to achieve the goals related to development activities (cf. EAVA Development Plan):

- The capability, goals and strategy of the Academy's R&D activities shall be established. The resources and competences of the Academy's R&D shall be mapped;
- The current EAVA procedure for R&D, the principles of calculation of the employees' R&D activities and the connected motivation system shall be analysed. The R&D volume of the Academy staff shall be planned in individual work plans of the staff members;
- Increase in the training and development capability of the technologies under development (RPAS) shall be financed from international and national programmes and projects (ASTRA, Horizon 2020);
- R&D activities shall be recorded as required in the document management system in use at the Academy and systematically entered into the register of Estonian Research Information System (ETIS);
- Framework documentation shall be drawn-up for the spin-off programme. The opportunities of spin-off entrepreneurship shall be introduced to the Academy membership. The first spin-off enterprises of the Academy shall be registered;
- Strategic partners in aviation related development activities of the region shall be mapped (possible partners, enterprises, higher education institutions), as well as their resources and competences;

- To increase the volume of development activities cooperation between the Academy and its partners shall be deepened;
- The Academy shall regularly organise cooperation seminars with aviation enterprises and aviation related organisations;

Immediately after appointment in 2020, the new rector made structural changes to the top management of EAVA, including a restructuring of the Development Department and the creation of a Vice Rector for Development, in charge of better coordinating the various Departments. The interviews made it clear that the previous structure was not efficient enough, in particular through a lack of communication between the former Development Department and the speciality departments, leading to an insufficient commitment to R&D activities by the teaching / research departments (M). The new team also decided to create, at the strategic level, a Research, Development & Creativity Council, composed of 5 members (whose chairman is the former Head of the Development Department) representing all Teaching / Research Departments of the Academy. The Council oversees the distribution of the internal RDC budget, currently €40k per annum (SER).

Notwithstanding the new strategic approach, the Panel determined through several interviews that this vision is not yet fully shared by the academic staff, nor the students (T,S)

From the evidence gained through the documents provided and the interviews, it remains unclear what percentage of the development plan objectives has effectively been reached in 2020. The capabilities, goals and strategy of the Academy's R&D are not fully established and the competences (existing or needed) are not mapped. Strategic partners and their competences / resources are not mapped either and the increase of development activities mostly remains to be done (M).

This is also apparent in some performance indicators of the Academy's development plan which remain below target, even though these targets are not necessarily very ambitious (SER):

R&D Performance indicators in relation to the goals of the Strategic Plan for 2020.

Goal: To become an aviation development gateway in Estonia			
Performance indicator	**Level 2015**	**Level 2019**	**Target level 2020**
Number of international partners in development projects	0	3	3
Number of partners in development projects in Estonia	5	12	15
Number of registered spin-off enterprises at the Academy	0	0	2

Revenue (k€) from R&D-related contracts and projects

Indicator	2014	2015	2016	2017	2018	2019
Number of R&D contracts	2	-	2	2	2	1
R&D contracts and projects revenue	6.8	-	810	133	50	11

Note for Table 29. the large-scale contracts of Instigo Eesti OÜ and Lennuliiklusteeninduse AS (EANS) in 2016-2017 and the related activities are spread over a long period of time. The deadline for the last project is 2021.

Number of publications in 2014-2019 by classification in ETIS (as of 16 May 2019)

Classification	1	2	3	5	6	Total
Publications	12	2	14	5	3	36

These three tables (SER) demonstrate that the R&D activity of the Academy remains at a rather low level over the period 2016-2020 and is strongly downstream oriented (design of operational procedures). The global project funding looks, on average, acceptable for a small structure like the Academy (about 4% of the global budget) but this is mainly the result of 2 large, one-shot contracts for ATM procedures that were signed in 2016 and no significant new contracts were signed since then (SER). The number of publications remains low and is even decreasing over time. No spin-off company was registered in the period. As for the project partners, the Academy is slightly below target concerning the Estonian partners and right on target for the international ones (but this target is seemingly very modest). One of the projects which appears important to the Academy, the development of a simulation-based learning module in partnership with the University of Tromsø, is very much oriented towards the teaching needs of the Academy and could hardly be qualified as a "research" project elsewhere in Europe. Moreover, it remains unclear through the interviews whether this project is or not a first step towards a strategic partnership with that Norwegian university (M, T).

The specialist nature of the Academy serves its teaching mission successfully but its potential as a centre of research excellence has yet to be realized. The curricula are largely driven by aviation regulations which somewhat diminishes a culture where RDC supports the process of teaching and learning at the higher education institution. Therefore, it has not been self-evident that support services for RDC are essential to support implementation of the objectives of the core process. Failure to prioritise the Academy's international research reputation will disadvantage the teaching programme quality over time. Nurturing the RDC activity can best be supported through active membership of a European research network, including thematic networks. The Horizon Europe programme (2021-2027) is expected to include a significant budget for the "widening" of research excellence in Europe, which involves 15 eligible countries including Estonia. Some actions inside the "widening" sub-programme include "teaming" or "twinning" with academic partners or networks of partners in more advanced countries, to help the "widening country" institution grow in research excellence and international cooperation. The Academy should take steps towards identifying potential partners with whom to apply to the various calls of the "widening" programme.

Conclusions

The Academy can be deemed only as partially conforming to the requirements of the standard.

The Academy develops a well-structured approach to the challenges of research/ development and creative activities, based on its mission and a set of objectives which are derived from the global strategic plan (development plan) of the Academy and also well related to the general Estonian regulations and guidelines on that matter.

However, the Academy can be deemed only as partially conforming to the requirements of the standard. In the previous period (2016-2020), although the perimeter and procedures of the activity are well documented, the objectives are not fully reached and the Academy lacks a structured vision for its future development. Although the new management team appears to understand the importance of RDC activities and is determined to better structure and develop them, it was determined by the Panel during several interviews that this vision is not fully shared by the academic staff nor the students (T,S). The Panel noted the willingness of management to motivate staff and students to commit themselves more deeply into RDC activities. There is a clear challenge for the new management team to address this issue and establish a better R&D culture inside the Academy.

On the way forward, within the new Strategic Plan for 2021-2025, the Academy will need to identify its strengths and competences, recognize the opportunities and threats and finally set strategic objectives with realistic performance indicators in order to have RDC activities contribute effectively to the high-level strategic goals of the Academy. To help the Academy start with that demanding task, the Panel has prepared an overview of strengths, areas of concern with recommendations, and further opportunities for improvement:

Strengths

- Sole HEI having a niche expertise in some fields of aviation in Estonia and the region
- Support from Estonian public companies (Estonian CAA, EANS, Armed Forces…)
- Strong connection to the Estonian aviation ecosystem, private companies and the Estonian Aviation Cluster
- Labs and technology for applied research and prototyping

Areas of concern and recommendations:

- Low commitment of staff and students, weak R&D culture and poor performance in terms of publications, number of contracting partners, international projects. The number of teaching staff with higher academic degrees (Master, PhD) could be higher. There are limited R&D opportunities for staff development at EAVA. It is recommended growth in RDC activity at the Academy be closely allied to staff career development in a twin track strategy. This recommendation is allied to Standard No. 6
- The academic staff have limited experience in grant writing for international research calls. Provide mentorship to staff, with seed funding if required, in the skill of preparing and presenting strong research proposals to EU funding calls. This recommendation is allied to Standard No. 6

- Limitations induced by the Estonian legislation on professional HEI: no institutional public funding, no capability to deliver doctoral degrees. This is clearly a limiting factor for cooperation with foreign HEI in Europe. It is recommended that the Academy do a comprehensive international benchmarking to better understand the potential of niche expertise applications (e.g. UAV, integrated ATC, ATM procedures, flow simulation…) and build international research partners built on niche expert strength
- There is a risk that the Academy could be left aside of the larger HEI community in Europe as competitors gain ground and reputation. It is recommended that the Academy map strategic academic partners for increasing the Academy's participation in European research projects. The Academy should twin with synergistic partners and apply to calls of the forthcoming Horizon Europe "widening" programme. This recommendation is allied to Standard No. 5
- Lack of a clearly formulated, long-term strategy for R&D and its role for EAVA, particularly on its articulation with the educational programmes and the growth of academic staff competences. It is recommended that the Academy Identify areas which contribute to the improvement of both teaching / learning and the long-term growth of competences and expertise of academic staff and set priorities accordingly
- Low funding of R&D projects due to the limited needs of R&D expertise from the Estonian aviation ecosystem. This threat limits the Academy's development due to the small size of the Estonian aviation ecosystem. It is recommended that there be improved external communication about the Academy's areas of expertise towards potential customers, not least by highlighting research on the Academy's website

Opportunities for further improvement

- Deepen cooperation with Estonian universities to encompass the applied research domain, in addition to existing teaching networks
- Take advantage of the IT means developed by the Academy for innovative cooperation projects with foreign partners
- Increase the involvement of aviation companies in their needs expression and use that feedback to improve the curricula through RDC activities
- Use the newly created RDC Council for tapping expertise outside the Academy and open the RDC Council to some external experts

1.12 Service to society

Standard:

The higher education institution initiates and implements development activities, which enhance prosperity in the community and disseminate recent know-how in the areas of the institution's competence. The higher education institution, as a learning-oriented organisation, promotes lifelong learning in society and creates high-quality opportunities for that.

Guidelines:

The HEI contributes to the development of the community's well-being by sharing its resources (library, museums, sports facilities, etc.), by providing consulting and advisory services, and by organising concerts, exhibitions, shows, conferences, fairs and other events.

The HEI involves alumni in activities aimed at the development of the HEI and the knowledge society.

Employees of the HEI participate in the work of professional associations and in other community councils and decision-making bodies as experts, directing society's development processes as opinion leaders. The impact academic employees have on society is taken into account when evaluating their work.

The HEI has defined the objectives for in-service training and measures their implementation. In-service training is planned in accordance with the needs of target groups.

Indicator:

- *Number of people in continuing training (and other privately financed open forms of study), number of lessons or ECTS per participant*

Evidence and analysis

The Academy has an established record of promoting aviation to Estonian society, not least through being one of the main co-organisers of the annual Estonian Aviation Days, the largest aviation event in the Baltic states. It is a key player in updating aviation professionals in Estonia on developments in the sector through the annual Estonian Aviation Seminar, an international conference (English language) attracting *circa* 200 delegates at which the 'Deed of the Year in Estonian Aviation' is awarded. The Academy is represented at typically 25 education fairs per annum. Visitors from schools,

NGO's, agencies and enterprises are regularly hosted at the Academy, in addition to its annual Open Doors Day. The EAVA library is a national resource on aviation, publicly available to registered users. EAVA have supported SAR missions through their expertise in drone technology. An English language MOOC 'Introduction to Aircraft' has been taken by over 500 participants worldwide since launch in 2018 and further MOOC's are in train. Nine continuing education training courses are currently on offer on the website (EASA Ops; CRM; MCC; Human Factors; Legislation; Handling Dangerous Goods; Management; Financial Statements; Cybersecurity). Tailored courses are arranged with enterprises. Rent of simulator time is publicly available. The Academy's modern conference facilities, catering for up to 350 participants plus video conferencing, are available for hire and during 2019 a total of 10 non-academic events were conducted there, supporting the usage of the facilities by society. EAVA staff are represented on many national professional and trade associations as well as non-profit advisory and decision-making bodies. The website, in Estonian and English, is outward-facing, attractive and user friendly (SER, R).

The Panel noted the importance that the new Rector attaches to the goal of an outward-facing Academy that serves its stakeholders through a significant positive input to the sector. This vision would see the Academy as the baseline provider of human resources for the whole sector, encompassing the influencing of the school-going generation to enter the aviation sector and on to lifelong learning for aviation professionals. It was acknowledged that this can only be done with the support of a well-educated staff. (M).

The Academy boosts the Estonian aviation sector with graduates who enhance the level of aviation related education and knowledge within the sector in Estonia. Members of the Alumni mentioned that without the Academy, the aviation sector in Estonia would be considerably weaker and without current local talent. A large amount of aviation related companies in Estonia have recruited staff members who have studied at the Academy and many of them are acting in management positions just as much as specialists in their own field. Many others have found careers abroad. The diversity of career options after graduation is important for local companies and is further enhanced with the recent launch of the Aviation Management programme. As there are not many aviation academies providing specialized aviation study programmes with a degree, Estonian Aviation Academy stands out as one of the few in Europe (A).

The Academy's Advisory Board is chaired by the chair of the Estonian Aviation Cluster. The Estonian Aviation Cluster is a perfect tool in a small country to promote the aviation sector and all its employers. The close association between the Academy and the Aviation Cluster is of benefit to Estonian society (E).

Regular Donor Days have been conducted in the premises of EAVA where the community of staff and students can donate blood.

Specific training or continuation training (mostly custom made and client-oriented) has been provided by the EAVA. During the accreditation, there was an ongoing refresher course for Ämari tower air traffic controllers (R).

The contribution to society could be further enhanced by offering the opportunity for second cycle higher education. This could include follow-on master's degree programmes to its current first cycle offerings and stand-alone master's degrees of value to the Estonian and international aviation sector. This development is inherently linked to creation of a critical mass of staff with higher academic degrees (master's, Ph.D.).

Additionally, there is a greater role available for the Academy to be a voice for shaping the Estonian regional-political plans from the aviation viewpoint and as aviation-related domain opinion leaders.

Conclusions

The Academy boosts the Estonian aviation sector with degreed graduates increasing the level of overall knowledge of Estonian aviation in total. Not many aviation academies are providing detailed study programmes with degrees which makes the Estonian Aviation Academy one of the few in Eastern Europe.

It serves society in many ways including through the annual Estonian Aviation Days, the annual Estonian Aviation Seminar, education fairs, hosting schools' visits, NGO's, agencies and enterprises, the EAVA public aviation library, MOOC's, continuing education courses, tailored courses for enterprises and simulator time rental. The Academy's modern conference facilities are used for events, including non-academic ones.

The Academy is a very good promoter of aviation, both through its own contributions and also through its work with the Estonian Aviation Cluster. It could build on this further by offering second cycle higher education opportunities in certain aviation specialities and to be a voice for shaping the future as aviation-related domain opinion leaders.

Strengths

- Strong support and connection with the main stakeholders in the Estonian aviation sector
- Organiser of the largest aviation industry seminar in Estonia
- Multifaceted approach to keeping aviation as high interest to society, from large scale events (Estonian Aviation Day) to personalised tours
- International online presence through MOOC 'Introduction to Aircraft'
- Library is a national specialist resource
- High quality conference facilities available to the region

Areas of concern and recommendations

- NIL

Opportunities for further improvement

- Growth in number of staff with higher academic degrees (Master's, Ph.D.) to enable the offering of master's programmes in certain specialities, for connecting the aviation industry even more
- Greater use of the Academy's knowledge and expertise as aviation-related domain opinion leaders
- Leading international expertise in training for remote tower operations, together with EANS (Estonian Air Navigation Services) after the Remote Tower (rTWR) will be certified and in use
- Aviation-related 1-year curricula for non-aviation-related personnel

- To be the provider of aviation-related analyses in the aviation sector with a long-term comprehensive view
- With the in-house knowledge compose or supplement the Estonian regional-political plans from the aviation viewpoint
- Staff representation on international professional, advisory and decision-making bodies

2. Assessment findings of the sample of the study programmes

The study programmes selected for assessment were:

- Aeronautical Engineering (CNS/TECH)
- Air Traffic Services

2.1. Study programme: Aeronautical Engineering (Professional higher education)

The Aeronautical Engineering (CNS/TECH) study programme, of the Engineering, Manufacturing and Technology study programme group, was initiated in 2018. It was formed through a redesign of two EAVA study programmes – 'Aviation Communication and Navigation Systems' and 'Aircraft Engineering' – which were merged and closed in 2018. The new study programme 'Aeronautical Engineering' has two main specialities: Communication and Navigation Systems (CNS) and Aircraft Engineering (TECH). Following the merger of the two programmes, students admitted from 2018 can decide their speciality after the first year.

The number of students admitted to the merged programme was 30 in 2018 and 27 in 2019. The average number of admitted students per annum to the original programmes was 8 and 19 for CNS and TECH respectively in the period 2014-2017. Corresponding graduate statistics averaged 9 and 11 per annum. To control the number of students, EAVA have the possibility to preclude admission in certain years and start a slightly larger course every second year (M). This saves in costs compared to starting a smaller course yearly. To evaluate the need for engineers in the labour market, EAVA makes a study every two years among companies in the field.

2.1.1 Planning and management of studies

- The design and development of study programme(s) take into account the expectations of students and other stakeholders, national strategies, legislation and trends in the particular area as well as labour market needs. The level and volume of RDC activities is sufficient and supports the launching of the study programme(s).
- The objectives of study programme(s), modules (including courses) and their learning outcomes are concrete and coherent. The teaching content and methods and assessment criteria and methods support students in achieving their learning outcomes and developing their key competencies. The study programmes support the development of creativity and entrepreneurship and other general competencies.
- The administration of material and financial resources that ensure the design and implementation of the study programme(s) is purposeful, systematic and sustainable. The learning environment, including materials, tools and technology support the students in achieving their learning outcomes.

Evidence and analysis

The study programme and its two specialities have been developed in cooperation with various stakeholders, including alumni, students, academic staff and companies in the field of maintenance in Estonia. This should prepare students better for their future professions. Recent student feedback on the study programme (SER) resulted in some further changes into the programme:

a) more teaching at EAVA´s premises, instead of other HEIs´ premises

b) inclusion of more aviation-related subjects instead of general topics during the first year and

c) providing a deeper understanding of the aviation world and its opportunities to students.

These adjustments were performed at an early stage in the new CNS/TECH programme and, as such, provides good evidence towards EAVA´s efforts to take account of the respective views of students, alumni and employers. Constant development of the programme is crucial as technology progresses. The Panel found that EAVA is keeping the programmes current through their development efforts (SER, R).

The scope for RDC activity to underpin the launch and development of the programme is limited by the nature of the programmes in a highly regulated sphere. The principal structures of both specialities in Aeronautical Engineering (CNS/TECH) follow corresponding EU Commission regulations. These regulations are enforced by the European Aviation Safety Agency (EASA), represented in Estonia by the Estonian Civil Aviation Authority (ECAA). The Authority monitors and approves all issues requiring EASA certifications, such as aircraft, training devices (e.g. simulators) and aviation training programmes in Estonia. EAVA´s Aeronautical Engineering (CNS/TECH) training program has been arranged according to these regulations as evidenced by their valid Maintenance and Training Examination Organization Approval Certificate (Commission Regulation EU no. 1321/2014). Detailed

training requirements are defined in the EAVA Principles and Procedure of ATSEP Training (SER). The Panel is satisfied that the programme is developed in an appropriate manner.

The objectives of the programme relate to the relevant EU Commission regulations. The resulting modules have been arranged across seven themes, including general subjects, the natural sciences, engineering, languages, speciality modules, graduation theses and elective subjects. Learning outcomes are defined separately for the two specialisations. These learning outcomes are clearly stated for each module and are described appropriately per level.

The learning outcomes of the programme are completely supported by the resources. These include specialism library, laboratories, technology hangars, overall e-learning support and qualified teaching and training staff. The Panel did not encounter discrepancies in respect of the study outcomes achievability.

Drop-out rate vs graduates rate per year has been relatively but not alarmingly high during the accreditation period. Several changes were made to study programmes to reduce this phenomena, however initial dropout rates seem to have remained at previous levels. The Panel learned that after 2013 no postponements are granted to military service duty (male students only). This, according to students, increased the number of drop-outs ever since. However, one of the main reasons for dropping out still seems to be that some selected students during the first year do not find themselves sufficiently motivated and/or in a wrong profession. The challenge of applying mathematics and science to their perception of 'engineering' may be a factor. In addition, many students lack financial resources and have to work during their studies. This is despite the fact that studies themselves are free. In the interview group most students (4 out of 6) had worked during their studies (S).

Students noted during interviews that engineering in general is considered a difficult topic among youngsters, and aviation is no longer the most exciting field there is, with a further threat from the current industry downturn during the Covid-19 crisis. Furthermore, the general perception is that studies require a high level of mathematical skills which many find too much of a challenge. For these reasons the CNS/TECH programme suffers somewhat from relative lack of popularity. The segment is also relatively narrow in Estonia and offers only a limited number of work opportunities, further reducing its interest in the student market. This is unfortunate, as those who continue their studies further stressed to the Panel that studying at EAVA has been well worth their while (S).

There are currently 48 students studying the CNS/TECH program. The management indicated that with the relatively constant number of students per year the budgetary needs of the programme are also remaining stable (M). CNS/TECH needs constant marketing to attract new students.

Students appreciate the help and support they receive from their teachers and generally feel that EAVA is a great place to study. Students indicated that they would welcome more international exposure during studies and that more support towards extracurricular activities would be appreciated. Overall, EAVA has excellent facilities and students and staff alike appreciate the study environment (S).

Conclusion:

The study programme and its two specialities have been developed in cooperation with various stakeholders. The specialities follow corresponding EU Commission regulations and thus the scope for RDC activity to underpin the launch and development of the programme is limited. Learning outcomes are clearly stated for each module and are described appropriately. They derive in a coherent way from a thematic module structure, based on the programme objectives. The relatively constant number of students per year ensure that the budgetary needs of the programme are also remaining stable. However the programme needs constant marketing to attract new students, who appreciate that the practice of engineering is inextricably linked to mathematical and scientific evidence. EAVA possess first class premises for practical work (hangars, labs). The learning environment is among the best in Europe, a fact that is reflected in student and staff satisfaction surveys. Students praised their satisfaction with both the environment and cooperation with staff.

Strengths

- Facilities and equipment for studies are exemplary
- EAVA has been able to sell their services of this field to the industry, thus keeping investments in efficient use
- Very good team spirit within and between EAVA´s students and staff

Areas of concern and recommendations

- NIL

Opportunities for further improvement

- Strong marketing to attract well-informed high quality and motivated applicants

2.1.2 Learning, teaching and assessment

- Conditions and organisation of admission ensure fair access to education and motivated student body. Students' choice of specialisation is supported.
- A student-centred approach is used in the studies, aiming at the students to assume responsibility for planning their studies and career and supporting the development of key competencies and achieving the learning outcomes of the study programme.
- Student assessment, including taking accreditation of prior and experiential learning into account, supports the students and corresponds to the learning outcomes. Objective and reliable assessment is ensured.
- The organisation of studies including practical work and training is based on the specificities of students and forms of study and supports the student in achieving the learning outcomes. Opportunities have been established for mobility within Estonia and internationally.
- Support services for students are in place and available for students. Individual development and progress of students are monitored and supported.
- Graduates of the study programme are competitive in terms of their knowledge and social skills both nationally and internationally.

Evidence and analysis

The admission rules (renewed each year) are clearly described in Estonian. Efforts are made to recruit students best suited to completing the programme. Beside EAVA general requirements, the study programme has specific requirements. The entrance exam consists of a written and oral part. The entrance examination is based on topics described on the Academy's website. These topics cover mathematics and physics at secondary education level. The assessment criteria for the oral examination are described. The weighting is stated: oral examination 50%, written examination 25% and state exam subjects 25%. Topics for oral examination are described - candidates motivation, earlier studies and working experience, speciality (study programme) related knowledge, written exam related questions etc. (SER). The regulations governing the admission process are fair.

Students generally perceived the admission process as transparent and acceptable by the candidates. The students interviewed confirmed the clear process of enrolment and the importance of the motivation interview. They were all confident in their chosen speciality and were satisfied with their admission process and the progress of studies (S).

Students of both specialities have the opportunity to choose elective subjects. Access to Research/Development and Creativity challenges is possible especially during the graduation thesis period. Tutoring is implemented. Under-achieving students are given additional consultations and practical training. Feedback from formal questionnaires is limited by the low number of respondents but there is considerable use of informal feedback to students through performance reviews, counselling sessions, briefings etc. which addresses any issues of concern. The Panel noted that the students find the learning experience good in that the courses are built up logically (S).

The Panel noted during the visit that the facilities, hangars and labs of EAA are excellent, well equipped and offer challenges also for self-development in areas like competitive building of drones and UAV-s (R).

Students of the programme met by the Panel reported that they were well informed about Erasmus exchange opportunities. During the interview with CNS/TECH students, the Panel noted positively and appreciated that the level of the English language among those students and alumni interviewed was very high. All options have been explained regarding outbound international exchange opportunities but none had availed of the opportunities. Basic training must be certified, and this limits the range of learning that can be achieved outside of the Academy. (S, SER).

Representatives of the Student Council cooperate with the administration and participate in the monthly Academy Council meetings. Members of Student Council were aware of their link role between students and administration and confirmed that their feedback to administration is acted upon. Those who are studying spoke very warmly about their teachers and their commitment to teaching. Students feel that thanks to EAVA´s small size, they receive exceptionally good quality teaching during their studies (S).

Assessment of studies is reliant on oral examinations as well as written papers. The use of oral examinations has been found to be highly effective in assessing learning outcomes related to practical training. This also contributes to an increasing move to formative assessments with students receiving concurrent feedback.

The EAVA policies in respect of fraud and plagiarism are explained in introductory lessons and the URKUND anti-plagiarism software is used regularly to control authenticity of students´ work (M, S). In the case of assessment misunderstandings, direct communication is employed unless the Department of Academic Affair is required to address the issue (SER). There is no evidence provided, nor suspicion that the issue of breaching academic ethics would be a major issue for this training programme. Since this is a practically oriented training programme for future aviation maintenance engineers or ATSEP, the academic side is relatively low key, in particular for the final thesis. The need to ensure challenge of the students' level of critical thinking skills in graduation thesis projects was mentioned in the previous accreditation review. No concern was raised about academic ethics by the lecturers (T) not the students (S, A).

The use of APEL is constrained by aviation regulations. Basic training must be certified.

Practical training and internships have been arranged by EAVA and their corporate partners for students. The study programme is strongly supported by practical (certification) training. The programme uses three practical training environments (hangar, Communication and Navigation lab, RPAS lab) where prototyping and applied research are also supported too. The practical training venues for the TECH speciality are EASA Part 145 approved maintenance organizations. For CNS speciality the venue for practical training is more flexible and students find places themselves. Practical training is overseen by an EAVA supervisor (SER).

Practical training periods were praised during student interviews as the most interesting part of studies. EAVA have listened to the feedback and more practical studies have been scheduled for the first year. Based on statements from students, this effort is valuable and should be continued and developed as necessary and/or possible. Some students were hired to their training place after graduation (S).

Students choose their speciality (CNS or TECH) at the end of the first academic year. Academic support is available to assist them make their study related choices. Regarding psychological support, the students have the option for on-line consultancy with a specialist. The preference to have a full-time

specialist was discussed but it was noted that the size of the Academy cannot offer a full-load position and therefore the current solution might be optimal (M).

The Department of Aeronautical Engineering has the highest number of underachievers as well as dropouts in the Academy. Due to larger than average dropout rates, compared to other EAVA study programmes, the Academy has introduced performance review interviews with students. The effect of this method is probably too early to tell. Lack or loss of motivation seems to be the main concern. This may of course also represent the difficulty that some students have in transitioning from a second to third level education environment - irrespective of the quality of the programme and its alignment with their interests. Monitoring and counselling (also psychological) approaches are in place.

During the Covid-19 mobility restrictions all theoretic studies were rapidly moved to Moodle which was the default course-supporting environment already in place. For interactive sessions Skype was experimented with in the beginning but was fast replaced with Zoom which is offering a true class interaction experience. Students have the opportunity to borrow laptops from the Academy for distance studies but this option is rarely required as most students possess their own resources.

The meeting with alumni representatives confirmed that graduates are readily employable in the speciality and continue self-development and career in their workplaces. They recognized the importance and duration of practical training during their studies (A).

From the feedback the Panel received through the interviews (E,A) there is no doubt that the graduates are well qualified in terms of knowledge and technical skills based on European regulations for serving the Estonian aviation ecosystem. However, the lack of exposure to the international environment during their studies appears as a real drawback in Europe today. The limited mobility offer, both during the theoretical and the practical phases (SER, M), and the fact that international mobility often leads to a longer duration for completing the study programme (by lack of flexibility of the curriculum) are big hurdles for students engaged in such a 4-year study programme.

The duration of the study programme, at 4 years, is long compared to other similar programmes in Europe. Data for average length of studies (2014-2018) for the CNS and TECH programmes prior to merger was 5.4 years and 4.8 years respectively. Furthermore the dropout rate from the first year of the merged programme was disappointing, despite actions to improve matters (SER). It may be noted that other similar professionals in Europe (maintenance engineers, ATSEP) are educated and trained in less than 3 years. The contents of the current 4-year programme may then be questioned in terms of “competitiveness”, both for its contents /duration (which make graduates arrive later on the job market), financial cost to the taxpayer and limited international exposure. Consideration should be given to reducing the overall duration of the study programme by benchmarking it with similar first cycle programmes in Europe.

Conclusion:

The admission process is comprehensive, transparent and fair. Considerable effort is invested in trying to ensure admittance of motivated and capable students. The learning, teaching, assessment and feedback procedures are student-centred. The use of APEL is constrained by aviation regulations, which require certification. The study programme is strongly supported by practical (certification) training. Academic and other support is available to students, especially under-achievers. The drop-

out rate is high compared to other programmes of the Academy and the average duration of studies is typically 25% longer than the four year programme. International exposure of the students during the study programme is at a low level.

Strengths

- The admission process is comprehensive and considerable effort is invested in trying to ensure admittance of motivated and capable students
- Under-achieving students are given additional consultations and practical training

Areas of concern and recommendations

- There is insufficient international exposure of students during the study programme. Notwithstanding issues of certifying the training, measures should be taken to substantially increase the academic opportunities for international exposure of the students, during the theoretical phases of the programme

Opportunities for further improvement

- The duration of the study programme, at four years, is long compared to other similar programmes in Europe. Consideration should be given to reducing the overall duration of the study programme by benchmarking it with similar first cycle programmes in Europe

2.1.3 Development, cooperation and internationalisation of teaching staff

- Teaching is conducted by a sufficient number of professionally competent members of the teaching staff who support the development of the students.
- Teaching staff follows the principles of academic ethics and the codes of conduct in case of non-compliance.
- Members of the teaching staff participate in international mobility programs which encourage the development of their teaching and RDC activities and the cultural openness of the HEI and the Estonian society.
- The effectiveness of both studies and RDC activities, students' feedback, the effectiveness of supervision, development of teaching and supervision skills, international mobility and entrepreneurial or work experience in the specific field outside the HEI is taken into consideration in evaluating the work of the member of the staff.

Evidence and analysis

The Academy has adopted plans for academic staff development with quantitative objectives. According to the SER, the Academy is making efforts to reach the objectives but these have not been reached yet: whereas the target for academic staff with ratings and/or experience in the relevant professional field of aviation is set at 85%, the Department of Aeronautical Engineering only has 70% in 2020. Similarly, the target for academic staff with a Master's or Doctoral degree is set at 65% but the Department of Aeronautical Engineering only has 50% (SER).

The feedback from the students on academic staff is excellent: over 3 years, the rating is 4.7 (on a scale from 1 to 5). This shows that the satisfaction of students is consistently high, as far as the performance of the academic staff is concerned. This was confirmed through the interviews, both with the students (S) and the alumni (A).

The Academy noted a relatively high turnover rate among the academic staff within the TECH specialty, which induces a lack of continuity and coherence in the training program. This is less the case in the CNS specialty (SER). From the evidence gathered during the site visit, this was not specifically raised as an issue. On the other hand, it was noted that seemingly a noticeable portion of the visiting lecturers were recently hired (2019-2020), whereas conversely the stock of permanent lecturers had been there for many years (T). The increasing number of visiting lecturers contributes to making the teaching very well connected to the industry's everyday life and brings a good exposure of students to real-life realities. As for the permanent academic staff within the Academy, it looks like the recruitment policy is mostly to hire a specialist who can develop a niche expertise in an aviation-related field, thanks to their previous professional experience (M,T).

To constantly improve training, EAVA have contracted external experts to bring expertise to areas where in-house specialists are not in place. This way the Academy will remain up to date with the market (M). Comparisons with partner institutions abroad, e.g. IT Carlow, ENAC and UPC have been

done (SER). Contacts with companies in Estonia are frequent and the new management expressed their intentions to increase the intensity of such cooperation (M, A).

From the interviews, the Panel got confirmation of the excellent and cooperative atmosphere between the academic staff and the students (S,T). The students do not question the professional competences of the academic staff nor their availability and support towards them. The ratio of academic staff per student is quite good, due to the relatively low number of students (SER). The strong focus on practical training, both for the CNS and the TECH specialties also contributes to that proximity between students and staff. Last but not least, for the final thesis period, the students benefit from the support of two tutors, one within the Academy, one in the company where they are working.

It is stated that 70% of academic staff in the Department of Aeronautical Engineering have participated in international mobility programmes (SER) but this is not precisely documented in the SER. It is suspected that most of it is limited to attending a conference abroad but nothing is clearly said about the effective participation, including presentations made or papers written. From the interviews, the panel got the feeling that the teaching staff considered the international component of the training programme as satisfactory (T) and the students themselves did not complain about a possible lack of international exposure (S, A), although there were sounds that some more of that would not hurt either (S).

For the Panel, it is clear that the international dimension of aviation is widely under-estimated by the teaching staff of the Academy and this is leading to a limited international offer for the students. Students indicated that they would welcome more international exposure during studies (S). However, since the Estonian job market has recently (i.e. before Covid-19) been quite favourable for the Academy's graduates, they have not really been impacted by the low international exposure during their studies. The same analysis applies to the teaching staff who appear to "do the job" according to the Estonian terms of reference given by the stakeholders, both public and private. There is therefore no incitement for them to develop their research competences nor their international skills.

A workload model has been introduced which acknowledges the differentiated proportions of research, teaching and contribution/administration across the academic grades. Nevertheless the reward structure allows extra payments for additional teaching loads. There is inherently a strong emphasis put on teaching in the Academy, which potentially limits the depth of academic profiles on a larger scale and may constitutes a limitation to the Academy's development on the international HEI scene.

Conclusion:

The analysis of the study programme in Aeronautical Engineering confirms the general considerations about the Academy. Students enjoy a very good and comfortable study environment, with a strong student to faculty ratio, a great availability of the teaching staff to counselling, mentoring and providing guidance to students. The relationships between student and staff are straightforward, trustful and benevolent, and the students benefit in their training from the great level of professional competences of the teaching staff. In such a strongly focused, applied sciences institution, it is no surprise that only a small portion of the teaching staff has a strong academic background or a research orientation. This strong emphasis put on professional qualifications instead of more academic profiles contributes to the solid expertise of the Academy in its specialty field but, at the same time, constitutes a limitation to the Academy's development, particularly on the international level.

Strengths

- Creation of mentoring positions within the academic staff

Areas of concern and recommendations

- There is a need to increase and make more efficient the participation of academic staff in international mobility programmes. Cooperation with local and foreign HEI could be improved. It is recommended that quantitative objectives should be set in the new Strategic Plan 2020-2025 regarding the development of the teaching staff towards more academic profiles (Master, PhD) and incentives to internationalise.

Opportunities for further improvement

- Staff need to avail of opportunities to increase research activity through international collaborations provided by EU 'widening' funding

2.2. Study programme: Air Traffic Service (ATS) (Professional higher education)

The ATS study programme was adopted in 2012. The ATS study programme is externally audited and is in compliance with the EASA-certified training organisation's requirements, ensuring the validity of the certificate. The ethos of the programme is the training of a specialist combined with education at professional higher education level such that the graduates have the potential to develop and target management jobs inside as well as outside the enterprise. This distinguishes the specialist who has completed professional higher education studies from a colleague who has vocational education. The ATS programme is designed to produce graduates with the ability to see the broader picture with planning and analytical skills and the ability to make independent decisions.

It is possible to specialise in ATCO ratings (Aerodrome Control, Approach Control and Area Control) in the Rating Training Module within the ATS study programme. There is a possibility to add a minor in Aviation Management.

It is a first cycle programme which provides graduates with the opportunity to continue to master's studies. Currently such second cycle higher education is not available at the Academy but partner HEI's have been identified for EAVA first cycle graduates to enter.

The number of students admitted to the programme is typically 6 per annum. The trend of interrupters in the ATS study programme is uneven, fluctuating between 3% and 19% in the period from 2015-2019 but has been very low in recent years. The total number of students in the ATS study programme has decreased from 42 in 2014/15 to 28 in 2019/20. The number of graduates has averaged 6 per annum in the period under review.

2.2.1 Planning and management of studies

- The design and development of study programme(s) take into account the expectations of students and other stakeholders, national strategies, legislation and trends in the particular area as well as labour market needs. The level and volume of RDC activities is sufficient and supports the launching of the study programme(s).
- The objectives of study programme(s), modules (including courses) and their learning outcomes are concrete and coherent. The teaching content and methods and assessment criteria and methods support students in achieving their learning outcomes and developing their key competencies. The study programmes support the development of creativity and entrepreneurship and other general competencies.
- The administration of material and financial resources that ensure the design and implementation of the study programme(s) is purposeful, systematic and sustainable. The learning environment, including materials, tools and technology support the students in achieving their learning outcomes.

Evidence and analysis

The ATS study programme follows the EAVA study programme development process, including regular review through the Study Programme Council structure. Feedback is collected from students, teaching staff, administrative staff as well as alumni. Concurrent feedback by corporate supervisors during practical training by students is valuable input in changing the organisation and contents of studies in order to achieve the required learning outcomes. During the interviews, the Panel was able to collect evidence to show that the HEI has put in place a system for the ongoing development of this degree programme which includes all stakeholders and allows them to express their views and make suggestions for change or improvement to the degree programme (M,T,E).

The programme has a thematic RDC activity, currently around RPAS operations, risk analysis in a control zone, interactive web map applications for UAV, remote tower operations and the impact of the Northern Europe Free Route Airspace strategy on a national terminal control area (SER).

A significant number of the programme objectives, modules and learning outcomes are inextricably linked to the Academy being a certified training organisation according to EASA regulation 2015/340. This provides a baseline for the theoretical and practical ATS programme. In 2019, a student from the ATS degree programme analysed the curriculum of the HEI's Air Traffic Services degree programme for her final thesis. The main aim of the thesis had been to collect input on how to reduce the number of mandatory courses during the first two years of studies. Even though some courses were not considered due to the low numbers of answers received, the outcome of the investigation was that at least 12 ECTS could be reduced in the first two semesters (SER).

In addition, in order to reconcile the training requirements laid out by EASA with the needs of the HEI as an institution of higher learning, EAVA has made a comparison with similar study programmes at universities in Slovakia and Turkey. This has prompted the Academy to consider reducing the scope of its own degree programme from 240 ECTS to 180 ECTS. The Academy has identified the advantages of such a reduction, as it would mean that students would be able to complete their studies within three years and would therefore enter the job market one year earlier. It is expected by the HEI that

this may also have a positive effect in terms of decreasing the drop-out rate of students from the degree programme (SER). The Panel note that this might also raise the possibility of a linked second cycle master's study programme.

There is considerable use (38%) of an e-learning environment, using Moodle and the ATC simulator. The e-learning environment is used to support students' independent work. For example, the ATC simulator has the functionality to record practical exercises, allowing students to repeat the exercises independently (SER).

The facilities are up-to-date which is attractive to external users, such that the Academy can use external earnings to help ensure the financial stability of the programme (SER).

The students' feedback to the Panel indicated high satisfaction with the learning environment (S).

In the event of a curriculum review to reduce to a three year programme the Academy indicated that Economics and Entrepreneurship module credits would be maintained. This is welcomed by the Panel, as it was deemed useful in supporting the students in the development of their creativity, entrepreneurship and other general competencies.

Conclusion:

The study programme is developed in close cooperation with all relevant stakeholders, such as industry, students and alumni. It ensures the compliance of the programme to the expectations of the future employers as well providing assurance that every feedback is taken into account. The programme objectives, modules and learning outcomes are coherent for the training of a specialist combined with education at professional higher education level. The potential to reduce the programme study duration from four years (240 ECTS) to three years (180 ECTS) is being considered in a manner that would be compatible with the intent of the Bologna first cycle/second cycle higher education model. The programme is financially sustainable. Student satisfaction with the learning environment is high.

Strengths

- The training facilities for studies are exemplary
- The state-of-the-art ATC simulator yields external revenue which contributes to the quality of teaching aids available to the students
- The learning environment is enhanced by the community spirit within and between EAVA´s students and staff

Areas of concern and recommendations

- NIL

Opportunities for further improvement

- Inherently linked to creation of a critical mass of staff with higher academic degrees (master's, Ph.D.) is the development of a master's degree programme linked to the revision of the bachelor's programme to a three year curriculum instead of four year curriculum

2.2.2 Learning, teaching and assessment

- Conditions and organisation of admission ensure fair access to education and motivated student body. Students' choice of specialisation is supported.
- A student-centred approach is used in the studies, aiming at the students to assume responsibility for planning their studies and career and supporting the development of key competencies and achieving the learning outcomes of the study programme.
- Student assessment, including taking accreditation of prior and experiential learning into account, supports the students and corresponds to the learning outcomes. Objective and reliable assessment is ensured.
- The organisation of studies including practical work and training is based on the specificities of students and forms of study and supports the student in achieving the learning outcomes. Opportunities have been established for mobility within Estonia and internationally.
- Support services for students are in place and available for students. Individual development and progress of students are monitored and supported.
- Graduates of the study programme are competitive in terms of their knowledge and social skills both nationally and internationally.

Evidence and analysis

The conditions and organisation of admission to the ATS study programme carefully balance fair access to higher education, suitability to undertake the course and thereby a career in ATC, together with the formation of a motivated student body. The admission process follows the Admission Rules adopted by the EAVA Council. An Admission Committee, comprising the Study Programme Manager, speciality academic staff and, if possible, an employers' representative, analyses each applicant's relevant personal characteristics, mental abilities, learning motivation and habits. These are the main prerequisites for entering an ATS speciality. Data includes use of the results of the First European Air Traffic Controller Selection Test (FEAST) to rank candidates. The candidates are interviewed to assess their learning habits and learning motivation as well as speciality motivation. The Academy has a list of preventive methods to get more motivated entrants. This should decrease the number of drop-outs (SER). The Panel agrees that the selective process of admission to the ATS speciality programme is reasoned and fair.

A student-centred approach is used in the studies, aiming at the students to assume responsibility for planning their studies and career and supporting the development of key competencies and achieving the learning outcomes of the study programme. Students have choice and access to a wide range of elective and optional courses through a partnership arrangement with the University of Tartu and the Estonian University of Life Sciences. A briefing is organised for first-year students to introduce options in the study programme and the impact thereof on specialisation in their future career. A popular option is a minor in Aviation Management. A blend of theoretical knowledge and practical training is used to achieve the programme's learning outcomes. The sequence of theory and practice is considered in the organisation of studies such that practical training validates theoretical knowledge and practical skills as well as development of general competence (SER). Some students find higher-level mathematics to be a particular challenge and the Academy offers first-year students a bridge

course to reduce disparities within the class cohort. Feedback to the students on their progress is an integral part of the learning experience (SER). The alumni and employers praised the level of theoretical knowledge and practical skills of the students through the quality of delivery by the Academy staff (A,E).

Students who complete the study programme receive an ATCO Student Licence, upon completion of the Speciality Rating Training Module. To achieve this milestone, a summative assessment of aviation competencies takes place in the simulator as an examination exercise. Assessment requirements are explained to the students during the briefing at the beginning of the term and again prior to final examinations.

Student assessment, including taking accreditation of prior and experiential learning into account, supports the students and corresponds to the learning outcomes. Objective and reliable assessment is ensured through clearly defined teaching goals of each course. Although use of APEL is constrained by aviation regulations, it has been possible to grant carefully prepared applications where the subjects are not those prescribed by aviation regulations. The Academy ensures counselling of APEL applicants (SER).

Students develop habits of continuous independent work supported by the versatility of modes of knowledge checks. Thus, the students have to participate actively throughout the term and increasingly the final grade evolves as a result of several modes of assessment. Internal audits are conducted to ensure teaching quality and to check whether teaching and knowledge comply with the syllabus. External audits are carried out to ensure quality in the modules of basic speciality studies and in rating training. An Audit Plan is compiled every year (SER). Students praise the nature of studies - feedback is personalised and supportive (S).

The organisation of studies including practical work and training is based on the specificities of students and forms of study and supports the student in achieving the learning outcomes. The organisation of studies at the Academy supports domestic and international mobility, as students may complete optional and elective subject courses at partner HEIs. Opportunities have been established for mobility within Estonia and internationally. A target of 6% has been achieved, 5.5% at partner HEI and 11.5% at a foreign enterprise (SER). Practical training is assessed on the basis of the supervisor's and student's reports. Initially, professional experience is acquired in practical sessions and simulator practical sessions at the Academy. Later, in-company practical training includes the student trainee operating live air traffic control service under the supervision of an instructor from the enterprise (SER). Students indicated that they are well aware of the mobility options and praised the good work of the Head of the Department of External Relations and Marketing (S).

Support services for students are in place and available for students. The Individual development and progress of students is monitored and supported. Students are entitled to contact the Department of Studies and the speciality department to get information and counselling in order to solve study- and career-related issues. Counsellors are introduced to the students in the first term. Access to on-line external psychological counselling is available through the Department of Studies (SER).

Graduates of the study programme are competitive in terms of their knowledge and social skills. Graduation thesis themes are frequently suggested by enterprises. Supervisors may be appointed from the enterprise, often with an academic consultant from the Academy, where supervision capability at the enterprise may be inexperienced from an academic viewpoint (SER).

Graduate attributes and skills are applicable nationally and internationally. As of 2019, 97.5% of the graduates from the ATS study programme are employed. The students may apply for jobs in air traffic service providers in Estonia and abroad. Given that ATCO positions are highly specific, the Academy widens the graduate attributes to expand the graduates' career choices, notably through the minor in Aviation Management (SER). Employers are very satisfied by the level of skills of the graduates (E).

Strengths

- Widening of graduate attributes to combine a minor in Aviation Management with ATCO Student Licence capability

Areas of concern and recommendations

- NIL

Opportunities for further improvement

- Drop-out cases are often caused by students taking up employment, which leads to a lack of time and motivation to finish their studies. During visits to enterprises the speakers of enterprises should stress the importance of graduation. This might be the outside motivator the students need
- The structure of study programmes is set in a logical way but some students do not fully understand the need of mathematics, physics etc). Efforts to link aviation-related case studies to the basic sciences and mathematics in class might help them to stay more motivated

2.2.3 Development, cooperation and internationalisation of teaching staff

- Teaching is conducted by a sufficient number of professionally competent members of the teaching staff who support the development of the students.
- Teaching staff follows the principles of academic ethics and the codes of conduct in case of non-compliance.
- Members of the teaching staff participate in international mobility programs which encourage the development of their teaching and RDC activities and the cultural openness of the HEI and the Estonian society.
- The effectiveness of both studies and RDC activities, students' feedback, the effectiveness of supervision, development of teaching and supervision skills, international mobility and entrepreneurial or work experience in the specific field outside the HEI is taken into consideration in evaluating the work of the member of the staff.

Evidence and analysis

The list of academic staff teaching in the ATS programme shows that there are more than 40 persons involved in teaching in this degree programme. Given the current size of the courses, this suggests that there is a good ratio of teaching staff to students. The teaching staff provide high quality training and education for the national market.

Currently academic staff are able to adequately supervise and support students in their development for the national market. There is a strong emphasis put on teaching in the Academy, which potentially limits the depth of academic profiles on a larger scale and may constitutes a limitation to the Academy's development on the international HEI scene. A workload model has been introduced which acknowledges the differentiated proportions of research, teaching and contribution/administration across the academic grades. Nevertheless the reward structure allows extra payments for additional teaching loads whereas this is not reflected in an incentivised reward structure for research.

The principles of academic ethics of the HEI are well documented in the SER. New staff are made familiar with the official Estonian Rules on Organisation of Work document. The document itself is in Estonian and lays out the obligation and expectation towards staff contractually linked to the HEI. In addition, there is also the Estonian Code of Conduct for Research Ethics, which is available in English and Estonian and can be downloaded from the University of Tartu's website (SER). During the meeting with the ATS staff, visiting lecturers reported that the HEI had provided support in the form of teaching skill development. The lecturer cited problem-based learning as an example of the skills they received tutoring in. The lecturer reported positively on the support received and was very appreciative (T).

With regard to staff mobility, although there are currently agreements in place with 20 HEIs across Europe, the degree of mobility, as understood in an international context, is low. However, a clear strategy for the HEI's international development is currently still under development.

The HEI has put in place a number of measures to ensure that the teaching staff is systematically encouraged and involved in professional development programmes, with a clear focus on their teaching skills. In training the pedagogical skills of the academic staff, assessment is one of the topics under view in order to introduce various assessment methods. Members of the academic staff share their experience and best practices in teaching, assessment and e-learning at academic staff seminars (SER).

The HEI acknowledges that highly specialized experts in the field of aviation that combine both the required practical training with adequate academic qualifications are hard to come by. This is acknowledged in the SER and was also mentioned during the onsite visit. It is intended that future academic staff might be furnished from among graduates of the HEI.

Strengths

- The teaching staff provide high quality training and education for its domestic market

Areas of concern and recommendations

- NIL

Opportunities for further improvement

- As the HEI expands its international profile through closer cooperation with academic institutions abroad, it would be good to formulate a particular career development strategy for academic staff of the Department of Air Traffic Services Training that will promote master's degree supervision capacity allied to a vibrant RDC culture.