ICAO TRAINING REPORT

THE EVOLVING PRINCIPLES OF TEACHING AND LEARNING

Optimizing Training That Supports All Levels In The Aviation Industry

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ICAO

UNITING AVIATION

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INDIA
Airports Authority Rescue and Fire Fighting Services Training Centre

Civil Aviation Training College Allahabad

Fire Service Training Center (FSTC)

GMR Aviation Academy

Indian Aviation Academy (IAA)

INDONESIA
Air Transportation Human Resources Development Centre (ATHRDC)

Indonesia Civil Aviation Institute Sekolah Tinggi Penerbangan Indonesia

JAPAN
Aeronautical Safety College (ASC)

MALAYSIA
Malaysia Aviation Academy (MAvA)

MONGOLIA
Training Centre of the Mongolia Civil Aviation Authority (TCMCAA)

NEPAL
Civil Aviation Academy of Nepal (CAAN)

NEW ZEALAND
Airways New Zealand Training Centre

PAKISTAN
Civil Aviation Training Institute (CATI)

PHILIPPINES
Civil Aviation Training Center Civil Aviation Authority

REPUBLIC OF KOREA
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SINGAPORE
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SRI LANKA
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Sri Lankan Aviation College

THAILAND
Civil Aviation Training Centre (CATC)

*As of 20 March 2017

THE FUTURE OF AVIATION: MEETING THE DEMANDS

MESHESHA BELAYNEH

Over the last ten years, because of the strong traffic growth pattern in commercial air transport, not only have many new commercial air transport operators entered the market, but we have the highest number of aircraft orders ever registered. Over the next twenty years, the demand for qualified aviation personnel will need to be correlated to aircraft delivery plans. Because today's training needs are not aligned with the training capacities for the various categories of personnel, we will be witnessing a shortage of training in most areas of the world.

We are also faced with the challenge of replacing one generation of professionals with another as the baby-boomer generation reaches the age of retirement – and this is not a simple task.

Our Member States must ensure these, and other attrition impacts, are thoroughly factored in their human resource planning. Increased coordination among States on required training needs and training offerings, whether globally, regionally or locally, is essential to meeting the projected global requirements for our aviation professionals of the future.

HOW CAN WE MEET THE DEMANDS?

ICAO, as the only UN body to develop international standards and recommended practices in aviation, is strongly committed to providing States with targeted assistance in training and human resources capacity building. We also coordinate continuous monitoring programmes that audit the safety and security oversight capabilities of our States, and develop corrective plans and other measures in conjunction with them where necessary – all in the service of assessing and assuring the implementation of ICAO's international Standards and Recommended Practices.

This assistance will be more important than ever over the next decade, especially in the area of capacity building. With flight and passenger volumes set to double by the year 2030, global training and capacity building will remain very important priorities for ICAO.

Cooperation is also an important factor in developing training capacity solutions for near- and long-term success. Not only does the ability of students and trainees to access courses and specialized equipment vary from region to region, but online course solutions can be hampered by local technologies and infrastructure challenges.

DEVELOPING PARRNTERSHIPS

The mission of ICAO's Global Aviation Training Office is to support and lead strategic coordination on human resource development, and better align all ICAO training activities with defined global objectives.

The TRAINAIR PLUS Programme, ICAO's cooperative network of training organizations, plays an important role in this process by standardizing high-quality training packages and harmonizing training approaches. Training organizations that are members of the programme have access to affordable and cost-effective Standardized Training Packages (STPs) which they can deliver nationally or regionally, thereby drastically reducing enrollment fees for trainees.

The fast-growing TRAINAIR PLUS network brings together a community of more than 90 Members, distributed throughout close to 70 ICAO Member States, that are making significant contributions to capacity building.

The development and implementation of competency-based training courses to support the human resources capacity-building of Member States in all ICAO Strategic Objectives, is an important priority.

OUR FOCUS ON THE FUTURE

Responding to human resource challenges requires more than developing various forecasts to gauge the needs for the future; it calls for promoting aviation as an attractive career option to youth. We need to open communication within the aviation community and initiate cooperation with educational bodies.

ICAO, and our partners, are currently promoting aviation by participating in various aviation fora, developing communication and publicity tools, and engaging directly with students and educators. This work, targeting youth of all ages, is being undertaken by an extensive network of volunteers composed of industry experts, technical and training experts, and educational professionals who are coordinating through the ICAO's Next Generation of Aviation Professionals (NGAP) programme.

Each region, and in fact each State, has its own economic, cultural and social factors that impact a person's decision to work in civil aviation. We need to understand what those factors are in order to provide better access to information about our industry, to ensure there is increased access to training and education in civil aviation, so we can help the next generation take advantage of the opportunities that exist.

BUILDING THE SKILLS OF TODAY'S INDUSTRY

By working with representatives and supporters from different organizations and backgrounds, we can help provide a robust platform for developing and sharing training that aims to engage and retain the current generation.

In some professions on-the-job experience plays an important role in the development of overall human performance, but as technologies advance and processes evolve, continued training ensures efficiencies and brings new opportunities. The goal is to achieve greater programme standardizations in accordance with competency-based frameworks.

THE VALUE OF TRAINING REACHES ALL LEVELS

Continued learning allows professionals in all areas of an organization to broaden their prospectives, enhance their professional skills, refresh their knowledge, exceed their goals and it helps them gain competitive advantages. In aviation's increasingly global and digital environment, finding and developing the best talent plays an important role in an organization's success.

ICAO recently opened partnership opportunities with tertiary education providers, such as Universities, to enhance soft skills of today's and tomorrow's aviation professionals, in line with our partnership with Canada's Concordia University. Programmes like these help to align goals, foster stronger communication and lead to personal, professional, transformation and growth. ■

THE IMPACT OF TRAINING ON ONE MAN'S CAREER

ROOSEVELT COUNCIL, JR.
He became General Manager of Hartsfield-Jackson Atlanta International Airport in January of 2017, after holding several positions at the airport. Council has more than 30 years of experience as a financial professional. He has served as CFO with the City of Atlanta and with the State of Georgia Technology Authority.

I should open this by saying that I still feel new to the aviation industry. I can vividly recall my conversation with the Mayor of Atlanta about the appointment. When he brought me into his office and told me he needed me at the airport to replace the outgoing CFO, I was the Deputy Chief Financial Officer for the City of Atlanta. Though I did mention that I had never worked at an airport, he assured me this did not matter.

In January of 2011, I started my airport aviation career at Hartsfield-Jackson Atlanta International Airport (H-JAIA), the world's busiest and most efficient airport.

At H-JAIA I quickly rose to Deputy General Manager/Chief Financial Officer and after three years, when the Mayor was looking to replace the retiring General Manager of the airport, very surprisingly, my name was being floated as a possible replacement. While I was amused by this notion, the mayor quickly squashed the rumors by stating that I did not have enough industry experience to run an airport. He was correct.

My career goals never involved working at an airport, let alone running one. My most immediate ambition at the airport was to become completely immersed in understanding the aviation industry and more specifically, how airports work. I would then apply my financial experience and acumens to that understanding in hopes of putting H-JAIA in the best financial position to achieve its goals and objectives. I was able to achieve this goal by building a great financial team and by setting and reaching financial targets. We achieved seven bond rating agency upgrades in my first five years. Knowing that we would have a new capital improvement programme underway in the near future, this was critical.

As I established a new baseline of excellence in financial management for H-JAIA, I realized that for me to expand how I would continue to add a high value as Deputy General Manager, I needed to understand every aspect of how an airport is managed and the role it plays in the aviation industry. The natural path of this additional knowledge was through the Airport Management Professional Accreditation Programme (AMPAP). I truly believe that sometimes during a career one needs a lot of luck or an "alignment with the stars" to create a path to continued growth. It just so happened that the newly appointed General Manager at H-JAIA was a huge supporter/promoter of the AMPAP programme. So I began my journey to airport aviation enlightenment with AMPAP as the vessel.

My initial AMPAP course was not the Gateway course, Air Transport, but instead an elective, the Airport Executive Leadership Programme (AELP). Again, I think the stars aligned for me. The class was held in Canada and I had the chance to meet Dr. Pierre Coutu, who was the AMPAP Programme Director. His address to that class set me in motion, with the proper mindset for how AMPAP can accelerate the narrowing of the chasm that existed between me being a novice in this industry, and the knowledge I would need to make an impact through my role.

In addition to Dr. Coutu, those taking the course with me also proved to be a source of inspiration. The majority of them were at the tail-end of their IAP certification requirements. The number of different nationalities in the course escapes me, but it truly felt like a small version of the United Nations for the week we were together.

The camaraderie that was displayed was incredible. I realized after that first course that there was a universal commitment to making this industry the best worldwide. So my tempo and addiction for industry excellence was set in motion.

I approached each subsequent programme course with that mindset. Reflectively, when I started at H-JAIA, I was told by so many during my first few weeks that this industry will get in your blood and never leave. As I started my AMPAP journey I understood what they meant: I was smitten.

To be clear, a programme like AMPAP is not an easy journey. If you could put your job on hold then maybe, just maybe, it would be a bit easier – AMPAP is a very consuming effort – requiring uncompromising commitment. Each course involves coursework and discussions on topics that are relevant to the day-to-day activities that an airport professional encounters.

The group assignment was by far the most interesting part of each course; the way each group was unknowingly formed, always seemed to create a great group dynamic. With the majority of all coursework done through the portal, managing to complete the group assignment was a challenge, but each group member was committed to making it work. Again, the spirit of camaraderie was present. There was no greater feeling, and relief, than that found when you completed all the coursework to be certified as an International Airport Professional.

I completed my programme and was a proud member of the 2016 graduating class and was even selected as class valedictorian. At that time I had been named Interim General Manager of Hartsfield-Jackson Atlanta International Airport, and four months later I was confirmed as General Manager of H-JAIA.

Though the sheer possibility of this appointment is still incredible to me, I am prepared to face this challenge and opportunity. As I matured through each of my AMPAP courses, I recognized the leap of faith and confidence that was rising within me that only comes from the acquisition of knowledge. Each day in this new role brings with it new, ever-changing dynamics. I feel that I'm ready, AMPAP ready.

In thinking about my journey from January of 2011 to now, nothing summed it up for me more than my address to the graduating AMPAP of 2016. It embodied my sentiments, both professionally and emotionally.

I was humbled to have spoken to the class, an audience that included many of the 118 graduates from around the world who received the coveted international airport professional designation. Each of us had a different story that led us to that day, but as different as our stories were, there was a common thread that bound us all: we were fortunate that those before us had the vision and commitment to understand that this industry requires a collective set of rules and standards of excellence.

AMPAP was our vessel. The programme is so meticulously designed and administered, that it creates a sense of excellence that is unparalleled. Its existence was founded on the premise of sharing ideas and knowledge across an industry that means so much to each of us. AMPAP has become the definitive tool for developing airport professionals around the globe. I went on to thank the AMPAP team and instructors, ICAO's Secretary General, ACI's Director General, and my own former General Manager, whose commitment to this programme saw that the class of 2016 had 18 graduates from Hartsfield-Jackson Atlanta International Airport.

AMPAP has been a great experience. It has not only provided me with analytical tools and intellectual confidence, but it has given me best practices, strategies, and an immense pool of resources that I can draw upon. Make no mistake, AMPAP is not an easy journey. It becomes part of your daily calendar and sometimes takes late nights into early mornings. But it helps to know that others are also making this journey with you, across different time zones, nations, and continents. Those you meet along the way keep you going and focused.

We entered an era where the next wave of highly skilled airport professionals is taking the reins worldwide. And with so many challenges before us, our class is ready to rise up and meet these challenges, armed with the knowledge and commitment that our support does not stop at our doors but spans across all the nations and continents that are a part of ACI and ICAO. ▪

ICAO AVSEC 2017

ICAO Global Aviation Security Symposium #AVSEC2017

AVSEC Culture – Beyond the Standards

ICAO Headquarters, Montréal, Canada, 12 - 14 September

The International Civil Aviation Organization (ICAO) will be holding its inaugural Global Aviation Security Symposium from 12 – 14 September at the ICAO Headquarters in Montréal, Canada.

The three-day Symposium will bring together AVSEC professionals from around the globe to advance the cultivation of a new mind-set towards aviation security, embracing it as a culture that goes beyond a set of standards. It will strategically enhance international cooperation and collaboration to address the threat posed by terrorists targeting civil aviation by reinforcing, strengthening and promoting the international framework of aviation security standards. Participants will benefit from an interactive exhibition showcasing the latest State and industry AVSEC technology and process innovations, along with dynamic learning workshops.

This will also be an incredible opportunity for networking and collaboration between States, ICAO, industry leaders, and representatives from different international and regional aviation organizations.

For more information, please visit our website
www.icao.int/meetings/AVSEC

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TEACHING TO COMPETENCE: MYTHS AND SOLUTIONS

DR. SUZANNE KEARNS
She is an Associate Professor who teaches aviation students at the University of Waterloo. She is a former pilot, the author or co-author of three books and several academic journal articles, and is in the final stages of completing a new textbook called 'International Aviation: An Introduction for the Next Generation of Aviation Professionals which will be published in 2018.

It can be argued that civil aviation has the most rigorous recurrent training requirements of any industry. Unlike our lawyer and medical doctor counterparts, where professionals reach a level of expertise at which society assumes they are competent, even the most distinguished aviation professionals are continually taught and tested throughout their careers.

With such rigorous ongoing training, it is worthwhile to occasionally step back and critically think about the way we teach and learn in aviation. What elements of our teaching effectively transfer to the operational environment, and which are lost from the minds of learners as they walk out of the classroom? What can we do, as aviation educators, to improve the learning?

The rise of competency-based training (CBT: sometimes called 'evidence-based training [EBT]') is a step in the right direction. Within CBT, the knowledge, skills, and attitudes required for professional competence are identified and organized into a series of 'competency statements'. These competency statements become training objectives – focusing training on what learners actually need to know to perform as a competent professional.

CBT is operationally-relevant, and therefore a more efficient approach than old methods where a seasoned professional might tell you to *"forget everything you learned in the classroom – now you will learn how the real world works"* during your first day on the job. Within CBT, the intent is to teach learners how to apply the knowledge, skills, and attitudes learned in a training centre to the professional context.

An attractive element of CBT is that a person who learns faster is able to complete training faster. Therefore, CBT must be adaptive and flexible – allowing advanced students to expedite training and offering additional support for those who require extra time.

Yet, for the average instructor, building flexible/adaptive lessons that target real-world scenarios and link to competency statements can be an intimidating challenge! Before long we may find ourselves falling back into traditional methods of teaching. To challenge traditional teaching methods, with the goal of improving student learning and retention, let's consider the following myths associated with traditional teaching and discuss a few solutions: In general, as educators in aviation, there is a long and

MYTH #1 – SUBJECTS SHOULD BE TAUGHT SEPARATELY

The distinctions between subject areas are human-made. They were created to make teaching easier, not because they necessarily led to better learning or retention in students. For example, ab initio pilots often learn and are tested separately on meteorology, air law, airmanship, and navigation. However, in a real aircraft, the application of these subject areas is continually intermixed. Pilots don't think about meteorology, then stop and think of air law, and later consider navigation. Professional competence requires pilots to continually draw from their knowledge in all of these areas and apply them to situations.

SOLUTION - WHOLE TASK TRAINING
Whole task training situates all instruction within the context of real-world challenges. Training begins with a preliminary unit of supportive information, foundational concepts are explained, and then learners complete several units of whole-task experiences (sometimes called scenario-based training) beginning artificially simple and building in complexity[1]. Reference information is made available on-demand so learners can look up information they may need.

A whole task approach challenges learners to build and draw from their pool of professional knowledge, skills, and attitudes. Distinctions between topic areas (navigation, air law, etc.) are not relevant, since the more separated and isolated knowledge is, the more training it requires to teach the skills to put the topics back together.

A variety of methods are available to add this approach to your teaching, consider: case study analyses, e-learning scenarios, high- or low-fidelity simulations, apprenticeships, job-shadowing followed by analysis, and strategic games[2]. The key is to align the activity with a training goal and ensure it creates an authentic and realistic real-world scenario.

MYTH #2 – TRADITIONAL CLASSROOM TEACHING WORKS FOR EVERY LEARNER AND SUBJECT AREAS

Traditional classroom environments teach to the 50th percentile – the average student in the class. Students who are advanced might experience boredom with the pacing of content while those who are novices may experience 'cognitive overload' where they become overwhelmed by too much content too quickly.

SOLUTION – VARY CLASSROOM TEACHING STRATEGIES TO SUPPORT DIFFERENT TYPES OF LEARNERS AND SUBJECT AREAS

Training should align with the learner's familiarity with the content. Novices benefit more from an instructor guiding them through material while experts benefit from the ability to independently problem-solve.

Training should align with the instructional objectives. Instructors need to ask themselves 'what the goal of the lesson is'. Different goals require different teaching strategies. To apply this to your teaching, consider the following strategies for different instructional goals:
- **Developing knowledge** – use techniques to help learners organize new ideas and elaborate what is being learned.
- **Learning new procedures** – demonstrate a procedure and explain why it is important.
- **Teaching the ability to problem solve** – present learners with a case study or scenario and collectively evaluate the strategy used by the individuals within that situation.
- **Teaching appropriate attitudes** – observe established professionals and reflect on ideal attitudes. Role play and model ideal behaviours.[3]
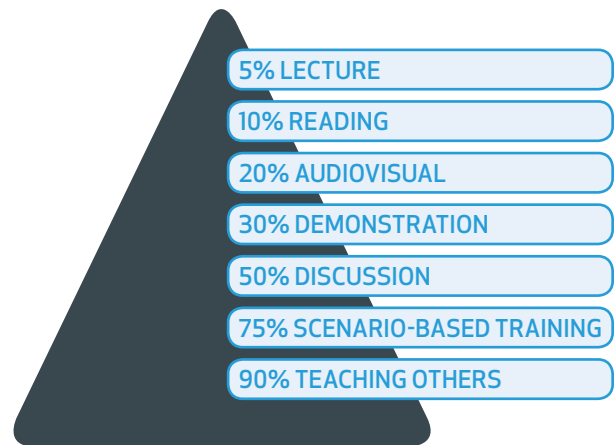
MYTH #3 – STUDENTS KNOW HOW THEY LEARN BEST

People use learning strategies that they have been taught throughout the course of their education. Very often this includes passive listening during class, studying through repetition (such as reading something over and over again), and long cram sessions the night before an exam. Unfortunately, much of what is learned through these methods is transient – it may get them through a test but it is quickly forgotten afterwards. In aviation training, we are not teaching to a test. We are teaching professionals how to safely manage operational challenges that they may encounter in the real world – and retention is crucial.

SOLUTION – TEACH YOUR STUDENTS STRATEGIES TO OPTIMIZE THEIR LEARNING

Learning can be optimized by engaging students as active participants rather than passive observers. Deep, effortful processing, where learners are challenged to elaborate on concepts and link them with their previous experiences, results in more learning and longer retention.

The National Training Laboratories in Maine suggest the following retention rates are associated with various teaching activities:

- 5% LECTURE
- 10% READING
- 20% AUDIOVISUAL
- 30% DEMONSTRATION
- 50% DISCUSSION
- 75% SCENARIO-BASED TRAINING
- 90% TEACHING OTHERS

Lecturing and independent reading is a very traditional and widely used instructional method. However, when you consider the low retention rates associated with these methods, the value of designing and investing in active learning experiences becomes clear.

Many of the more effective approaches, such as discussion and scenario-based training, are directly aligned with competency-based approaches. Other teaching strategies that can be implemented include the following[4]:
- Quizzing, since as learners recall information their learning improves (compared to reading and re-reading). Consider implementing flash cards for this purpose.
- Encourage learners to space out study/practice sessions or switch between different subject areas. This back-and-forth process feels more difficult but it results in improved learning.
- Present new material to learners and challenge them to solve a problem they don't know the answer to. Then, present them with the answer. Even if learners get the answer wrong initially, this process improves learning and retention.
- Human working memory has a small capacity and is quickly overwhelmed, but our long term memory is practically limitless. Instead of requiring learners to memorize small details (resulting in cognitive overload) challenge them to elaborate on new material and apply it to their previous experiences.

MYTH #4 – LAPTOPS HELP STUDENTS LEARN

Finally, a challenge in the modern classroom is that instructors are often competing with the entire world of information accessible to learners online. Although laptops can be wonderful educational tools, they can also be massively distracting for learners. Over long classes, students engage in off-task computing activities almost two-thirds of the class time.[5]

Many learners feel they perform better with laptops because they can type faster than they could hand-write – however research suggests that typing results in reduced learning compared to hand-written notes. This is believed to be because typing allows learners to copy what is said verbatim while slower handwriting forces learners to consider the material and reframe it in their own words[6].

In addition, laptops have an almost viral impact on classrooms. Laptop use lowers the performance of their users. However, laptops also reduce the learning of any student in direct view of the laptop screen![7]

SOLUTION – LIMIT LAPTOPS IN THE CLASSROOM

To avoid problems associated with laptops, their use must be carefully regulated by instructors. Learners should be instructed when to use their technology, such as in support of a game or a scenario-based activity, and otherwise keep it turned off. If laptops must be used, limit their use to the back row of the classroom so it does not have a negative impact on other learners.

respectable history of high-quality training. However, as the industry shifts towards competency-based education it creates new opportunities to rethink traditional approaches and evolve our teaching methods in new and creative ways. ■

NOTES

1. (van Merrienboer, et al., 2002)
2. (Kearns, et al., 2016)
3. (Smith & Ragan, 2005)
4. Following bullets adapted from (Brown, et al., 2014)
5. (Ragan, et al., 2014)
6. (Mueller & Oppenheimer, 2014)
7. (Sana, et al., 2013)

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Second Global Air Navigation Industry Symposium (GANIS/2)
Safety and Air Navigation Implementation Symposium (SANIS)

Sustainability and enhancement of safety and air navigation system performance

The International Civil Aviation Organization (ICAO) will be hosting the Second Global Air Navigation Industry Symposium (GANIS/2) and the Safety and Air Navigation Implementation Symposium (SANIS) at ICAO Headquarters in Montréal, Canada from 11 to 15 December 2017.

The Symposia will provide a global platform for States, industry leaders and stakeholders to collectively address increasing challenges by synchronizing views and refining concepts to achieve the expectations of the aviation community. In support of an ongoing discussion about the need for global harmonization, attendees will benefit from the discussions regarding the evolution of the Global Air Navigation Plan (GANP), the Aviation System Block Upgrades (ASBUs) and the Global Aviation Safety Plan (GASP). The attendees will also be provided with air navigation implementation strategies and the opportunity to discuss other safety and air navigation related topics, as well as offer return of experience on already implemented solutions.

An industry exhibition will showcase current and emerging technologies, as well as provide a unique snapshot of the global air navigation industry. It will provide insight on how stakeholders can work together to address the technical, operational, regulatory and economic challenges the industry faces both currently and in the future.

This effort will lay the foundations for the Thirteenth Air Navigation Conference (AN-Conf/13) to be held from 9 to 19 October 2018, which will serve as the next critical global milestone.

UNIVERSITIES AND AVIATION – HOW ARE THEY LINKED?

DR. PAUL BATES
He is Head of Aviation at the University of Southern Queensland in Australia. He has been leading university aviation programmes for over 20 years, and through online programmes, he has alumni in every corner of the globe. He currently supervises one of the largest aviation safety research groups in the world with 10 Doctoral candidates currently studying various aspects of aviation safety. Dr. Bates has won various awards for teaching and learning and is a Fellow of The Royal Aeronautical Society. He has developed programmes that deliver higher quality outcomes for students and the industry, with over 30% of the pilots in one of Australia's major airlines graduates of his programmes.

In the modern era, a university is considered an institution of higher learning where research and teaching are conducted, and degrees are awarded. Though there are some 17,000 universities in the world today of varying sizes and quality, it is thought that the first one, the University of Bologna in Italy, was established in 1088. The word University comes from the Latin word *Universitas* which, as an abbreviation of the term *universitas magistrorum et scholarium*, translates to a "community of teachers and scholars".

Traditionally, universities are "self-accrediting" and promote "academic freedom", whereby academic staff are free to research and write on whatever they wish to research. Though they often have their own act of parliament (or other law making institution) which gives them the level of autonomy to teach the courses they choose, undertake the research they wish, and to award the degrees they determine, more recently governments have begun developing national quality systems that require universities to comply with certain quality standards.

There are many university ranking schemes that publish rankings lists. These lists have become very important to universities since they affect their ability to attract both domestic and international students, and their ability to develop partnerships with high quality organizations. In fact, universities have changed specific behaviours to improve their rankings. While many consider the ranking schemes to be simplistic and not a true reflection of the quality of the institutions, they do in fact assess many things that are important to universities. Though ranking schemes list universities in a numerical order, there is very little difference in quality in the first 1000, and a solid education may be received at any of these institutions.

WHAT ROLE DO UNIVERSITIES PLAY IN THE AVIATION INDUSTRY?

Aeronautical engineering has been taught at universities for many years, covering areas of teaching and research that include avionics, materials, propulsion systems, among others. These engineers are not the engineers or mechanics who undertake the physical day-to-day work on aircraft, but rather those involved in design of aircraft and aircraft components who oversee the manufacture and maintenance of aircraft.

More recently aviation management, airport management, pilots, air traffic controllers, and in certain areas, cabin crew programmes, are being offered at a university level. Some universities are now also offering diplomas (which are at a lower level than a bachelor degree) in areas like aircraft maintenance.

Research is the other major component of a university and today many (but not all) universities are engaging with the wider aviation industry to research various aspects of the industry, from safety-related activities to economics and education and training. Aviation-related research is still under development in many areas and will mature over time.

WHAT IS A BACHELOR DEGREE?

While the answer to this varies around the world, a bachelor's degree will take three to four years, depending on the State and area of study. In the United States, a bachelor degree normally takes four years, while in Europe they vary from three to four years and in Australia and other former English colonies, they usually take three years to acquire. These variations often confuse people and raise the questions of output quality and length of the degree. How can a three-year degree from one State be the same as a four-year one from another?

The answer lies in the various philosophies of the high schools the students attended before university. Some States have high schools with an additional year of schooling, and a more specialized education might only require three years of university education, while others provide a broader, but shallower education and require four years to develop the same quality of bachelor degree output. Generic degrees with no professional links are more easily accepted globally. An American university will readily accept a three-year Bachelor of Science degree from Australia as equal to their own 4-year Bachelor of Science degree, and in jobs that simply require a "graduate", most degrees will be acceptable.

This does, however, get complicated when we move into the "Professional" areas since professional degrees are not always recognized internationally. Lawyers and dentists face difficulties when working in States other than those they studied in.

WHAT IS AN ASSOCIATE DEGREE?

Some universities (and many colleges or training institutes) offer a two-year programme called an associate degree. These are generally oriented towards technical qualifications but can also be a component of a full bachelor degree. Qualifications are also often offered through colleges or institutes of higher education rather than a university. They also come with various names but at the same educational level (i.e., an advanced diploma or higher diploma can be the same thing as an associate degree).

WHAT IS A MASTER'S DEGREE?

Most masters degrees will be two years in length and require the student to already hold a bachelor degree (or sometimes equivalent work experience). This is considered a graduate or postgraduate qualification depending on the nomenclature used by the country of education. Some masters degrees can be completed in 18 months if the bachelor degree held is in a similar area. For example, if a student has a Bachelor of Aviation Management, he will be able to complete his Master of Aviation Management in 18 months, though again, this depends on the State. While the bachelor's degree is usually a workforce entry qualification, the master's degree is aimed at increased depth of learning in an area, and is often considered to be required for a management position.

WHAT IS A PHD?

While some States and some universities offer what is known as a Professional Doctorate, the Doctor of Philosophy (PhD) is the highest level of Academic achievement. Some PhD programmes will contain some formal courses, while others will be purely research project-based. The outcome is to produce a graduate who is a qualified and capable researcher, able to undertake research projects to add to the world body of knowledge. This qualification will take between three to five years, full time. The timeframe can be flexible since this is cutting edge research and things often go wrong in research projects.

WHAT IS A UNIVERSITY PROFESSOR, WHAT DO THEY DO AND HOW DO YOU BECOME ONE?

Around the world, permanent educators of university students are called different things and carry out different tasks: academics, professors, university teachers. A person who works in a university can sometimes hold a job that is considered a university professor, but their rank is not a professor. The various job titles and ranks can be very confusing. Academic rankings vary in different States and the number of ranks also differ:

- The highest rank in a university are professors, full professors or tenured professors (their title is professor). To equate this to industry, the professor is like the captain in an airline, and just like the captain, the title is linked to a job – and once you leave the position, you can no longer use the title. This is unlike the qualification in that, once you have a doctoral qualification, you can never lose the title of doctor.
- The next rank down the list is the "Associate Professor" who is like a first officer, and then the assistant professor, who is like a second officer. Some States have a longer list of positions who can start as associate lecturers, lecturers, senior lecturers, associate professors and professors.
- The entry level position, no matter what the title is, will usually at least require a master's degree, and most often these days, it will require a PhD. There will be specific requirements promulgated by the university for promotion. Though this will vary in different places, let's look at an average institution.

An academic is required to do research and to engage in service to the university, profession or external community. In many universities, a standard academic will spend 40% of their time in teaching-related activities, 40% of their time in a research-related activity and 20% of their time in a service-related activity. To be promoted, a staff member would need to become more highly accomplished in these areas and more recognised in their area of expertise. This can be accomplished through numbers and quality of research or scholarly peer reviewed papers, receiving large competitive research grants, having high quality teaching evaluations and holding high level service positions within the university or area of expertise.

WHAT DOES ALL THIS MEAN FOR AVIATION?

University engagement in aviation means that there are increasing numbers of people available to engage in high quality industry-driven research and highly qualified people to work on committees and other industry activities. Many of these academics are, or have been, industry professionals before becoming academics, thus the universities offer a means to continually improving the way that the industry does its business. The world of universities is complex and highly nationally or regionally based, and while this article could not cover all the permutations of university life, it does give a taste of the system and its complexities. ■

MEETING THE DEMANDS OF THE AVIATION INDUSTRY WITH COOPERATION AND STRATEGIES

DIANA DUMITRACHE
She is the President of the Romanian Aeronautical Association and Director General of the European Aviation Institute and an active member of both the European Civil Aviation Conference (ECAC) Network of Training Organizations and the European General Aviation Safety Team (EGAST), and the Chair of the NGAP Strategy and Planning Working Group.

It's no secret that the aviation industry will face a severe skills shortage in the years to come as the older generation retires, and the new generation struggles to keep up with the incredible growth of the aviation industry.

In anticipation of this challenge, in 2009, under the Next Generation of Aviation Professionals (NGAP) initiative, ICAO began working with several States and industry players to assist the aviation community and ensure that there will be enough qualified and competent aviation professionals to support the future demands of the international air transport system.

NGAP's mission statement is: *"To develop tools and provisions for ICAO Member States and the international civil aviation community that will assist them in developing strategies to attract, train, educate and retain the next generation of civil aviation professionals at the global and regional levels."*

In October 2016 the 39th ICAO Assembly recognized that more qualified aviation professionals would be needed to support the growing aviation needs and to ensure the safe operation of the air transport system. The resulting ICAO Assembly Resolution A39-29 on NGAP urges States and industry to work together to ensure the gaps are filled.

The International Air Transport Association (IATA) expects 7.2 billion passengers to travel in 2035, double the 3.8 billion air travelers in 2016. This growth, while positive, poses some challenges:

WHERE CAN WE FIND AND HOW CAN WE ATTRACT ENOUGH SPECIALISTS TO SUSTAIN THE FUTURE REQUIREMENTS OF OUR INDUSTRY?

For the first time, in their "Global Market Forecast", Airbus has added its view on the need for MRO (Maintenance, Repair and Overhaul) activities and forecasts for pilot and technician training. Based on their forecasts, in the next 20 years there will be a need for 562,300 new pilots, and for the first time, 540,600 technicians.

According to IATA, the aviation industry employs nearly 9 million people worldwide, a figure that includes a broad range of occupations, such as: pilots, cabin crew, air traffic controllers and airline managers, CAA Inspectors, freight and cargo supervisors, security officers, airport managers. And the list goes on.

DO WE NEED PROFESSIONALS IN ALL THESE FIELDS? HOW MANY PEOPLE? AND WHEN DO WE NEED THEM?

Taking into consideration the evolution of the aviation industry and the forecasts, to ensure there will be enough qualified and competent aviation specialists to sustain the future international air transport system, we have to attract new professionals to our field. But to establish how we attract, train and retain them, we first need to know what we want, based on what we need. We need a strategy,

and in order to build a realistic one, we need to answer some of these questions:

- Do we want to attract and train experienced professionals from other domains or new young people without any experience?
- Where do we find them? Where should we go to attract them (i.e. schools, universities)?
- For what professions do we want to attract new specialists (pilots, cabin crew, air traffic controllers, security personnel, CAA inspectors)?
- When do we need these professionals? In one year, 10-years?
- Why are young people not attracted to aviation (what are the main push-back factors)?

While we cannot solve all issues all at once, to identify the main push-back factors, we have to try to understand where to find the specialists in order to train and retain them, and we have to identify the challenges that come with possible solutions.

HUMAN RESOURCES IN AVIATION INDUSTRY ARE CURRENTLY COMPRISED OF THREE MAIN GROUPS:

1. **New recruits (without any experience)**
   They can be recruited from schools (vocational schools, universities) and other domains and, if we take in consideration the international aspect of aviation, States can recruit them from neighboring States. Recruiting new candidates could be a solution if we have a long-term strategy since attracting and training them requires a considerable time investment and poses some challenges:
   - Only a small part of the curricula is recognized by the aviation system (authorities) even if they are coming from aviation specialized vocational schools or universities;
   - They don't have practical experience; and
   - If they are coming from neighboring countries, the education gained in their national educational systems may not be recognized (i.e. mathematics, physics), so they would have to start over from the beginning.

   All of these factors are a push-back for the many viable candidates who tend to choose other technical domains.
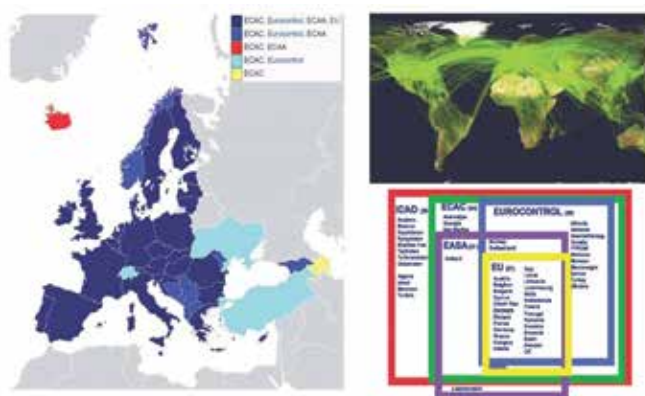
2. **Middle-age Workforce (experienced professionals)**
   They are overworked and constantly challenged to keep up with industry and regulatory changes, and often when we do have to train them, we don't know how to do it! Based on which regulation? For which area: national, international, regional (see Figure 1)?

3. **Experienced experts (on the verge of retirement)**
   Investing in training for personnel on the verge of retirement is not a long term solution; a better investment would be to train them to become trainers.

While there have been many discussions about what has caused the shortages, from an increased number of 'soft skill' degrees to a lack of awareness of aviation opportunities, it is the solution to the problem that the entire industry must focus on now.

To increase the number of new professionals entering the aviation industry, there is a need for a clear strategy based on the local needs of each State and regional and international cooperation between:

- **Regional and National Education entities (Vocational schools and universities):**
  - for mutual agreed teaching and training standards, and
  - for a mutual recognized syllabus adjusted to fulfill the industry requirements
- **Training Providers, National Educational System and the Civil Aviation Industry:**
  - to raise the quality of training through practical experience;
  - to develop new training;
  - to develop new training programmes (which are not presently regulated).
- **Training Providers, National Educational System and the Civil Aviation Regulators (NAA, FAA, EASA, RSOOs, etc):**
  - to find better solutions for mutual recognized training standards
- All of the aviation community players:
  - to promote the aviation industry in order to attract new and young people
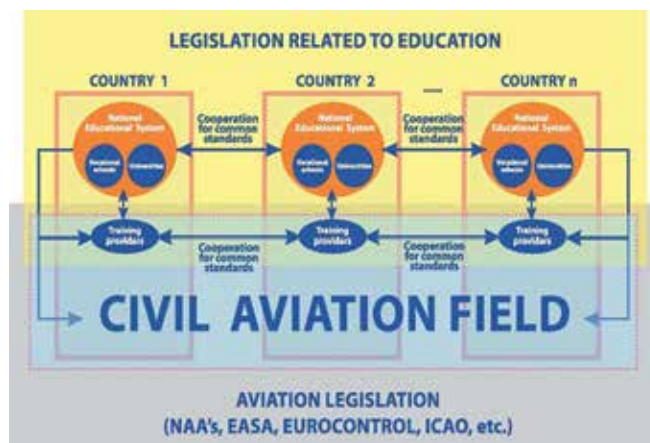

Figure 1

Figure 2

Taking these aspects into consideration and the fact that ICAO Assembly Resolution A39-29 highlights the need for developing forecasts, strategies, best practices, planning tools, and guidelines for engaging and cultivating the next generation of aviation professionals, in December 2016, a
new working group was added to the ICAO NGAP Programme: The **NGAP Strategies and Planning Working Group**.

Establishing this working group is a necessity in linking the existing NGAP Working Group activities to the mandates given by ICAO's Member States, and in ensuring the new working group develops guidance that will assist the States in developing and implementing effective strategies to attract, educate, and retain the next generation of civil aviation professionals.

The project schedule will include and link together existing elements with new ones, beginning with forecasts; covering strategies; developing tools; sharing best practices; and finalizing guidance material – such as a template of an Action Plan that each State can adapt for its own needs.

To successfully achieve this objective and deliver a useful and realistic tool to States, this project needs not only the support of the NGAP team, but also the involvement and support of experts from industry, academia and training organizations.

Even if we have all come with different aircraft, now we're in the same airplane, travelling in the same direction.

TRAINING PROVIDERS

OTHER ORGANIZATIONS

INTERNATIONAL REGULATORS
NATIONAL AUTHORITIES
ENGINEERS

PILOTS
ATC

UNIVERSITIES

developing aviation and a safer way to fly.

None of us can do it alone! Let's start to work together!

Just as an airplane needs several components working together to be able to fly, the stakeholders from various aviation fields need to cooperate to be able to evolve for progress. All of us: Airlines, Airports, ATC, International Regulators, National Authorities, Academia and Training Organizations we're in the same airplane, travelling in the same direction: we are building a new generation of Aviation Professionals! ■

CONNECT WITH US

GET ON BOARD
WITH NEXT-GENERATION
EXECUTIVE EDUCATION

SANDRA NICHOL
She is the Executive Director of Concordia's John Molson Executive Centre (JMEC) in Montreal, Canada. She holds an undergraduate degree in Biology from the University of Saskatchewan and an MBA from HEC Paris. As a dynamic, entrepreneurial leader and change agent, she is passionate about using her 17 years of international experience (three years in Australia, 12 years in France, four years in Qatar) in the fields of research and education to help executives and organizations during periods of change, growth, or realignment.

Over the last two decades, the aviation world has evolved immensely and the industry has introduced a number of new regulations. To meet these new requirements, aviation leaders have had to learn how to adapt quickly to change, with many of them taking part in development programmes to ensure that they have the necessary, up-to-date knowledge to stay competitive in an ever-changing industry. Taking the higher learning route has a positive impact on the careers of participants, on the organizations they represent, and on the aviation industry as a whole. We are Concordia's John Molson Executive Centre (JMEC), and we are taking aviation management training to new heights.

At JMEC, we believe that to develop change-makers, you need to be one. We promote a forward-looking approach to education by using creativity, innovation, collaboration and empowerment as key topics in an environment focused on encouraging next-generation thinking. As the needs of our business community evolve, we are fueled by the commitment to serve and empower it with relevant and transformative learning experiences. At JMEC, our approach to delivering next-generation executive education is rooted in, and aligned with four of Concordia's nine Strategic Directions:

2

TEACH FOR TOMORROW
Deliver a next-generation education that's connected, transformative, and fit for the times.

4

MIX IT UP
Build agile structures that facilitate intellectual mixing and internal collaboration.

5

EXPERIMENT BOLDLY
Be inventive and enterprising in creating tomorrow's university.

8

GO BEYOND
Push past the status quo and go the extra mile for members of our community.

Higher learning in aviation management generates positive impacts such as career advancement, exposure to different cultures and professional networking. The value it provides is nothing new, but we have added our own personal touch to the aviation executive education industry with the following courses:

AVSEC: A HYBRID-LEARNING EXPERIENCE
Aviation security needs management personnel with the skills to work in multi-cultural teams and environments. The Aviation Security (AVSEC) Professional Management Certificate (PMC) was created in partnership with the International Civil Aviation Organization (ICAO) and is the first and only of its kind globally. Delivered on-line (10 weeks) and in-class (two weeks), the AVSEC PMC offers an intensive but flexible course load.

Your ticket to new opportunities:
- AVSEC is designed to provide specialized training focused on the critical and ever-evolving area of aviation security;
- The AVSEC Professional Manager designation from Concordia and ICAO is an industry-first certificate signifying your unique qualifications; and
- You will gain exclusive access to the AVSEC Professional Network – a collective of connected graduates and the source for practical and current industry learning material.

We offer a number of cohorts throughout the year in locations worldwide to accommodate as many leaders as possible. The programme is delivered in English and French, and this summer will be launched in Spanish. During the programme, each participant will have access to an online learning platform and will complete a number of readings and assignments in their own time, between two on-site weeks. This programme structure enables leaders to continue their career growth despite a demanding schedule. The synergy between on-site and online learning results in a programme that is convenient, relevant and impactful, no matter where it is delivered.

MANAGEMENT CERTIFICATE IN CIVIL AVIATION
Also offered in partnership with ICAO, this business programme is set on advancing aviation management skills and career. Launched last year, it was designed to help participants attain their professional development goals while meeting their career responsibilities. Delivered through a hybrid of online and classroom sessions, the programme consists of the following three certificates:
- Certificate in Strategic Management;
- Certificate in Human Resources Management; and
- Certificate in Business Planning and Decision-Making

Successful completion of all three provides the participant with a Management Certificate in Civil Aviation. Alternatively, each certificate can also be completed independently.

TAILORING YOUR CUSTOM SOLUTIONS
Montreal is one of the world's biggest aerospace hubs, making it a great destination for an organization's specialized needs. JMEC has the ability to specifically design customized programs to push a team's learning forward with our Aviation Management Custom Solutions.

> ## "Every system is perfectly designed to achieve exactly the results it gets."
>
> ### Don Berwick, MD MPP

A custom programme is a powerful investment. We guide our students through these five easy steps to provide them with the finest tailored solutions:

1

Step 1: The first meeting
Meet with an advisor who goes to the student's workplace or welcomes them to our state-of-the-art LEED-certified building. Our team is available to listen to their needs and we can also offer a complete learning and development needs assessment to help make the best use of their training budgets.

2

Step 2: Measure for fit
At this stage, a student's JMEC advisor will assess his organization's learning needs to make a custom solution fit. It is important to maintain open communication at all stages of programme customization. By asking questions and providing feedback, students are assured the solution will meet the needs of their organization.

3

Step 3: Personalized solution
The beauty of the custom solution is that it adds personal touches to make every programme unique. This has a big impact and ensures that a programme creates value for the organization. Whether at our campus, their

office, online, or any other location they choose (creativity is encouraged!), flexibility is key when it comes to our training. Even the time and day of the week is the decision of our students.

4 Step 4: Delivery stage

We'll get our students to start flexing brainpower with some pre-programme preparation work (exercises, case studies, articles) so they will be prepped and ready for the group discussions to come. From business cases to team exercises, we deliver a personalized curriculum that's relevant and geared towards individual business and organizational objectives.

5 Step 5: Reflection

How did we do? When the programme is complete, we compile and provide participants' feedback. Detailed reports also include a programme summary, any additional needs that have been identified, and specific recommendations regarding how to transfer the newly-acquired knowledge and skills to the workplace.

At Concordia, we have some incredible resources at our fingertips:

CONCORDIA INSTITUTE OF AEROSPACE DESIGN AND INNOVATION (CIADI)

15 years of leading-edge learning and research. Inaugurated in 2001, CIADI delivers leading-edge skills to engineering students in the field, emphasizing multi-disciplinary and evolving technologies. It was the first institute of its kind to offer learning opportunities that met industry demand by encouraging students to get their hands dirty and learn about the field up close. Since its inception, the institute has provided hands-on training and internship opportunities to hundreds of students.

Over the past decade and a half, the programme has helped many Concordia students go on to promising careers in aerospace. Other universities have modelled their programmes on CIADI's success. In turn this led to the creation of the

Montreal Aerospace Institutes (MAI), which brings together the aerospace industry and six Quebec universities.

CIADI has been so successful in its mission that aerospace has become a signature area for the university. Building on its success, the institute renewed itself in 2015, creating a research platform across the university that brings together researchers in aerospace to expand, promote and support research in aerospace at Concordia.

Last year, the Faculty of Engineering and Computer Science launched a BEng in Aerospace Engineering to meet increasing demand for programmes in this field.

AVIATION THINK TANK

A new Aviation Think Tank, launched last September, will advance innovative ideas and propose evidence-based policies to support growth in the dynamic aviation industry. As the first of its kind in the world, the think tank convenes researchers and industry professionals to facilitate exchanges on key issues of strategy, business practices, and policy development for the benefit of the aviation industry and its diverse public and private stakeholders. ◼

"The Aviation Think Tank will provide a dynamic platform for dialogue to address the priorities of business, government and the public on issues ranging from sustainability to profitability."

- Concordia President Alan Shepard

MANAGEMENT CERTIFICATE IN CIVIL AVIATION

Offered by Concordia University's John Molson School of Business in partnership with the International Civil Aviation Organization (ICAO).

LAUNCH: Fall 2016

OVERVIEW

The objective of this aviation-centric management programme is to enhance the competencies of qualified personnel in the civil aviation community while promoting best practices with ICAO's TRAINAIR PLUS Programme and global aviation training activities. The programme will be taught at a level equivalent to that of a graduate business programme and will consist of three certificates: Strategic Management, Human Resources Management and Business Planning and Decision-Making. Successful completion of all three certificates will lead to a Management Certificate in Civil Aviation.

WHO IS THIS PROGRAMME FOR?

Aviation professionals and managers from Civil Aviation Authorities (CAAs), airlines, aerodrome operators, and other service providers.

MODE OF DELIVERY

Courses will be delivered using a hybrid format combining classroom sessions and e-learning, allowing participants to continue to meet their career responsibilities. Classroom sessions will be offered in all regions to accommodate large participation from ICAO Member States and aviation industry, and to keep course fees at reasonable level.

MANAGEMENT CERTIFICATE IN CIVIL AVIATION

THE CURRICULUM

Certificate in Human Resources Management

Online – April 3 to 30, 2017

- Introduction to Human Resources Management
- Organizational Behavior
- Training and Development
- Staffing and Succession Planning

Classroom – May 1 to 5, 2017 – ICAO HQ, Montreal, Canada

- Leading Self
- Leading and Mobilizing Teams
- Cross-Cultural Communication
- Performance Management
- Leading Change

Certificate in Strategic Management

Online – September 18 to October 15, 2017

- International Civil Aviation System
- Strategic Planning and Innovation
- Reputation Management
- Finance for Strategic Decision-Making

Classroom – October 16 to 20, 2017 – JAATO, Netherlands

- Crafting and Implementing a Winning Strategy
- Leading Change
- Managing Across Cultures
- Business Ethics
- Integrative Group Assignment and Presentation

Certificate in Business Planning and Decision-Making

Online – November 6 to December 3, 2017

- Business Analytics
- Marketing Management
- Management Accounting and Budgeting
- Managing Information Technology

Classroom – December 4 to 8, 2017 – ICAO HQ, Montreal, Canada

- Business Planning and Forecasting
- Project Management
- Creative Problem Solving
- Risk Management
- Simulation

DURATION

Six (6) weeks per certificate
Four (4) online, one (1) in person and one (1) for final exam

LANGUAGE

English

FEES

$3,000 USD per certificate

REGISTRATION

concordia.ca/jmsb/aviation
aviation@concordia.ca
Tel.: + 1 514-848-3960
Toll-free: 1 866-333-2271

PARTNERING FOR SUCCESS

GUY BRAZEAU
He is presently Director, IATA Training and IATA Consulting and has more than 40 years of experience in aviation, 30 of which have been at the international level. Over the years, in addition to occupying a number of senior management positions within IATA, Mr. Brazeau has worked as a project director, lecturer and/or consultant in more than 50 countries on airport, airline and civil aviation-related projects. In addition, he was also recently a lecturer of the Airport Management course at one of Canada's most prestigious educational institutions, McGill University.

Though we are a global trade association with a major presence in aviation training, at the International Air Transport Association (IATA) we recognize the challenges that world coverage entails, since we do not have all the competencies or resources we need to meet our own organizational training objectives. Fair to say that we are not alone in this dilemma since most international organizations are facing the same challenge. One way that we tackle this and get ahead is by developing strategic partnerships with other training organizations and businesses related to our industry, to increase the range of available and skilled resources. When the right alliances are made, the overall offer is enriched with additional elements, building on all of our capabilities to provide quality training to industry professionals worldwide.

ADAPTIVE BUSINESS MODELS

For these collaborative structures to work, a clear and transparent strategy is required, one that will identify the roles and responsibilities of each partner in each level of the partnership, sharing risks, resources and skills that benefit each partner as well as the community at large. These partnerships are important mechanisms for achieving complementarity and in ensuring there is no wasteful duplication of effort, allowing us to share our resources and knowledge.

Since training organizations will adopt various business models, the nature of our global industry forces us to also take into account distinct geographical and cultural nuances.

HOW DOES IATA TRAINING FACILITATE THE ADOPTION OF GLOBAL STANDARDS?

The countries with the greatest projected growth in our industry are emerging markets; they have prompted us to further adapt our business model to ensure there is global access to high quality aviation training, particularly in the area of safety. This follows ICAO's mission to ensure 'No Country is Left Behind' and that there is consistent implementation of ICAO Standards and Recommended Practices (SARPs) around the world. We need to make sure that we build capacity to reach each and every one of these markets.

IATA is meeting this challenge with our International Airline Training Fund (IATF), with a mandate to bridge the training gaps for airlines in regions of the world where it is most needed. The Fund gives priority to training in airline operational safety.

HOW HAS TECHNOLOGY HELPED PAVE THE WAY FOR PARTNERSHIPS?

Advancements in technology and greater connectivity have created opportunities for developing new partnerships and reaching even more prospective students globally. To do this in the most efficient, strategic and cost-effective way, our business model has evolved to include partnerships with other training schools, businesses and academic institutions in areas where we do not already have a physical presence on the ground, and where these partners can offer substantial benefits. Through simplified contractual arrangements, we are now able to incorporate them into our training offering, some of whom may have previously been unavailable to us.

Access to technology is also vital for our partnerships to work: for communication, teaching materials, mobile learning and more recently as we

expand the implementation of online exams. Today, IATA has 125 locations globally where exams are held four times per year. Though until recently these exams have been paper-based, access to technology and greater connectivity is enabling us to move to online exams, and the benefits of this are many. For the business they provide security and confidentiality with the exam itself, retaining its commercial value; cost savings in terms of administration; consistency; and a high level of transparency, which is especially important when it comes to subjects such as safety and dangerous goods. For the student they provide better access and greater flexibility, as well as standardized grading, and fast results.

HOW DO WE DEVELOP PARTNERSHIPS?

Training partnerships are commercial transactions, requiring legal contracts that bind partners to specific inputs and actions. These agreements focus on the overall aims, specific goals and implementation of the training to ensure they meet the necessary high standards of the parent organization. It's important that the expectations of the local partner meet those of the parent organization.

There are five stages[1] in the process of developing a partnership:

1. Identifying the need and potential partner to meet that need;
2. Planning the strategy and partnership agreement;
3. Selection of the main projects and implementation mechanisms;
4. Implementation of the partnership and strategy; and
5. Evaluation, which is the deciding factor to continue, modify or close the partnership.

WHAT TYPES OF TRAINING PARTNERSHIPS EXIST?

There are four main categories of partnerships that meet the needs of the parent training organization: knowledge partners, authorized centers, accredited centers and technology partners.

Knowledge Partners are able to bring in an area of specialization that the parent may lack, and where the training content is shared and developed jointly. The certification or diploma could be joint, and each programme is customized by experts on either side. Typical knowledge partners would include universities, academic institutes and industry experts.

Authorized Centers are an extension of the parent organization. They provide the location and local knowledge through their instructors who deliver training on behalf of the parent organization. The key factor here is that the 'intellectual property' remains with the parent organization. The authorized centre may enhance and customize the content to suit local requirements after due approvals are sought and granted.

Accredited Schools require a lot of control and nurturing. While the parent organization puts its name on the final product, the content stays with the partner. The global diversity, cultural and pedagogical differences may make managing such a partnership a challenge, especially when the goal is global standards.

Technology Partners play an ever increasing role in today's training as the demand for eLearning and virtual classrooms continues to grow. While technology partners provide the tools and channels to deliver training, the parent organization retains the responsibility of the content.

WHAT ARE THE BENEFITS OF PARTNERSHIPS?

In the long term, partnerships can improve effectiveness and efficiency, as well as commercial gains. IATA has focused on building strategic training partnerships that bring benefits to both parties by building capacity in our industry. Partnerships create stability, cultivate trust, build local confidence and minimize risk. In parallel, the partners retain their autonomy. Partners are chosen for their location (including market access), and their pool of instructors who have local industry knowledge and expertise. Local instructors also have the benefit of understanding cultural nuances, something that positively impacts the delivery and absorption of training.

In 2016, IATA's training partners recorded student enrolments from 156 countries, reaching 80% of all countries globally! Our partners are a major contributing factor to this success and without them, this would not have been possible.

HOW DOES IATA CELEBRATE PARTNERSHIP SUCCESS?

IATA has a network of more than 450 training partners globally, which is made up of Accredited Training Schools, Authorized Training Centers and Regional Training Partners. Each year they are invited to attend the Global Training Partner Conference, which is designed to continue engagement to strengthen the partnership and better understand their needs. It is an opportune time to jointly discuss how we can work together more effectively, share best practices, and exchange ideas on emerging trends and opportunities in the travel and tourism, aviation, and cargo areas.

The 2016 conference was held in Dubai in October and attended by 100 delegates. They represented 70 institutes from 40 countries, including airports, airlines, academic institutions and training partners. Panel discussions included 'Engaging the Millennials', 'Training Matters', and 'Skills Gaps in the Aviation Industry'. Each year IATA uses this occasion to recognize our top performing training partners who are invited to join the 'Premier Circle'. This is an elite membership for those partners who achieved impressive results in training a large number of students, who demonstrated professionalism in delivering IATA training programmes, and commitment to student success.

IATA's steadily growing professional network of training partners is a fundamental part of our success, and helps us train over 100,000 professionals and students each year. Our partners are an integral part in our vision to be the leader in developing professionals for tomorrow's air transport industry. ■

NOTE

[1] McQuaid, R.W. (2000) "The Theory of Partnerships - Why have Partnerships", in: S.P. Osborne (ed.), Managing public-private partnerships for public services: an international perspective, (Routledge, London) pp. 9-35

TRAINING NEEDS ASSESSMENT – DESIGN

KEVIN CARON

He is the Head of the Global Training and Developing Nations Airport (DNA) Assistance Programme for ACI World. He serves on the ACI-ICAO Airport Management Professional Accreditation Programme (AMPAP) Steering Committee as ACI Team Leader. Prior to ACI, Kevin spent eight years with the Montreal Airports Authority (Aéroports de Montreal) before joining IATA in 2003, where he held two training management positions in security and airports.

In my last article I highlighted the importance of conducting a training needs assessment (TNA). Though in this article I'll walk you through some design ideas related to the TNA, I would encourage you to consult the many articles on the web that provide additional examples.

The process we use to manage a TNA is dependent on the organizational culture (how things are done at your airport). To that end, centralizing the process won't work if your training budgets are distributed across the various airport departments, and there is no point in delegating responsibility for the TNA process if managers have no authority to offer solutions to meet needs.

It's important to note that prior to developing any survey, you should carefully consider the potential end result, and how you will process the data received from the TNA – proper preparation of the survey is key as this will allow you to be more efficient in analyzing the results.

You can find several survey tools out there, from the free ones like *Survey Monkey* that we use at ACI, to professional survey packages that can handle web and paper. While the free services work well, I know from personal experience that they sometimes cost you more time when you conduct the analysis. Some of the pay-for-tools can do much of the analysis for you and may work out to be more cost effective, it really depends on your capacity. A last option is to outsource the service; ACI provides regular advice to its members on all options.

Perhaps this would be best illustrated by giving you a concrete example of an issue that has been raised at the Airport Safety Committee, concerning the an increase in incidents/accidents related to holders of Airport Vehicle Operators Permits (AVOP). The first stage involves data collection using a well-documented reporting structure under the airport's safety management systems plan.

The next step is to confirm that safety is a key pillar of the airport's business strategy, along with the members of the airport community, ground handlers, airlines, fuelers, etc. This is key in preparing for the design since it provides the resources and executive level support with all concerned airside organizations. We would follow this with a review of the existing policies, procedures, regulations and skills by all current holders of the AVOPs. Remember, it's important to consider we are seeking to clarify what skills are required to drive safety airside, and not the operations of, as an example, a high loader.

Once this step is accomplished we would develop questions related to the training they currently receive and with the knowledge we have, the additional training they may require to address the problems.

Some questions to ask would be:
- Who do you work for?
  - List employers here
- Were you provided AVOP training by your employer?
  - If yes, how many hours?
- Is there recurrent training provided?
- Are you comfortable with the amount of training received?
- How long have you had an AVOP?
- What additional AVOP training do you propose (if any)?

- How familiar are you with the airport's airside driving directives?
  - Very familiar
  - Moderately familiar
  - Not familiar at all

Note: you could add questions as required to better qualify what the current competencies are, and what additional competencies are required.

The goal would be to run this survey for a defined period of time, say two weeks. In my experience, including a motivation to fill out the survey, such as an award or a prize, ensures you obtain the greatest amount of feedback.

Once you close the survey, you will need to schedule time to review the results with concerned parties in order to propose updates to current training, or identify the need for a new training programme. I would add that you may discover the issue is bigger than just training and therefore a proper review of policies, procedures and regulations related to airside directives may also be required.

A properly developed training needs assessment will help you spend your limited training budget in an effective way, and carried correctly, it will improve morale and efficiencies and ensure training is viewed as a strategic partner in your CEO's tool box. ■

ICAO Headquarters, Montréal, Canada, 16 - 18 May 2017   WSHRS2017

ICAO / ACI Wildlife Strike Hazard Reduction Symposium

A Global Strategy for Addressing Wildlife Strike Hazards to Aviation

For more information, please visit our website
www.icao.int/meetings/WILDLIFE

ICAO | ICAO   AIRPORTS COUNCIL INTERNATIONAL

Second Global Remotely Piloted Aircraft Systems Symposium (RPAS2017)

Licensing, training and operator responsibilities

ICAO Headquarters, Montréal, Canada 19 - 21 September 2017

Under the theme of *Licensing, training and operator responsibilities: Initial steps for RPAS/UAS entrance into the ATM environment*, the Symposium will provide an international platform for licensing authorities, training facilities, regulators, and the industry to exchange ideas and share best practices for the further development of an RPAS regulatory framework. Attendees will benefit from discussions regarding the developments leading to the new Remote Pilot Licence (RPL), implementation of approved training programmes, RPAS operations in the ATM environment (including safety risk management), the responsibilities of RPAS operators to conduct safe operations, and the impacts on human performance.

RPAS2017 will strive to provide a more detailed understanding of the ICAO provisions on remote pilot licensing and training. Additionally, it will be an opportunity for networking and collaboration between States, industry, and stakeholders in this rapidly developing field.

For more information, please visit our website
www.icao.int/meetings/RPAS-Symposium

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SAFETY

AIRPORT MANAGEMENT COMPETENCY BUILDING: THE ENTERPRISE PERFORMANCE ACCELERATOR

DR. PIERRE COUTU
He is the Delegated Administrator of the Global ACI-ICAO Airport Management Professional Accreditation Programme (AMPAP). He holds a doctorate in Education from Nova Southeastern University.

High-performance airports invariably excel in three main areas: infrastructure, operations and human resources. Recently leading airports have also been investing more substantially and systematically in the competency development of their staff.
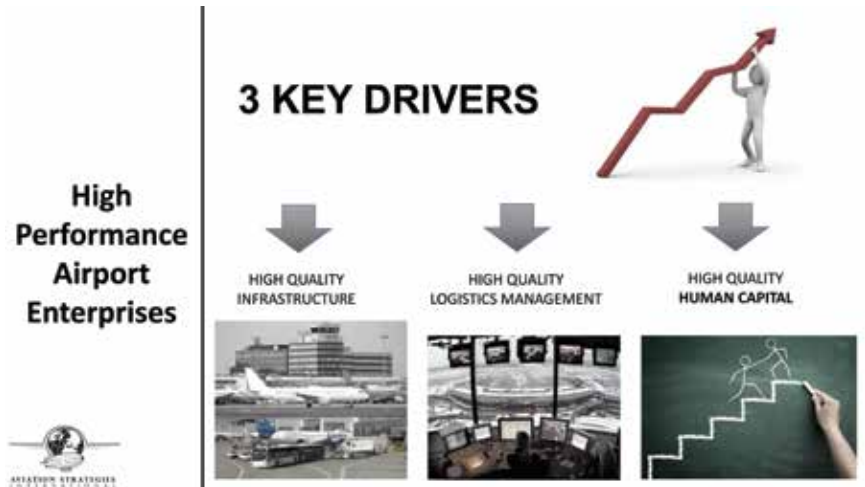
Though considerable energy and resources is traditionally directed towards airport infrastructure planning and the development of high quality facilities, lately we have also been witnessing noteworthy service improvements, thanks to major breakthroughs in technology, that allow the sharing of flight and passenger flow data in near real time. All of this translates into gains in efficiencies for handling airport logistics, both during normal and emergency conditions.

Top-rated airports around the world have well-designed facilities and excel in optimizing the use of these facilities in real time, even in adverse conditions, but it is worth noting that these airports are invariably also reputed for the attitude and competence of their staff. They are often rated as an "employer of choice".

COMPETENCY BUILDING MASTER PLANS

In terms of approach and methodology, investments in human capital parallel the logical flow of an airport infrastructure development strategy that is associated with an Airport Master Plan. They rest on a thorough analysis of existing staff competencies and are measured against the future performance requirements for human capital through a systematic assessment process. Such an analysis would

bring to light any gaps, but not all performance deficits that surface through a methodical organizational "x ray" result in a recommendation for training. Rather, it could illustrate a need to tweak systems and procedures or expand facilities.

There are two types of criteria that are used to base and conduct a gap analysis of an airport's performance: the first would be to determine the specific strategic and tactical objectives of the enterprise that is being assessed, while and the second criteria would, more importantly, involve benchmarking various elements against relevant industry standards and best practices.

One emerging industry best practice relates to the development of a Competency Building Master Plan (CBMP), which is specific to each enterprise and constitutes an evolution of a "traditional" comprehensive enterprise training plan. One distinguishing feature of the CBMP ties training activities directly to the performance targets of an organization, which would require strong justifications of returns on its investment (ROI). In other words, the CBMP constitutes a fundamental element of an entrepreneurial culture that leading airports espouse.

CBMP SUCCESS CRITERIA
Effective CBMPs display the following characteristics:
- They address all three levels of management – front-line, middle, and executive – in an interrelated manner;
- They incorporate a planned, structured use of external training activities that provide access to relevant managerial best practices, whether from pertinent areas of excellence in other industries, or from the air transportation sector itself. Examples of this would include aviation management graduate academic programmes like the ACI-Concordia Airport Executive Leadership Programme (AELP), the Global ACI-ICAO AMPAP, the ACI-ICAO Airport User Charges course and others;
- They integrate an internal, organization-specific and fully customized advanced airport management programme that combines a focus on the achievement of organizational priorities, the reference to contextually meaningful, recognized best practices and the development and/or improvement of critical, "high-payoff" management tools as part of the learning outcomes. They also feature a "coaching" dimension in all major functional areas to ensure that concepts and tools actually get implemented to the maximum extent possible;

- CBMP-listed activities related to programme design and delivery are resourced using senior managers from within the enterprise;
- One CBMP component targets high-potential supervisors who are likely to be promoted to a middle-management level in order to provide them with a deliberate opportunity to offer their suggestions for the betterment of the organization;
- They are tied formally and transparently to the succession planning programme of the enterprise;
- They clearly identify the anticipated returns on investment (ROIs) for each training activity included in the Plan, together with a realistic and meaningful measure of their success; and
- They feature a Competency Assessment Center (CAC) that integrates a battery of work-related situational simulations and psychometric tests which aim to determine the learning progression of airport management personnel, identify their development requirements and support the mapping of their individual career paths within the enterprise.

BREAKING DOWN FUNCTIONAL PROFESSIONAL SILOS
Now in its 10th year of existence, the Global ACI-ICAO Airport Management Professional Accreditation Program (AMPAP), (www.iap.aero) has earned its reputation for playing an important role in developing a new generation of airport management, and as a body of knowledge that could provide objective foundations for assessing an airport's performance and facilitating comparisons.

Over time, and from interfacing first-hand with the Programme participants and their nominating executives (i.e., airport CEOs), the AMPAP experience has revealed that functional silos (such as the departmentaliza-tion of airport managerial structures into semi-hermetic Safety, Security, Operations, Commercial and Financial Management units), form a serious impediment to the develop-ment of the "systemic" competency of airport professionals. This is no doubt a critical factor to consider when formulating a Competency Building Management Plan for an airport enterprise. ■

ANACPEDIA:

THE NEW TERMINOLOGY MANAGEMENT SYSTEM THAT SUPPORTS TRAINING AND EDUCATION

MARIA ELISABETH FARAH CORREIA NORÕES
She has a degree in journalism (Universidade Federal do Rio de Janeiro, 1982). In 1983, she joined the Department of Airspace Control in Brazil. For more than 30 years, she has been involved in creating, revising and editing existing technical manuals and documents, as well as organizing material and producing documentation according to set standards. To improve her work, she earned her Specialization in Translation at the University of São Paulo.

ADRIANA CESCHIN RIECHE
She works at the Department of Airspace Control (DECEA), in Brazil, translating and editing technical documentation. She holds a Master's Degree in Language Studies (PUC-Rio), and teaches Technical Translation and Terminology in the Graduate Specialization Course on Translation at the Pontifical Catholic University of Rio de Janeiro, Brazil (PUC-Rio).

FERNANDA SILVA
She is an employee of the Brazilian Civil Aviation Agency - ANAC. She graduated in Liberal Arts and has a Master's Degree in Applied Linguistics from the Federal University of Rio de Janeiro (UFRJ). She holds a Certificate of Aviation English Instructor/Rater from the Federal Aviation Academy (FAA).

The ANACpedia system (**www2.anac.gov.br/anacpedia/indexEnglish.html**) consists of online electronic dictionaries, in Portuguese, English and Spanish that contain some eight thousand aviation terms and acronyms. It was developed by the National Civil Aviation Agency (ANAC), the Brazilian Civil Aviation Authority, with the recent cooperation of the Department of Airspace Control (DECEA), the Aeronautical Authority responsible for controlling Brazilian airspace.

Since September 2013, when it was made available on the Internet, ANACpedia began to reach a larger and more varied public audience.

The professional goals of the DECEA team and the need for terminological work in the field of aviation coincided with the goals of ANACpedia. A partnership was established to improve and develop terminology products "facilitating information interchange, and in the integration of language resources for a knowledge-based society"[1] and to serve society as a whole, supporting training and education.

The ANAC and DECEA professionals involved in the system focus their activities, based on the theoretical perspectives of Corpus Linguistics and Socioterminology, to achieve terminological harmonization, conceptual precision, linguistic correctness and appropriateness of the term, aimed at effective communication.

OBJECTIVES

The primary objective of ANACpedia is terminological harmonization because it is important to have tools available in Portuguese, prepared by technicians whose mother tongue is Portuguese, so that the terminology is useful for Portuguese language speakers.

This is important work because, currently, sources of terminological references in Portuguese in the field of aviation, are scarce. Existing sources are often restricted to small groups and are not, as a rule, prepared based on appropriate terminology and linguistic studies.

ANACpedia is available online to the entire Brazilian population and to foreign audiences, making it an instrument of facilitation for users and offering free and unrestricted access so that the public can view the terminological data that is consolidated by the team.

SOURCES OF RESEARCH

The types of texts and publications used as research sources for the database are quite varied: International Civil Aviation Organization (ICAO) Annexes and

ANAC-DECEA team meeting for ANACpedia Technical Cooperation activities

Documents; official letters; aeronautical charts; circulars; dictionaries; decrees; guidelines; glossaries; civil aviation instructions; instructions from the Air Force Command; regulatory and supplementary instructions issued by ANAC; legislation; books; aircraft manuals; procedures manuals; works published by various associations; ordinances; publications from the US Federal Aviation Administration (FAA); regulations; reports; resolutions; and journals published by aviation authorities.

These sources offer real communications scenarios extracted from official publications written in the source language by subject matter experts in professional and educational contexts.

Information collected for research and inclusion in ANACpedia Online Dictionaries also comes from the interaction between the ANAC-DECEA team and aviation experts in forums, meetings, working groups, workshops, symposia, study groups and training events in general, as well as in the course of daily professional activities. This interaction offers the assurance that the language decisions are being made based on the information acquired in "specialized environments" through oral and written speech.

TARGET AUDIENCE
In 2015, a survey was conducted through the ANACpedia website, in order to identify the target audience, the degree of satisfaction and audience expectations regarding ANACpedia. This survey and a detailed analysis of the results, revealed a high degree of user satisfaction.

As well, ANACpedia users were from a variety of areas in the field of aviation, with special emphasis on airmen and airport personnel, ANAC service providers, aviation students, and professionals in the areas of translation, liberal arts and

languages, military personnel from Air Force Command, flight attendants, aeronautical engineers, aeronautical maintenance mechanics and aeronautical consultants.

It is important to highlight that a large proportion of ANACpedia users are made up of aviation students – training pilots, air traffic controllers, flight attendants, dispatchers, aeronautical mechanics, ground handling personnel, civil aviation services providers, to name just a few – which accentuates the educational and training support nature of the product.

ANAC has monitored access statistics for ANACpedia Online Dictionaries since 2015. Noteworthy is the high number of users from different countries besides Brazil: Argentina, Belgium, Canada, Cape Verde, Chile, China, France, India, Israel, Italy, Japan, Kenya, Portugal, Singapore, United Arab Emirates, the United Kingdom and Uruguay.

To disseminate ANACpedia Online Dictionaries to the broadest possible target audience, and to receive feedback from specialized professionals, the ANACpedia team has regularly participated in international forums such as the American Translators Association (ATA) annual conferences and the Brazilian Translators Association (ABRATES) events.

TRAINING AND EDUCATION
ANAC Training Website (**https://sistemas.anac.gov.br/capacitacao/**) includes a direct link to ANACpedia Online Dictionaries so that all Website users who wish to take training courses offered by the Agency can use ANACpedia for their queries related to aeronautical terminology in Portuguese, English or Spanish and to answer technical issues.

Through its Internal Training Programme, ANAC has developed a course called *Basic Aviation English for ANAC*, which is offered to Agency employees and to external Portuguese-speaking audiences. For the development of the course, as well as for student course work, ANACpedia is essential – a strong affirmation of its role as a tool to support training and education of human resources in aviation. ANACpedia will also be an essential part of the development of the *Intermediate Aviation English Course* and the *Advanced Aviation English Course*.

It is important to note that the ANAC-DECEA team has developed ANACpedia terminological entries based on Corpus Linguistics automatic research tools. Each entry includes, among others, the following fields: Definition of the Term, Source, Context and Aviation Sub-area that are fundamental to the training and education of the users, since they present not only information on equivalent terms in the languages used but also, and above all, reliable technical explanations. When available and taken from reliable sources, pictures and images are included in ANACpedia Online Dictionaries as an aid for term/acronym comprehension. It is important to note that all images are appropriately referenced.

Relying on a considerable number of terms and acronyms, one of the project goals at the moment is to enrich the information through the inclusion of more synonyms, related terms, hypernyms, hyponyms, aviation sub-areas and contexts of use and to establish semantic relationships, when possible. Priority is given to establishing relations between the terminological records, selection of contextual support and use documentation in specialized discourse. ANACpedia terminology management is an ongoing and dynamic task.

To the right is an example of the term *volcanic ash* that presents the essential information for the user who intends to learn more about the subject in English. Equivalent information in Portuguese is available for the user who consults the term *cinzas vulcânicas* in the Portuguese-English Dictionary.

Note that the Related Terms (*volcanic (ash) cloud; volcanic ash advisory centre; volcanic ash advisory information*) are clickable, which means that the user can access other terminological entries containing more information about the subject of interest.

FUTURE WORK
Through its structure, ANACpedia can accommodate a virtually endless number of possibilities for actions, activities, work, development of new dictionaries and databases, ontologies, classification systems, etc., not to mention academic studies on the Project.

Therefore, given the myriad possibilities, it is important that the team plans their actions in order to set priorities, while considering future work over the medium- and long-term.

The staff responsible for ANACpedia intends to publish Online Aviation Dictionaries in French-Portuguese/Portuguese-French and French-English/English-French. In addition, plans are being developed to launch a mobile application (AppANACpedia) in the near future. ■

NOTE
1   Pavel S., Nolet D., Terminology Manual, 2002, p.82. Available at: **http://linguisticadocumentaria. files.wordpress.com/2011/03/pavel-terminologia.pdf**. Accessed on: 12 Jan 2015.

Santos Dumont Airport, Rio de Janeiro, Brazil

Photo 1 – volcanic ash

Photo 2 – volcanic ash (continuation)

Main entry = volcanic ash
Definição 1 = Definition 1
Fonte 1 = Source 1
Fonte 2 = Source 2

Contexto = Context of occurance (Example of Use)
Subárea = Sub-area
Português = Portuguese equivalent
Imagem = Picture

ICAO RPAS Symposium - African and Indian Ocean (RPAS AFI)

Remotely piloted aviation into the global civil aviation system

The ICAO RPAS Symposium - African and Indian Ocean (RPAS AFI) with the theme *Remotely piloted aviation in Africa: sharing experiences and challenges* will be held from 17 to 18 July 2017 at the Sheraton Abuja Hotel in Abuja, Nigeria. The event will provide a unique opportunity for States, international organizations and stakeholders to share experiences in addressing RPAS operations across the African continent and Indian Ocean focusing on challenges to be overcome and benefits to be obtained, identifying how existing rules need to evolve to facilitate entrance of the RPAS community into the civil aviation system, examining alignment between ongoing RPAS development and supporting regulatory provisions.

The Symposium will also showcase the opportunities that will be created by the integration of RPAS into the global civil aviation system, enabling participants to leave with a greater understanding of the complex issues that need to be addressed collectively to facilitate integration.

Rule-making authorities, air navigation service providers, industry partners, international and humanitarian organizations and other stakeholders will have the opportunity to share knowledge and experiences. An industry exhibit will showcase the breadth of existing technologies and the thriving research and development activities currently underscoring this new sector of the aviation industry.

For more information, please visit our website
www.icao.int/meetings/RPAS-AFI

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SAFETY

THE INSTITUTE OF AIR NAVIGATION: HIGH LEVEL AVIATION SPECIALIST TRAINING

ROMAN MAMEDOV
He graduated from Kirovograd Flight School as an ATC Controller in 1970 and has worked as a controller, supervisor, and the ATM Director of a major airport. In 1978, he graduated from the Academy of Civil Aviation in Leningrad and subsequently became a researcher at the National Research Institute – Aeronavigatsia. Since 1992, he has been involved in the training of air traffic controllers process in various managerial positions. Since 2011, he has been working for the Institute of Air Navigation where he became the Institute Director in 2015.

The quality of operations personnel training in civil aviation is an important factor in ensuring the safety and efficiency of the air transport industry. With this principle in mind, the Federal State Unitary Enterprise – the State Air Traffic Management Corporation in the Russian Federation – decided to establish a not-for-profit educational institution in 2004: the Corporate Personnel Training Center of the Institute of Air Navigation (IAN).

In addition to the State ATM Corporation, more than 60 domestic and foreign companies in various fields are IAN clients for educational services including:

- Air navigation services providers (ANSPs) of the Commonwealth of Independent States (CIS) countries (State Unitary Enterprise – Tajikairnavigation, State Enterprise – Kazaeronavigatsia, State Enterprise – Kyrgyzaeronavigatsia and others);
- Airlines – Aeroflot, Gazpromavia, Lukoil Avia, Somon Air, Tajik Air;
- International airports – Sheremetyevo, Domodedovo;
- Moscow Aviation Center;
- Regional offices of Hydrometeorological Services; and
- Aeronautical information departments of the Russian Federation's airports and airlines.

Partners of the IAN are well-known, and include reputable organizations like the Scientific Research Institute – Aeronavigatsia, a branch of the Federal State Scientific Research Institute of Civil Aviation, Research & Production Corporation – Lianozovo Electromechanical Plant, a group of companies – Azimut, New Information Technologies in Aviation LLC (NITA), the State Research Institute of Aviation Systems, Research and Development Company – Radio Engineering Systems, Aerosoft-CA LLC, NPPF Spectr, Mikrolink Connection, the Moscow State Technical University of Civil Aviation (MSTUCA), the Moscow Aviation Institute (MAI) and others.

IAN is the leading training centre for professional training of air navigation personnel. The Institute is composed of various subdivisions that include: the Training Department, the Methodological Department, the Development Department, and branch offices, located in different regions of Russia: North-Western (St. Petersburg), Siberian (Krasnoyarsk), Volga (Samara), Ural (Tyumen), Southern (Rostov-on-Don), Far Eastern (Khabarovsk), West Siberian (Novosibirsk), Northern (Arkhangelsk), and Northeast Siberian (Yakutsk). The basic activity of the Institute is the organization of ongoing professional training, including training and retraining of air traffic management personnel and ATSEP.

ICAO TRAINAIR PLUS FULL MEMBER

In March 2015, IAN was recognized as a Full Member of the TRAINAIR PLUS programme, which unites leading educational civil aviation institutions of the world under the International Civil Aviation Organization (ICAO) umbrella. This demonstrates that our training is of high quality. In November 2016, ICAO conducted an audit of IAN compliance with the TRAINAIR PLUS programme membership requirements. The Institute passed the audit and received its membership renewal for three more years.

The Institution offers a variety of professional training programmes. On completion of a training course, students obtain a certificate in Russian, a certificate in English or an ICAO TRAINAIR PLUS certificate in English. Refresher training programmes are from 16 to 144 hours long and complete training programmes - from 256 to 2016 hours.

Training is carried out in accordance with the approved established procedures and programmes, and directed by the relevant department: the aeronautical navigation service and aeronautical information, air traffic management, ATSEP, management and administration.

Final evaluation of the students is carried out by a specially appointed Certification Commission. The Certification Commission is comprised of Institute instructors and invited external specialists, instructors from other educational institutions and representatives of the organizations on the training programme profile. The composition of the Commission is approved by the Director of the Institute, upon completion of the final evaluation, a trainee obtains a diploma.

DISTANCE LEARNING TECHNOLOGIES

The basis of the distance learning educational process is controlled intensive independent work of a trainee who has the opportunity to learn in an easy-to-access place according to an individual schedule, with a set of special tools and consistent contact with an instructor using a variety of technical means of communication. Given the vast territory of Russia, remote education using the advances in information and communication technologies is not only effective, but also very economical.

ENGLISH LANGUAGE COMPETENCY

Achieving English language competency is an integral part of overall aviation professional training, and its quality affects capacity, efficiency and flight safety.

In this regard, it must be recognized that the definition of a minimum level of English language proficiency for radiotelephone communication is of paramount importance. To evaluate the English language competency of personnel according to ICAO requirements, the IAN Language Department conducts qualification testing using the English Language Proficiency Evaluation Test (ELPET) followed by rating evaluation in accordance with the ICAO scale of language competence assessment.

IAN language instructors take refresher courses at the M.L.S. International College (Bournemouth, United Kingdom) every three years, and knowledge calibration at the IAN with invited professionals from MLS College.

Thanks to the IAN collaboration with MLS College, Language Department instructors have training in the UK and work with native speaking teachers in preparation and development of training packages. Our foreign colleagues also visit the IAN to conduct lectures, seminars and participate in other activities.

In view of global trends in the field of training and the progressive development of Internet technologies, as well as the constantly shifting timetables of air traffic controllers, the Department produces a series of video lectures allowing for independent extracurricular preparation for the qualification test.

INTERNATIONAL INTERACTION

In addition to training students from the CIS countries, the Institute actively participates in a broad range of international activities.

These activities are aimed at continually upgrading its system of professional training within the Russian Federation and greater integration in the global educational network. One of the key symbols of this cooperation and the acknowledgement of the high quality level educational activities was the recognition of IAN as an ICAO TRAINAIR PLUS programme Full Member. This has allowed the Institute to use Training Development Methodology in its educational processes, which has included a fundamentally new approach to organizing and conducting effective training of specialists in the field of civil aviation based on ICAO standards and recommendations.

The Institute and its branches participate in international activities in close collaboration with the State ATM Corporation and international organizations including ICAO, the Eurasia Coordination Council, the Interstate Aviation Committee (IAC), the Aviation Training Centres Association, and customers of educational services and foreign training institutions.

An important area of IAN international activity in aeronautical science is staff participation in international forums, conferences, seminars, fairs and exhibitions. Managers, instructors and other Institute staff participated in the following international forums, conferences and symposia in recent years:

- In 2010 the Institute was recognized as a member of the Aviation Training Centres Association and the International Association of the Top Managers of Aviation Enterprises (MARAP).
- Since 2012, the Institute has actively participated in the Eurasia Coordinating Council, ICAO and the Interstate Aviation Committee (IAC) meetings on the issues of training, testing and evaluation of aviation English proficiency.
- In 2013, for the purpose of exchanging experiences in organizing and conducting training, IAN trainers visited similar European aviation training centres, DFS (Germany) and IANS (Latvia).
- The IAN participates in activities of working groups of the Commission under the President of the Russian Federation on General Aviation development, as well as the Working Group of the Rosaviatsia on implementation QNH application in the Russian Federation.
- In 2013, according to Eurasia Coordinating Council meetings protocols, the IAN participated in the Organizing Committee on conducting the 3rd ATCOs Professional Skills International Competition of the member countries.
- In the same year our Institute took part in the 7th International Exhibition "Transport of Russia" and International Aviation and Space Salon MAKS - 2013.
- In 2014 the IAN participated in the World ATM Congress (Madrid, Spain) and the Annual International Seminar on Flight Information Services (Malmo, Sweden).

- In 2015 the IAN was active in various federal and industry events. The Institute participated in the sectoral Forum NAIS & CA - 2015 within the 2nd National Exhibition of Airports and Civil Aviation Infrastructure and Conference "Development of the Unified Air Traffic Management System".
- The Institute of Air Navigation presented its Exposition at the 41st Moscow International Exhibition *Education and Career* and received a diploma for its outstanding contribution to the development of vocational training, signed by the Minister of Education and Science of the Russian Federation.
- In the same year, the Institute participated in the International Book Fair of Paris (France), the Global Aviation ICAO Symposium on Training (Dublin, Ireland), and the International Aviation and Space Salon MAKS - 2015.
- In 2016, the Institute participated again in sectoral Forum NAIS & CA - 2016 of the 3rd National Exhibition of Airports and Civil Aviation Infrastructure.

Re-assessment of IAN compliance with ICAO aviation training centres requirements as a Full Member of the TRAINAIR PLUS programme became an important event for the Institute in 2016. Under the terms of membership, verification of the maintenance of high training standards is conducted every three years. Validation results once again confirmed the effectiveness of the Air Navigation Institute in administering aviation professional training on a regular basis. ■

Second Global Runway Safety Symposium
Lima, Peru, 20 - 22 November 2017
GRSS2017

Second Global Runway Safety Symposium

Improving runway safety through the use of innovative strategies, tools, and technology

For more information, please visit our website
www.icao.int/meetings/GRSS2017

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